Climate Action and Resilience Plan

Public Review Draft October 2022

CITY OF VENTURA
OUR VISION, OUR FUTURE

City of Ventura

Climate Action and Resilience Plan

Public Review Draft October 2022

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We would like to thank all the businesses, organizations, and residents who were generous with their time and ideas.

DISCLAIMER

This Climate Action and Resilience Plan (CARP) articulates broad policies to achieve equitable climate action. The CARP does not approve, fund, or authorize implementation of any specific projects. Each implementation program will be reviewed and approved over time and follow protocols for adoption, which may require additional public review, review by City Council, and/or environmental review under the California Environmental Quality Act.

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Chapter 1

Overview

Over the past several decades, communities around the State and country have taken local action to address climate change. This Climate Action and Resilience Plan (CARP) proposes focused solutions to reduce greenhouse gas emissions while advancing related goals associated with community resilience and climate adaptation.

Human-induced climate change is already affecting many weather and climate extremes in every region across the globe. Evidence of observed changes include heatwaves, heavy precipitation, droughts, and hurricanes.[1] California and Ventura are already experiencing the effects of a changing climate.[2] Both gradual climate change (e.g., sea level rise) and climate hazard events (e.g., extreme heat days) expose people, infrastructure, buildings and properties, and ecosystems to a wide range of stress-inducing and hazardous situations.[3] These hazards and their impacts disproportionately affect the most sensitive populations in the city.[4]

The extent to which Ventura is impacted by climate change is dependent on our actions today. By curbing greenhouse gas emissions and adapting our community to the already changing environment, we can significantly reduce the damages incurred from climate change. The City is in a unique position to become a regional climate leader by implementing city-wide policies, incentives, and education programs to deploy innovative technologies, to pilot regulatory mechanisms, and spark behavioral change to meet the deep greenhouse gas reduction targets established by the State of California. Ventura has prepared this CARP to be a guide for the community's response to challenges posed by climate change, and to build on the City's ongoing efforts to mitigate and adapt to the impacts of climate change.

[1] Intergovernmental Panel on Climate Change 2021. Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. Cambridge University Press. In Press.

[2] Hall, Alex, Neil Berg, Katharine Reich. (University of California, Los Angeles). 2018. Los Angeles Summary Report. California's Fourth Climate Change Assessment. Publication number: SUM-CCCA4-2018-007.

[3] State of California. California Climate Adaptation Strategy. 2021. Retrieved from https://climateresilience.ca.gov/

[4] Ibid

A History of Action

The City of Ventura has a strong history of taking environmental action. Residents, businesses, and community groups maintain a strong environmental ethic and work to conserve the ecological wealth of the community. While the City of Ventura has historically been a good steward of the environment, efforts to address greenhouse gas emissions have been decentralized. The City of Ventura's Environmental Sustainability Division was created in 2009 to bring all stakeholders to the table to create a plan for a more resilient, equitable, and energy-efficient future. Table 1 lists the plans, policies, and programs in place to enhance sustainability and become more resilient to climate hazards. More detailed plan and program descriptions are included in Appendix A.

Ventura Green Business Program

Table 1. Ventura's Key Actions to Support Sustainability and Greenhouse Gas Reductions

Year	Key Action
2007	City Council passed the "**Green Initiative,**" a ten-point action plan designed to reduce environmental impacts
2012	**Environmental Sustainability Strategy** (ESS) was developed
2012	Launched **Green Business Program**
2015	Published **Climate on the Move** report, which included a community-level GHG emissions inventory and a CAP template for the City
2018	Joined the **Clean Power Alliance**
2019	Created **Electric Vehicle Accelerator Plan**
2020	Adopted **City Tree Master**
2021	Established **Water Efficiency Plan**
2022	Preparing an **Active Transportation Plan**

What is a Climate Action and Resilience Plan?

The CARP is the City's strategic planning document that serves two distinct functions:

1. Acts as the City's **greenhouse gas reduction program**
   - Inventories current emissions, estimates future emissions, and establishes greenhouse gas reduction measures
   - Assesses the effectiveness of greenhouse gas reduction measures at meeting State targets
2. Defines **climate adaptation measures** consistent with the Multi-jurisdiction Hazard Mitigation Plan
   - Describes climate changes and identified potential vulnerabilities from climate hazards
   - Defines specific policies and actions for the City to implement to address those vulnerabilities.

Mitigation

Actions that are taken to reduce and curb greenhouse gas emissions

Adaptation

Actions to reduce vulnerability to the effects of climate change

The CARP establishes a shared vision for climate action. It is a short-range (5-10 year) implementation focused plan that outlines the strategies, policies, and programs that the City and community need to implement to reduce greenhouse emissions in line with State goals, and to build resilience to the impacts of climate change. It builds on the City's existing climate work from the General Plan, Active Transportation Plan, and Hazard Mitigation Plan and incorporates new and innovative practices.

Development of the CARP has been partially funded by the California Proposition 84 Integrated Climate Action and Resilience (ICARP) program. Starting in January of 2017, the Governor's Office of Planning and Research (OPR) built a Climate Adaptation Clearinghouse, which includes a library of case studies showing how local and regional partners are responding to climate change. The City of Ventura CARP development process will be utilized as a case study to the ICARP Climate Adaptation Clearinghouse about how and why communities, businesses, and organizations are responding to climate change impacts.

CEQA Qualified Plan

The greenhouse gas reduction targets specified by the State are consistent with substantial scientific evidence published by the Intergovernmental Panel on Climate Change (IPCC) and the United Nations Framework Convention on Climate Change (UNFCCC) regarding the need to reduce global greenhouse gas emissions to 80% below 1990 levels by 2050. This consistency is important for creating a "qualified" CAP. The concept of having a "qualified" CAP means that a CAP meets the criteria specified in CEQA

Guidelines Section 15183.5(b) for a plan for the reduction of greenhouse gas emissions, such that a "qualified" CAP may then be used for the specific purpose of streamlining the analysis of greenhouse gas emissions in subsequent projects. Local governments have discretion on what levels or targets are established in a "qualified" CAP, provided they address adopted policies and are based on substantial evidence. Most often, local targets align with the California Senate Bill 32 reduction requirement of a 40% reduction below 1990 levels by 2030 to achieve qualified status. The CARP greenhouse gas reduction program has demonstrated the ability to achieve a 40% reduction by 2030, if implemented as outlined in Chapter 4 of the CARP.

Relation to Other Planning Efforts

Development of the CARP complements Ventura's other long-range planning efforts including the General Plan Update, Active Transportation Plan, and Multi-jurisdictional Hazard Mitigation Plan. Measures in the CARP will be consistent with the relevant climate and resilience policies outlined in those documents.

- **General Plan Update**. The General Plan Update (GPU) is a long-range policy document that maps out how the City of Ventura serves its community. California law requires that every city and county in the state develop and maintain a General Plan. The GPU sets forth a shared 20-year vision for the future. It builds on community strengths and assets, while tackling new and emerging challenges like climate change. The CARP's greenhouse gas forecast and analysis is based on the GPU's growth projections.
- **Energy Action Plan.** The City of Ventura was in the process of developing an Energy Action Plan (EAP) in partnership with the Ventura County Regional Energy Alliance (VCREA) and the Community Environmental Council when the CARP process initiated. Focused on planning for greenhouse gas emissions reductions associated with the generation and consumption of energy, including electricity and natural gas, the analysis, policies, and implementation actions initially developed for the EAP have been integrated directly into the CARP. The EAP received funding from the California Energy Commission (CEC), Southern California Edison (SCE), and Southern California Gas Company (SoCalGas).

  Analysis, policies, and actions initially developed for the EAP have been integrated into the relevant sections of the CARP along with additional measures to round out the City's climate action approach.
- **Active Transportation Plan**. The City is developing an Active Transportation Plan (ATP) to incorporate bicycle and pedestrian mobility, suggested Routes to School (SRTS), and Complete Streets components, in an ambitious path toward increasing mobility options for all City residents. The ATP outcomes will feed directly into the City's General Plan update and are critical measures to reduce community transportation-related emissions as outlined in the transportation sector of the CARP.
- **Multi-Jurisdiction Hazard Mitigation Plan**. The Ventura County Multi-Jurisdiction Hazard Mitigation Plan describes hazard mitigation policies for landslides, flooding, wildfires, sea level rise, and drought. The CARP will include policies and strategies from this plan to increase the City's resilience to the climate hazards outlined in the Ventura Climate Vulnerability Assessment (Appendix C). Furthermore, incorporating these resilience measures into the CARP and GPU will satisfy the requirements of SB 379.

Community Engagement

The City of Ventura understands how crucial community input is in understanding and addressing climate change mitigation, resilience, and adaptation. Community members – residents, businesses, visitors, and others – offer unique knowledge, perspectives, and experiences navigating the impacts of climate shocks and stressors in the city. Community members will also be called upon to be active participants in climate mitigation and resilience measure implementation. The City created and executed a public participation plan to ensure that community members and other stakeholders had a diversity of opportunities to share their opinions and take part in the development of the CARP. This section describes the community engagement activities and the key themes heard during the process.

6
number of community engagement events

109
engagement event participants

1,925
survey participants

See Appendix B for detailed summaries of the engagement events.

Community Engagement Activities

The community engagement strategy included a multi-pronged approach to ensure participation of a wide range of stakeholders and community groups. Community engagement opportunities included in-person and virtual community workshops, online surveys, stakeholder meetings, and focus groups.

Project Website

The CARP information was part of the City's PlanVentura.com website for the GPU. The website was regularly updated throughout the CARP development process to include announcements of upcoming events, online survey links, and to share results and summaries of past events.

Online Surveys

Two web-based surveys were distributed to solicit information from the community at two distinct stages in the CARP development process. The first survey, distributed in fall 2021, was about the community experience with natural disasters and climate change. The second survey, distributed in summer 2022, was about greenhouse gas reduction measures. The surveys were available in English and Spanish and garnered a total of 1,925 responses.

Central Coast Alliance United for a Sustainable Economy (CAUSE) conducted targeted outreach and in-person canvassing with the survey to Spanish-speaking community members on the Westside.

Community Workshops

The City hosted two in-person and one virtual workshop in summer 2022. The first objective was to educate the community about climate change, the community's greenhouse emissions, and potential climate hazards and vulnerabilities in Ventura. The second was to receive input on the greenhouse reduction and climate adaptation and resilience measures to include in the CARP. There were forty-five attendees at the two in-person workshops and

thirty-five attendees at the online workshop, along with City staff members and members of the consultant team.

The in-person workshops included a series of boards about introduction to climate change, vision, greenhouse gas reduction sectors, and adaptation and resilience with activities facilitated by City and consultant staff. The online workshop included a presentation followed by small group discussions in breakout rooms. It featured live translation in Spanish and was recorded and uploaded to the website for those who could not attend.

Focus Groups

CAUSE conducted focus groups in summer 2022 to hear community members' thoughts on Clean Energy and Buildings and Land Use and Transportation measures. CAUSE hosted two focus group sessions, one specifically for youth and one for Spanish-speaking adults, which had a combined total of twenty-nine attendees. The sessions included a brief presentation on what contributes to climate change, and the different issues that contribute to climate change locally in their communities. Participants were then broken into two groups to have facilitated discussions about clean energy and buildings and land use/transportation challenges and solutions.

Social Media and Newsletters

The City used its social media channels (Instagram, Facebook) and email newsletters to disseminate information throughout the CARP development process. This included notice of upcoming meetings and invitations to participate in surveys. The City also used Instagram Live to host a live interview with R+A staff about the CARP.

Energy Action Plan Engagement

Engagement about energy efficiency, conservation, and generation was also conducted from 2018-2019 as part of the EAP. This process helped identify and refine goals, strategies, and actions for reducing energy consumption, increasing energy efficiency, and using more renewable energy. Community outreach and engagement activities included community surveys, a community workshop, tabling events, and stakeholder meetings.

Youth Focus Group

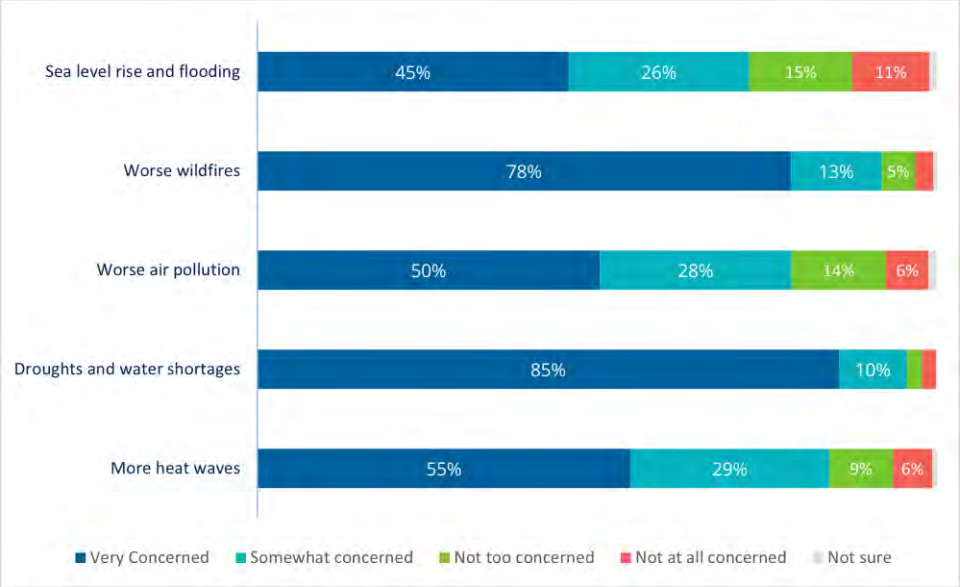
In-Person Open House

Summary of Community Engagement

Climate Hazards and Resilience

Community members expressed their experiences with recent natural disasters, thoughts on preparation for potential future natural disasters, and knowledge about climate change through the first online survey. Droughts and water shortages and worse wildfires were the most concerning climate change impacts for community members. Figure 1 shows the climate impacts of most concern to the community.

Figure 1. Most Concerning Climate Impacts



Source: Community Survey on Natural Hazards and Climate Change: Summary of Results

The most common impacts of wildfire experienced by community members was loss of power, cell phone reception, groceries, and work or income. Health impacts including mental health issues and cardiovascular illness from smoke were also reported. To improve the City's disaster response and preparedness, community members highlighted the need to expand the emergency communications network, developing local battery storage infrastructure to prevent power outages, and improving evacuation routes.

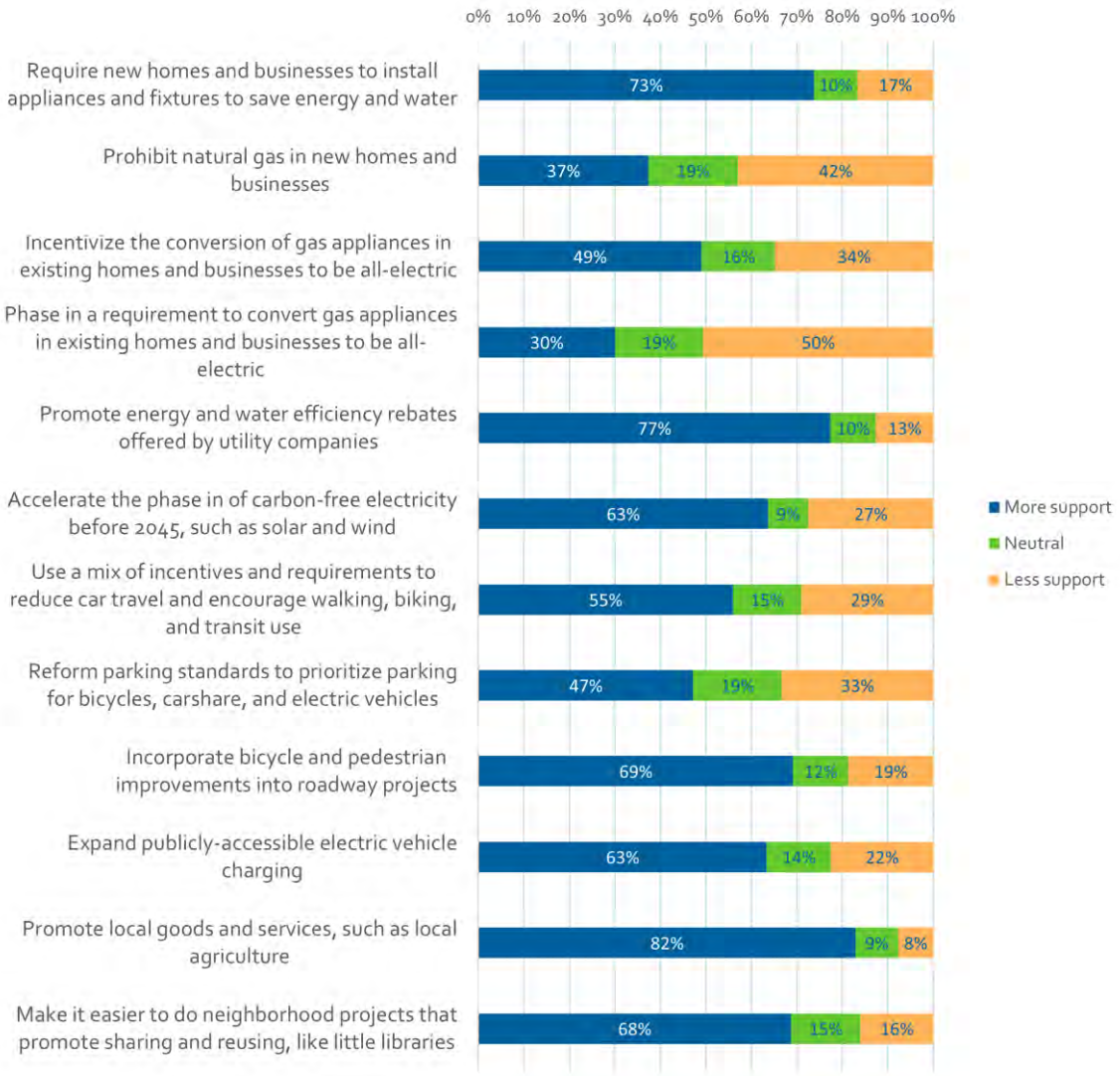
Community members identified habitat conservation and regulations for new development in shoreline areas subject to sea level rise as priority adaptation and resilience actions. Regarding shoreline regulations, community members stressed that they must be applied with nuance for diverse kinds of land use and infrastructure. Community members shared that they desire more education about local climate change impacts and specific actions they can take at home and in their communities. They also expressed their desire for City leaders to demonstrate climate leadership to guide and motivate them (especially Ventura's youth).

Greenhouse Gas Reduction

Community members favored the City taking a bold approach to meet or exceed State greenhouse gas emissions reduction goals. Community members prefer a mix of voluntary incentives and mandatory programs - or only voluntary programs and incentives - to encourage action. Highly supported energy policies include promoting water and energy rebates from utilities and requiring new development to install energy and water efficient appliances.

If the [Spanish-speaking] community was better informed about the Clean Power Alliance – what it is, how it works, and the benefits to our health and our environment – that more people would be willing to make the switch even if it's a bit more expensive. Adults also shared that the term "clean energy" is something they had not heard before.

Figure 2. Level of Support for Greenhouse Gas Reduction Policies



Source: Community Survey on Greenhouse Gas Reduction in the City of Ventura: Summary of Results

Equity and Affordability Considerations

Community members highlighted the challenges renters, low-income households, and Spanish-speaking individuals could face when implementing CARP greenhouse gas reduction measures. The main concern is about the cost to implement various upgrades especially related to building improvements. Another issue that arose is that renters have little agency over their homes and must rely on a landlord to implement improvements.

Making the transition [to electric] seemed particularly difficult for low-income families who are already struggling financially due to the housing crisis and high inflation. Participants also worried that costs for landlords required to upgrade their appliances would be passed down to renters via higher rent costs in a time when rent costs are alarmingly high.

As a result, the CARP includes funding and financing mechanisms to reduce the burden on disadvantaged communities. Additionally, through implementation of the CARP and ATP, the City will develop infrastructure that meets the needs of all and is inviting to everyone. For example, transit, walking, and biking infrastructure need to create a safe environment for all users.

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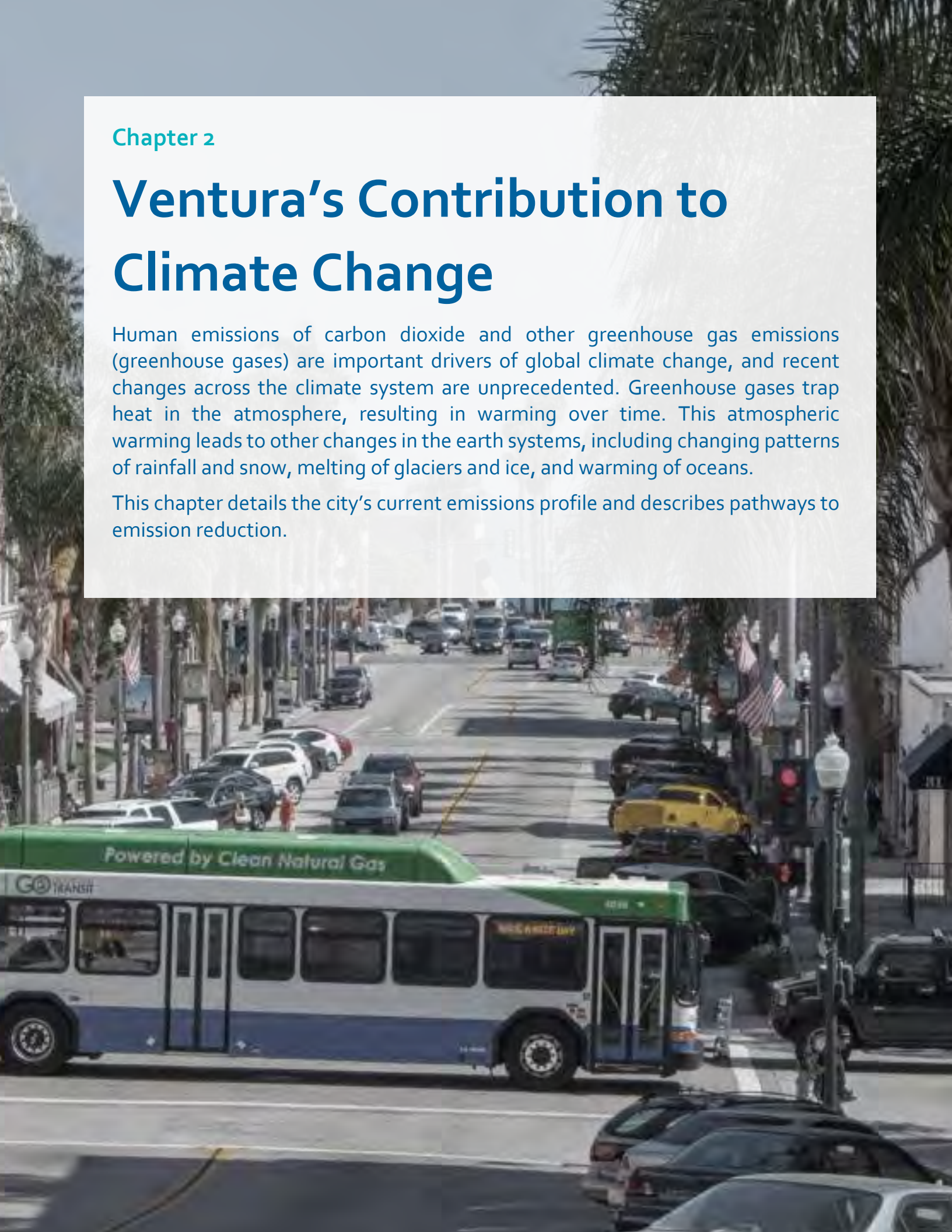
Chapter 2

Ventura's Contribution to Climate Change

Human emissions of carbon dioxide and other greenhouse gas emissions (greenhouse gases) are important drivers of global climate change, and recent changes across the climate system are unprecedented. Greenhouse gases trap heat in the atmosphere, resulting in warming over time. This atmospheric warming leads to other changes in the earth systems, including changing patterns of rainfall and snow, melting of glaciers and ice, and warming of oceans.

This chapter details the city's current emissions profile and describes pathways to emission reduction.



Current Emissions Profile

The 2019 community inventory serves as the foundation for projecting emission trends and informing measures and actions that the City needs to implement to achieve carbon neutrality by 2045. The City conducted its first inventory in 2015.The 2019 City of Ventura greenhouse gas emissions inventory captures communitywide emissions generated from transportation, energy consumption in homes and buildings, solid waste, water, and off-road transportation (e.g., emissions from construction, landscaping equipment) within the city. It was developed using the ICELI Global Protocol for Community-Scale Greenhouse Gas Emission Inventories.

The 2019 total community emissions were 546,513 metric tons of carbon dioxide equivalent ($MTCO_2e$), a 9% decrease from 2015 emissions of 598,478 $MTCO_2e$. This inventory is an estimate based on the best available data. As in 2015, on-road transportation was the largest contributor to total greenhouse gas emissions with an estimated 263,148 $MTCO_2e$ or 48% of the City's total 2019 emissions. Energy use including residential and nonresidential electricity and natural gas was the second largest sector with estimated emissions of 190,539 $MTCO_2e$ or 35% of emissions. The remaining 17% of emissions include solid waste, water, off-road transportation, and process and fugitive emissions (see Table 2).[5] Figure 3 depicts the proportion of emissions by sector for 2019.

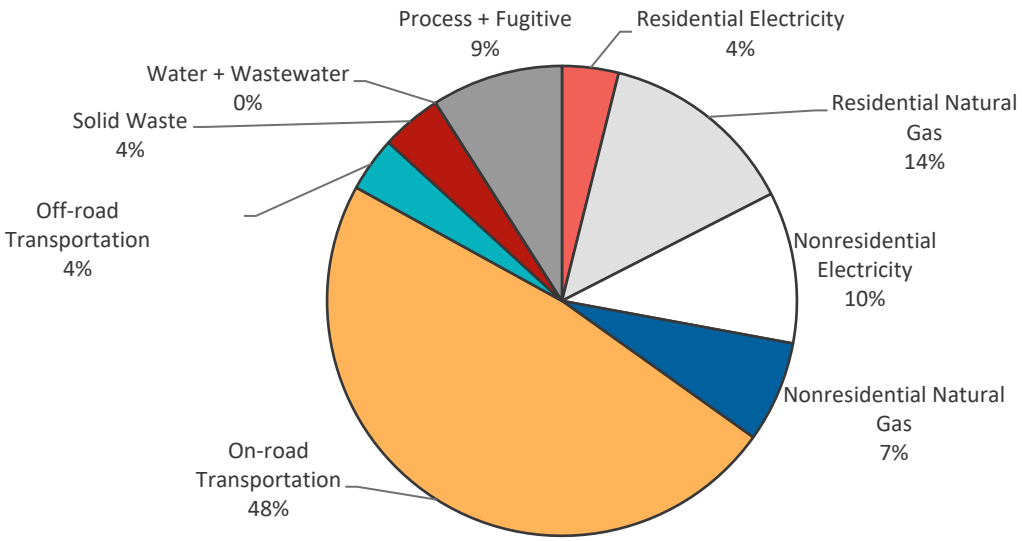
Table 2. Total Annual Community Greenhouse Gas Emissions by Sector in 2019

Emissions Sector	Subsector	Subsector Emissions ($MTCO_2e$)	Total Sector Emissions ($MTCO_2e$)	Percent of Total
Transportation	On-road Transportation	263,148	283,707	48%
	Off-road Transportation	20,559		4%
Residential Energy	Electricity	21,233	95,503	4%
	Natural Gas	74,270		14%
Nonresidential Energy	Electricity	56,989	95,036	10%
	Natural Gas	38,047		7%
Solid Waste		22,826	22,826	4%
Water + Wastewater		20	20	< 1%
Process + Fugitive		49,420	49,420	9%

Source: 2019 City of Ventura Community Emissions Inventory (2022)

[5] Process emissions generally include emissions from chemical transformation of raw materials and fugitive emissions. The chemical transformation of raw materials often releases greenhouse gases such as CO_2, CH_4, and N_2O. These processes include iron and steel production, cement production, petrochemical production, and nitric acid production, among others. Fugitive emissions refer to emissions of gases due to leaks or other unintended or irregular releases (US EPA 2008).

Figure 3. Total Annual Community Greenhouse Gas Emissions by Sector in 2019



Source: 2019 City of Ventura Community Emissions Inventory (2022)

In addition to a 9% decrease in overall emissions from 2015 to 2019, annual per service population emissions decreased by 9% from 3.6 $MTCO_2e$ in 2015 to 3.3 $MTCO_2e$ in 2019, while the service population increased less than 1%. The service area population is a sum of the populations that live and/or work in the city (population and jobs). These numbers show that despite consistent population and employment within the city, State, federal, and local greenhouse mitigation programs are achieving the desired reductions.

Pathways to Emissions Reductions

The bold targets set forth in this plan demonstrate Ventura's commitment to mitigating climate change and the adverse impacts it causes. Ventura has set the following greenhouse reduction targets to align with the State climate goals:

- 40% below 1990 levels by 2030 (Senate Bill 32)
- 80% reduction by 2040 (Interim)
- Carbon neutrality by 2045 (Executive Order B-55-18)

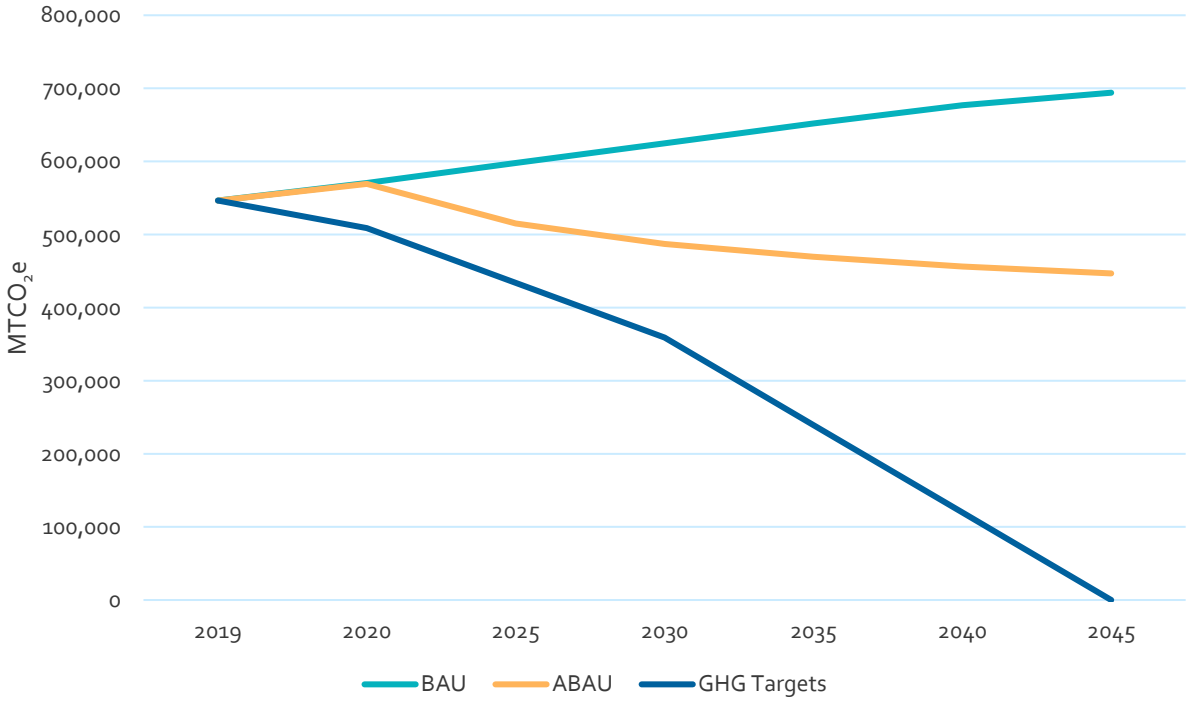
This CARP includes innovative strategies and actions to significantly reduce greenhouse gas emissions into the future—but technological constraints may prevent reducing emissions to absolute zero by 2045. The CARP will need to be updated in the future to reflect technological advancements, changes in State policy, and local attitudes and conditions.

Greenhouse Gas Emissions Projections

Two emissions forecasts were prepared to estimate Ventura's emissions from 2020-2045 as presented in Figure 4. These forecasts show the emissions reductions the CARP actions will need to achieve to become carbon neutral by 2045.

- **Business-As-Usual (BAU).** The BAU scenario projects future emissions based on current population and regional growth trends, climate patterns and their impacts on energy use, and regulations (federal, State, and local) introduced before the 2019 inventory year. BAU projections demonstrate the expected growth in greenhouse gas emissions if no further action is taken by the State or at the local level after 2019. Under this "do nothing" scenario, the City's emissions are estimated to increase by 29% by 2045.
- **Adjusted Business-as-Usual (ABAU).** The ABAU forecast shows how Ventura's emissions are anticipated to change accounting for the impacts of adopted State climate-related policies if no action is taken at the local level. Based on the results of the ABAU forecast, emissions are expected to decrease 18% by 2045.

Figure 4. Greenhouse Gas Emissions Reductions from CARP Mitigation Measures



Chapter 3

Our Changing Climate

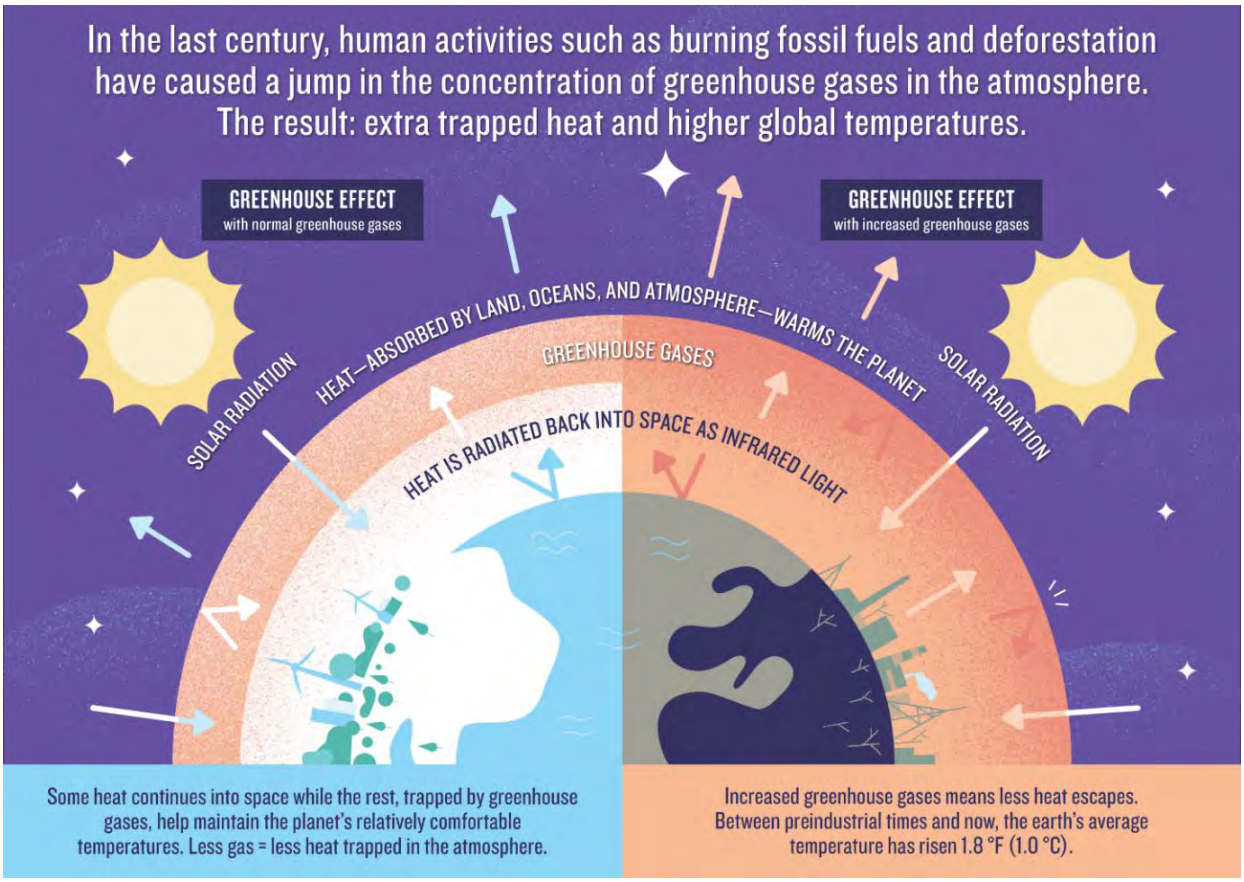
The City of Ventura recognizes that climate change is altering local climatic conditions and requires planning across sectors and industries to prepare for and mitigate impacts. Climate change is causing more severe temperatures and prolonged droughts, among other impacts. These circumstances can trigger dangerous events that imperil life and property, such as the Thomas Fire.

One of the primary objectives of this CARP is to prepare the community of Ventura for the impacts of climate change. This chapter summarizes the climate hazards the City is facing and will continue to face and the resilience and adaptation measures and sub-actions to reduce vulnerability to the effects of climate change.

Climate Change

Climate is the long-term behavior of the atmosphere – typically represented as averages – for a given time of year. This includes average annual temperature, snowpack, or rainfall. Human emissions of carbon dioxide and other greenhouse gas emissions (greenhouse gases) are important drivers of global climate change, and recent changes across the climate system are unprecedented. Greenhouse gases trap heat in the atmosphere, resulting in warming over time. This atmospheric warming leads to other changes in the earth systems, including changing patterns of rainfall and snow, melting of glaciers and ice, and warming of oceans. Human-induced climate change is already affecting many weather and climate extremes in every region across the globe. Evidence of observed changes include heatwaves, heavy precipitation, droughts, and hurricanes.[6]

Figure 3. The Greenhouse Effect



Source: NRDC (2019).

[6] Intergovernmental Panel on Climate Change 2021. Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. Cambridge University Press. In Press.

California and Ventura are already experiencing the effects of a changing climate. Both gradual climate change (e.g., sea level rise) and climate hazard events (e.g., extreme heat days), which expose people, infrastructure, buildings and properties, and ecosystems to a wide range of stress-inducing and hazardous situations. These hazards and their impacts disproportionately affect the most sensitive populations in the city, including children and elderly adults, low-income populations, renters, immigrants, and BIPOC residents, among others.

While climate projections cannot predict what will happen at a certain date in the future, projections can provide cities with information about what to expect from the climate in the future. For example, climate projections can estimate how much warmer the temperature will be in summer or how many more extreme weather events are likely to occur in the future. Climate projections, however, cannot forecast with precision when those events will occur.

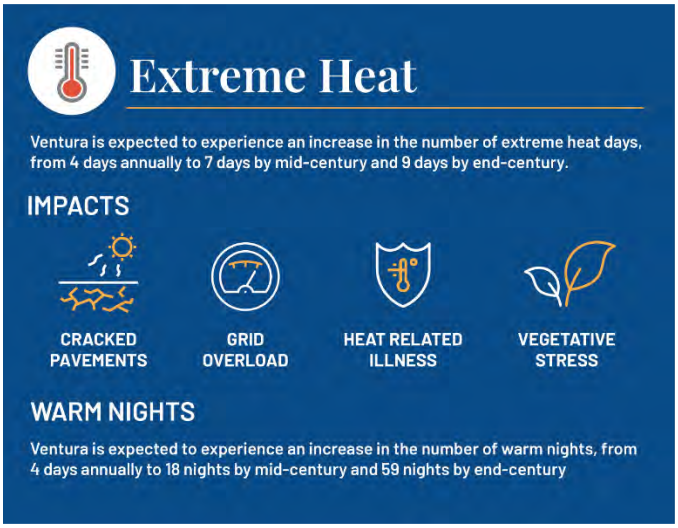
Future climate projections are created using global climate models. These models simulate climate conditions both in the past and in the future. Climate scientists can use these models to assess how the climate will change (or not) based on scenarios of greenhouse gas emissions.

Climate Hazards in Ventura

This section presents information on projected changes to natural hazards, including extreme heat and warm nights, drought, wildfire, landslides, riverine and stormwater flooding, air quality, and sea level rise, which result from changes to climate drivers.

Extreme Heat

Extreme heat events are defined as days in which the daily maximum temperature exceeds the 98thpercentile value of the historical average.[7] For Ventura, the threshold temperature is 91.9°F.[8] Increased frequency of extreme heat days can result in increased public health risks, which tend to be disproportionate for vulnerable populations such as those experiencing homelessness, outdoor workers, older adults, children, and individuals with underlying chronic diseases. Ventura has historically experienced four warm nights a year and is projected to experience a mid-century total of 25 nights (RCP 8.5) and an end-century total of 26 (RCP 4.5) to 59 nights (RCP 8.5).[9] Extreme heat can also damage roadways, overload electrical grid systems, and result in vegetation die-off or stress.



Source: City of Ventura Climate Change Vulnerability Assessment (2022)

[7] California Energy Commission (CEC). Cal-Adapt Local Climate Change Snapshot for Ventura. 2021. https://cal-adapt.org/tools/local-climate-change-snapshot/
[8] Ibid.
[9] Ibid.

Drought

Climate change will increase the likelihood that low-precipitation years will coincide with above-average temperature years. In California's highly variable climate setting, climate models project less frequent but more extreme daily precipitation, with year-to-year precipitation becoming more volatile and the number of dry years increasing.[10] Drought can affect vulnerable populations as can suppress economic productivity throughout the Ventura region. Vulnerabilities for natural resources can include stressed vegetation and habitat depletion and populations may be more vulnerable to heat stress and dehydration.[11] Additionally, sustained drought conditions can lead to dry, dusty conditions which can impact health.

Wildfire

Wildfire events are a product of temperature increases compounded with precipitation declines creating wildfire prone conditions. Ventura County's wildfires are influenced by Santa Ana Winds, downed power lines, and fuel availability.[12] Wildfires can create risk of injury, death, or financial hardship if private property is damaged as well as physical damage to all other assets creating cascading risks for vulnerable populations when infrastructure is damaged or off-line. For example, individuals with chronic health conditions who rely on medical equipment for critical health care could be severely impacted by a wildfire-caused power outage. Since 2005 there have been fourteen federal disaster declarations for Wildfire events in Ventura County, including the 2017 Thomas Fire which burned numerous structures and residences in the City of Ventura.

Source: City of Ventura Climate Change Vulnerability Assessment (2022)

Worsening air quality due to climate change can create respiratory issues for vulnerable populations and impact indoor areas without adequate air filtration systems. Air quality decline sources include dust, smog, fewer natural filtrations, and wildfire smoke.

[10] Hall, Alex, Neil Berg, Katharine Reich. (University of California, Los Angeles). 2018. Los Angeles Summary Report. California's Fourth Climate Change Assessment. Publication number: SUM-CCCA4-2018-007.
[11] Ibid.
[12] Ibid.

2017 Thomas Fire

The Thomas Fire started in December 2017 and burned in Ventura and Santa Barbara Counties. The fire burned a total of 281, 893 acres and destroyed 1,063 structures, becoming one of California's largest and most destructive wildfires.[13] In the City of Ventura alone, the fire destroyed 535 buildings, 504 of which were residences.[14] Additionally, the fire left burn scars on many surrounding hillsides leaving them susceptible to mudslides. Fire season in California used to run from April to October; however, according to CALFIRE, California continues to experience longer wildfire seasons as a direct result of climate change.[15] Sparking in December, the Thomas Fire illustrates the year-round fire season California and Ventura are now experiencing.

According to survey results, almost three quarters of respondents experienced disaster(s) in recent years. Seventy-two percent of respondents reported experiencing the impacts of the Thomas Fire and/or the subsequent mudslides. Reported impacts of the Thomas Fire in Ventura included: loss of income/work, loss of power, loss of cell service, respiratory and cardiovascular illness due to smoke, mandatory evacuation, and mental health impacts.

The survey also suggested that individuals and the City could be better prepared for future large-scale natural disasters by expanding the emergency communication network, improving evacuation routes, and developing local solar plus storage projects to reduce the impacts of power outages. The CARP, GPU, and Multi-Jurisdiction Hazard Mitigation Plan include complementary measures and sub-actions to reduce the risks associated with wildfires and prepare the community through a combination of robust community engagement and physical hardening strategies.

[13] CALFIRE. (2020). Thomas Fire Incident Report. Accessed from: https://www.fire.ca.gov/incidents/2017/12/4/thomas-fire/.
[14] Mitchell, Carmel, Nick Pivaroff, Vijay Mepani, and Tiffany Meyer. (2017) Thomas Incident Damage Inspection Report CAVNC 103156. Accessed from: https://www.documentcloud.org/documents/4434210-Final-Damage-Report.html.
[15] CALFIRE. (2022). Incidents. Accessed from: https://www.fire.ca.gov/incidents/.

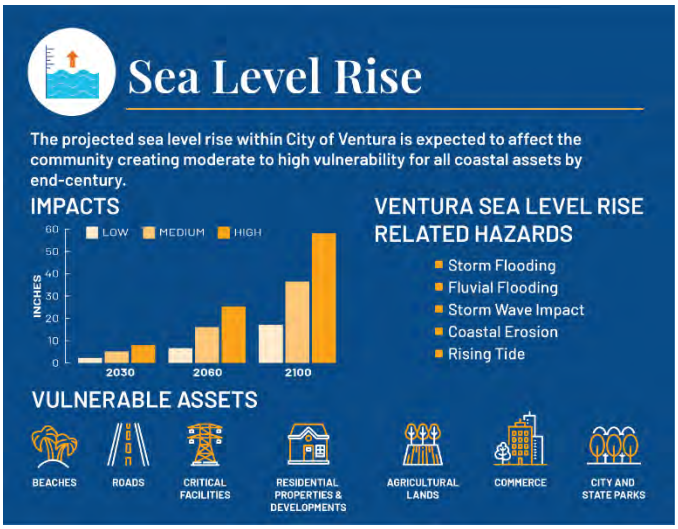
Landslides

Triggered by extreme bouts of precipitation or wildfires, the susceptibility of the larger Ventura region to landslides is projected to increase as precipitation variability increases and wildfires increase in frequency, area, and severity.[16] The Ventura County Multi-Jurisdictional Hazard Mitigation Plan ranks the risk for landslides as the highest of all other climate hazards for the City of Ventura. The projected increase in precipitation extremes, alone and in combination with the projected increase in wildfires, creates increased overall potential for floods, mudslides, and debris flows in the City.

Flooding and Sea Level Rise

Climate change may cause low-lying areas throughout Ventura to experience more frequent flooding. Stormwater systems may be overwhelmed more frequently as more extreme rain events occur, causing localized flooding. The Multi-Jurisdictional Hazard Mitigation Plan for Ventura County identifies flooding as a medium risk, and notes that numerous areas of the City are subject to flooding during periods of high rain. The impact of the flooding includes street closures, and damage to property, vehicles, and buildings, and can also have cascading effects on power, wastewater, and storm drainage infrastructure, exacerbating public health concerns.[17]

Sea levels in California are expected to rise in the coming decades because of climate change. By 2030, sea level is expected to rise 2.3" (in a low modeling scenario), 5.2" (in a medium outcome scenario), and 8.0" (in a high outcome scenario).[18] By 2060, sea level is expected to rise 7.4" (low), 16.1" (medium), and 25.3" (high).[19] By 2100, sea level is expected to rise 17.1" (low), 36.5" (medium), and 58.1" (high).[20] Ventura sea level rise related hazards include storm flooding, fluvial flooding, storm wave impacts, coastal erosion, and rising tides.



Source: City of Ventura Climate Change Vulnerability Assessment (2022)

[16] Hall, Alex, Neil Berg, Katharine Reich. (University of California, Los Angeles). 2018. Los Angeles Summary Report. California's Fourth Climate Change Assessment. Publication number: SUM-CCCA4-2018-007.
[17] Ibid.
[18] The Nature Conservancy. n.d.-b. Ventura County Coastal Resilience Project. https://coastalresilience.org/project/ventura-county/
[19] Ibid.
[20] Ibid.

Climate Change Vulnerability

This section highlights the critical vulnerabilities across multiple hazards and sectors. Existing plans, policies, and programs that contribute to the adaptive capacity is summarized throughout. An impact score and an adaptive capacity score is identified for each asset by climate hazard, along with an overall vulnerability score consistent with the scoring methodology described in Appendix D.

Social Vulnerability and Disadvantaged Populations

These hazards and their impacts disproportionately affect the most vulnerable and marginalized populations in the city. Historical policies have caused certain populations to bear a disproportionate share of the consequences of natural hazards and climate change. Although climate hazards have the potential to affect all Ventura residents, the severity of impacts is heavily shaped by demographic factors like race, socioeconomic status, gender, housing status, and more. Moreover, sensitive populations have less capacity to adapt to climate hazards, because of long-standing structural and institutional inequities. Based on the Climate Vulnerability Assessment, populations in the City of Ventura are most vulnerable to extreme heat/warm nights, drought, wildfire, landslides, air quality, and sea level rise as shown in Table 3.

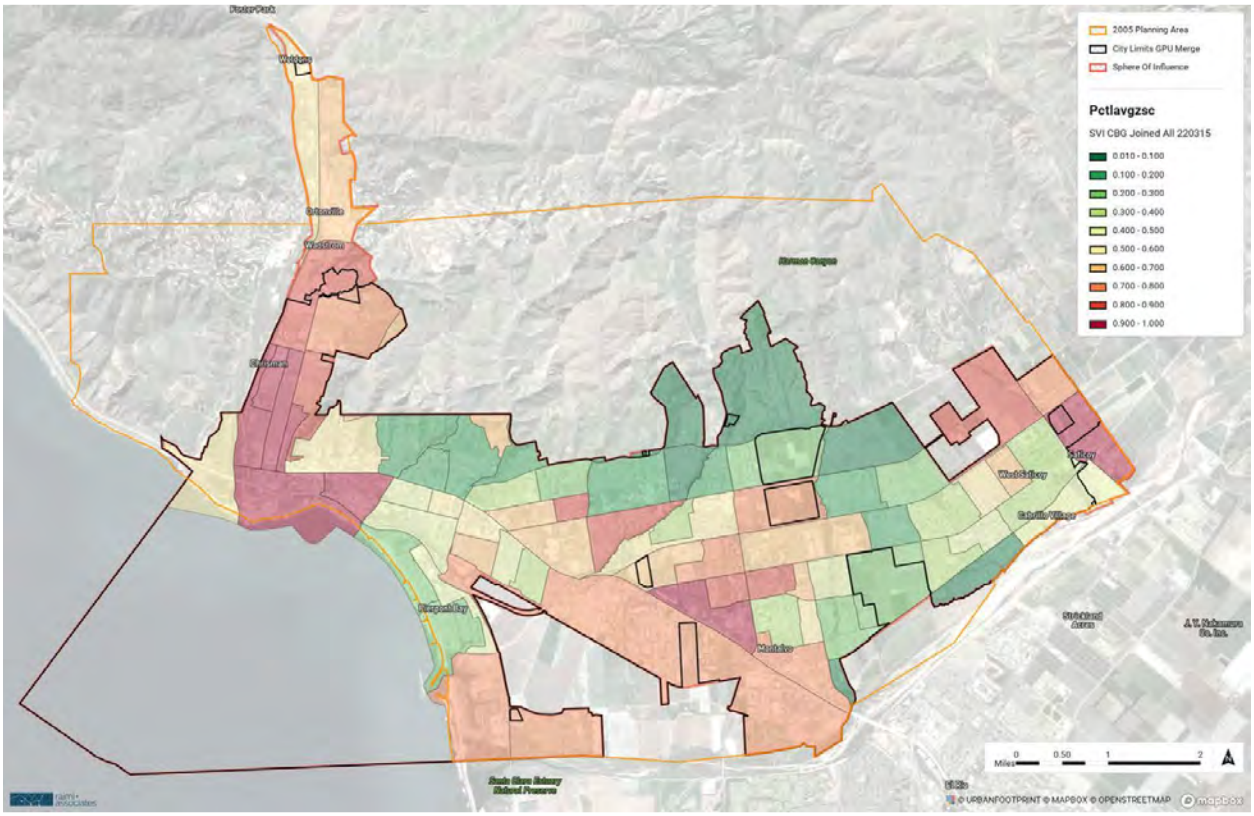
Table 3. Vulnerability Score for Populations

Climate Hazard	Impact Score	Adaptive Capacity Score	Vulnerability Score
Extreme Heat	High	Medium	**4-High**
Drought	Medium	Medium	**3-Medium**
Wildfire	High	Medium	**4-High**
Landslides	Medium	Low	**4-High**
Riverine and Stormwater Flooding	Medium	Medium	**3-Medium**
Air Quality	High	Low	**5-High**
Sea Level Rise	High	Low	**5-High**

Source: City of Ventura Climate Change Vulnerability Assessment (2022)

Citywide, the sub-areas of Saticoy, Thille, and Westside have the greatest social vulnerability to climate impacts while the sub-areas of Foothill, Pierpont, and College Area have the lowest social vulnerability to climate impacts (see Figure 5). The areas with the highest social vulnerability index (SVI) scores correspond to the disadvantaged communities (DACs) identified by the GPU process. The Social Vulnerability Assessment outlines vulnerable populations in the city in more detail (Appendix C).

Figure 5. Social Vulnerability Assessment in Ventura



Source: Social Vulnerability Assessment (2022)

Natural Resources

Primary vulnerabilities for natural resources are associated with climate hazard-caused stress and physical damage to resource types within this asset group. Compounding climate hazards stress natural ecosystems past their ability to absorb individual climate hazards. Wildlife will seek out more conducive habitats during climate hazards such as extreme heat or drought which tend to be where people recreate (USDA 2018). Impacts related to habitat shifts are exacerbated in comparison with rural communities, as densely populated and isolated open space areas have limited opportunities for natural re-seeding or re-habitation from adjacent areas. Both natural resources (beaches, hillsides, rivers and barrancas, riparian and freshwater marshes, biodiversity) and managed resources (parks and agricultural lands) in the City of Ventura, are highly affected by and vulnerable to the effects of climate change. Natural and managed resources are most vulnerable to extreme heat/warm nights, drought, landslides, wildfire, and sea level rise as shown in Table 4.

Table 4. Vulnerability Score for Natural and Managed Resources

Climate Hazard	Impact Score	Adaptive Capacity Score	Vulnerability Score
Extreme Heat/Warm Nights	High	Low	**4-High**
Drought	High	Low	**4-High**
Wildfire	High	Medium	**4-High**
Landslides	High	Low	**4-High**
Riverine and Stormwater Flooding	High	Medium	**3-Medium**
Air Quality	Medium	Medium	**3-Medium**
Sea Level Rise	High	Medium	**4-High**

Source: City of Ventura Climate Change Vulnerability Assessment (2022)

Buildings and Facilities

Vulnerabilities within this asset category primarily concern physical exposure and damages to residential areas, commercial and industrial buildings, and educational facilities in relation to climate hazards. Buildings and facilities in the City of Ventura are most vulnerable to wildfires as shown in Table 5.

Table 5. Vulnerability Score for Buildings and Facilities

Climate Hazard	Impact Score	Adaptive Capacity Score	Vulnerability Score
Extreme Heat/Warm Nights	Low	Low	**3-Medium**
Drought	Low	Low	**3-Medium**
Wildfire	High	Medium	**4-High**
Landslides	Medium	Medium	**3-Medium**
Riverine and Stormwater Flooding	Medium	Medium	**3-Medium**
Air Quality	Low	Low	**3-Medium**
Sea Level Rise	Medium	Medium	**3-Medium**

Source: City of Ventura Climate Change Vulnerability Assessment (2022)

Critical Services and Infrastructure

Overall vulnerabilities associated with this asset category involve structural preparedness and service reliability in the face of climate change. This section is concerned with the cascading impacts physical damages to buildings and facilities can have on services and infrastructure. Table 6 shows that critical services and infrastructure in the City of Ventura are most vulnerable to extreme heat/warm nights, drought, landslides, riverine and stormwater flooding, and air quality.

Table 6. Vulnerability Score for Critical Services and Infrastructure

Climate Hazard	Impact Score	Adaptive Capacity Score	Vulnerability Score
Extreme Heat/Warm Nights	High	Low	**5-High**
Drought	High	Medium	**4-High**
Wildfire	High	High	**3-Medium**
Landslides	Medium	Low	**4- High**
Riverine and Stormwater Flooding	High	Low	**5-High**
Air Quality	Medium	Low	**4-High**
Sea Level Rise	Medium	Medium	**3-Medium**

Source: City of Ventura Climate Change Vulnerability Assessment (2022)

Chapter 4

Our Adaptation Strategy

The City intends to implement a suite of adaptation strategies to increase the resilience of the City's community members, natural resources, managed resources, critical facilities, infrastructure, and services from the impacts associated with climate change hazards, as identified in the Climate Change Vulnerability Assessment, and summarized in Chapter 3. These strategies address assets with the highest vulnerability to climate change.

To guide the development of adaptation strategies, the following criteria were established to increase the likelihood of implementation, allow for equitable distribution of benefits, and prioritize proven and effective strategies to increasing resilience:

- Establish structural changes within governance plans and processes to facilitate implementation of adaptation actions.
- Identify needed funding, establish funding mechanisms, and allocate adequate and equitable funding to support adaptation implementation.
- Conduct meaningful and continuous engagement and education with the most impacted communities.
- Employ adaptive and flexible governance approaches by utilizing collaborative partnerships across jurisdictional boundaries and between institutional sectors to accelerate effective problem solving and implementation.
- Prioritize actions that promote equity, foster community resilience, and protect the City's most vulnerable populations. Intentionally prioritize the needs of communities that are disproportionately vulnerable to climate impacts.
- Assess feasibility to understand the best path or obstacles of implementing an action.

The following strategies and actions collectively work toward building the resilience and capacity for the community to better cope and prepare for the effects of climate change in the City of Ventura.

The strategies and actions are presented in the following sectors:

- Extreme Heat Resilience
- Wildfire Mitigation
- Debris Flow Mitigation
- Flood Mitigation
- Drought Mitigation
- Sea Level Rise Mitigation
- City Capacity and Coordination
- Community Awareness
- Emergency Response

Each measure contains at least one action that meets the adaptation criteria listed above and is identified in parenthesis in the tables below.

Table Key

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

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

Cost Key:

$ - Low Cost (e.g., municipal code updates, plan updates, changes to internal protocols or existing programs)

$$ - Medium (e.g., new plans and studies and innovative programs)

$$$ - High (e.g., capital projects)

Performance Metrics

- Number of air quality retrofits (filters installed) for eligible homes
- Number of retrofits to city-owned facilities and infrastructure at risk to wildfire
- Number of community workshops on wildfire mitigation practices
- Number of trees planted in disadvantaged neighborhoods
- Tree canopy in disadvantaged neighborhoods
- Amount of protected coastal open space
- Number of people signed up for emergencies notifications

Extreme Heat Resilience

EH 1.1 Public Outreach and Warnings

Expand public outreach and warning systems to increase preparedness for extreme heat events.

Implementation Actions:

1. In collaboration with Ventura County Public Health, establish local early heat warning system that provides public health alerts (Education, Partnership).
2. Develop protocols to improve outreach and assistance to vulnerable populations before and during extreme heat events (Education).

Climate Hazard Addressed	Extreme Heat
Cost	$
Responsible Departments	Fire, Office of Emergency Preparedness

EH 1.2 Cool Pavement

Explore opportunities to incorporate cool pavement practices into new streetscape or urban design.

Implementation Actions:

1. Complete an assessment that evaluates new cool pavement technology, cost/benefits, and challenges and opportunities. (Feasibility)
2. Based on the results of the assessment, consider conducting a pilot project of cool pavement application at one location in a neighborhood with a high number of socially vulnerable populations. (Feasibility)

Climate Hazard Addressed	Extreme Heat
Cost	$$$
Responsible Departments	Public Works

EH 1.3 Cool Roofs

Promote the use of cool roofs to reduce the urban heat island effect.

Implementation Actions:

1. Provide under-resourced populations with incentives such as expedited permitting or reduced fees to decrease barriers associated with installing cool roofs. (Equity)
2. Include a requirement of cool roofs for new construction in the building code. (Structure Change)
3. Develop educational materials for roofing contractors and building owners regarding the benefits of cool roofs. (Education)
4. Establish a partnership with a community group such as the Ventura County Contractors association to help promote the use of cool roofs. (Partnership)

Climate Hazard Addressed	Extreme Heat
Cost	$$
Responsible Departments	Community Development, Public Works

EH 1.4 Resources for DACs

Provide disadvantaged communities (DACs) with resources to mitigate impacts from extreme heat and associated power outages.

Implementation Actions:

1. Increase outreach and education around Southern California Edison (SCE) programs that subsidize cooling costs and back-up power devices for low-income households. (Equity, Education)

Climate Hazard Addressed	Extreme Heat
Cost	$$
Responsible Departments	Community Development, Public Works

EH 1.5 Increase Tree Canopy

Increase urban tree canopy citywide to mitigate extreme heat.

Implementation Actions:

1. Conduct an urban canopy study to identify areas in Ventura that have the lowest proportions of canopy coverage and implement a tree planting program focusing on communities with high social vulnerability. (Equity, Feasibility)

Climate Hazard Addressed	Extreme Heat
Cost	$$
Responsible Departments	Parks

2. Identify and apply for State (e.g., California RedLeaf, Affordable Housing and Sustainable Communities Program (AHSC), Urban and Community Forestry Program) and federal (e.g., USDA) tree planting project funding. (Funding)
3. Prioritize tree implementation in areas with populations most at risk to extreme heat impacts (seniors, children, outdoor workers, individuals with disabilities, transit dependent individuals, and individuals with chronic health conditions). (Equity)
4. Provide educational guidance to landowners on anticipated climate change impacts to urban forests including decreased water availability, more arid conditions, and increased non-native pests and diseases. (Education)
5. Identify the number of trees needed to mitigate extreme heat impacts in the City. (Feasibility)
6. Develop and implement a plan to plant the trees, monitor their health, and support their health and replace, as necessary. (Structural Change)

EH 1.6 Protect Open Space

Protect and enhance the City's open space areas to maximize ecosystem services and mitigate extreme heat.

Implementation Actions:

1. Partner with Ventura County Resource Conservation District to conduct a study on open space areas in the City to identify areas with greatest cooling magnitude and areas to maximum preservation and enhancement efforts. (Feasibility)
2. Identify trees, grasses, and shrubs with greatest cooling benefits and plant them in prioritized open spaces. (Structure Change)
3. Identify opportunities to apply compost at City open spaces to improve water-holding capacity and filtration to combat extreme heat. (Feasibility)

Climate Hazard Addressed	Extreme Heat
Cost	$$
Responsible Departments	Parks, Public Works

Wildfire Mitigation

WM 2.1 Wildfire Communications

Provide streamlined communication to the public on wildfire preparedness, mitigation, and evacuation.

Implementation Actions:

1. Develop a communication program and materials to educate the public on wildfire preparedness, mitigation, and evacuation. (Education)
2. Require that wildfire mitigation, safety, and evacuation communications be provided in Spanish to support non or limited English speakers. (Equity, Education)

Climate Hazard Addressed	Wildfires
Cost	$
Responsible Departments	Fire and Office of Emergency Preparedness

WM 2.2 Wildfire Community Engagement

Increase community engagement and involvement in wildfire risk reduction.

Implementation Actions:

Climate Hazard Addressed	Wildfires
Cost	$
Responsible Departments	Fire and Office of Emergency Preparedness

1. Continue to conduct on-going workshops on defensible space, vegetation management, and home-hardening techniques based upon most up to date CAL FIRE management guidelines and policies for landowners in fire hazard severity zones. (Education)
2. Provide home hardening, defensible space, and fire-safe landscaping guidance materials online and hard copies in Spanish to support non or limited English speakers. (Education, Equity)
3. Partner with the Ventura Regional Fire Safe Council on wildfire mitigation efforts that advance key strategies outlined in the Ventura County Community Wildfire Protection Plan. Focus continued efforts on existing vegetation management activities that reduce risk in wildland urban interface (WUI) areas, developing wildfire safety education efforts for structure and property owners in the WUI areas on wildfire prevention, defensible space, fire-safe landscaping, reduction of structural ignitability, and ensuring safe evacuation through streamlined communications and protocol. (Partnership)
4. Partner with Ventura Regional Fire Safe Council to help them secure grant funding for mitigation activities. (Partnership, Funding)

WM 2.3 Low-Income Air Quality Subsidy

Develop a subsidy program to improve air quality in the homes of low-income residents to mitigate impacts from wildfire smoke.

Implementation Actions:

Climate Hazard Addressed	Wildfires
Cost	$$
Responsible Departments	Fire and Office of Emergency Preparedness

1. Identify funding sources for the home air quality improvement subsidy program (Funding)
2. Develop criteria for eligible program beneficiaries. (Equity)
3. Partner with CBOs, such as the Westside Community Council, to implement, promote the program, and provide informational material on the benefits of air improvement options. (Partnership, Education)

WM 2.4 Defensible Space

Enforce defensible space and home hardening standards to mitigate structure ignitions from wind blow embers.

Implementation Actions:

1. Educate landowners and residents on how structures ignite, the role of embers, and which building materials, designs, and retrofits reduce wildfire risk. (Education)
2. Continue to track new and ignition-resistant construction technologies and promote increasingly fire safe building standards through ordinance updates. (Structure Change)
3. Partner with Ventura County to provide funding incentives to promote fire safe retrofits of existing structures that meet ignition-resistant building codes. (Partnership, Funding)

Climate Hazard Addressed	Wildfires
Cost	$
Responsible Departments	Fire and Office of Emergency Preparedness

WM 2.5 Water Supply

Require adequate water supplies for fire suppression.

Implementation Actions:

1. Coordinate with Casitas Municipal Water District and Ventura Water to conduct an annual assessment of current water supplies and verify that adequate water supply systems and flows meet fire suppression needs throughout the City. (Partnership, Feasibility)

Climate Hazard Addressed	Wildfires
Cost	$
Responsible Departments	Fire, Ventura Water

WM 2.6 Fire Hardening of City Facilities

Upgrade or retrofit City-owned facilities and infrastructure located in the fire hazard severity zone to increase resilience to power outages and wildfires.

Implementation Actions:

1. Conduct a built asset vulnerability assessment to identify which City-owned facilities and infrastructure have the highest risk to wildfire impacts. (Structure Change)
2. Identify necessary upgrades and retrofits. (Feasibility)
3. Identify funding (e.g., CAL FIRE or FEMA) to implement upgrades or retrofits. (Funding)

Climate Hazard Addressed	Wildfires
Cost	$$$
Responsible Departments	Public Works, Ventura Water

WM 2.7 Reduce Fire Risk in Wildfire Urban Interface Zone

Continue to coordinate with CAL FIRE, Ventura County Fire, Ventura Regional Fire Safe Council, and neighboring jurisdictions on wildfire risk reduction activities in the Wildland Urban Interface (WUI) and open space areas in and adjacent to the City.

Implementation Actions:

1. Coordinate with responsible stakeholders to develop and update annual fuels management activities and cost estimates. (Structure Change)
2. Engage with SCE to reduce fuels and potential ignitions adjacent to power lines. (Partnership)
3. Partner with Ventura County Air Pollution Control District and Ventura County Prescribed Burn Association to continue and grow prescribed burning activities. (Partnership)

Climate Hazard Addressed	Wildfires
Cost	$$
Responsible Departments	Fire

WM 2.7 Housing for the Displaced

Provide community members displaced by wildfire with temporary housing options in the City.

Implementation Actions:

1. Partner with Housing Authority of the City of San Buenaventura to conduct a study that estimates potential displacement impacts associated with wildfire impacts. (Partnership, Feasibility)
2. Assess current City capacity to house displaced residents including facilities, infrastructure, services, and community programs. (Feasibility)
3. Establish a working group to develop designated temporary housing options for wildfire displaced residents to live in for up to two years after their home was destroyed or severely damaged. (Structural Change)

Climate Hazard Addressed	Wildfires
Cost	$$$
Responsible Departments	Public Works, Community Development

Debris Flow Mitigation

DF 3.1 Reduce Consequences of Debris Flow

Reduce the potential for injury, property damage, and loss of life resulting from debris flow.

Implementation Actions:

Climate Hazard Addressed	Debris Flows
Cost	$$$
Responsible Departments	Public Works

1. Mitigate debris flow risks in high hazard areas with measures such as reconstructing retaining walls, improving drainage, installing vegetation and netting, avoiding clear cutting, and stabilizing the soil after vegetative clearing, with compost or mulch. (Structure Change)
2. Update and revise design standards to incorporate the most up to date available information and technology related to debris flow. (Structure Change)
3. Minimize risks from debris flows by requiring that new developments be sited outside of hazards areas, when possible, and incorporating design that minimize the potential for damage. (Structure Change)
4. Regularly inspect most at risk locations, directly following major storm or atmospheric river events (Structure Change).
5. Partner with Ventura Regional Safe Council to conduct post fire assessments for landowners in burned areas two to five years after a wildfire, to assess risk for post-wildfire post debris flow. (Partnerships, Structural Change)

Flood Mitigation

FM 4.1 Reduce Stormwater Runoff

Reduce stormwater runoff through a variety of natural and built infrastructure projects.

Implementation Actions:

Climate Hazard Addressed	Flood
Cost	$$$
Responsible Departments	Public Works

1. Design streets to incorporate vegetation, soil, and engineered systems to slow, filter, and cleanse stormwater runoff (e.g., Incorporate green stormwater infrastructure including bioswales into roadways designs where feasible, incorporate previous pavements into sidewalks, street furniture zones, and entire roadways/portions). (Structure Change)
2. Continue hillside monitoring and stabilization efforts after heavy rain events in areas at risk of landslides (e.g., install landslide monitoring equipment in Landslide Susceptibility Areas, build natural infrastructure to reduce the risk of landslides, such as hillside revegetation). (Structure Change)

FM 4.2 Multi-Family Education

Provide education and information for renters and landlords.

Implementation Actions:

Climate Hazard Addressed	Flood
Cost	$$
Responsible Departments	Office of Emergency Preparedness

1. Provide renters with flood insurance flyers and educate renters in the coastal zone on coastal flooding. (Education)
2. Encourage landlords to consider how to prepare their properties for flooding by providing retrofit informational resources and educate them on prioritizing low-impact stormwater best practices. (Education)
3. Create educational campaigns and target vulnerable populations to increase awareness and knowledge of how to mitigate and weather flooding. (Equity)
4. Create evacuation procedures for vulnerable populations in partnership with Community-based organizations (CBOs) and facilities that serve identified populations. (Equity)
5. Identify subsidy programs to retrofit existing structures and low-income households. (Equity)

FM 4.3 Stormwater Quality

Improve water quality of stormwater runoff.

Implementation Actions:

Climate Hazard Addressed	Flood
Cost	$$$
Responsible Departments	Public Works

1. Conduct an analysis of protective stormwater needs for the Santa Clara and Ventura Rivers. (Feasibility)
2. Implement low-impact stormwater best practices in areas neighboring the Santa Clara and Ventura Rivers. (Structure Change)

FM 4.4 Low-Impact Development

Prioritize low-impact development stormwater best practices.

Implementation Actions:

Climate Hazard Addressed	Flood
Cost	$
Responsible Departments	Public Works

1. Develop or amend the community's stormwater ordinance to prioritize low-impact stormwater best practices for private realm properties. (Structure Change)
2. Adopt or modify the community's floodplain management ordinance so there is no-net-loss of floodplain storage through development restrictions (Structure Change)
3. Adopt or modify the community's floodplain management ordinance so that there is no-net-loss of floodplain storage through development restrictions (Structure Change)

Drought Mitigation

DM 5.1 Agricultural Resilience

Increase drought resilience of agricultural operations and crops.

Implementation Actions:

Climate Hazard Addressed	Drought
Cost	$$
Responsible Departments	Communications

1. Partner with Farm Bureau of Ventura County to develop and physically and electronically promote educational material in multiple languages for agricultural stakeholders, promoting best practices on water conserving irrigation methods. (Partnership, Education)
2. Partner with UC Cooperative Extension Ventura County to provide educational information on anticipated climate changes such as hardier pests, reduced water availability, new weeds, and altered growing seasons. (Partnership, Education)

DM 5.2 DAC Water Conservation

Provide disadvantaged communities with guidance and cost saving incentives to increase water conservation and lessen rate burdens.

Implementation Actions:

Climate Hazard Addressed	Drought
Cost	$$
Responsible Departments	Ventura Water

1. Consider creating a focused water reduction education campaign targeting low-income households with high utility bill burdens, to highlight water conservation practices and incentive programs. (Equity, Education)
2. Expand outreach to increase participation in existing rebates offered to all customers for toilets, lawn removal, hot water recirculation pumps, smart irrigation controllers, low-flow sprinkler heads, etc. (Funding)

DM 5.3 Recycled Water

Increase recycled water efforts in the City.

Implementation Actions:

1. Implement proposed water reuse projects through the VenturaWaterPure project, beginning in 2023, to create a new local water supply. (Structural Change)

Climate Hazard Addressed	Drought
Cost	$$$
Responsible Departments	Ventura Water, Public Works

DM 5.4 Drought Tolerant Landscaping

Promote drought-tolerant landscaping city-wide.

Implementation Actions:

1. Partner with CBOs to increase participation in the City's water conservation gardening classes. (Partnership)
2. Promote drought-tolerant flora through distribution of best practices flyers and through online social media posts. (Education)

Climate Hazard Addressed	Drought
Cost	$
Responsible Departments	Ventura Water

Sea Level Rise Mitigation

SLR 6.1 Reduce SLR Impacts on Socially Vulnerable Populations

Decrease the inequitable impacts of sea level rise on socially vulnerable populations.

Implementation Actions:

1. Establish annual budgets for projects within and benefiting vulnerable populations (2016, Assembly Bill 1550), including seniors, individuals with disabilities, children, low-income communities, and communities in low-lying areas. (Equity)

Climate Hazard Addressed	Sea Level Rise
Cost	$
Responsible Departments	Public Works

SLR 6.2 Regional Sediment Management

Implement a Regional Sediment Management program.

Implementation Actions:

Climate Hazard Addressed	Sea Level Rise
Cost	$$$
Responsible Departments	Public Works

1. Support development and implementation of a Regional Sediment Management (RSM) program in partnership with Ventura County and local organizations (e.g., BEACON), which includes strategies designed to allow the use of natural processes to solve engineering problems. To be most effective, the RSM programs should consider the entire watershed, account for the effects of human activities on sediment, protect and enhance coastal ecosystems, and maintain safe access to beaches for recreational purposes. (Partnership, Structural Change)
2. Implement Sediment Opportunistic Placement Programs by developing policies for the Local Coastal Programs or as part of Coastal Development Permits that can lower the cost and facilitate delivery of opportunistic sand to nearby beaches where needed. (Structural Change)

SLR 6.3 Coastal Open Space

Improve and expand the existing coastal open space to address sea-level rise.

Implementation Actions:

Climate Hazard Addressed	Sea Level Rise
Cost	$$$
Responsible Departments	Ventura Water, Public Works, Parks

1. Identify replacement opportunities or otherwise plan for how to replace recreational areas and accessways that will be lost due to inundation or damage associated with sea level rise. It might be done through the designation and zonation of lands into a Local Coastal Program. (Structure Change)
2. Plan for future coastal recreational space and parkland by protecting open space adjacent to coastal habitats, allowing the beach and habitats to migrate into these spaces (Structure Change).
3. In collaboration with Ventura County and state agencies, develop sea level rise retreat strategy with coastal restoration projects and public access that would enhance coastal ecosystems (e.g., re-establishing native coastal dune habitats, wetlands, and lagoons) and increase coastal recreational opportunities. (Partnership, Structure Change)
4. Identify subsidy programs for educating vulnerable populations regarding climate change and sea level rise, and for developing programs that guarantee vulnerable populations and disadvantaged communities' access to coastal recreational resources. (Equity)

SLR 6.4 Coastal Resilience Funding

Research external funding opportunities to implement coastal resilience and coastal restoration projects.

Implementation Actions:

Climate Hazard Addressed	Sea Level Rise
Cost	$$$
Responsible Departments	Public Works

1. Research external funding opportunities, including grants to support coastal resilience, coastal restoration projects, or beach nourishment (e.g., Living Shoreline and Nature-based solution projects). Examples of grantee agencies are California Coastal Conservancy, California Ocean Protection Council, NOAA, California Division of Boating and Waterways). (Funding)
2. Implement nature-based solutions projects, which have co-benefits for the protection of transportation facilities, such as groundwater recharge, stormwater management, and flood prevention, mitigation of the urban heat island effect, neighborhood beautification, and a more pleasant environment for pedestrians and bicyclists. (Structure Change)

SLR 6.5 Agricultural Protection Program

Establish Sea level rise strategies as part of an agricultural protection program.

Implementation Actions:

Climate Hazard Addressed	Sea Level Rise
Cost	$$$
Responsible Departments	Public Works

1. In partnership with Ventura County and state agencies, establish sea level rise strategies as part of an agricultural protection program to identify, acquire, incentivize, and manage areas appropriate for new/renewed agricultural use and/or for the protection of current and/or future agricultural uses. (Partnership, Structure Change)
2. Identify and designate inland areas suitable for agricultural production to replace agricultural production areas that could be lost to sea level rise. (Feasibility)

SLR 6.6 Phased and Trigger-Based Measures

Implement phased and trigger-based adaptation measures.

Implementation Actions:

Climate Hazard Addressed	Sea Level Rise
Cost	$$
Responsible Departments	Public Works

1. In coordination with Caltrans and local public works/transportation agencies, consider phased and trigger-based adaptation measures when planning for the adaptation of transportation infrastructure to sea level rise impacts over time. Design phases to address expected amounts of sea level rise and associated impacts to coastal resources, and to minimize impacts on access and mobility as well as on environmental, recreational, and public access resources over the planning horizon. The design shall contemplate specific triggers for implementing each subsequent phase. For example, phased measures may include hard shoreline protective devices for limited periods of time, elevation, and/or relocation, if otherwise consistent with relevant Local Coastal Program and, if applicable, Coastal Act policies. (Partnerships, Structure Change).

SLR 6.7 Wastewater Treatment Facility Resilience

Increase the wastewater treatment facility's resilience to sea level rise and stronger storms.

Implementation Actions:

Climate Hazard Addressed	Sea Level Rise
Cost	$$$
Responsible Departments	Ventura Water

1. Collaborate with the Los Angeles Regional Water Quality Control Board to increase the facility's resilience to sea level rise and stronger storms. For example, conduct feasibility studies from technical experts, retrofitting, relocating, or eliminating outfalls deemed "at risk." (Partnership)
2. Identify, redesign, or eliminate septic systems in hazardous areas that can be potentially impacted by sea level rise. (Structure Change)

SLR 6.8 Coastal Critical Facilities

Provide access to critical facilities (e.g., medical buildings) and coastal areas impacted by coastal hazards and flooding.

Implementation Actions:

Climate Hazard Addressed	Sea Level Rise
Cost	$$$
Responsible Departments	Public Works

1. Provide alternate routes and ensure redundancy of critical transportation routes, as possible, to allow for continued access and movement to and along the coast in instances in which sections of roadways may become temporarily impassible because of coastal hazards. (Structure Change)
2. Inform residents and visitors about alternate routes to coastal areas. (Education)

City Capacity and Coordination

CC 7.1 CARP Measure Integration

Support the implementation of the CARP by integrating measures and actions into existing plans and programs, internal protocols, and codes.

Implementation Actions:

Climate Hazard Addressed	All Hazards
Cost	$
Responsible Departments	Public Works, Community Development

1. Include climate adaptation measures that involve capital projects in the capital improvement plan process, prioritizing investments in areas with high number of socially vulnerable populations. (Structure Change)
2. Integrate and regularly update best available climate science, projections, and potential impacts into relevant local plans, codes, and planning documents, including the Local Coastal Program, Municipal Code, Emergency Operations Plan, and Capital Improvement Program. (Structure Change)

CC 7.2 CARP Administrative Support

Provide administrative support and dedicate staff time for grant writing and funding tracking for climate adaptation and resilience projects.

Implementation Actions:

Climate Hazard Addressed	All Hazards
Cost	$
Responsible Departments	Public Works, Finance

1. Work with SCE and Clean Power Alliance to identify funding and financing opportunities to help residents and businesses pay for building electrification, weatherization, and battery backups. (Funding)
2. Research external funding opportunities to implement high-cost climate adaptation implementation projects, including infrastructure developments or upgrades. (Funding)
3. Prioritize funding and financing opportunities for high socially vulnerable populations. (Equity)

CC 7.3 Regional Coordination

Continue to coordinate with State agencies, Central Coast Climate Collaborative, Beach Erosion Authority for Clean Oceans and Nourishment (BEACON), Ventura County, Southern California Edison, Clean Power Alliance, local businesses, and other local and regional partners to streamline regional climate adaptation planning efforts.

Implementation Actions:

Climate Hazard Addressed	All Hazards
Cost	$
Responsible Departments	Public Works, Finance

1. Continue to improve collaboration and information sharing between local, regional, and State entities to provide socially vulnerable populations with resources to prepare for, cope with, and recover from climate change hazards. (Partnership, Equity)
2. Attend local and regional conferences and climate collaborative meetings to stay up to date with climate science and potential impacts and align climate adaptation efforts with other neighboring jurisdictions. (Partnerships)
3. Collaborate with businesses in the City to better understand shared climate risks and identify opportunities to provide resources and guidance that advances climate resilience priorities. (Partnerships)

Community Awareness

CA 8.1 Community Engagement Campaign

Develop a community-wide engagement campaign to educate the public on anticipated near and long-term climate impacts, community vulnerabilities, and opportunities for adaptation.

Implementation Actions:

Climate Hazard Addressed	All Hazards
Cost	$$
Responsible Departments	Public Works, Community Development, PIO

1. On the City's website, develop a virtual resilience hub that provides residents with education information on Ventura specific project climate impacts, community vulnerabilities, and adaptation programming and resources including resilience hub locations and preparedness guides and trainings. (Education)
2. Partner with community-based organizations (CBOs) to provide informational materials on climate change hazard preparedness, safety, and risk reduction strategies; Specifically target vulnerable populations including seniors, children, individuals with chronic health conditions, outdoor workers, and individuals with disabilities. (Partnership Equity)
3. Partner with local schools and youth facilities to host engaging activities and presentations on projected climate change impacts. (Partnership, Education)
4. Incorporate climate adaptation outreach and engagement into the Ventura's Block by Block program. (Education)

Emergency Response

ER 9.1 Resilient Energy Infrastructure for Vulnerable Populations

Provide vulnerable populations with resilient resources and energy infrastructure.

Implementation Actions:

Climate Hazard Addressed	All Hazards
Cost	$$$
Responsible Departments	Office of Emergency Preparedness

1. Partner with Clean Power Alliance and Southern California Edison and emergency management services to establish backup power and energy grid shutdown protocols that protect the most vulnerable populations (e.g., seniors, individuals with chronic health conditions, children, individuals with disabilities). (Partnership, Equity)
2. Support development of community-serving microgrids and prioritize areas with high social vulnerability. (Equity)

ER 9.2 Emergency Notifications

Increase community member participation in emergency notification and preparedness systems.

Implementation Actions:

1. Partner with CBOs to conduct a recruitment campaign with community events and online and physical materials to increase diversity and overall membership of Ventura CERT. (Partnerships)
2. Increase participation in emergency notification systems including VC Alert and SCE Automated System through social media campaigns and physical flyer distribution. (Structure Change)

Climate Hazard Addressed	All Hazards
Cost	$$
Responsible Departments	Fire, Police, Office of Emergency Preparedness

ER 9.3 CBO Partnerships

Partner with community-based organizations (CBOs) and community facilities to develop evacuation procedures specifically for vulnerable populations.

Implementation Actions:

1. Conduct an assessment to identify CBOs and community facilities that support and service vulnerable populations. (Feasibility)
2. Host focus groups with selected CBOs and community facility staff to identify evacuation needs for their service population. (Partnerships)
3. Provide CBOs with support and resources to develop climate disaster emergency response and preparedness procedures. (Partnerships)

Climate Hazard Addressed	All Hazards
Cost	$$
Responsible Departments	Fire, Police, Office of Emergency Preparedness

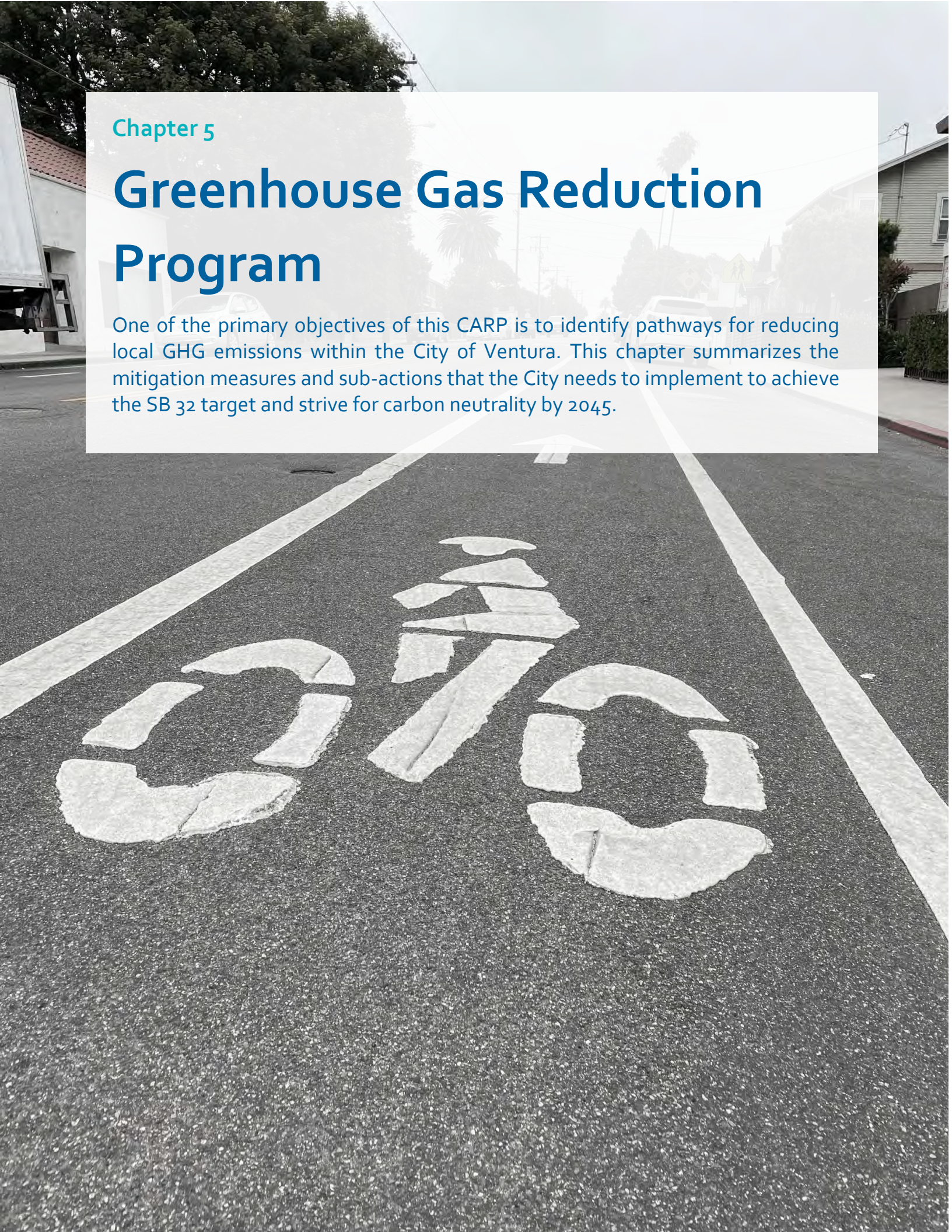
ER 9.4 Resilience Hubs

Expand the City's cooling centers to serve as resilience hubs for community members before, during, and after climate hazard events including extreme heat events, poor air quality, and severe weather events.

Implementation Actions:

Climate Hazard Addressed	All Hazards
Cost	$$$
Responsible Departments	Public Works

1. Conduct an assessment on the effectiveness of current City cooling center operations to evaluate current amenities and resources available and verify that the needs of vulnerable populations are met during climate hazard events. (Feasibility)
2. Require that the City's resilience hubs have adequate backup power sources and battery storage to mitigate service disruptions and provide redundancy in the event of a power outage. (Structural Change)
3. Provide essential resources such as health programming and resources, food, refrigeration, charging stations, basic medical supplies, and other emergency supplies at all City resilience hubs. (Structural Change).



Chapter 5

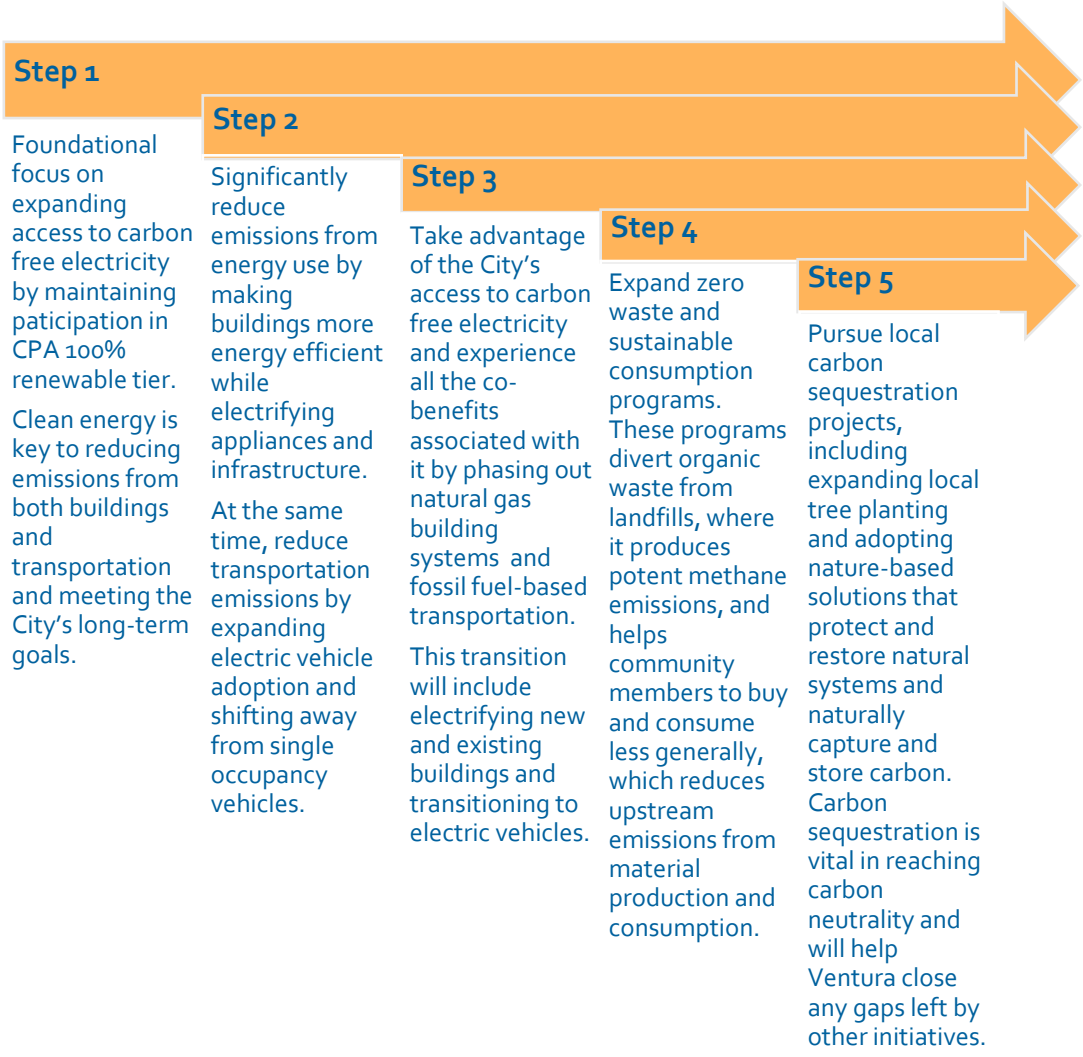
Greenhouse Gas Reduction Program

One of the primary objectives of this CARP is to identify pathways for reducing local GHG emissions within the City of Ventura. This chapter summarizes the mitigation measures and sub-actions that the City needs to implement to achieve the SB 32 target and strive for carbon neutrality by 2045.

Reduction Approach

Ventura will work to achieve carbon neutrality by 2045 by building upon the progress the City has already made and adopting new emissions reduction strategies and actions. Together, these strategies and actions: (1) provide a framework for reaching the SB 32 target of a 40% reduction below 1990 emissions level by 2030 and carbon neutrality; (2) make Ventura more resilient to future climate impacts; and (3) have important social and economic benefits, such as addressing historic inequities, creating green jobs, increasing community green spaces, and improving public health. Figure 6 outlines the City's five step approach to reducing community GHG emissions.

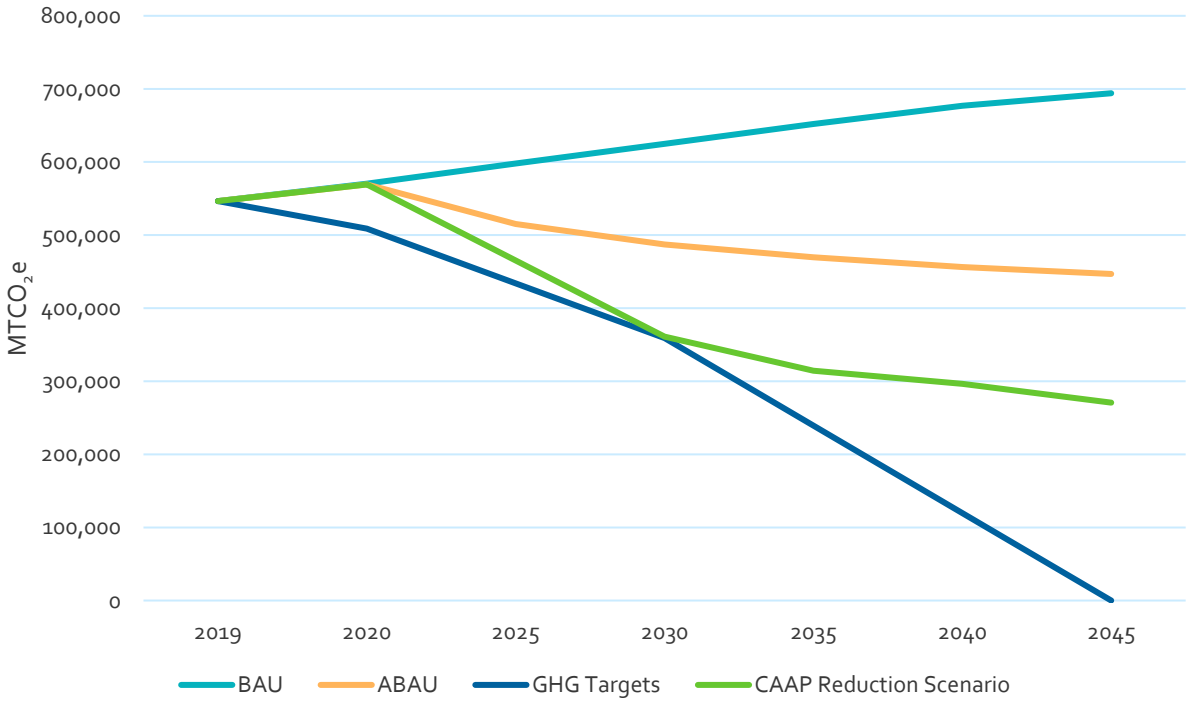
Figure 6. Approach to Reduce Greenhouse Gas Emissions



Greenhouse Gas Emissions Reduction Pathway

As illustrated in Figure 7, the City will need to proactively take local climate action to reduce and offset greenhouse gas emissions to achieve State greenhouse gas reduction targets. State and regional policies and regulations are projected to reduce 2030 BAU emissions by 22%. In addition to the reductions realized through State policies, implementing the CARP mitigation measures can achieve the SB 32 goal of a 40% reduction in mass emissions by 2030 and puts the City on the path to achieving the long-term goal of carbon neutrality by 2045. These strategies achieve a 40% mass emissions reduction compared to 1990 levels in 2030 and a 61% reduction in 2045. However, additional climate action will be needed to close the gap of 270,749 MTCO2e to achieve carbon neutrality by 2045.

Figure 7. Greenhouse Gas Emissions Reductions from CARP Mitigation Measures



Reduction Strategies and Action Plans

To mitigate greenhouse gas emissions and adapt to a changing climate, the City intends to move forward with fifty-five mitigation strategies organized into seven sectors. Each sector includes a series of broad strategies and specific implementation actions for the City. The strategies and actions are organized into the following sectors:

- Clean Energy
- Built Environment
- Transportation
- Solid Waste
- Water and Wastewater
- Community Education and Partnerships
- City Leadership

Implementing these strategies will put Ventura on the path to carbon neutrality by 2045. This section presents the mitigation measures and implementation actions, GHG emission reduction potential, co-benefits, implementation costs, and lead City department.

GHG Reductions Key:

- Supportive – no direct emissions reductions but aid the implementation of measures with direct emissions reductions.
- Low – less than 15,000 $MTCO_2e$
- Medium – 16,000 – 40,000 $MTCO_2e$
- High – more than 40,000 $MTCO_2e$

Cost Key:

- $ - less than $100,000
- $$ - $100,000-$500,000
- $$$ - $500,000 - $2,500,000
- $$$$ - over $2,500,000

The following strategies and actions collectively work toward achieving the near team goal of 40% reduction in greenhouse gas emissions by 2030 and carbon neutrality by 2045.

Clean Energy

Residential and nonresidential energy use, including electricity and natural gas, account for 35% of Ventura's greenhouse gas emissions. These emissions are driven by the burning of fossil fuel natural gas, which accounts for 59% of energy-related emissions in the city. The proportion of natural gas to overall energy use is expected to increase because the City has joined Clean Power Alliance (CPA), which supplies up to 100% carbon-free electricity to its customers. See Table 7 for the February 2022 participation rates in CPA.

Table 7. 2022 Participation Rates in CPA Tiers

CPA Tier	Residential Customers	Nonresidential Customers
Remained in SCE	5.2%	4.2%
Lean – 40% renewable	4.5%	6.2%
Clean – 50% renewable	1.1%	1.8%
Green – 100% renewable	89.2%	87.8%

Clean grid electricity, including the installation of distributed energy resources (DERs), such as local solar projects, is a keystone effort being led by the State to achieve its climate goals. Senate Bill 100's renewable portfolio standard will require that supplied energy not only be 100% carbon-free by 2045 but also 100% generated from renewable sources like wind, solar, and local biogas.

Additionally, having access to clean electricity makes supporting the transition to electric vehicles across Ventura more beneficial. To date, the City has adopted an EV Accelerator Plan and is installing electric vehicle charging stations in public parking facilities.

Performance Metrics

- Participation rate in CPA 100% Green tier
- Number of (or size of) solar installations on commercial buildings
- Number of battery storage systems installed

Clean Energy - Alternative Energy Sources

CE 1.1 Community Solar Programs and Projects

Support SCE and CPA's development of residential and commercial community solar and storage programs and projects.

Implementation Actions:

GHG Reduction Potential	Supportive
Cost	$
Co-Benefits	Resilience
Responsible Departments	Environmental Sustainability Division, PIO/Comms

1. Collaborate with CBOs to expand on existing solar programs, such as Community Environmental Council's Solarize and Grid Alternative's low-cost renewable energy installations, by providing resources to assist in the installation of single family and multi-family solar and energy storage projects.
2. Identify sites for the possible installation of community solar.
3. Assess the feasible locations identified in the communitywide renewable energy generation analysis under CEQA.
4. Set a goal for the number of commercial energy storage projects within the city and provide regular updates on meeting the goal.
5. Work with City Council to support community solar projects.
6. Support commercial pilot projects utilizing thermal energy storage, energy storage, dispatchable storage, back-up power at critical facilities, and microgrid development. Support includes outreach for completed projects.
7. Share data as needed to develop successful projects and programs.
8. Collaborate with CBOs and Housing Authority of the city of San Buenaventura to attain and use grant funding, such as the Community Development Block Grants, to cover both labor and equipment for renewable energy and energy storage at affordable housing projects.
9. Conduct outreach to residents about subscription to community solar projects through the City's Environmental Sustainability website, Sustainable Ventura Newsletter, social media, press releases, City Council, and staff attendance at ribbon cutting events.

CE 1.2 Approval Processes for Solar, Battery Storage Systems, and EV Charging

Establish a streamlined approval process for solar, battery storage system, and EV charging and reduce or eliminate permitting fees to encourage the addition of battery storage.

Implementation Actions:

1. Review current permitting procedures. Work with Ventura City Fire Department and other relevant agencies to review their policies to determine if they negatively affect local renewable integration and installation of energy storage projects. If problematic policies are identified, explore opportunities for revisions that would allow for more of these types of energy projects.
2. Determine eligibility criteria for systems that qualify for expedited permitting and provide permitting checklist.
3. Explore the potential to allow for digital signatures and online permit application submittals.
4. Shorten the inspection process to one inspection for qualifying systems.

GHG Reduction Potential	Supportive
Cost	$
Co-Benefits	Resilience
Responsible Departments	Community Development, Environmental Sustainability Division

CE 1.3 Solar Reach Code for Nonresidential New Construction

Investigate and implement a reach code to establish minimum kilowatt (kW) of solar installation requirements for nonresidential new construction above a specific size.

Implementation Actions:

1. Engage with stakeholders including City staff and officials, and external stakeholders, such as local developers regarding the purpose and impact of the reach code.
2. Conduct a cost effectiveness study or utilize studies developed by the CEC.
3. Develop and draft an ordinance.
4. Submit the adopted ordinance to the California Energy Commission (CEC) and California Building Standards Commission (CBSC).

GHG Reduction Potential	Supportive
Cost	$
Co-Benefits	Resilience
Responsible Departments	Community Development, Environmental Sustainability Division

Clean Energy - Carbon Free Electricity

CE 2.1 CPA Participation

Maintain City membership in Clean Power Alliance (CPA) and continue to work to maintain a minimum of 95% of private property owner participation in CPA at the 100% Green tier.

Implementation Actions:

1. Conduct outreach to identify barriers for large users and/or sectors to participate at the 100% Green Power Tier or SCE equivalent.
2. Partner with CPA to develop and conduct a robust awareness and education campaign to boost enrollment.

GHG Reduction Potential	Supportive
Cost	$
Co-Benefits	
Responsible Departments	Environmental Sustainability Division, PIO/Comms

New Construction

Buildings are the primary users of energy within the city and the main vehicle to reduce energy-related emissions. Electricity use in residential and nonresidential buildings accounts for 14% of community emissions and natural gas use accounts for 20% of community emissions. There are two main approaches to reduce emissions in buildings. The first is improved energy efficiency of new and existing buildings and the second is through the electrification of buildings. Electrification removes natural gas systems from buildings and uses electric alternatives to take advantage of the 100% carbon-free electricity provided by CPA.

The number of employees and residents in Ventura is expected to grow through 2045, and this growth will result in the construction of new residential and commercial buildings. New construction is governed by the California Building Code and must meet the California Green Building Standards (CALGreen), which include requirements for energy performance. The building code is updated every three years to reflect industry best practices and increase the sustainability of new construction. However, to avoid developing greenhouse gas-emitting buildings and infrastructure with useful lives beyond the City's emissions reduction goals, the City will make enhanced green building the standard for all new construction and major remodels. Going beyond CALGreen includes promoting all-electric new construction for both residential and nonresidential buildings by adopting a reach code.

Performance Metrics

- Number of all-electric new development projects
- Citywide natural gas use
- Number of new development projects that exceed CALGreen energy efficiency standards

Built Environment, New Construction – Improved Energy Efficiency of New Construction

BNC 1.1 Green Building Design Guidelines

Develop design guidelines for new residential and nonresidential construction that include passive design strategies (i.e., minimizing solar reflectivity, implementing cool roofs, placing trees or vegetation to maximize shading, orienting building for ideal climate conditions including daylighting) and for maximizing solar resources (e.g., photovoltaic capacity of roof space, south facing windows).

Implementation Actions:

1. Draft green design guidelines and educational materials.
2. Include green building resources in permit application packets or permit incomplete letters.
3. Promote green design guidelines to internal stakeholders including Building and Planning, and external stakeholders including developers, property owners and managers.

GHG Reduction Potential	Supportive
Cost	$
Co-Benefits	Resilience
Responsible Departments	Community Development

BNC 1.2 CALGreen Tier 1 or 2 Energy Requirements for New Development

Encourage new development to meet CALGreen Tier 1 or 2 energy efficiency requirements through a combination of financial and development process incentives (e.g., expedited permitting, FAR increases, etc.).

Implementation Actions:

1. Conduct outreach to determine effective incentives and explain the benefits of enhanced building performance.
2. Develop incentive program during next zoning ordinance update.
3. Develop and distribute educational materials.

GHG Reduction Potential	Low
Cost	$
Co-Benefits	Resilience, air quality, public health
Responsible Departments	Community Development

BNC 1.3 CALGreen Tier 1 or 2 Energy Requirements for Remodels

Encourage alterations or addition at least 50% of the size of the original building to meet CALGreen Tier 1 or 2 energy efficiency requirements through a combination of financial and development process incentives (e.g., expedited permitting, FAR increases, etc.).

Implementation Actions:

1. Conduct outreach to determine effective incentives and explain the benefits of enhanced building performance.
2. Develop incentive program during next zoning ordinance update.
3. Develop and distribute educational materials.

GHG Reduction Potential	Low
Cost	$
Co-Benefits	Resilience, air quality, public health
Responsible Departments	Community Development

BNC 1.4 Energy-Use Data

Update the City's Development Review and Building Permit forms to request voluntary energy-related data, e.g., Home Energy Rating System (HERS) ratings for homes, Title 24, Part 6 compliance percentage, LEED certification level, etc. The City should update permitting software so Development Review and Building Permit staff can input energy-related data for CARP implementation tracking.

Implementation Actions:

1. Determine appropriate energy related information to track.
2. Update Development Review and Building Permit forms.
3. Update permitting software so Development Review and Building Permit staff can input energy-related data for CARP implementation tracking.

GHG Reduction Potential	Supportive
Cost	$
Co-Benefits	Resilience, air quality, public health
Responsible Departments	Community Development

Built Environment, New Construction – All-Electric New Construction

BNC 2.1 Minimum Panel Capacity

Set minimum electric panel capacity standards for single family residential new construction at 200 amps.

Implementation Actions:

1. Amend building code to require a minimum panel capacity of 200 amps for low rise residential new construction.
2. File amendments with the California Building Standards Commission (CBSC).

GHG Reduction Potential	Supportive
Cost	$
Co-Benefits	Resilience, air quality, public health
Responsible Departments	Community Development

BNC 2.2 Residential All-Electric New Construction

Investigate and implement a localized reach code for new residential construction to prohibit or disincentivize connection to natural gas lines.

Implementation Actions:

1. Engage with stakeholders including City staff and officials, and external stakeholders, such as local developers regarding the purpose and impact of the reach code.
2. Conduct a cost effectiveness study or utilize studies developed by the California Energy Commission (CEC).
3. Develop and draft an ordinance.
4. Submit the adopted ordinance to the CEC and California Building Standards Commission (CBSC).

GHG Reduction Potential	Medium
Cost	$
Co-Benefits	Resilience, air quality, public health
Responsible Departments	Community Development

Existing Buildings

Buildings are the primary users of energy within the city and the main vehicle to reduce energy-related emissions. Electricity use in residential and nonresidential buildings accounts for 14% of community emissions and natural gas use accounts for 20% of community emissions. There are two main approaches to reduce emissions in buildings. The first is improved energy efficiency of new and existing buildings and the second is through the electrification of buildings. Electrification removes natural gas systems from buildings and uses electric alternatives to take advantage of the 100% carbon-free electricity provided by CPA.

Most building-related emissions are attributable to the existing building stock, which is much less efficient than new construction due to being built before building energy standards. Decarbonizing existing buildings is critical to meeting emissions reduction goals. There are many challenges associated with improving the performance of existing buildings including costs, rental/ownership status and split incentives, and technological constraints. However, benefits include healthier indoor air quality, reduced energy use and lower utility bills, and more resilient building systems. Improving existing buildings in Ventura would focus on electrification and promoting existing energy efficiency programs offered by utility companies.

Performance Metrics

- Number of electric panel upgrades
- Number of building electrification retrofits
- Number and type of retrofits in disadvantaged communities
- Citywide natural gas use

Built Environment, Existing Buildings – Improved Energy Efficiency of Existing Buildings

BE 1.1 Energy and Water Benchmarking

Adopt energy and water benchmarking ordinance for commercial buildings over a specified square footage.

Implementation Actions:

1. Conduct a study to determine the appropriate square footage threshold to capture additional buildings than AB 802.
2. Engage with stakeholders including City staff, nonresidential property owners and managers.
3. Draft and adopt an ordinance.

GHG Reduction Potential	Low
Cost	$
Co-Benefits	Lower utility costs
Responsible Departments	Community Development

BE 1.2 Green Building Labeling Program

Collaborate with 3C-REN, Associations of Realtors, and other similar organizations to develop, and promote the benefits of, a real estate Green Building Labeling Program that recognizes residential and nonresidential properties that are energy efficient, have good HERS score, and incorporate green building techniques.

Implementation Actions:

GHG Reduction Potential	Supportive
Cost	$
Co-Benefits	Lower utility costs, improved climate literacy
Responsible Departments	Environmental Sustainability Division

1. Engage with stakeholders including residential and nonresidential property owners, managers, real estate agents, leasing brokers, and Chamber of Commerce to explain the benefits of providing a Home Energy Score.
2. Develop and distribute educational materials.
3. Encourage properties to take steps to improve their Energy Score through utility energy efficiency programs and other streamline permitting process.
4. Partner with Associations of Realtors to provide information on IOU and CPA energy efficiency incentives and rebates to residential and nonresidential property sellers and buyers. Support should be provided to sellers and buyers when they are submitting rebate and incentive applications during point-of-sale transactions.

BE 1.3 Energy Efficiency Programs and Incentives

Promote existing IOU and state agency financing programs like the Residential Energy Efficiency Loan program that is designed to help homeowners and renters access competitive financing solutions for energy efficiency projects.

Implementation Actions:

1. Collaborate with property management firms to develop a Green Commercial Lease Agreement Checklist to support shared landlord-tenant agreements that facilitate financing for energy efficient retrofits to renter-occupied buildings.
2. Partner with utilities to promote and implement energy efficiency programs.
3. Track and report community participation.
4. Investigate the feasibility of developing a Qualified Low-income Home Rehabilitation Loan program to finance home repairs eliminating health and safety hazards, increasing energy efficiency, and maintaining local housing stock.
5. Investigate developing a revolving loan fund or on-bill financing to help bring down the cost of residential and nonresidential energy efficiency retrofits and renewable energy projects not covered by IOUs or CPA.

GHG Reduction Potential	Low
Cost	$
Co-Benefits	Lower utility costs
Responsible Departments	Community Development, Environmental Sustainability Division

BE 1.4 Energy and Climate Education and Incentives

Develop energy and climate education and incentive outreach materials in partnership with local contractors, energy leaders, IOUs, CPA, VCREA, and 3C-REN.

Implementation Actions:

1. Partner with utilities to develop and promote existing and new energy efficiency programs and educational materials.
2. Offer these outreach materials at City planning and building counters, during meetings, and public events within the City of Ventura.

GHG Reduction Potential	Supportive
Cost	$
Co-Benefits	Lower utility costs, improved climate literacy
Responsible Departments	Environmental Sustainability Division

Built Environment, Existing Buildings – Electrify Existing Buildings

BE 2.1 Existing Building Electrification Plan

Adopt a phased in electrification plan for existing buildings that promotes and as needed requires the retrofit of existing buildings to all electric starting with incentives, adopting a burnout ordinance, and the eventual adoption of a date-certain ordinance.

Implementation Actions:

GHG Reduction Potential	High
Cost	$$
Co-Benefits	Lower utility costs, improved climate literacy
Responsible Departments	Environmental Sustainability, Community Development

1. Engage with stakeholders including City staff and officials, and external stakeholders, such as local developers regarding the purpose and impact of the requirements.
2. Draft and adopt plan including phasing timeline of requirements starting with a burnout ordinance.
3. Conduct CEQA analysis, as needed.
4. Provide technical resources, including hosting workforce development trainings for installers and building owners/operators to discuss benefits and technical requirements of decarbonization and carbon-free energy sources.
5. Develop a tracking process to track natural gas and electric appliance/system installations.
6. Provide education around cooking with electric appliances, including demonstrations from chefs and/or local restaurants.
7. Promote the cost and environmental benefits of decarbonization and carbon-free energy sources to builders, property owners, and contractors on the City website and at the City permit counters.
8. Work with SoCalGas to identify opportunities for natural gas infrastructure pruning to reduce the chance of stranded assets, provide potential funding, and establish an efficient transition to carbon neutral buildings.

Transportation

Transportation-related emissions are the largest contributor to communitywide emissions, accounting for 48%. There are two main levers to reduce emissions associated with transportation. The first is to "clean" vehicle miles traveled (VMT) through vehicle electrification and access to carbon-free electricity from CPA. Second, is to reduce VMT through transportation demand programs and policies. Vehicle electrification can result in immediate emissions reductions because of the availability of carbon-free electricity in the city. However, EV adoption is not directly within the City's control. Transportation demand measures (TDMs) to reduce VMT, on the other hand, take longer to implement but can generate many co-benefits in addition to reducing greenhouse gas emissions.

Performance Metrics

- Transit, walk, and bike trips account for 38% of all trips
- Transit ridership
- Number of EV registrations
- Number of EV charging installations

Transportation – Clean VMT through Electrification

TL 1.1 Affordable Housing Electric Vehicle Charging

Partner with the local Housing Authority and CBOs to increase EV charging stations and EV car adoption at affordable housing projects.

Implementation Actions:

1. Partner with Housing Authority to connect affordable housing developers, property managers, and residents with EV charger installation resources and programs, and EV purchasing resources.
2. Develop and distribute educational materials.
3. Investigate the feasibility of the Housing Authority to host an EV carshare pilot project for a multifamily housing project.

GHG Reduction Potential	Supportive
Cost	$
Co-Benefits	Air quality, public health
Responsible Departments	Environmental Sustainability Division

TL 1.2 EV Charging Reach Code

Investigate and implement a reach code to require all new nonresidential and multi-family housing construction to install EV charging stations.

Implementation Actions:

1. Engage with stakeholders including City staff and officials, and external stakeholders, such as local developers regarding the purpose and impact of the reach code.
2. Conduct a cost effectiveness study or utilize studies developed by the CEC.
3. Develop and draft an ordinance.
4. Submit the adopted ordinance to the California Building Standards Commission (CBSC).

GHG Reduction Potential	Low
Cost	$
Co-Benefits	Air quality, public health
Responsible Departments	Community Development

TL 1.3 Partnerships to Encourage Electric Vehicle Charger Installation

Increase installation of private EV charging stations by promoting federal, state, SCE, CPA, and local rebates and incentive.

Implementation Actions:

GHG Reduction Potential	Low
Cost	$
Co-Benefits	Air quality, public health, reduced congestion
Responsible Departments	Environmental Sustainability Division

1. Partner with utilities, VCREA and Electric Drive 805 to develop and promote existing and new EV programs and educational materials.
2. Expand public-private partnerships to support outreach efforts that will increase awareness of EV models and their benefits, through activities such as green car shows and test-drive events.
3. Offer these outreach materials at City planning and building counters, during meetings, public events within the City of Ventura, on city website.
4. Collaborate with VCREA, Community Environmental Council, EV Advocates of Ventura County, Electric Drive 805, and other EV advocacy groups to identify EV infrastructure funding sources, identify and remove local barriers to EV charging station installations, and recommend consistent affordable rate structures for public charging stations.
5. Increase installation of private EV charging stations by promoting federal, state, SCE, CPA, and local rebates and incentives through existing communication channels such as the City, VCREA, and Electric Drive 805 websites, social media, and additional methods as identified by the City.

Transportation – Reduced VMT through Mode Shift

TL 2.1 TDM Program

Adopt a mandatory TDM program for new construction and develop incentives to encourage existing businesses and multifamily developments to participate.

Implementation Actions:

GHG Reduction Potential	Medium
Cost	$-$$
Co-Benefits	Air quality, public health, reduced congestion
Responsible Departments	Community Development, Public Works

1. Develop options for a mandatory TDM policy that includes trip reduction requirements (including penalties for noncompliance), regular monitoring and reporting, and dedicated city staff for new development.
2. Conduct focus groups with large employers, small employers, and housing developers on their opportunities and challenges of implementing a TDM program.
3. Adopt a TDM ordinance that requires employers and housing developments of a certain size to submit an emissions reduction plan that includes:
    - Site analysis
    - Annual vehicle ridership survey results
    - Emissions reduction options
    - Employee trip reduction program with a menu of options such as transit information, guaranteed ride home program, commuter choice program, transit pass program, carpool preferential parking, secure bike parking, vanpool program, parking charge, telecommuting, prize incentives, transportation allowance, etc.
4. Explore increasing staffing capacity or establishing a Transportation Management Authority (TMA) to administer citywide TDM and VMT reduction programs.
5. Explore incentives for existing businesses and multifamily housing to join.
6. Establish a city employee TDM program with mode shift targets for staff.
7. Establish annual reporting requirements to the City Council.

TL 2.2 Improve Curb Management

Evaluate the current and best use of curb space in the city's activity centers and repurpose space to maximize people served (i.e., for loading, bikeways, bike parking, bus lanes, EV charging, or parklets).

Implementation Actions:

1. Reevaluate the City's micromobility ban by engaging City Council, businesses, and residents about needs and impacts.
2. Conduct a curb space use plan to identify and assess competing priorities.
3. Conduct community outreach and promote the program.

GHG Reduction Potential	Supportive
Cost	$$
Co-Benefits	Improved air quality
Responsible Departments	Community Development, Public Works

TL 2.3 Land Use and Transportation Coordination

Manages land use change to support greenhouse gas reduction targets by focusing development in location efficient places, creating complete communities, and increasing density. Complete, mixed-use neighborhoods allow residents to access most of their everyday needs within a short walk, bike, or transit trip.

Implementation Actions:

1. Identify appropriate transit corridors in conjunction with Gold Coast Transit, VCTC, and SCAG.
2. Determine criteria for increased density and increased density allowances.
3. Evaluate new approval and permit streamlining for new housing that exceeds inclusionary and sustainability requirements.
4. Establish additional incentives in the zoning code to facilitate affordable housing in transit-rich areas.
5. Update the zoning code to ensure a diverse use of services and amenities are allowed in each neighborhood, including childcare, healthy food, community gardens, and other amenities. Increase the types of home-based businesses allowed in residential neighborhoods
6. Engage with stakeholders including City staff and officials, and external stakeholders, such as local developers regarding the purpose and impact of the requirements.
7. Update General Plan Land Use Designations and Zoning Districts.

GHG Reduction Potential	Medium
Cost	$
Co-Benefits	Air quality, public health, reduced congestion
Responsible Departments	Community Development, Public Works

TL 2.4 Active Transportation Plan

Prioritize, fund, and implement the Active Transportation Plan (ATP).

Implementation Actions:

1. Prioritize and implement all policy recommendations included in the ATP to improve pedestrian, bicycle networks, and increase transit ridership based on the established timeframes.
2. Align implementation with CIP funding cycles.
3. Identify additional funding sources, such as grant funding or a revised Transportation Mitigation Fee program for ATP implementation.
4. Establish tracking, reporting, and update requirements for the ATP.

GHG Reduction Potential	Medium
Cost	$$$$
Co-Benefits	Air quality, public health, reduced congestion, safety
Responsible Departments	Public Works

TL 2.5 Transit Service Levels

Expand and improve transit and shared mobility services to be more accessible, affordable, and timely.

Implementation Actions:

1. Work with Gold Coast Transit, VCTC, and Metrolink to conduct a transit service gaps analysis to determine how service can be improved.
2. Partner with transit agencies to implement service improvements.
3. Identify additional funding sources, such as a revised Transportation Mitigation Fee program or Measure O funding for improved transit service levels.
4. Conduct community outreach and promote the service improvements.

GHG Reduction Potential	Low
Cost	$
Co-Benefits	Air quality, public health, reduced congestion, safety
Responsible Departments	Public Works

TL 2.6 First Mile-Last Mile

Leverage public-private partnerships to increase transit ridership and improve transit station access by incorporating first/last mile bus, shuttle, and active transportation connections between employment hubs and regional transit stations.

Implementation Actions:

1. Work with Gold Coast Transit, VCTC, and Metrolink to improve access to transit stations / stops for active transportation modes.
2. Complete ATP projects connecting to transit stations / stops.
3. Evaluate mobility hubs to determine the financial costs, infrastructural needs, and economic feasibility to support first-last mile service.

GHG Reduction Potential	Low
Cost	$
Co-Benefits	Resilience, air quality, public health
Responsible Departments	Public Works, Community Development

TL 2.7 Transit Fares

Collaborate with transit agencies and shuttle providers to scale service levels in growing areas and leverage private sector subsidies of transit fares to support ridership.

Implementation Actions:

1. Work with private partners including businesses, employers, and housing developments to subsidize transit fares through TDM plan implementation. Consider expanding existing college subsidy program to include high school and possibly middle school students.
2. Identify additional funding sources, such as a revised Transportation Mitigation Fee program or Measure O funding for improved transit service levels.
3. Conduct community outreach and promote the service improvements.

GHG Reduction Potential	Low
Cost	$
Co-Benefits	Resilience, air quality, public health
Responsible Departments	Public Works

Solid Waste

Solid waste accounts for 4% of Ventura's overall emissions. By consuming less materials, recycling, and composting more, the community will be able to reduce the amount of waste sent to landfill and eventually become a zero-waste city. Specifically, diverting organic material including food waste is a crucial step to meeting long-term goals, because landfilled organic materials produce methane, which is a more potent GHG than carbon dioxide. The State adopted Senate Bill 1383, the Short-Lived Climate Pollutants Act, which requires jurisdictions to divert 75% of food waste from landfills by 2025, and jurisdictions must also recover food waste that can be repurposed. Moreover, organics recycling can provide useful byproducts including compost and biogas, which can further reduce emissions and provide economic benefits.

Performance Metrics

- Communitywide waste generation
- Tons of food waste diverted from landfill
- Tons of edible food recovered and redistributed

Solid Waste – Increased Diversion from Landfill

SW 1.1 SB 1383 Compliance

Adopt an SB 1383 compliant zero-waste plan for municipal operations and the community that includes: mandatory residential and commercial recycling and collection of organics/food waste, mandatory commercial edible food recovery program, and updated trash enclosure space and access requirements based on hauler recommendations to accommodate all waste streams (e.g., recycling, trash, and organics).

Implementation Actions:

1. Partner with waste hauler to:
   - Provide for organic waste collection from mixed waste containers are transported to a high diversion organic waste processing facility
   - Provide quarterly route reviews to identify prohibited contaminants potentially found in containers that are collected along route.
   - Identify contaminated waste generators in need of technical assistance
   - Develop and distribute educational materials and in-person assistance
   - Clearly label all new containers indicating which materials are accepted in each container, and by January 1, 2025, place or replace labels on all containers.
2. Modify development waste plan requirements to update enclosure standards to include space for food waste receptacles.

GHG Reduction Potential	Medium
Cost	$
Co-Benefits	
Responsible Departments	Environmental Sustainability Division

SW 1.2 Single-Use Food Service Ware

Expand the City's polystyrene ban to include single use food service ware.

Implementation Actions:

1. Engage stakeholders including restaurants, businesses, local shipping/delivery companies, and the Chamber of commerce on the impact, alternative products, and benefits of the ordinance.
2. Draft and adopt ordinance.
3. Work with waste hauler and economic development to establish monitoring and enforcement process as necessary

GHG Reduction Potential	Low
Cost	$
Co-Benefits	
Responsible Departments	Environmental Sustainability Division

SW 1.3 C&D Diversion Requirements

Require 85% of construction and demolition (C&D) debris be recycled.

Implementation Actions:

1. Research local disposal facility diversion rates to determine potential for additional diversion.
2. If possible, draft and adopt ordinance.
3. Submit the adopted ordinance to the California Building Standards Commission (CBSC).
4. Conduct community outreach about new diversion requirements.

GHG Reduction Potential	Low
Cost	$
Co-Benefits	
Responsible Departments	Environmental Sustainability Division, Community Development

SW 1.4 Sustainable Construction Materials

Explore modifications to the building code that would require certain products to be locally sourced and/or contain a percentage of recycled content.

Implementation Actions:

1. Reach out to US Green Building Council, Los Angeles (USGBC-LA) to determine appropriate materials and % recycled content.
2. Engage with stakeholders including City staff and officials, and external stakeholders, such as local developers regarding the purpose and impact of the policy.

GHG Reduction Potential	Supportive
Cost	$$
Co-Benefits	
Responsible Departments	Environmental Sustainability Division, Community Development

SW 1.5 Lifecycle Climate Impacts and Extended Producer Responsibility

Advocate at the appropriate governmental level for goods and services to disclose lifecycle climate impacts. Advocate for more robust extended producer responsibility policies statewide.

Implementation Actions:

1. Work with the City Attorney to support advocacy efforts lead by environmental groups pursuing this issue.

GHG Reduction Potential	Supportive
Cost	$
Co-Benefits	
Responsible Departments	Environmental Sustainability Division, Public Works, Finance

Water and Wastewater

Water is a critical resource in California and Ventura. Regional water supplies are already being adversely affected by climate change induced drought and decreased snowpack. Ventura meets the city's demand with locally pumped groundwater, Lake Casitas and the Ventura River. Climate change may impact local hydrology and affect natural recharge to the local groundwater aquifers and the quantity of groundwater that could be pumped sustainably over the long-term. Lower rainfall and/or more intense runoff, increased evaporative losses, and warmer and shorter winter seasons can alter natural recharge of groundwater.

Water related emissions in Ventura account for less than 1% of the communitywide total emissions, because of being treated and distributed locally using clean electricity from CPA. Ecosystem and quality of life benefits that reliable clean water provide are important to protect. Thus, reducing indoor and outdoor water use through fixture upgrades and climate-appropriate landscaping for both residential and nonresidential buildings is important. However, an important trade off of water conservation and drought is that the Ventura Water Reclamation Facility will be impacted by lower flows to the facility and challenges with treating highly concentrated wastewater streams.

Performance Metrics

- Gallon per capita per day (GPCD)
- Number of WELO compliant landscape renovations
- Number of plumbing fixture upgrades

Water and Wastewater – Reduce Water Use

WW 1.1 Water Efficiency Requirements

Adopt CALGreen Tier 1 or 2 water efficiency requirements for new construction or additions of 50% the size of the original building.

Implementation Actions:

1. Develop and draft an ordinance modifying the building code to make Tier 1 or 2 water requirements mandatory for new development and remodels.
2. Submit the adopted ordinance to the California Building Standards Commission (CBSC).

GHG Reduction Potential	Low
Cost	$
Co-Benefits	Resilience, lower utility costs
Responsible Departments	Community Development, Ventura Water

WW 1.2 Landscaping Efficiency Requirements

Modify Model Water Efficient Landscape Ordinance (MWELO) to require all landscape projects to obtain a landscape permit, decrease the size threshold to capture all landscape renovations, add prescriptive irrigation, plant lists, or water budget requirements.

Implementation Actions:

1. Engage with stakeholders including City staff and officials, and external stakeholders, such as local developers regarding the purpose and impact of the requirements.
2. Draft and adopt ordinance.

GHG Reduction Potential	Low
Cost	$
Co-Benefits	Resilience, lower utility costs
Responsible Departments	Community Development, Ventura Water

WW 1.3 Greywater Systems

Create a streamlined permit process for laundry-to-landscape greywater systems.

Implementation Actions:

1. Review current permitting procedures and reach out to industry experts.
2. Determine eligibility criteria for systems that qualify for expedited permitting and provide permitting checklist.
3. Explore the potential to allow for digital signatures and online permit application submittals.
4. Shorten the inspection process to one inspection for qualifying systems.

GHG Reduction Potential	Supportive
Cost	$
Co-Benefits	Resilience, lower utility costs
Responsible Departments	Environmental Sustainability, Community Development

WW 1.4 Alternative Water Supplies

Explore alternative water supplies including local groundwater, recycled water, etc.

Implementation Actions:

1. Identify potential sources of water including groundwater and recycled water.
2. Conduct feasibility assessment of potential sources.
3. Include water source development in water system/CIP budget and schedule.

GHG Reduction Potential	Supportive
Cost	$-$$$
Co-Benefits	Resilience
Responsible Departments	Ventura Water

Community Education and Partnerships

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

Measures in this sector also highlight important partnerships that the City should develop to enhance its capacity to conduct outreach and engage a broader swath of the Ventura community. These partnerships include capitalizing on existing utility programs, regional and county climate organization efforts, and existing communications structures.

The following measures are included as part of the CARP to support the implementation of the measures in sectors above. The greenhouse gas reduction potential of the community education measures is not quantified but is stated as supportive in that implementing these measures aids in implementation of related measures and help achieve their greenhouse gas reduction potential.

Performance Metrics

- Number of annual CARP community events
- Number of people engaged annually
- Participation rates in City CARP and utility rebate programs

City of Ventura Environmental Outreach

The City of Ventura has a robust environmental outreach program that engages schools, businesses, and residents in the City of Ventura. Utilizing resources such as newsletters, social media profiles, press releases, website pages, billboards and more, the City successfully reaches tens of thousands of residents on an annual basis with its environmental messages.

The Green Schools program offers education and resources to schools in an effort to bolster their sustainability efforts. VUSD has partnered with the City for over a decade to provide classroom presentations. In 2019, Environmental Sustainability and Ventura Water offered presentations to over 8,000 students at 27 different schools.

The City's environmentally focused video content receives hundreds of thousands of views annually between the various social media platforms. Topics ranging from composting and public parks to water efficiency and energy conservation gather viewers from all demographics throughout the City and beyond city limits.

The City also has a robust Green Business Program that supports businesses in reducing energy, water, waste, and operating costs while facilitating certification through the California Green Business Network. This program reaches dozens of businesses annually and has resulted in over 80 certified green businesses in the City of Ventura.

The City partners with local organizations, such as the Community Environmental Council, VCREA, and the Central Coast Green Building Council to offer educational workshops and presentations to residents. These topics range from the Solarize program, the EAP, Green Building Speaker Series, and more.

COM 1.1 Environmental Sustainability Website and Outreach Methods

Regularly update the City's Environmental Sustainability website, social media, and other outreach methods with greenhouse gas reduction and energy-focused resources including programs, rebates, and incentives offered by IOUs, CPA, VCREA, 3C-REN and other energy-focused organizations. Case studies and best practices highlighting successful energy improvements and greenhouse gas mitigation should also be included in the outreach materials.

GHG Reduction Potential	Supportive
Cost	$
Co-Benefits	
Responsible Departments	Environmental Sustainability Division, PIO

COM 1.2 Community Updates on CARP and Energy Reduction Goals

Regularly update the City's Environmental Sustainability website, Sustainable Ventura Newsletter, social media, and other outreach methods showing the community's progress towards achieving local energy and greenhouse gas reduction and climate goals.

GHG Reduction Potential	Supportive
Cost	$
Co-Benefits	
Responsible Departments	Environmental Sustainability Division, PIO

COM 1.3 Sustainable Ventura Newsletter

Dedicate a portion of the Sustainable Ventura Newsletter to green business operations, including programs, case studies, and opportunities to reduce energy consumption and capitalize on financing programs like Property Assessed Clean Energy (PACE) and IOU-sponsored on-bill financing.

GHG Reduction Potential	Supportive
Cost	$
Co-Benefits	
Responsible Departments	Environmental Sustainability Division, PIO

COM 1.4 Community Workshop Series

Partner with key community stakeholders, IOUs, CPA, VCREA, and other climate and energy focused organizations to develop a quarterly workshop series to engage and educate the public on rebates and incentives, programs, partnerships, and other opportunities to enrich energy and climate education.

GHG Reduction Potential	Supportive
Cost	$
Co-Benefits	
Responsible Departments	Environmental Sustainability Division, PIO

COM 1.5 Green Building Trainings

Support 3C-REN, AIA Ventura Chapter, Central Coast Green Building Council, and other green building organizations in developing green building trainings, sharing case studies, and offering other educational opportunities. Explore development of a Green Building Awards Competition.

GHG Reduction Potential	Supportive
Cost	$
Co-Benefits	
Responsible Departments	Environmental Sustainability Division, PIO

COM 1.6 Energy Storage Outreach Program

Collaborate with Community Environmental Council and VCREA to develop and implement an energy storage outreach and education program. Program offerings could include hosting community energy storage workshops and developing informational materials on the benefits of and available incentives for energy storage.

GHG Reduction Potential	Supportive
Cost	$
Co-Benefits	
Responsible Departments	Environmental Sustainability Division, PIO

COM 1.7 Home Energy Savings Do-It-Yourself Toolkit Promotion

Partner with 3C-REN, VCREA, and the Ventura County Library System to promote Home Energy Savings Do-It-Yourself Toolkits. Each kit includes tools to help measure a home's current energy use, along with helpful tips on ways to make a home more energy smart. The kits also include free items to keep like light-emitting diode (LED) lightbulbs, low-flow showerheads, and other things to help homes use less energy and water.

GHG Reduction Potential	Supportive
Cost	$
Co-Benefits	
Responsible Departments	Environmental Sustainability Division, PIO

COM 1.8 Electric Vehicle Outreach

Partner with VCREA, Community Environmental Council, EV Advocates of Ventura County, Electric Drive 805, and other EV advocacy groups to develop and implement an EV outreach and education program. Program offerings could include hosting events like EV "lunch and learns" and developing informational materials on the benefits of EV ownership.

GHG Reduction Potential	Supportive
Cost	$
Co-Benefits	
Responsible Departments	Environmental Sustainability Division, PIO

COM 1.9 Ventura Unified School District Engagement

Continue partnership with Ventura Unified School District (VUSD) to empower students to be leaders in reducing greenhouse gas emissions, lowering energy consumption, and utilizing EVs in their community through in-class education, internships, and other programs.

GHG Reduction Potential	Supportive
Cost	$
Co-Benefits	
Responsible Departments	Environmental Sustainability Division, PIO

COM 1.10 Energy Outreach Targeting

Partner with 3C-REN and Community Action of Ventura County to conduct focused homeowner and renter outreach to the city's disadvantaged and low-income communities, using Energy Atlas data and maps to guide outreach.

GHG Reduction Potential	Supportive
Cost	$
Co-Benefits	
Responsible Departments	Environmental Sustainability Division, PIO

City Leadership

The ability to meet Ventura's goals of mitigating carbon emissions and adapting to the effects of climate change will be demonstrated by City actions. The City will implement a series of actions that will both reduce carbon emissions from municipal operations and enhance resiliency. These actions include energy and water efficiency upgrades for City facilities, parks, and landscapes, sustainable new construction, the electrification of buildings and fleet vehicles, supporting electric vehicle adoption through charger installation, and the installation of resilience measures as discussed in Chapter 4: Our Adaptation Strategy. These policies will not only reduce emissions but create community benefits through leading by example.

Performance Metrics

- Number of City buildings retrofitted to eliminate natural gas use
- Percent of City fleet powered by clean energy
- Reduction in GHG emissions from City operations

Municipal Measures

CL 1.1 City Facilities Decarbonization Plan

Develop a decarbonization plan for City facilities that aligns with the CIP process.

Implementation Actions:

GHG Reduction Potential	Low
Cost	$-$$
Co-Benefits	Resilience
Responsible Departments	Environmental Sustainability Division

1. Conduct an energy audit of all City facilities.
2. Identify energy efficiency upgrades to be installed.
3. Identify potential for DERs at City facilities, including those identified in the 2012 ESS.
4. Establish a funding source and timeline to meet the goal for streetlight upgrades as described in the 2018 Public Works Strategic Plan of converting the 1,000 city-owned and maintained streetlights to LEDs by 2025 to reduce costs and improve quality.
5. Investigate establishing a funding source and timeline to attain ownership of SCE owned streetlights and update those lights to LEDs.
6. Upgrade the energy management system to better track the energy consumption of municipal facilities.
7. Develop and implement a green revolving loan fund (RLF) to finance energy projects at municipal facilities and reinvest the money saved from lowered utility bills into future energy projects.
8. Pursue funding opportunities to finance energy upgrade projects identified in energy audits and renewable energy feasibility assessments.
9. Conduct feasibility analysis for installing renewable energy projects at all City-owned and operated facilities that were identified as viable solar sites in the ESS and identified as critical facilities.
10. Develop policy to require re-roofing projects on government facilities to evaluate the feasibility of incorporating solar or "solar ready" features, including mounting posts for panels and roof penetrations for conduit and/or pipes for facilities.
11. Align improvements timeline with CIP process including utility available incentive programs.
12. Draft and adopt plan.

CL 2.1 Public Electric Vehicle Charger Installations

Collaborate with VCREA, Community Environmental Council, EV Advocates of Ventura County, Electric Drive 805, and other EV advocacy groups to build upon the EV Infrastructure Interactive Map by identifying new preferred locations for Level 2 and DC Fast Chargers.

Implementation Actions:

1. Conduct an EV charger gap analysis to identify locations in need of additional chargers.
2. Partner with utilities, VCREA and Electric Drive 805 to develop to install, maintain, and operate publicly accessible EV chargers.
3. Update interactive map with new charger locations.

GHG Reduction Potential	Low
Cost	$
Co-Benefits	Air quality, public health
Responsible Departments	Environmental Sustainability Division

CL 3.1 ZEV Fleet Transition

Establish a vehicle procurement approach that favors EVs for new fleet purchases and build charging infrastructure.

Implementation Actions:

1. Set a goal to transition one eighth of the City fleet to Evs by 2030.
2. Establish a ZEV policy requiring City Departments to purchase light-duty vehicles, if available and cost effective, according to the following priority structure: (1) pure ZEVs, (2) plug-in hybrid Evs, and (3) hybrids.
3. Centralize fleet procurement authority so one staff will review all vehicle procurements and require revisions of selected vehicles if the justification for non-ZEV or hybrid options is lacking.
4. Track the California Division of Measurement Standards updates to proposed regulations for EV charging rates to ensure the charging rates are not burdensome to EV drivers.
5. Install Level 2 charging infrastructure at City public parking lots and investigate the feasibility of installing DC Fast Chargers in these lots.
6. Explore the feasibility of utilizing City owned smart charging stations to earn credit revenue by participating in the California Low Carbon Fuel Standards (LCFS) program.

GHG Reduction Potential	Low
Cost	$$
Co-Benefits	Air quality, public health
Responsible Departments	Public Works

CL 4.1 Sustainability Purchasing Policy

Adopt a municipal sustainable purchasing policy

Implementation Actions:

1. Work with City Manager's office and Finance Department to develop a list of preferred purchasing options
2. Conduct outreach to all city staff about sustainable purchasing policy; include as part of new employee orientation

GHG Reduction Potential	Low
Cost	$
Co-Benefits	
Responsible Departments	Environmental Sustainability Division

CL 5.1 CPA Leadership

Utilize the City's seat on the CPA Board of Directors to advance programs and policies in line with best practices towards decarbonization, electrification, and equity for ratepayers.

Implementation Actions:

1. Advocate for programs and rebates to encourage adoption of Evs, energy efficiency measures, energy storage, and renewable energy systems based on other successful CCE and IOU programs.
2. Encourage programs and rebates to have special consideration for low-medium income residents.
3. Advocate for net energy metering policies that are favorable for solar customers (higher kWh purchase rates than SCE for net surplus generating customers) and the establishment of community solar programs that benefit renters or other customers that cannot install solar where they live or conduct business.
4. Advocate for development of distributed energy resources including solar, energy storage, and microgrid within Ventura County that are designed to improve regional grid resilience and reliability.

GHG Reduction Potential	Supportive
Cost	$
Co-Benefits	Air quality, public health
Responsible Departments	Mayor or City Council

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Chapter 6

Implementing the CARP

The CARP directs City staff to develop and implement specific policies, plans, programs, and projects over the next 10 years to achieve the City's climate goals. Successful implementation of the CARP strategies will require commitment and coordination from staff throughout the City. Although the City will initiate climate action, community involvement is an essential component of the CARP implementation process, as many strategies depend on active participation by residents and businesses.

Priority Implementation Actions

Through an extensive community engagement process, the initial longlist of strategies and actions were prioritized based on their greenhouse reduction potential, co-benefits, and financial resources. These priority actions lay the foundation for future action, contribute to the elimination of greenhouse gas emissions by 2045, and make Ventura more resilient, especially those most at-risk and vulnerable to impacts of climate change.

Table 8. Priority Strategies

Number	Strategy
EH 1.5	**Increase Tree Canopy**. Increase urban tree canopy citywide to mitigate extreme heat.
WM 2.7	**Reduce Fire Risk in WUI.** Continue to coordinate with CAL FIRE, Ventura County Fire, Ventura Regional Fire Safe Council, and neighboring jurisdictions on wildfire risk reduction activities in the Wildland Urban Interface (WUI) and open space areas in and adjacent to the City.
SLR 6.4	**Coastal Resilience Funding**. Research external funding opportunities to implement coastal resilience and coastal restoration projects.
CA 8.1	**Community Engagement Campaign**. Develop a community-wide engagement campaign to educate the public on anticipated near and long-term climate impacts, community vulnerabilities, and opportunities for adaptation.
CE 2.4	**CPA Participation**. Maintain City membership in Clean Power Alliance (CPA) and continue to work to maintain a minimum of 95% of private property owner participation in CPA at the 100% Green tier.
BNC 2.2	**Residential All-Electric New Construction**. Investigate and implement a localized reach code for new residential construction to prohibit or disincentivize connection to natural gas lines.
BE 1.3	**Energy Efficiency Programs and Incentives**. Promote existing IOU and state agency financing programs like the Residential Energy Efficiency Loan program that is designed to help homeowners and renters access competitive financing solutions for energy efficiency projects.
TL 1.3	**Partnerships to Encourage Electric Vehicle Charger Installation**. Increase installation of private EV charging stations by promoting federal, state, SCE, CPA, and local rebates and incentive.
TL 2.4	**Active Transportation Plan**. Prioritize, fund, and implement the Active Transportation Plan (ATP).
COM 1.1	**Environmental Sustainability Website and Outreach Methods.** Regularly update the City's Environmental Sustainability website, social media, and other outreach methods with greenhouse gas reduction and energy-focused resources including programs, rebates, and incentives offered by IOUs, CPA, VCREA, 3C-REN and other energy-focused organizations.

Cost Estimates and Funding Sources

Cost Effectiveness

There are many different approaches to establishing implementation cost estimates for CARP strategies. Implementation costs include both administrative and programmatic costs to the City, and equipment and services costs to residents and businesses. Costs can be expressed as relative costs to a determined baseline, up-front first costs or the direct costs of implementation, or long-term cost effectiveness, the total cost of action implementation over time accounting for cost savings over the lifetime of the intervention. These estimates differ. Table 9 shows the estimated up-front unit cost of implementing CARP strategies and the estimated greenhouse gas emissions reductions based on the modeled level of implementation needed to achieve the City's targets. These cost estimates may change as the market adjusts to future technological adoption and advancements or additional climate measures are pursued.

Table 9. Relative Cost-Effectiveness of Greenhouse Gas Mitigation Measures

Sector	Sub-Category	Cost	GHG Reduction Potential	Relative Cost Effectiveness (GHG Reduction / Cost)
Clean Energy	Local Renewables	High	Low	Low
	Clean Energy – CPA	Low	High	High
Buildings	Existing Building Energy Efficiency	Medium	Low	Medium
	New Building Electrification	Low	Medium	Medium
	Existing Building Electrification	High	High	Low
Transportation	Electric Vehicles	Medium	Medium	Medium
	Mode Shift	High	High	High
Solid Waste	SB 1383	Low	Low	Low
Water	Water Use	Low	Low	High

Funding Opportunities

The actions in this CARP do not necessarily represent the lowest cost pathway to achieve Ventura's GHG targets. Instead, the actions were chosen to reflect local conditions and priorities, address equity, and to create multiple benefits in addition to emissions reductions. However, implementing the CARP can also provide economic benefits across the city including expanding the local green economy, job creation, and reducing costs for Ventura residents and businesses. For example, making walking and biking safer and transit more accessible can reduce the costs of traveling around Ventura, while promoting an active lifestyle that can help improve health outcomes.

Below is a list of potential funding sources as well as available incentive programs to help reduce the cost of implementing CARP actions:

- **City's General Fund.** This is the primary source of funding for City operations and can be used for any public purpose. It is allocated as part of the overall City budget, approved by City Council. The substantial number of competing priorities for General Fund dollars requires that the City seek out other sources of funding wherever possible to increase the likelihood of successful implementation for each action.
- **Measure O Funding.** Measure O is a general sales tax measure approved in 2016. The twenty-five year measure to support public services.
- **Bonds**. Local governments can sell bonds to investors that raise capital for a specific objective. Bonds must be approved by voter and may have additional oversight or administration requirements.
- **Taxes**. Taxes generate revenue to support local, regional, and state operations. Taxes can be used either for general purposes (e.g., any city service as needed) or specific purposes (e.g., climate change mitigation) but require voter approval. Examples of taxes include:
    - Utility User Tax
    - Real Estate Transfer Tax
    - Parcel Tax
- **Revolving Loan Fund**. Ventura Water could partner with a third-party funding entity to finance energy upgrades. The third-party funding entity would be responsible for loan processing and tracking, and receive a service fee from Ventura Water, separate of the initial capital. Ventura Water would facilitate repayment of these loans to the revolving fund via the water bill and ensure a low interest rate. The City would ensure a low interest rate by establishing a fixed rate in the program contract (e.g., 1.5%), enough to grow the revolving fund but keep loans affordable for residents.
- **State and Federal Grants**. Grants are usually given without expectation of repayment, but often require either matching funds from the City and/or staff time to administer the grants. Grants often fund new and innovative programs. However, grants are also competitive and are not guaranteed source of funding. The following agencies offer climate related grants:
    - Department of Energy
    - California Energy Commission
    - Southern California Edison
    - Southern California Gas Company
    - Ventura County Air Pollution Control District
    - Electrify America
    - FTA Planning Grants
    - CARB
    - CalFire
    - FEMA
    - CDFA Healthy Soils Initiative
    - CalRecycle
- **Incentives and Rebates**. Incentives and rebates are usually monetary motivators that can help cover the cost of implementing specific programs or equipment. Many utilities have incentive

programs to help spur investment, pay for equipment, and expand various markets for newer technologies. Existing programs include:

- CPA Residential and Commercial Rebates
- 3C-Ren Home+ Rebates
- Ventura County Regional Energy Alliance
- California Water Service rebates
- CA Clean Vehicle Rebate Project
- Electric Drive 805
- Single-family Solar Affordable Solar Housing (SASH) Program
- Multifamily Affordable Solar Housing (MASH) Program
- Residential and Commercial Federal ITC for solar photovoltaics
- New local incentives programs as needed

Equitable Program Implementation

Though equity is like equality, they are not the same thing. Equality means everyone receives the same thing regardless of any other factors. Equity, on the other hand, is about ensuring that people have access to the same opportunities to thrive and succeed. A climate equity lens recognizes that people may have different starting points and may need diverse types and levels of support to adapt to climate change to achieve fairness in climate outcomes. Thus, climate equity is achieved when socioeconomic and environmental factors, such as race, income, education, or place, can no longer be used to predict the health, economic, or other wellbeing outcomes from climate change. For the purposes of the CARP, the following dimensions of equity will be considered during program implementation:

- **Procedural.** Create processes that are transparent, fair, and inclusive in developing and implementing any climate program, plan, or policy. This dimension of equity focuses on ensuring that all people are treated openly and fairly, and on increasing opportunities for engagement and ownership in decision-making in all phases of climate resilience planning and CARP implementation.
- **Structural**. Address the underlying structural and institutional systems that are the root causes of social and racial inequities. It is a dimension of equity that makes a commitment to correct past harms and prevent future unintended consequences from climate-related decision-making, such as in the CARP implementation.
- **Distributional**. Fairly distribute resources, benefits, and burdens. This dimension of equity focuses on prioritizing resources for communities that experience the greatest climate and environmental inequities, disproportionate impacts, and have the greatest unmet environmental health needs.

Achieving climate equity will require careful design and execution of policies and programs to improve outcomes for disadvantaged populations in all stages of CARP implementation. When equity is prioritized, climate strategies can address and lessen existing social, racial, and health disparities. Implementation of this CARP will be guided by two equity guardrails:

1. Many of the local benefits resulting from CARP implementation will be focused on disadvantaged communities by meeting priority community needs, improving public health, building on community assets and values, and increasing community resilience.
2. Required measures do not present an undue cost burden on those least able to afford implementation. Financial and technical assistance will be prioritized for disadvantaged communities and sensitive populations, including renters, to allow them to participate in CARP programs and fully realize all benefits.

Monitoring and Evaluation

Monitoring of the CARP's performance involves tracking the performance of individual strategies and estimating the GHG emissions reductions resulting from their implementation. The performance metrics identified for each strategy will be tracked using readily accessible data that is useful for estimating emissions reductions. Periodic re-inventorying of local government and community-wide emissions will also be needed to validate overall progress toward the City's GHG reduction targets.

- **Implementation Checklists**. The City will develop CARP consistency checklists to ensure compliance with CARP strategies when reviewing City plans, programs, and activities including Capital Improvement Projects as well as community development projects. The checklists will help City staff and community development project applicants plan for and approve work that support the City's sustainability goals.
- **Annual CARP Progress Report.** City staff will prepare annual progress reports on CARP implementation to be presented to City Council and other stakeholders as needed. The report will evaluate the successes and challenges in meeting the City's GHG reduction targets (as they become known or apparent), provide the status of implementing actions for each reduction and resilience strategy in the CARP (e.g., initiated, ongoing, completed), assess the effectiveness of each strategy, and recommend adjustments to programs or actions as needed.
- **GHG Inventory.** Staff will update the City's community and municipal operations emissions inventory every five years. Inventory updates will encompass all inventory sectors (residential energy, commercial/industrial energy, large industrial energy, on- and off-road transportation, solid waste, wastewater, water, and municipal operations).
- **CARP Updates.** A comprehensive revision of the CARP should occur at least every five years to monitor progress of greenhouse reductions against the 2030 target and 2045 goal of carbon neutrality, to account for the impact of new legislation and state programs on greenhouse gas targets and emissions reductions, and to adjust strategies and actions as needed to reach the targets. In preparation for the 2030 update and annual reporting to the Planning Commission and City Council, staff will use greenhouse gas inventories and CARP measure implementation to track Ventura's progress in reducing emissions, VMT, waste generation, and energy use over time using readily available data.

Oversight and Accountability

Options for an ongoing structure for oversight in CARP implementation and long-term plan updates:

- Create an internal CARP Implementation Team (led by the Environmental Sustainability Division) to assist in coordinating and implementing actions across departments, identifying synergies/collaboration opportunities, and identifying funding sources.
- Develop and maintain a community-facing CARP Tracking Dashboard for transparency.
- Prepare annual updates for the Planning Commission and City Council on CARP progress, as defined above.

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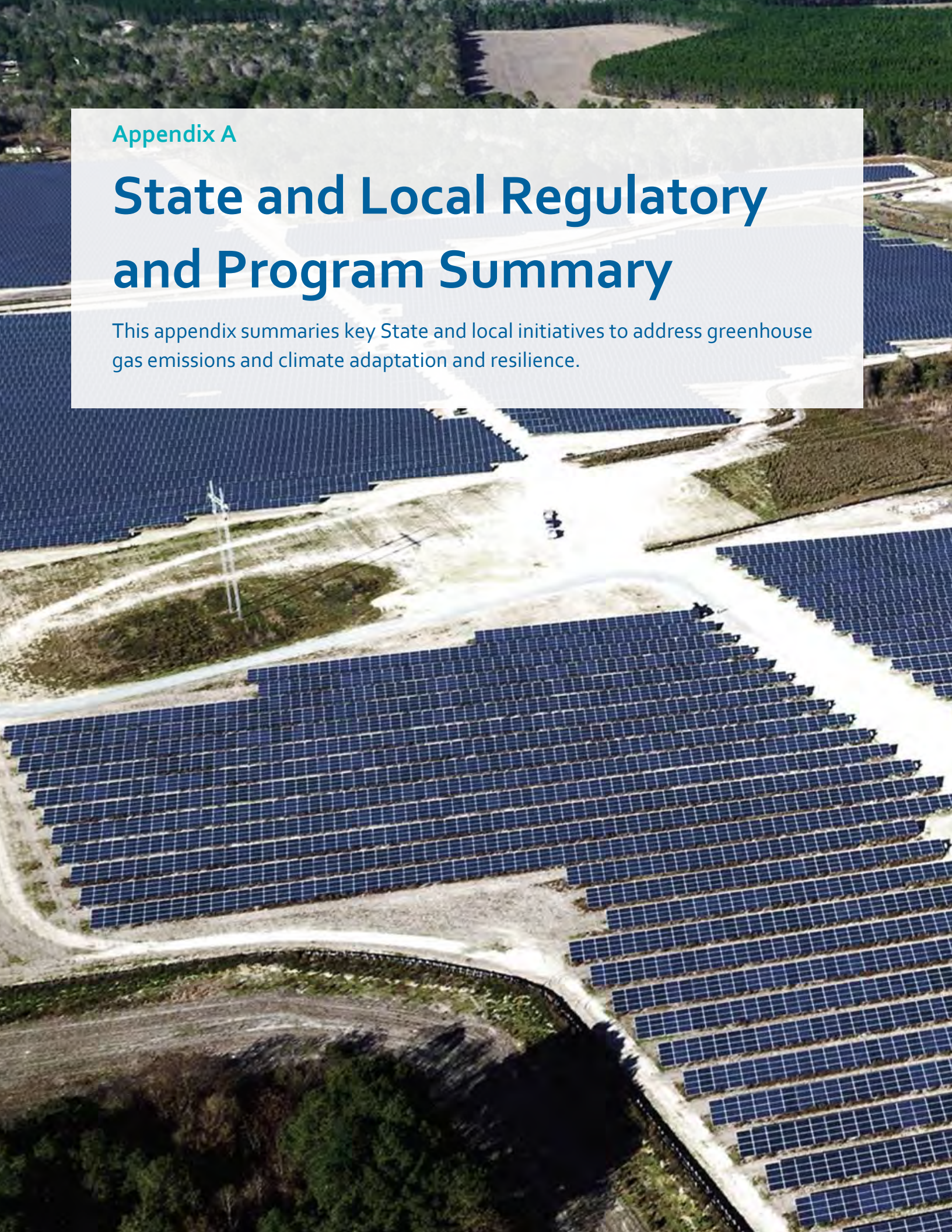


Appendix A

State and Local Regulatory and Program Summary

This appendix summaries key State and local initiatives to address greenhouse gas emissions and climate adaptation and resilience.

State Regulatory Framework

California has established itself as a national leader on climate action. The following section describes key elements of the legislative and regulatory context in California that aids local governments in reducing their GHG emissions. This legislative framework guided the development of the CARP and GHG forecasting.

Table A-1. State Regulatory Framework

Program	Description
Climate Action Targets	
Executive Order B-55-18 (2018): Carbon neutrality by 2045	This Executive Order set a target of statewide carbon neutrality by 2045 and to maintain net negative emissions thereafter.
Senate Bill 32 (2016): Greenhouse Gas emission reduction target for 2030	This Senate Bill establishes a statewide greenhouse gas (GHG) emission reduction target of 40% below 1990 levels by 2030.
Assembly Bill 32 (2006): California Global Warming Solutions Act of 2006.	This Assembly Bill requires the California Air Resources Board (CARB) to adopt a statewide greenhouse gas emissions limit equivalent to the statewide greenhouse gas emissions levels in 1990 to be achieved by 2020. It was California's first GHG reduction target.
Climate Change Scoping Plan (2017)	The Climate Change Scoping Plan was approved by CARB in December 2008 and outlines the State's plan to achieve the GHG reductions required in AB 32. The plan directed municipal governments to reduce their emissions by at least 15% by 2020 compared to 2008 levels or earlier. The Scoping Plan was updated in 2017 to reflect the SB 32 target of reducing emissions by 40% under 1990 levels by 2030.
Clean Energy	
Senate Bill 100 (2018): Renewable Portfolio Standard	This Senate bill requires that 100% of all electricity within California be carbon-free by 2040. Electricity providers must procure from eligible renewable energy sources, with interim goals of 40% by 2024 and 50% by 2030.
Transportation	
Senate Bill 375 (2008): Greenhouse Gas emission reduction targets for vehicles	The Sustainable Communities & Climate Protection Act of 2008 requires CARB to develop regional greenhouse gas emission reduction targets for passenger vehicles. CARB is to establish targets for 2020 and 2035 for each region covered by one of the State's 18 metropolitan planning organizations.

Program	Description
Senate Bill 743 (2013): Transportation Impacts	Introduces a new performance metric, vehicle miles travelled (VMT), as a basis for determining significant transportation impacts under CEQA. Projects that are projected to increase VMT may mitigate their impacts through measures such as car-sharing services, unbundled parking, improved transit, and enhanced pedestrian and bicycle infrastructure.
Executive Order N-79-20 (2020): Zero Emission Vehicles	In line with the carbon neutrality goal, this Executive Order requires the elimination of new, internal combustion passenger vehicles by 2035.
Assembly Bill 2127 (2018): EV charging infrastructure	The California Energy Commission is required to prepare and biennially update a statewide assessment of the electric vehicle charging infrastructure needed to support the levels of electric vehicle adoption for the state to meet its goal of putting at least 5 million zero-emission vehicles on California roads by 2030.
Advanced Clean Truck Rule (2020): Zero emission trucks	CARB adopted this rule requiring manufacturers of heavy-duty, on-road trucks to sell an increasing number of zero-emission trucks. By 2035, zero-emission truck/chassis sales would need to be 55% of Class 2b – 3 truck sales, 75% of Class 4 – 8 vocational truck sales, and 40% of Class 7-8 truck tractor sales.
Innovative Clean Transit (2018): Zero emission bus fleets	CARB adopted this rule requiring public transit agencies to gradually transition to 100% zero-emissions bus fleets by 2040. This regulation applies to all transit agencies that own, operate, or lease buses with GVWR above 14,000 lbs.
Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule (2018)	The U.S. Environmental Protection Agency (US EPA) and the National Highway Traffic Safety Administration (NHTSA) issued the SAFE Vehicles Rule. This rule set a vehicle fleet efficiency standard increase of 1.5% per year above 2020 standards through 2026.
Solid Waste	
Senate Bill 1383 (2016): Short-lived Climate Pollutants – Organic Waste Reductions	This Senate Bill establishes a statewide target to reduce the disposal of organic waste by 75% by 2025 to reduce methane emissions from organic material in landfills.
Assembly Bill 341 (2012) and Assembly Bill 1826 (2016): Mandatory Recycling	AB 341 requires all commercial businesses and public entities that generate 4 cubic yards or more of waste per week and all multi-family apartments with five or more units are also required to have a recycling program in place to help meet the state's recycling goal of 75% diversion by 2020. AB 1826 requires all commercial businesses to

Program	Description
	collect yard trimmings, food scraps, and food-soiled paper for composting.
Adaptation and Resilience	
Senate Bill 379 (2015): Adaptation and Resiliency Planning	California Senate Bill (SB) 379 requires cities and counties within the state to consider and address climate change and resiliency within the Safety Element of their General Plans. The Bill requires local agencies to perform a vulnerability assessment that identifies the potential impacts to the community associated with climate change. Further, cities and counties must utilize the vulnerability assessment to develop goals and policies to facilitate climate adaptation and minimize the risks associated with climate impacts.
Disaster Mitigation Act of 2000: Hazard Mitigation Plan	FEMA's Disaster Mitigation Act is intended to "reduce the loss of life and property, human suffering, economic disruption, and disaster assistance costs resulting from natural disasters." Under this legislation, state, tribal, and local governments must develop a hazard mitigation plan as a condition for receiving certain types of non-emergency disaster assistance through the Hazard Mitigation Assistance Programs.

Environmental Action in Ventura

The City of Ventura has a strong history of taking environmental action. Residents, businesses, and community groups maintain a strong environmental ethic and work to conserve the ecological wealth of the community. While the City of Ventura has historically had a strong environmental ethic, efforts to address GHG emissions have been decentralized. The City of Ventura's Environmental Sustainability Division was created in2009 to bring all stakeholders to the table to create a plan for a more resilient, equitable, and energy-efficient future. Table A-2 list the plans, policies, and programs in place to enhance sustainability and become more resilient to climate hazards.

Table A-2. Program, Plans, and Policies to Reduce Greenhouse Gas Emissions

Existing Initiatives	Description
Municipal Operations	
Green Initiative	In 2007 City Council passed the "Green Initiative", a ten-point action plan designed to reduce environmental impacts from the City's municipal operations. The plan includes reducing energy and vehicle fuel use; developing a green purchasing policy; educating employees about green practices; and forming a Green Team to help implement these programs.
Environmental Sustainability Strategy	In 2012, the Environmental Sustainability Strategy (ESS) was developed to improve Ventura's municipal environmental performance and reduce operating costs by improving the City's operational efficiency and reducing resource consumption. The ESS identifies strategies and projects that reduce energy, fuel, chemical and water use; reduces solid waste and hazardous waste generation; and increases the purchase of environmentally preferable products. The ESS consolidates the efforts of individual City divisions into a single document, establishes goals and strategies, and provides a process for tracking progress over time.
Climate on the Move GHG Inventory	In 2015, the City of Ventura Environmental Sustainability Division and VCREA worked collaboratively to develop the Climate on the Move report, which included a community-level GHG emissions inventory and a CAP template for the City. Climate on the Move provides city-specific community GHG emission data from 2010 through 2012, 2020 emission forecasts, and GHG reduction target options.
Clean Energy and Buildings	
Green Business Certification Program	The City also launched their Green Business Program in 2012, to support local businesses in adopting environmentally responsible practices. Between 2012 and 2020, the City's Green Business Program certified eighty-three businesses.
Clean Power Alliance (CPA)	In 2018 the City joined CPA, a community choice energy program, at the 100% renewable default tier; meaning that electricity customers within the City would automatically be enrolled in the new program and receive 100% renewable electricity.
Transportation	

Existing Initiatives	Description
EV Accelerator Plan	In 2019 the City of Ventura Environmental Sustainability Division worked with VCREA and Community Environmental Council to create an EV Accelerator Plan for the City. The City's Accelerator Plan was included in a larger EV Ready Blueprint for Ventura County, which creates a step-by-step plan for electrifying the Region's transportation sector. The City's Accelerator Plan details the infrastructure needed for EVs to be one-eighth of all registered vehicles in the City by 2030. Ventura has City chargers: 16 publicly accessible EV Chargers at 6 locations.
Active Transportation Plan (in progress)	The City is working on an Active Transportation Plan to incorporate bicycle and pedestrian mobility, Suggested Routes to School (SRTS), and Complete Streets components, in an ambitious path toward increasing mobility options for all City residents. The Plan outcomes will feed directly into the City's General Plan update.
Water and Natural Systems	
Water Efficiency Plan (WEP)	Adopted in 2021, the Water Efficiency Plan provides a description of current conservation efforts and establishes a path to achieve greater water use efficiency. With the uncertainty of climate impacts on local water resources in the future, the WEP outlines specific measures Ventura will use to achieve efficiency and ensure the reliability of ventura's water supply.
City Tree Master Plan	Adopted in 2020, the City Tree Master is a guide to the essentials of effective administration and management of a comprehensive Urban Forest program in the City. The benefit that street trees offer is immeasurable and considered one of the most valuable long-term assets that cities have. The City is home to over 30,000 public trees.
Adaptation and Resilience	
Ventura County Contingency Plan for Heat/Cold Weather Events	This document outlines responses to an extended heat wave or cold weather that could endanger the lives of citizens of Ventura County, especially those who are medically fragile, those living alone, and disabled individuals. Some considerations discussed include community centers as refuges from weather, creation of Voluntary Relief Centers, and proposed establishment of Cooling Centers.

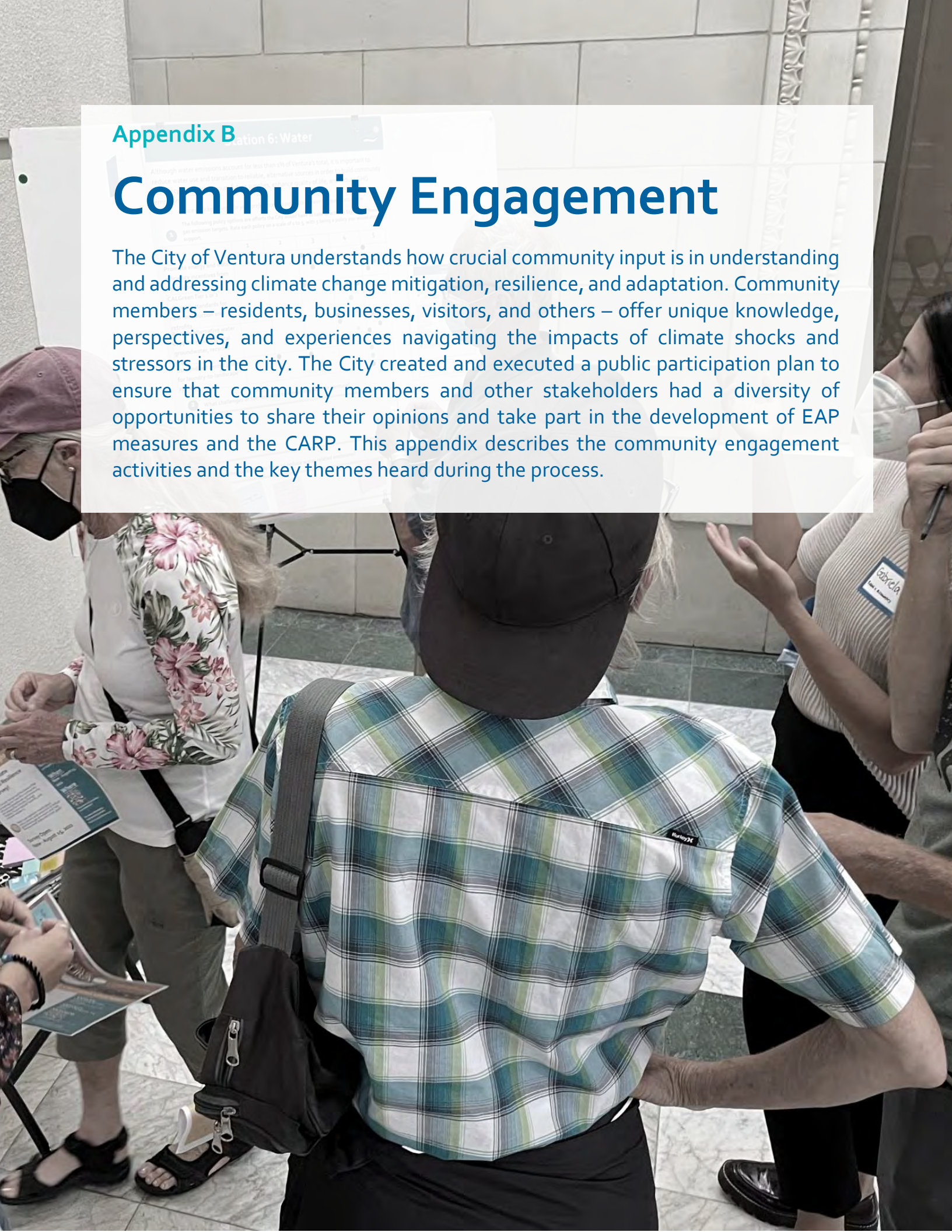
Existing Initiatives	Description
Heatwave Safety	The City of Ventura webpage under emergency preparedness provides information about extreme heat and how to prepare for a heat emergency. The page Includes resources for shelter from extreme heat and signs of heat-related illnesses.
Surfers Point Managed Retreat Project	This project focuses on moving infrastructure away from the beach to preserve the beach and surf break. Instead of building coastal armor such as a seawall, this project will move the parking lot, pedestrian path, and bike path away from the tideline. The project also includes planting and maintaining native vegetation within sand dunes and bioswales.
2020 Draft Urban Water Management Plan for the City of San Buenaventura	The 2020 Urban Water Management Plan for the City of San Buenaventura includes descriptions of the community's water supply sources, projected water demands, and supply reliability during normal water years, single dry years, and five-dry years. The plan includes a discussion of the potential impacts of climate change on the system as well as reliability planning and a water shortage event contingency plan. The Urban Water Management Plan does not include strategies for mitigation and adaptation.
Coastal Resilience Ventura Project	This program uses a web-based mapping tool to help identify Ventura County's vulnerability from coastal hazards. Vulnerable populations are identified under various climatic scenarios. Critical infrastructure in coastal zones is identified under various sea level rise and storm surge scenarios as well.
Ventura Community Wildfire Protection Plan	The County's Community Wildfire Protection Plan (CWPP) identifies wildfire risks and clarifies priorities for funding and programs to reduce impacts of wildfire on communities at risk. Some actions include vegetation management, wildfire safety education programs, and establishment and maintenance of evacuation routes.
2005 Ventura General Plan	The 2005 City of Ventura General Plan includes actions that assess wildfires, flood hazards, air quality, water supply, and emergency response practices. General Plan policies include actions to optimize firefighting and minimize exposure to air pollution associated with point sources, project design review, land use compatibility, and compliance with the Ventura County Air Pollution Control District requirements. The General Plan also describes the water supply and system including the Casitas Municipal Water District, Ventura River surface water intake, subsurface water, and wells (Foster Park), Mound groundwater

Existing Initiatives	Description
	basin, Oxnard Plain groundwater basin (Fox Canyon Aquifer), and Santa Paula groundwater basin. The General Plan includes policies for resource conservation, policies to minimize flood hazards and mitigation for new development within flood hazard zones.
Ventura County Multi-Jurisdiction Hazard Mitigation Plan	The Ventura County Multi-Jurisdiction Hazard Mitigation Plan describes hazard mitigation policies for landslides, flooding, wildfires, sea level rise, and drought. The policies within the plan are regarding FEMA 100-year tide and sea level rise, compliance with NFIP, flood plain management, and long-term resilience to sea level rise and extreme storms for communities and critical assets adjacent to San Buenaventura Beach, Santa Clara River, Ventura River, and nearby areas of the shoreline. The plan also describes the County's StormReady program, Ventura Water Pure Program, Hall Canyon Channel Drainage Basin Improvement Project, and wildfire awareness program.
City of Ventura Emergency Response Team (CERT) Program	The CERT program trains volunteers in basic first aid, light search and rescue, and small fire suppression, and is strongly associated with Ventura's Fire Department. CERT volunteers may assist neighbors and other emergency personnel in times of emergency, and support evacuations along with other responsibilities.
City of Ventura Emergency Operations Plan (City of Ventura 2021)	Ventura's Emergency Operations Plan details protocols to improve emergency preparedness, response, and recovery from natural disasters. The plan provides a system for the effective management of emergency situations and identifies lines of authority and responsibility. The plan reviews the hazards most likely to impact the City, especially those exacerbated by climate change including drought, extreme heat, wildfire, flooding, and severe winter storms.

Appendix B

Community Engagement

The City of Ventura understands how crucial community input is in understanding and addressing climate change mitigation, resilience, and adaptation. Community members – residents, businesses, visitors, and others – offer unique knowledge, perspectives, and experiences navigating the impacts of climate shocks and stressors in the city. The City created and executed a public participation plan to ensure that community members and other stakeholders had a diversity of opportunities to share their opinions and take part in the development of EAP measures and the CARP. This appendix describes the community engagement activities and the key themes heard during the process.



Energy Action Plan Community Engagement

The City conducted public outreach and engagement to provide residents, business owners, stakeholders, City staff, partner organizations, and individuals with the opportunity to participate in the planning process for drafting the Energy Action Plan (EAP). The goals of outreach and engagement were to:

1. Raise awareness of EAP development
2. Educate the public and other organizations about this plan
3. Provide opportunities for input at the various steps of plan development
4. Provide opportunities to influence decision-making.

Photo Taken by City of Ventura Staff

Specifically, the community outreach and engagement process helped identify and refine goals, strategies, and actions for reducing energy consumption, increasing energy efficiency, and using more renewable energy. Community outreach and engagement comprised a variety of methods, including community surveys, a community workshop, tabling events, and stakeholder meetings.

Outreach Surveys

The City developed two community surveys to gather input from residents to help the City further understand community needs and preferences for the EAP.

Community Engagement Round 1 Survey

The first survey was designed to identify community priorities for energy improvements across residential and commercial sectors. The survey also asked participants about the importance of planning for climate change and resiliency through energy improvements. The survey was in both English and Spanish and was available electronically and in hard copy format. The online survey was hosted on VCREA's and the City's webpages between March and July 2018. Hard copy surveys were also distributed to residents at community meetings including the Neighborhood Community Council and Housing Authority of the City of Buenaventura meetings, tabling events including Ventura EcoFest and Fourth of July Street Fair, social media posts, and through the City's monthly e-newsletter. Of the 316 responses received from residents and businesses, several community attitudes about energy became clear:

1. The City should prioritize climate and energy programs for both municipal operations and the community.
2. Energy planning should include strategies that are achievable, reduce emissions, improve environmental health, support the local economy, and keep the city resilient toward natural disasters and the future impacts of climate change.
3. The City should take steps to reduce resource and knowledge barriers for residents and businesses to implementing energy efficiency and renewable energy projects

4. The commercial sector represents an opportunity for education on energy policy and financing for greening projects.
5. Commercial and residential tenants need assistance to implement energy measures in their offices and homes.

Community Engagement Round 2 Survey

The second survey was designed to gather community feedback on some specific strategy ideas for improving energy performance in residential and commercial buildings. The survey also asked respondents to identify priorities for increasing EV infrastructure and electrified public transportation. The survey was in both English and Spanish and was hosted on VCREA's and the City's webpage for ten weeks in the early summer of 2019. Similar outreach methods were used to advertise the survey, including emails to previous email respondents. Ninety residents responded to the second survey.

The responses to both surveys were incorporated into the final strategy design. Round 1 and Round 2 Survey Reports are included in Appendix E.

Community Energy Workshop

On June 8, 2019, the City hosted a Community Energy Workshop at City Hall. With approximately forty members of the public in attendance, the workshop opened with a presentation that introduced the concept of energy action planning and educated attendees about potential strategies. After the presentation, attendees split off into several breakout groups to discuss draft strategies that were featured in the Round 2 outreach survey. VCREA and Community Environmental Council staff recorded community input on strategies including solar and energy storage, citywide actions, and energy efficiency initiatives. A summary of feedback from this event is available in Appendix E.

Tabling Events

City and VCREA staff hosted EAP focused booths at the annual Ventura EcoFest and Fourth of July Street Fair in 2018 and 2019. The booths attracted hundreds of community members with EAP-related games and prizes and provided a venue to discuss EAP strategies with residents.

Photo by VCREA Staff

Contractor Lunch

To vet some strategies with the local energy contractor community, the City hosted a lunch for local contractors that work in solar, energy storage, HVAC, EV infrastructure, and other relevant tradespeople. The event featured conversations with City staff from the Building and Safety and Environmental Sustainability Divisions, and a review of draft EAP strategies. About a dozen energy professionals attended the lunch. A summary of feedback from this event is available in Appendix E.

Environmental Sustainability Division Social Media Outreach

The City utilized its Facebook and e-newsletter to publicize events relating to EAP planning efforts. Staff published articles online and posted about the Community Energy Workshop, Community Engagement Surveys, tabling events, and a free energy audit and benchmarking program for commercial businesses known as kWh Countdown.

kWh Countdown Business Engagement

The kWh Countdown program, funded through the Local Government Challenge grant, served to support EAP development by informing the development of the business-focused energy strategies. The program, which began in July 2018, provided businesses with free energy benchmarking and ASHRAE Level II audits to help business owners analyze their energy usage, save money on utility bills, identify funding sources for energy upgrades, and prioritize energy efficiency projects. In addition, effective June 2018, state law (AB 802) requires buildings larger than 50,000 square feet to conduct benchmarking and disclose their energy usage. kWh Countdown helped businesses fulfill these requirements at no cost.

The Project Team, in partnership with the City's Green Business Program, recruited businesses, and reviewed energy audits. Working closely with businesses to analyze their energy usage provided the Project Team insight into the needs and challenges of business owners trying to effectively reduce utility bills and increase overall performance, health, and safety of their business facility.

ASHRAE Level II Audit

These audits analyze how a whole building is functioning and identify projects that will provide the greatest energy reduction at the best return on investment. The audit involves interviews with facility staff, review of utility bills, and walkthrough of the facility. Data is compiled and used to complete a report describing energy efficiency measures and potential capital improvements with detailed energy calculations and financial analysis of proposed measures.

THE CITY OF VENTURA

ROUND 1 COMMUNITY ENGAGEMENT

SURVEY RESULTS AND ANALYSIS

The City of Ventura is developing an Energy Action Plan (EAP). This plan is designed to help the Ventura Community lower harmful greenhouse gas emissions. Through strategic policies and programs, the EAP aims to increase energy efficiency and local renewable energy generation. This plan benefits multiple sectors, promotes reliable energy to your home or business, and builds resilience so the community can bounce back in the event of a natural disaster.

To ensure that this plan empowers and supports every Ventura community member, the EAP team has been working with residents to fully gauge how to best support and empower a resilient and sustainable Ventura for years to come. You've voiced your needs and shared your valuable experience, here are the results.

KEY TAKEAWAYS

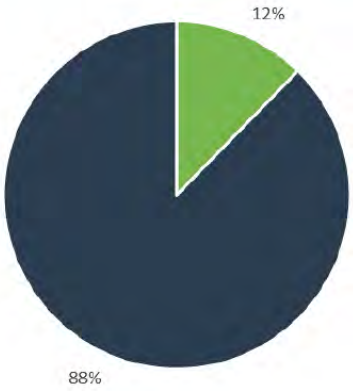
316 residents shared their insight and values by responding to the survey.

88% of the respondents feel it's important for the City to support a clean energy economy, public health, and resilience.

96% of the 45 student respondents feel that it is important for their school to run on renewable energy.

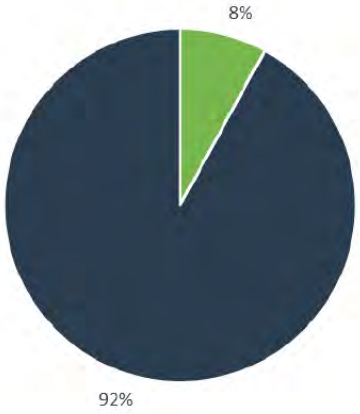
RESIDENTIAL SURVEY HIGHLIGHTS

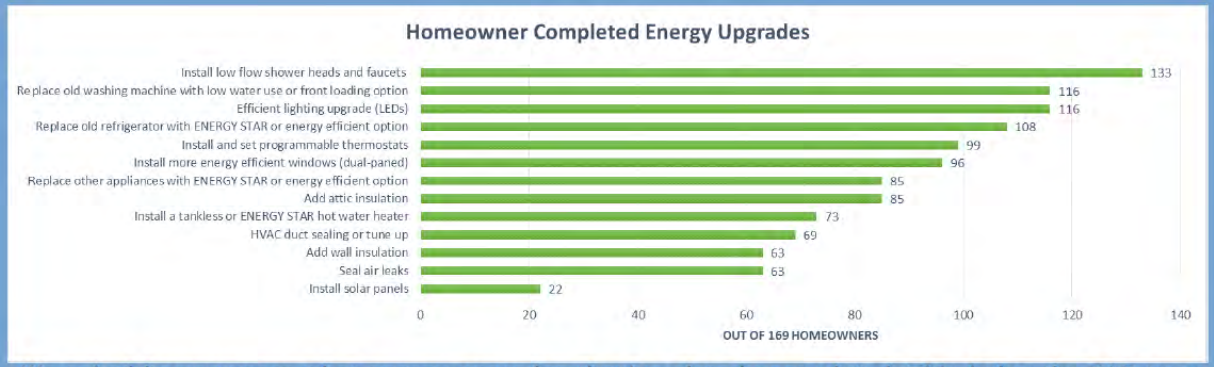
HOMEOWNERS AND RENTERS PROVIDED VALUABLE INSIGHT TO HELP INFORM STRATEGIES THAT WILL INCREASE ENERGY EFFICIENCY AND LOCAL RENEWABLE ENERGY GENERATION.



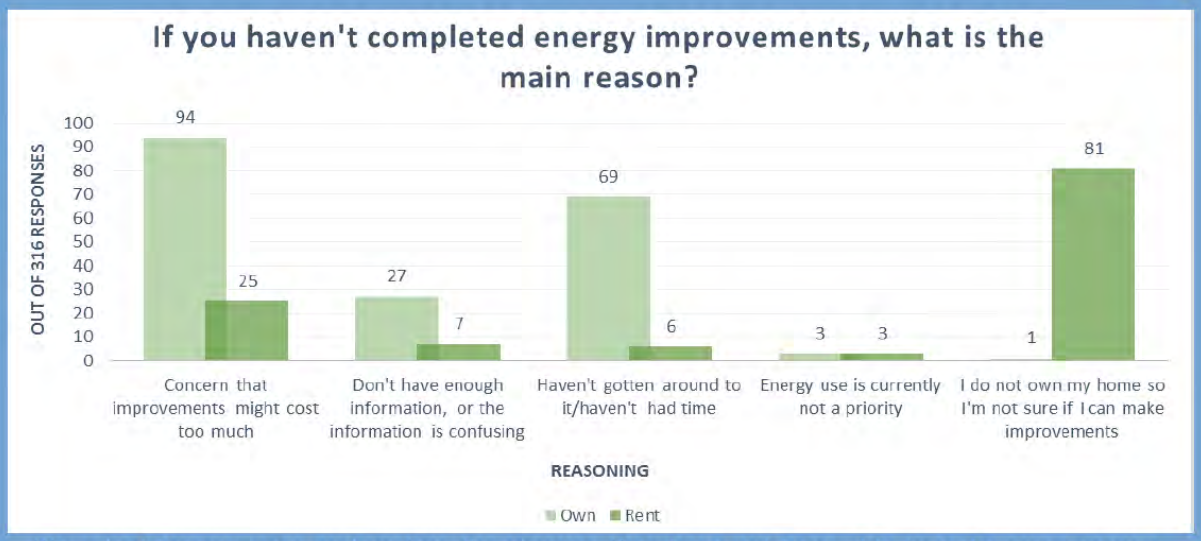
88% OF RESPONDENTS FEEL THE CITY SHOULD BE PROACTIVE IN THINKING AND PLANNING FOR CLIMATE CHANGE IMPACTS.

92% OF RESPONDENTS WOULD LIKE TO SEE THE CITY TAKE STEPS TO STRENGTHEN ENERGY RELIABILITY AND SAFETY IN THE EVENT OF AN OUTAGE OR NATURAL DISASTER.





We asked homeowners what energy upgrades they've already completed. This helps the EAP team identify hard-to-complete upgrades and strategize how to help homeowners make these improvements in a cost-effective way.

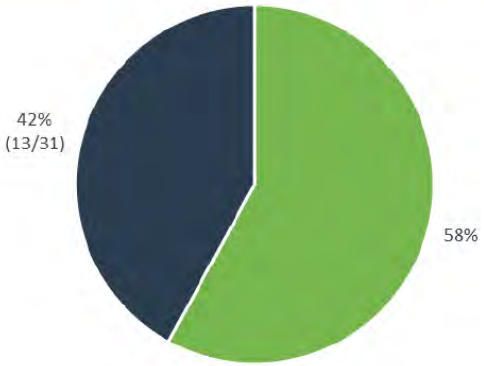


We asked homeowners and renters the reasons they have not been able to make some energy efficiency upgrades. This helps identify gaps in energy efficiency support. The EAP will address these gaps with strategies that help homeowners and renters.

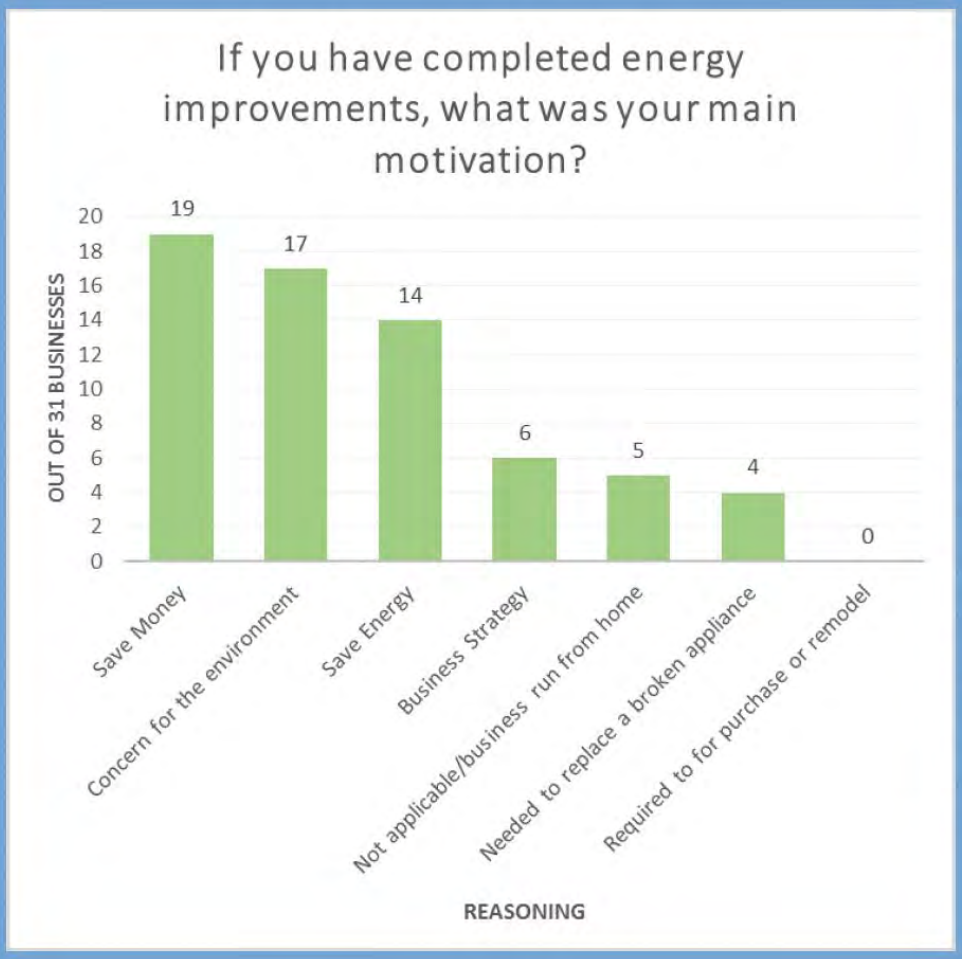
COMMERCIAL SURVEY HIGHLIGHTS

BUSINESS OWNERS AND MANAGERS SHARED THEIR EXPERIENCES TO INFORM STRATEGIES THAT WILL HELP THEM UTILIZE ENERGY EFFICIENCY UPGRADES TO SAVE MONEY AND REDUCE THEIR IMPACT.

42% OF BUSINESS OWNERS STATED THAT THEY HAVE NOT MADE ENERGY UPGRADES BECAUSE THEY RENT THEIR FACILITY AND ARE NOT SURE IF THEY CAN MAKE IMPROVEMENTS.



This highlights the necessity for commercial owner-tenant strategies that support energy efficiency improvements.



We asked business owners and managers the reasons they have completed energy efficiency upgrades. Identifying the main motivation helps the EAP team cater strategies to the needs of business owners and managers.

PHOTOGRAPHER: CHRISTOPHER MUEGNIOT

"THIS IS A FANTASTIC PROACTIVE WAY TO START ADDRESSING WHAT WE CAN DO AS A COMMUNITY, ESPECIALLY AFTER THE THOMAS FIRE. HEARING THESE WILD FIRES GROWING IN INTENSITY DUE TO CLIMATE CHANGE IS A SCARY THING! WAY TO GO VENTURA IN STARTING THIS IMPORTANT CONVERSATION."
-VENTURA RESIDENT

CITY OF VENTURA
ENVIRONMENTAL SUSTAINABILITY

Community Environmental Council

Ventura County REGIONAL ENERGY ALLIANCE

Round 2 Community Engagement Report

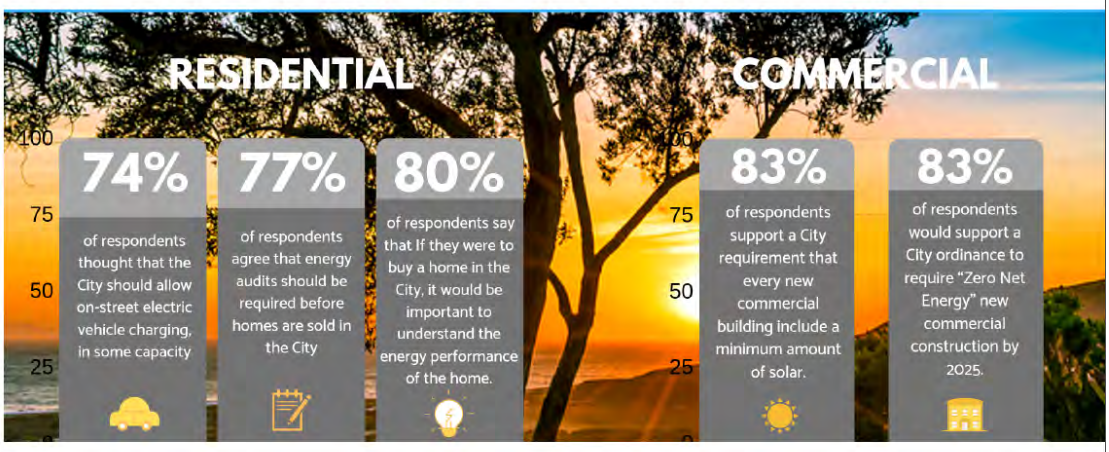
CITY OF VENTURA

ROUND 2 COMMUNITY ENGAGEMENT

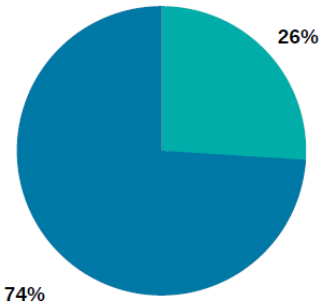
SURVEY RESULTS AND ANALYSIS

In Round 2 of our community engagement, we asked residents about which energy policies and incentives the City should consider for residential and commercial buildings. We also asked them to identify priorities for increasing electric vehicle infrastructure and electric public transportation. In total, 89 people participated in the outreach survey. The valuable feedback we received from the community will help us understand how to best support sustainable energy use and zero-emissions transportation choices in the City of Ventura.

HIGHLIGHTS FROM RESPONDENTS

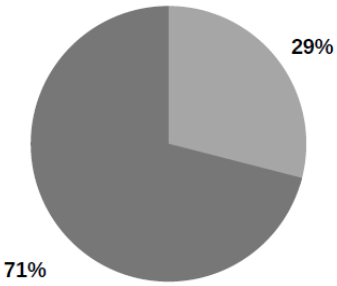


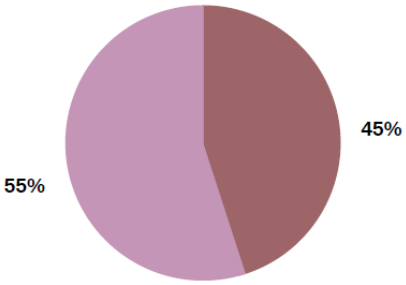
Ventura residents showed strong support for increasing the number of electric vehicle charging stations and access to electric public transportation in the city.



74% (66 people) think the City should allow on-street EV charging, in some capacity.

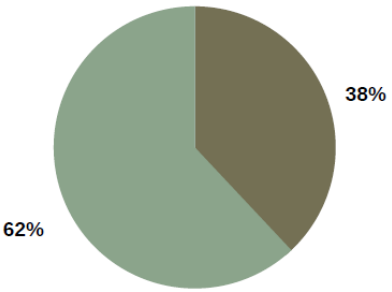
71% (63 people) feel it is important for the bus systems (Gold Coast Transit and VCTC) to transition to all-electric buses.





55% (49 people) feel there are currently not enough public electric vehicle charging stations in the City for them to consider driving an electric vehicle.

62% (55 people) feel the City should require the installation of electric vehicle charging stations at all new commercial developments.



We asked residents which energy efficiency policies the City should consider for residential properties.

77% (68 people) agree that energy audits should be required before homes are sold in the City; however, 56% (38 people) of those respondents *only* support the policy if the energy audits are free.

55% (49 people) think the City should require "cool roof" materials in residential re-roof projects.

72% (64 people) support the City requiring that all rental units upgrade interior lighting to LED when there are vacancies.

80% (71 people) say that, if they were to buy a home in the City, it would be important to understand the energy performance of the home. Residents were unsure; however, about what type of policy would effectively support an energy efficiency standard at the time of a home's sale. Only 42% (37 people) think homes that receive poor energy scores on audits should be required to complete energy upgrades before they are sold. Concerns around who bears the cost of upgrades and whether such policies would affect the affordability of housing in the City were cited as main concerns.

When asked about which energy policies the City should enact for commercial buildings, respondents told us this:

66%
59 people

felt the City should offer a loan program to help commercial properties upgrade their equipment to improve the efficiency of their operations.

83%
74 people

support a City requirement that every new commercial building include a minimum amount of solar.

83%
74 people

would support a City ordinance to require "Zero Net Energy" new commercial construction by 2025.

"We should go all out as much as possible to be an environmentally friendly city, and to model these sustainable practices for other cities."
- Ventura Resident

CITY OF VENTURA
ENVIRONMENTAL SUSTAINABILITY
www.cityofventura.ca.gov/es

Community Environmental Council

Ventura County REGIONAL ENERGY ALLIANCE

Contractor Lunch, December 17, 2019

Concepts for review from draft EAP, City of Ventura

Contractor feedback to draft EAP strategies is captured below as quotes or ratings for various ideas (Ratings for ideas are captured as "X" votes following numbers)

Residential Solar/Storage

The City will review and revise City building codes, design guidelines, and zoning ordinances to remove barriers to renewable energy and battery storage projects.
"Check out Antelope Valley's municipal bus electrification and battery storage project. Also, Lancaster is home to a large electric bus factory. School buses can be used to power schools during outages." "Battery storage – Suggest standardizing permits and implementing online permits. Online permitting of battery storage could result in quantification of for GHG emission reductions. ''Zip Bar foam built into panels – plaster product that becomes structural component – does not pass City plan check (e.g., not allowed) for residential construction because it does not have an ICC number."
The City will develop or expand on existing solar programs, such as Solarize, to provide resources to assist in the installation of residential (multi-family and single-family) solar and storage projects. Resources provided can be in the form of education, planning, contacting installers, and/or financial incentives.
POOR 1 2 3 4-X 5- XXX GREAT "Solarize programs are great. Bringing more customers/case studies to the workshops would help facilitate adoption. Incentives from the City would be great and alleviate the pressure of installers to lower their costs." "The City of Ventura should take the initiative to Solarize public housing buildings and to establish vehicle charging stations so residents can be encouraged to purchase Evs. These charging stations could be covered with solar roofs"

Commercial Solar/Storage

The City will Identify and work to remove barriers to commercial on-site renewable energy generation and energy storage by reviewing and exploring revision opportunities in development codes, design guidelines, zoning ordinances, and general plan policy.
"More education and focus are needed on micro-grids. Resiliency!" "The City should work with Amber Kinetics to establish codes for establishing flywheel storage installations"
The City will actively support local commercial pilot projects encompassing thermal energy storage, battery storage, customer side/dispatchable storage, backup power at critical facilities, and microgrid development.
POOR 1 2 X ("This grade is based on the fact that there doesn't appear to be any movement on micro-grid pilots") 3 4 5- XX GREAT "I can help you include flywheel energy storage in this plan."
The City will research the development of a Solar Cooperative Purchasing Program (e.g., Solarize for businesses) to reduce renewable energy development costs.
POOR 1 2 3 4 5- XXX GREAT "City should look for incentives or dollars to provide the Solarize program." "The City of Ventura should Solarize all public housing and make a large purchase of solar equipment and vehicle charging stations to economize"

Electric Vehicles

The City will review internal permitting policies and permit prices for public and private EV charger installations and modify policies and prices to reflect best practices
"Great" "The City should establish partially solar-powered charging station using battery storage as a demonstration project"
The City will streamline permitting for residential and non-residential EV charging stations as required under California law.
"Yes, Amen." "Great" "EV permit fees – multiple permit fees add up and are expensive. Suggest Bear Valley Electrical Service has a Destination Make-Ready Rebate Pilot that provides installation rebates for up to 50 Level 2 chargers to commercial customers in addition to providing EV-TOU rate. Program combines EV permits fee with other electrical permit fees." https://www.bves.com/media/managed/approvedadviceletters3/355_E_BVES_Transportation_Electrification_Pilot_Programs_Memorandum_Acco_.pdf.
What else should the City do to encourage EV adoption?
"Promote electric bikes! Electric bikes help educate market about charging." "Establish battery or flywheel substations and establish mini/neighborhood utilities." "Some form of monetary incentive"

Other Green Building

The City will amend City Building Code to recommend cool roof materials compliant with CALGreen Code for new construction and significant re-roofing projects.
POOR 1 2 3 4 5- XXXX GREAT "Public housing could use cool roof technology as air conditioners are prohibited in public housing units"
The City will subsidize permit fees and provide front-of-line permitting for building projects pursuing LEED or other green building certifications.
POOR

1 2 3 4-XX 5-XX GREAT
The City will research barriers to electrification of cooking, heating, and cooling in new and existing homes, and update City permitting practices to streamline electrification.
"City-run senior housing residents require a way to cool their units in the summer months as they are prohibited from using standard window mounted AC units" "Heat pumps – there is not an appetite for heat pumps, usually only homes without gas lines request heat pumps. Pumps can be expensive and loud if installed on the side of the house. Suggest installing heat pumps during whole house system upgrades and incentivizing heat pumps. Suggest miniplates as an option." "Lack of incentives – CPA is looking at DER pilot program with incentives as well as Local Strategic Plan incentives for electrification and reach codes."
What else should the City do to increase Green Building OR energy efficiency OR electrification in existing buildings? "Monetary incentive or reduction in permitting timelines" "Oversized AC units – many homes do not need big systems. Suggest contractors help address problems with oversized systems by advising to install appropriately sized systems." "Incentivize Architects and Realtors to educate."

CARP Engagement Summaries

The following are summaries of the community engagement conducted to inform the development of the CARP, including:

- Community Survey on Natural Hazards and Climate Change
- Community Survey on Greenhouse Gas Reduction
- Open House series
- CAUSE focus groups

Community Survey on Natural Hazards and Climate Change: Summary of Results

November 2021

CITY OF VENTURA
OUR VISION, OUR FUTURE

Table of Contents

Survey Overview

The City of Ventura is in the process of creating a Climate Action and Resilience Plan (CARP). This exciting initiative is a roadmap for how the community will reduce greenhouse gas emissions and prepare for the potential impacts of natural hazards and climate change on public health, infrastructure, ecosystems, and our economy.

The City launched a Community Survey on Natural Disasters and Climate Change (survey), which was open from August 2021 through mid-September 2021.The purpose of this survey was to gather information about community members' experiences with recent natural disasters, preparation for possible future natural disasters, and knowledge about climate change.

The survey was made available in both English and Spanish, and a total of 854 unique responses were recorded. This document summarizes the combined responses of both English- and Spanish-language participants.

Survey Methodology and Participation

The survey was developed by City of Ventura staff and the General Plan Update consultant team. In developing the survey, the team considered:

- **Understanding existing hazard preparedness and experiences with recent disasters**: The survey asks specifically about preparedness for large-scale disasters or emergencies, including earthquakes, fires, storms, or blackouts, as well as experiences with recent disasters or emergencies like the Thomas Fire, mudslides, or the 2018 heat wave.
- **Similar Surveys or Polls**: The project team reviewed similar community surveys from other jurisdictions and statistically significant findings from other polls about the topics covered in the survey. Several questions in the survey match questions found in these external tools.
- **Creating a Flexible and Useful Tool to Maximize Engagement**: The survey, in English and Spanish, was developed to measure opinions across all the above areas of interest.

The final survey instruments are attached in the Appendix A and B. Each version of the tool is organized into five sections: demographics, hazard preparedness, experiences with recent disasters, and climate change.

Sampling

This survey was completed by a non-randomized sample (often called a convenience sample) of people who live, work, go to school, or spend time in the City of Ventura.

Using a non-random sample for a survey is commonly used to understand the perspectives and experiences of a group of people ("population"). Data from non-random samples can show the range of views and experiences within a population and be used as a reference point. Data from non-random samples are typically considered more reliable (i.e., more generalizable to the larger population) when they are "triangulated" or validated through additional sources. This survey data will be considered alongside data from focus groups, community meetings, and other public input, with all this data being used to inform decision-making.

Distribution Methods

The survey was available to take online and was produced using the SurveyMonkey platform. The project team developed several outreach graphics and materials, such as social media images and flyers, which were distributed through various methods, including but not limited to:

- **Internet-Based Outreach:** City's GovDelivery listservs (All subscribers; General Plan Update subscribers); GPU Project Website; City's social media accounts (Twitter, Facebook, Instagram, etc.).
- **In-Person Outreach:** Door-to-door canvassing; outreach at pop-up events at Ventura Coast Brewing Company and local taco festival.

The survey and outreach materials were produced in both English and Spanish. To encourage the participation of typically underrepresented groups, the non-profit organization Central Coast Alliance United for A Sustainable Economy (CAUSE) conducted targeted outreach in heavily Hispanic/Latinx, multi-family neighborhoods on Ventura's Westside. CAUSE staff canvassed door-to-door and recorded survey responses with Spanish-speaking residents in person on weekday evenings. When residents did not answer, CAUSE staff left behind flyers with information about how to access the survey.

Demographic and Socioeconomic Characteristics of Survey Participants

Participants were asked several demographic questions during the survey. These questions are intended to help City staff ascertain whether survey respondents generally matched the profile of Ventura and/or whether any groups were over- or underrepresented. Key takeaways are summarized below:

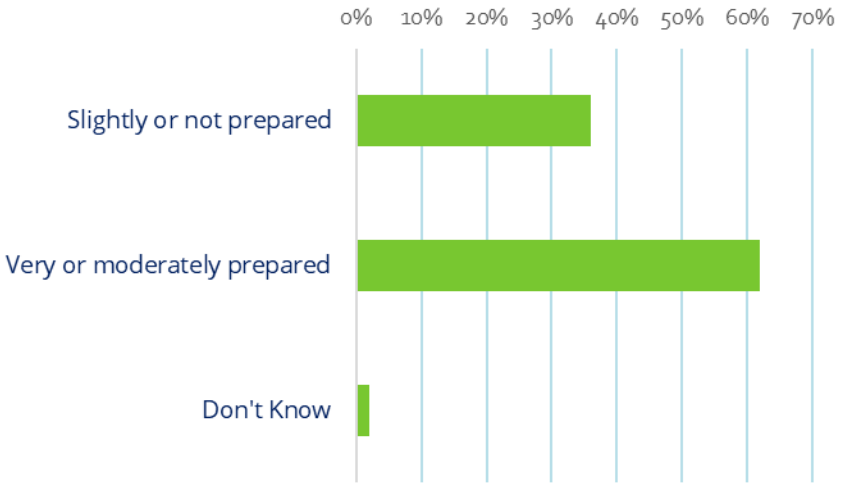
- Almost all respondents (90 percent) are residents of the City of Ventura.
- Of all residents who responded, almost half (49 percent) have lived in Ventura for 21 years or more. Residents of one year or less comprised less than four percent.
- Homeowners made up 63 percent of the respondents, and renters comprised 35 percent of the responses. The survey results overrepresented homeowners (54 percent of the city population) compared to rents (46 percent of the city population).
- Two-thirds of survey respondents identified as Non-Hispanic White or Caucasian (compared to the citywide average of 55 percent) Hispanic and Latino individuals were underrepresented (28 percent compared to the citywide average of 36 percent).
- White respondents are more likely to be homeowners (69 percent), whereas Black, Indigenous and people of color (BIPOC) respondents are more likely to be renters (56 percent).
- People aged 60 and above comprised approximately one-third (31 percent) of respondents.
- The response for most neighborhoods was proportionate to residential population size. The response rate, overrepresented residents from the Westside / The Avenue, comprising 32 percent of all respondents even though it contains 13 percent of the city's residents.

Disaster Preparedness

Survey participants were asked questions about preparedness[1] for large-scale disasters or emergencies that would leave their household isolated in their home or require their household to leave their home for at least 3 days. Natural disasters and emergencies may include earthquakes, fires, storms, or blackouts, among others.

Nearly two-thirds of survey respondents said their household was prepared for a large-scale disaster or emergency (62 percent). Over a third of respondents (36 percent), however, said their households were not too prepared at all or not at all prepared. Significant differences in feelings of preparedness exist between groups in the city. Homeowners (72 percent) and White respondents (70 percent) are more likely to feel prepared, whereas half of renters (52 percent) and BIPOC respondents (48 percent) do not feel prepared for a disaster.

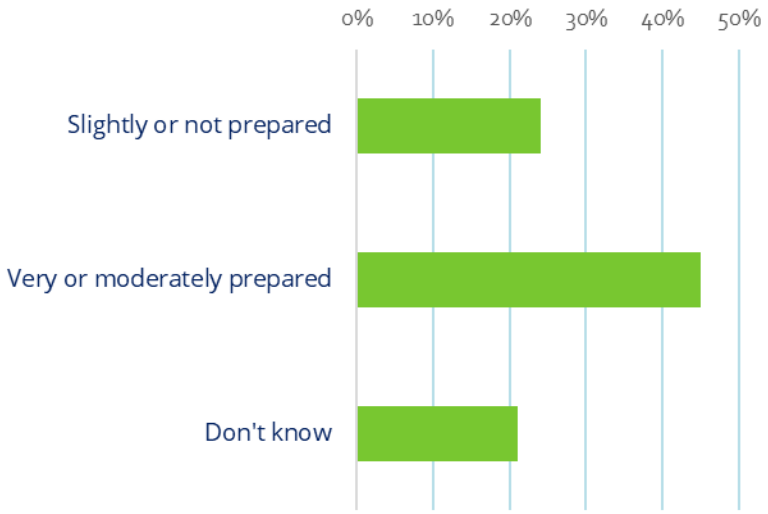
Figure 1: Household Preparedness for a Large-Scale Disaster or Emergency



[1] Preparedness refers to the steps you take to make sure you are safe before, during, and after a disaster or emergency.

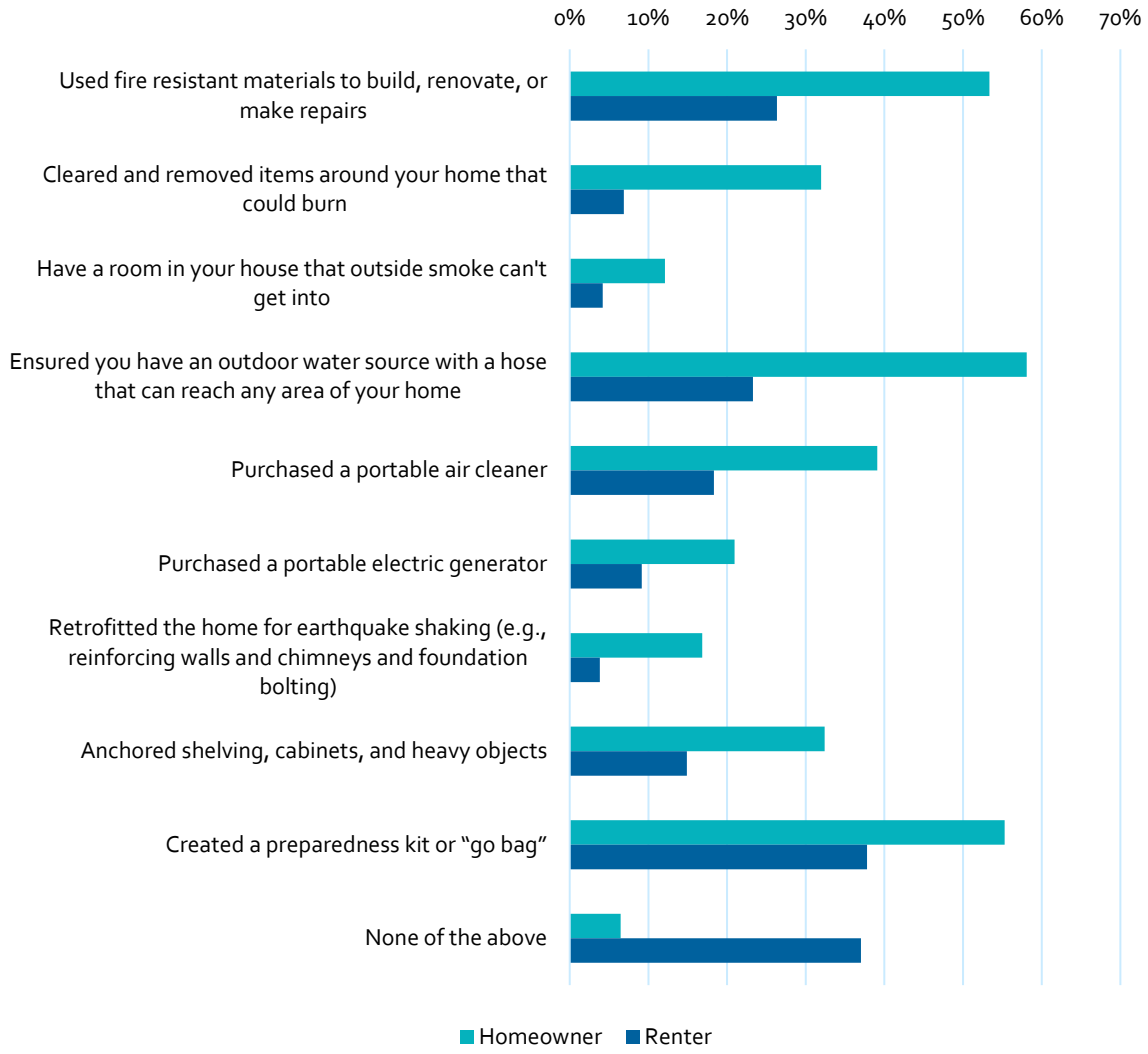
About half of survey respondents (45 percent) said the City of Ventura government is very or somewhat prepared to deal with large-scale emergencies and natural disasters. Approximately one-third said that the City government was not too prepared or not prepared, and 21 percent said they did not know. Responses varied little across different groups in the city.

Figure 2: City of Ventura Government Preparedness for a Large-Scale Disaster



Homeowners were more likely than renters to have taken steps around their homes to prepare for a possible disaster (94 percent to 63 percent). Over half of homeowners used fire resistant materials (53 percent), ensured they have an outdoor water source with a hose (58 percent), created a "go bag" (55 percent), and cleared items around their homes that could burn (32 percent). The most common action taken by renters was creating a "go bag" (38 percent).[2] For those who responded "other," a common theme was that people have a supply of food and water and/or have collected important items (essentially a preparedness kit).

Figure 3: Steps Taken to Prepare for a Disaster

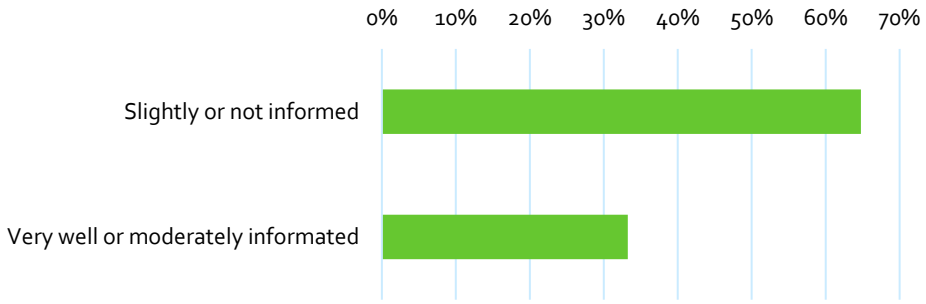


[2] Many of the survey questions listed would not be actions taken by an individual renter, but instead by a landlord or property owner. In some cases, these actions may have been taken but not be known by the renter.

Evacuation Routes and Planning

Respondents were asked a series of questions regarding their knowledge about evacuation routes and planning. Overall, two-thirds of respondents said they were only slightly informed or not at all informed about evacuation routes for their neighborhood. Likewise, over two-thirds of respondents said they were very concerned or somewhat concerned about the adequacy of the evacuation routes and plans for their neighborhood. Responses varied little across different groups in the city.

Figure 4: Knowledge of Evacuation Routes and Plans in Your Neighborhood



Respondents also described their concerns about their neighborhood's evacuation plan, with several key themes emerging as summarized in Table 1.

Table 1: Key Concerns about Evacuation Routes and Planning

Key Concerns	Count
Traffic, road congestion, freeway congestion and access	129
Lack of information: themselves or others not knowing the evacuation routes and/or plans	93
Only one or very few points of ingress and egress from their neighborhood	85
Chaos and confusion hindering evacuation	19
Lack of coordination from police and city leadership	12
Lack of access due to single lane and one-way roads	10
Traffic specifically in relation to housing and population growth	10

Insurance

Respondents were asked a series of questions about insurance. A large majority (78 percent) report having homeowners or renters' insurance for their residence. A majority (69 percent) reported that they do not have a flood insurance policy from the National Flood Insurance Program or from a private insurance company.

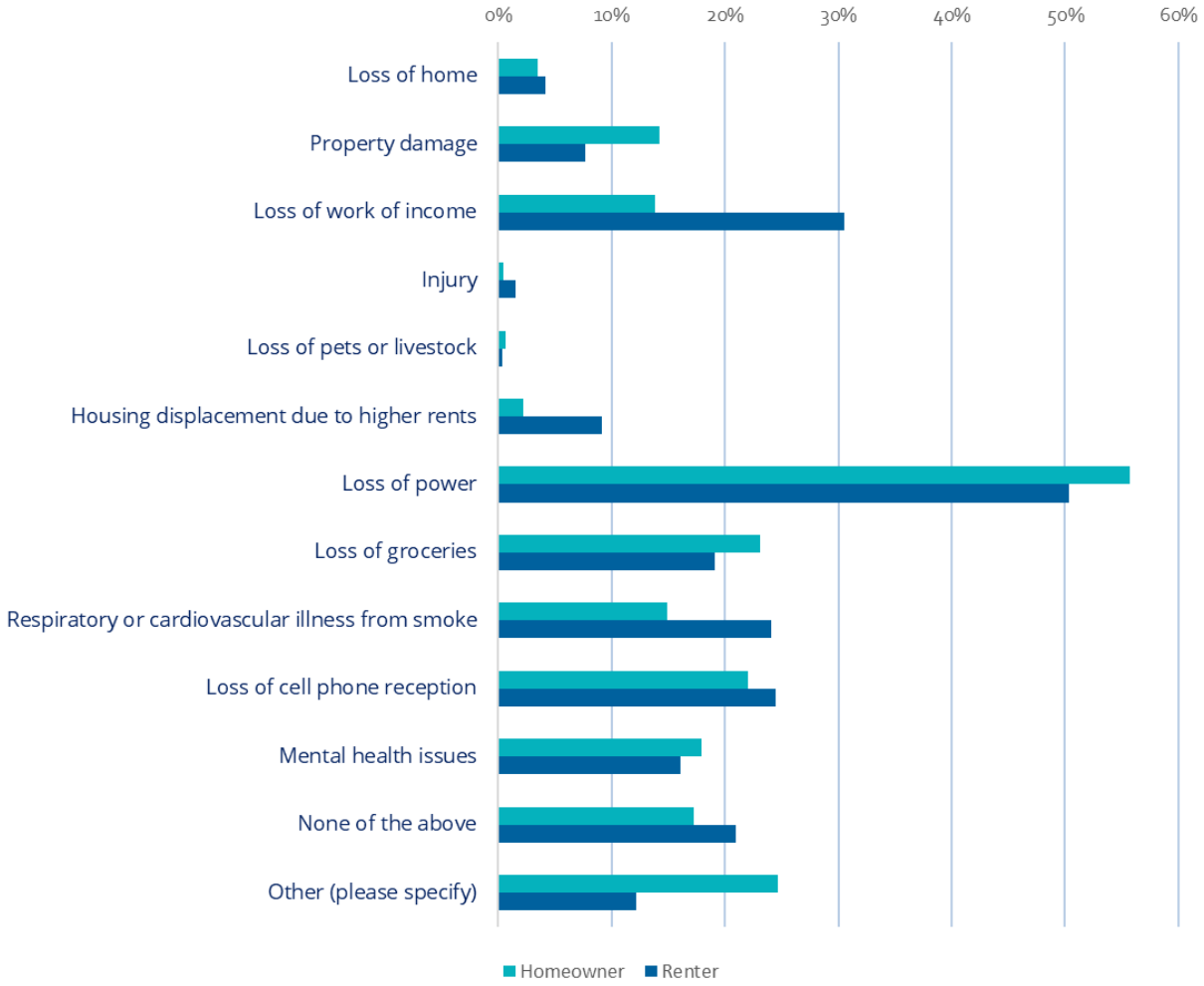
Experience with Recent Disasters

Almost three quarters of respondents have experienced disaster(s) and the other quarter have not. Some years that people reported experiencing disasters in an open-ended question include 1969, 1971, 1987, 1992, 1994, 1995 (Northridge Earthquake), 1997, 1998, and 2016. Of course, 2017 and 2018 were the top responses, as 72 percent of respondents reported experiencing the impacts of the Thomas Fire and/or the subsequent mudslides.

A majority of respondents (57 percent) reported losing power during the Thomas Fire and/or subsequent mudslides. Only a small percentage of respondents experienced losing their home, personal injury, and/or loss of pets or livestock. There are, however, differences when comparing homeowners and renters.

- Renters (who are typically lower income than homeowners) reported experiencing more impacts to their work or income. 31 percent of renters reported losing work or income due to the fire compared to only 14 percent of homeowners.
- A greater percentage of renters reported experiencing respiratory or cardiovascular illness from smoke (24 percent of renters compared to 15 percent of homeowners).
- Because they do not own their residence, renters are typically more susceptible to the impacts of housing cost increases. 9 percent of renters reported experiencing housing displacement compared to 2 percent of homeowners.

Figure 5: Impacts Experienced during the Thomas Fire and/or Subsequent Mudslides



If they selected other, respondents had the chance to elaborate on the impact they experienced. The open answers are coded according to key themes that emerged; many of the answers contained multiple themes.

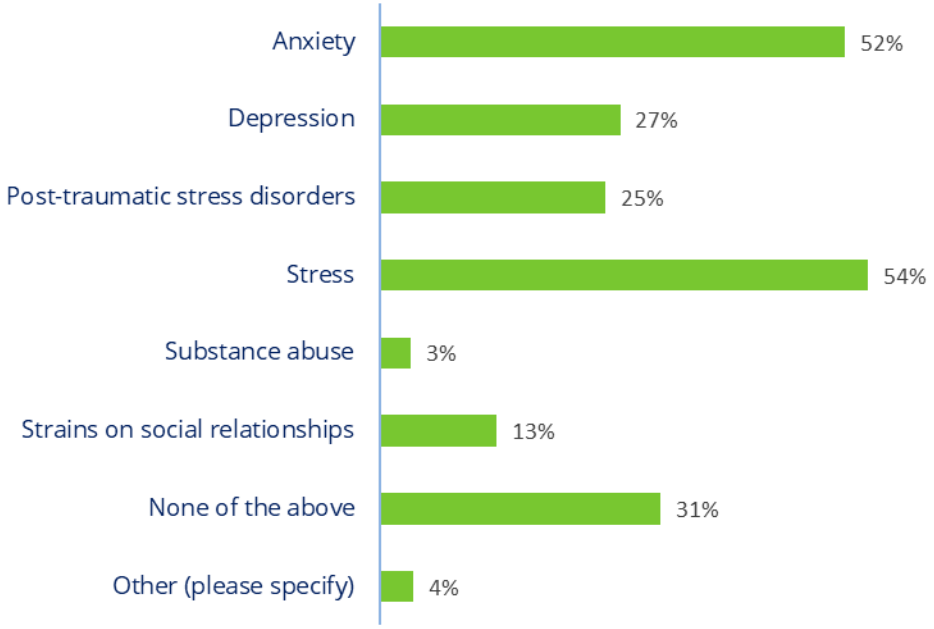
Table 2: Other Impacts Experienced during Thomas Fire and Subsequent Mudslides

Impacts	Count
Had to evacuate and/or was temporarily displaced from their home	59
Impacted by smoke, bad air quality, and ash	45
Experienced stress, trauma, or changes to their outlook on the future	15
Temporarily housed friends, family, or neighbors who had to evacuate or whose homes were damaged or destroyed	13
School closures	4

A majority of respondents reported that they or someone they knew experienced stress and anxiety (54 and 52 percent respectively) during and after the Thomas Fire. A quarter reported experiencing depression and post-traumatic stress disorders, while a third did not experience any mental health issues. Results were largely alike across groups in the city, except for the fact that a greater percentage of homeowners reported experiencing anxiety and stress than renters.

Respondents also had the chance to elaborate on their mental health experience. Though there were few entries, key themes that came up were hopelessness, stress, and existential worries. Of those who reported experiencing mental health issues, about half were able to access resources.

Figure 6: Mental Health Issues Experienced

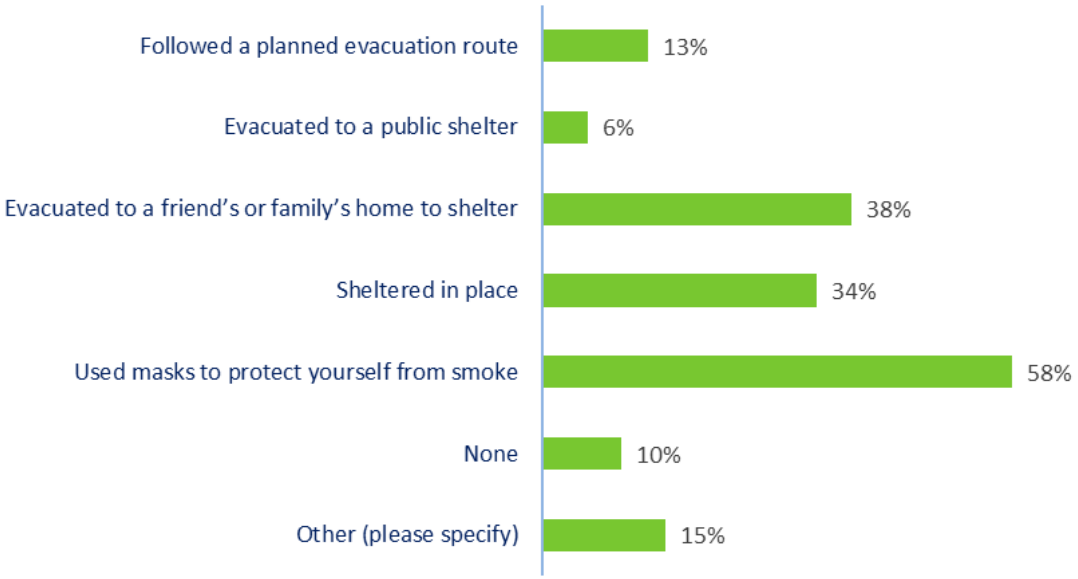


Overall, very few respondents reported receiving support from government agencies or nonprofit charities in the aftermath of the Thomas Fire. A slightly higher percentage of renters reported receiving support (13 percent compared to 5 percent of homeowners). The most-reported assistance was water and other supplies (e.g., masks, toiletries, and blankets), food or food stamps, and monetary donations. Respondents received help from organizations, such as the Red Cross, CAUSE, and their churches.

Safety Measures

To keep themselves safe during the Thomas Fire, a majority of respondents (58 percent) used masks to protect themselves from smoke. 38 percent evacuated to a friend or family's home, and 34 percent sheltered in place. Relatively few respondents followed a planned evacuation route (13 percent) and/or evacuated to a public shelter (6 percent). Responses varied little across different groups in the city.

Figure 7: Safety Measures taken during the Thomas Fire and Subsequent Mudslides



Respondents also had the chance to elaborate on what they did to stay safe. The open answers are coded according to key themes that emerged; many of the answers contained multiple themes.

Table 3: Other Ways Respondents Stayed Safe

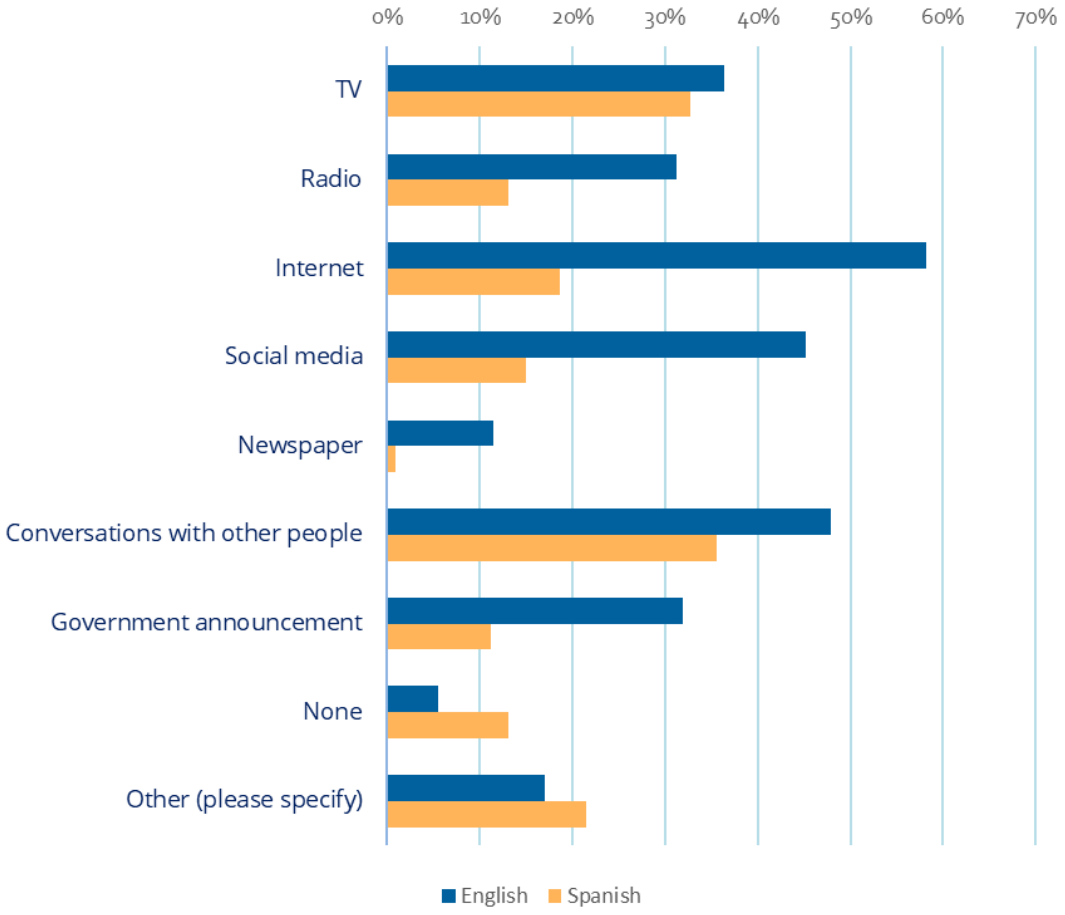
Safety Measures	Count
Evacuated to a hotel or motel, which many respondents described as extremely difficult to find one	19
N/A – were not around at the time of the fire	17
Had car packed with food, water, important items and ready to evacuate	15
Evacuated to businesses, the fairgrounds, or other parking lots and stayed in their cars	10
Purchased an air filter for their home	7

Sources of Information

Overall, the top sources of information during the Thomas Fire were the Internet (53 percent), conversations with other people (46. percent), and social media (41 percent). There were, however, differences in how English-language respondents and Spanish-language respondents answered this question.

- The main ways English-language respondents got information was from the Internet (58 percent), conversations with other people (48 percent), and social media (45 percent).
- The main ways Spanish-language respondents got information was from conversations with other people (36 percent) and TV (33 percent).
- Thirteen percent of Spanish-language respondents reported getting no information during the fires, as opposed to only 6 percent of English-language survey respondents.

Figure 8: Sources of Information Accessed during the Thomas Fire



Respondents also had the chance to elaborate on how they got information. The open answers are coded according to key themes that emerged; a few of the themes overlap with the answer options that were provided.

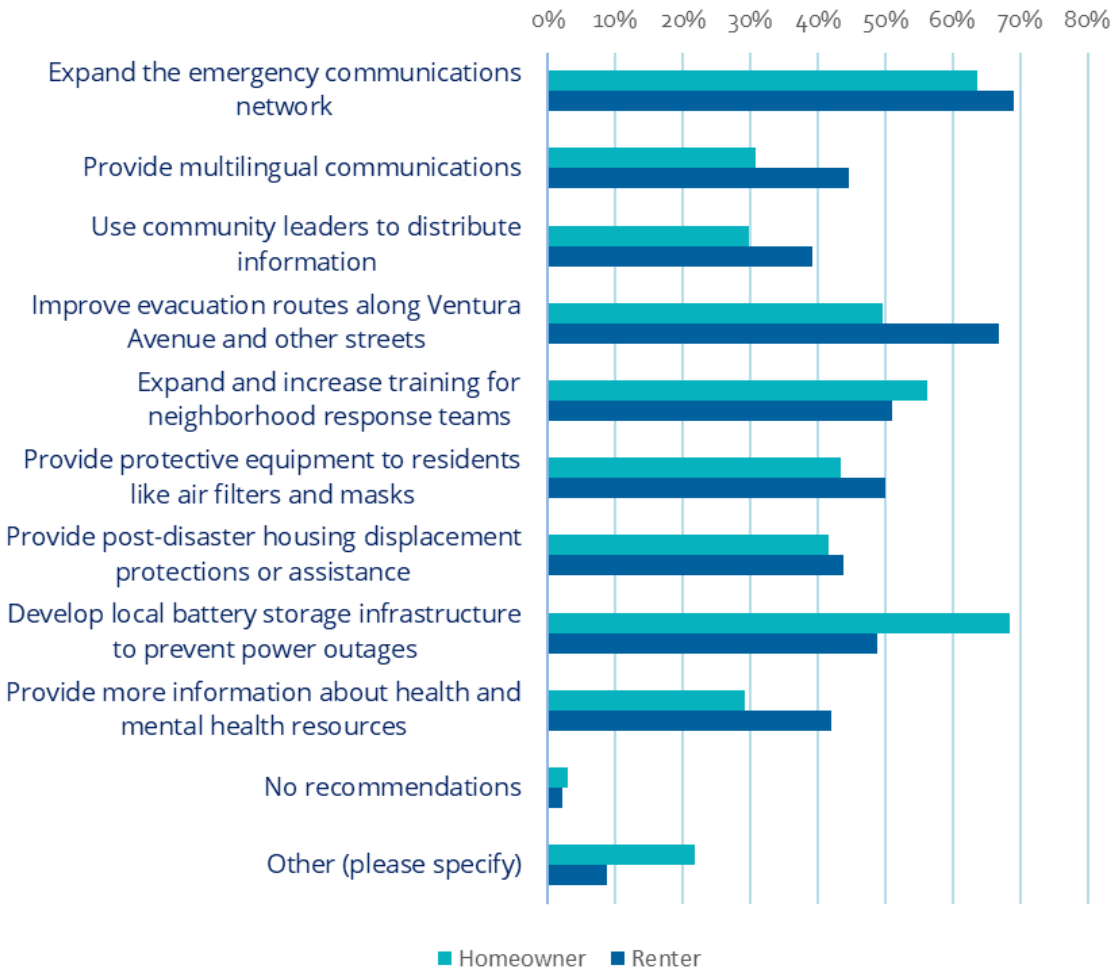
Table 4: Other Sources of Information

Source of Information	Count
Saw the fire firsthand before any other information	30
Word of mouth: conversations with friends, family, and neighbors	20
Phone alert / VC Alert	17
Heard police and/or fire department bullhorns or sirens telling them to evacuate	11

Respondents' top choices for improving the City's disaster response and preparedness were expanding the emergency communications network and developing local battery storage infrastructure to prevent power outages. Answers varied across groups in the city.

- A higher percentage of renters want the City to improve evacuation routes and provide more information about mental health resources.
- Renters also chose providing multilingual communications, in line with the correlation between renters and BIPOC and non-English speaking populations in Ventura.

Figure 9: Ways to Improve the City's Disaster Response



Respondents also had the chance to elaborate on how the City can improve disaster response. The open answers are coded according to key themes that emerged. Many of the answers contained multiple themes and a few of the themes overlap with the answer options that were provided.

Table 5: Other Improvements the City can Make to Improve Disaster Response

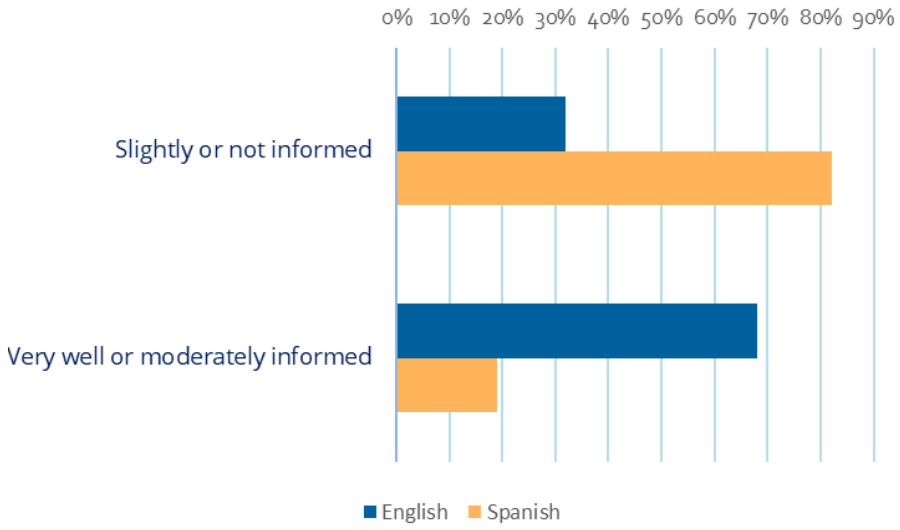
Improvements	Count
Ensure there is adequate water supply, equipment, and power for firefighting	34
Provide better information to the public about evacuation routes and training for disaster	16
Improve warning systems and information channels used during disaster events	15
Secure water resources and systems generally	14
Limit building and growth in Ventura	7
Support the fire department with more resources and/or staff	6

Climate Change

A vast majority of respondents overall (84 percent) think the climate is changing, with little variation across different groups in the city. A vast majority of respondents (89 percent) consider themselves at least slightly informed about the impacts of climate change in Ventura. There were, however, major differences in how groups across the city responded.

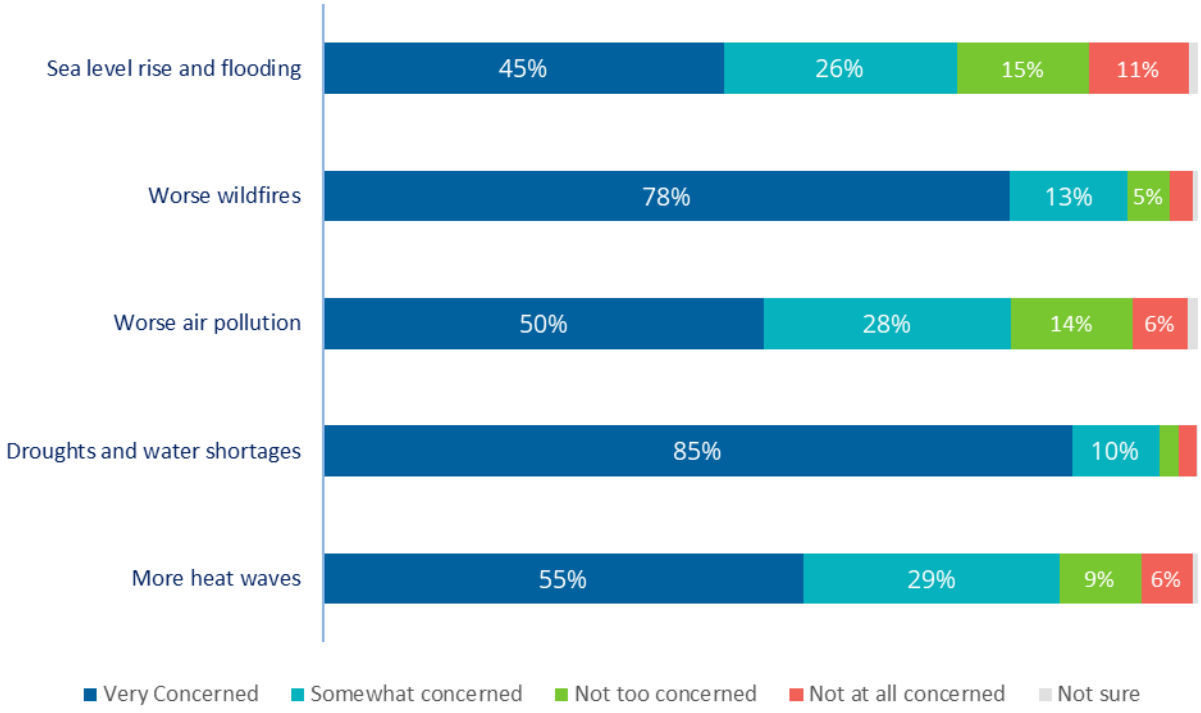
- Spanish-language respondents' answers varied greatly from English-language respondents. Only 19 percent of Spanish-language respondents reported being very well or moderately informed, compared to 68 percent of English-language respondents.
- Likewise, only 41 percent of renters reported being very well or moderately informed, compared to 72 percent of homeowners.

Figure 10: Level of Understanding about Climate Change in Ventura



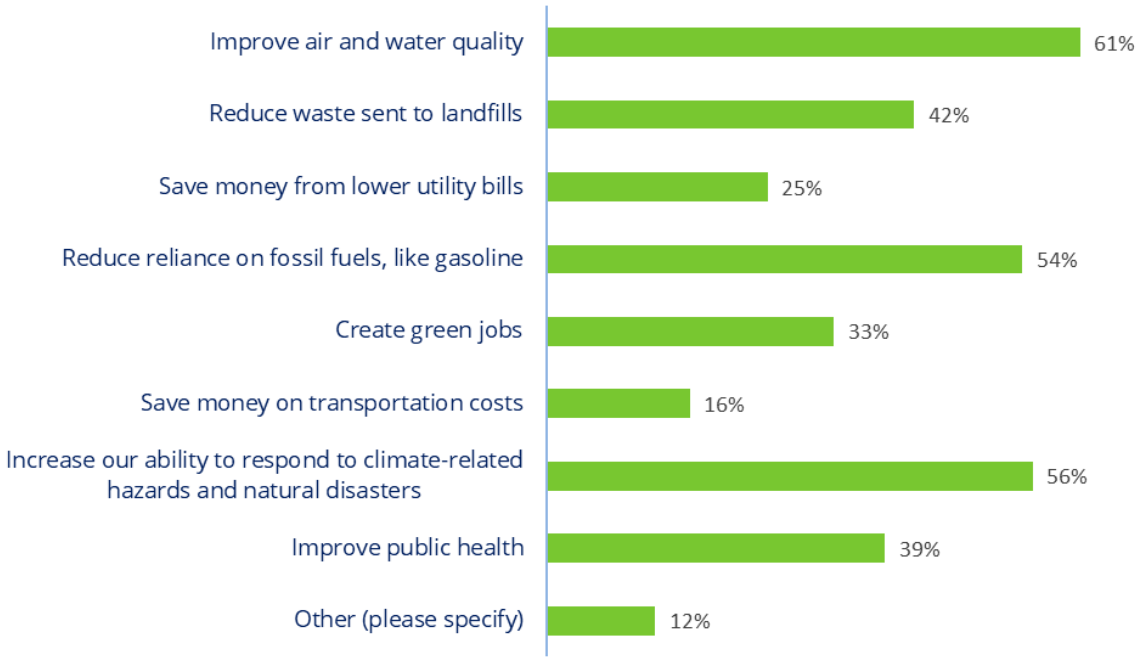
Survey respondents identified droughts and water shortages (95 percent of people reported being very or somewhat concerned) and worsening wildfires (92 percent of people reported being very or somewhat concerned) as the most pressing climate impacts. Sea level rise and flooding and worse air pollution are less of a concern to the respondents. Responses varied little across different groups in the city.

Figure 11: Most Concerning Climate Impacts



Respondents chose improving air and water quality as the most important co-benefit of natural hazard preparedness (chosen by 61 percent). Increasing our ability to respond to climate-related hazards and other natural disasters and reducing reliance on fossil fuels were also high priorities. Saving money from lower utility bills and saving money on transportation costs were lower priorities.

Table 12: Most Important Co-Benefits of Climate Preparedness



Respondents also had the opportunity to elaborate on other co-benefits of climate preparedness. The open answers are coded according to key themes that emerged, many of which had to do with water.

Table 6: Other Co-Benefits of Disaster Preparedness

Co-Benefit	Count
Stop building housing and limit population growth, which people saw as a strain on resources, putting them at risk in disasters, and negatively affecting their community fabric	17
Ensure there is a stable water supply	10
Conserve water and reduce water waste	6
Plant more trees and protect plants, wildlife, and natural habitat	6
Use desalination plants for water supply and expand the use of greywater	5

Appendix A: English Survey

Community Survey on Natural Disasters and Climate Change in the City of Ventura

Version: Web

Introduction

The City of Ventura is in the process of developing a Climate Action and Resilience Plan. This exciting initiative is a roadmap for how the community will reduce greenhouse gas emissions and prepare for the potential impacts of natural hazards and climate change on public health, infrastructure, ecosystems, and our economy.

This survey is designed to gather information about community members' opinions about experiences with recent natural disasters, preparation for possible future natural disasters, and the impacts of climate change. Your answers are anonymous, and you can also skip any questions. There are no right or wrong answers – we want to know about your perspectives and experiences.

Demographic

This section of this survey asks questions about your personal background. This information helps us understand who responded to the survey and who we still need to talk with in our community.

1. Do you live in the City of Ventura? (Check one)
    a. Yes
    b. No

2. How many years have you lived in the City of Ventura? (Check one)
    a. N/A – I do not live in Ventura
    b. Less than 1 year
    c. 1-5 years
    d. 6-10 years
    e. 11-20 years
    f. 21-40 years
    g. 40 years or more

3. What is your age group? (Check one)
    a. 17 years or younger
    b. 18-29 years
    c. 30-39 years
    d. 40-49 years

e. 50-59 years
f. 60-69 years
g. 70 years or older

4. With which race or ethnic group(s) do you most identify? (select all that apply)
    a. Asian or Asian American
    b. Black or African American
    c. Hispanic or Latino
    d. Central and South American Indigenous
    e. Native American or Alaska Native
    f. Native Hawaiian or other Pacific Islander
    g. White or Caucasian
    h. Two or more races
    i. Another race/ethnicity (please specify)

5. What gender do you identify with? (Select all that apply)
    a. Male
    b. Female
    c. Non-Binary
    d. Transgender
    e. Gender Non-Conforming
    f. Other (please specify)

Hazard Preparedness

The following section asks questions about preparedness for large-scale disasters or emergencies that would leave you isolated in your home or require you leave your home for at least 3 days. This might include natural disasters such as earthquakes, fires, storms, or blackouts. Preparedness refers to the steps you take to make sure you are safe before, during, and after a disaster or emergency.

6. How well prepared do you feel your household is to handle a large-scale disaster or emergency? (Check one)
    a. Very prepared
    b. Somewhat prepared
    c. Not too prepared at all
    d. Not at all prepared
    e. Don't know

7. How prepared do you think the Ventura city government is to deal with emergencies such as natural disasters? (Check one)
    a. Very prepared
    b. Somewhat prepared
    c. Not too prepared at all

d. Not at all prepared
e. Don't Know

8. Are there steps you, your household, your landlord, or others have taken around your home to prepare for a possible disaster? (check as many as you want)
    a. Used fire resistant materials to build, renovate, or make repairs
    b. Cleared and removed items around your home that could burn
    c. Have a room in your house that outside smoke can't get into
    d. Ensured you have an outdoor water source with a hose that can reach any area of your home
    e. Purchased a portable air cleaner
    f. Purchased a portable electric generator
    g. Retrofitted the home for earthquake shaking (e.g., reinforcing walls and chimneys and foundation bolting)
    h. Anchored shelving, cabinets, and heavy objects
    i. Created a preparedness kit or "go bag"
    j. None of the above
    k. Other: _____

9. How well informed are you about the evacuation routes and plans for your neighborhood? (Check one)
    a. Not at all informed
    b. Slightly informed
    c. Moderately informed
    d. Very well informed
    e. Other: _____

10. How concerned are you about the adequacy of evacuation plans for your neighborhood? (Check one)
    a. Very concerned
    b. Somewhat concerned
    c. Not too concerned
    d. Not at all concerned
    e. Don't know

11. If you are concerned about the evacuation plans for your neighborhood, what are you concerned about? (Open ended)

12. Do you have homeowners or renters' insurance for your residence? (Check one)
    a. Yes
    b. No
    c. I don't know
    d. Not applicable

13. Do you have a flood insurance policy from the National Flood Insurance Program or from a private insurance company? (Check one)
    a. Yes
    b. No
    c. I don't know
    d. Not applicable

Experiences with Recent Disasters

The following sections asks questions about your experiences with recent disasters or emergencies. This might include events like the Thomas Fire, mudslides, or the 2018 heat wave.

14. Have you or your family ever experienced the impacts of a disaster? (Check one)
    a. Yes
    b. No
    c. I don't know

15. In what year did you experience the disaster?
    a. Year: ____

16. Did you experience impacts from the Thomas Fire and/or subsequent mudslides? (Check one)
    a. Yes
    b. No
    c. I don't know

17. What impacts from the Thomas Fire and/or subsequent mudslides did you experience? (check as many as you want)
    a. Loss of home
    b. Property damage
    c. Loss of work or income
    d. Injury
    e. Loss of pets or livestock
    f. Housing displacement due to higher rents
    g. Loss of power
    h. Loss of groceries
    i. Respiratory or cardiovascular illness from smoke
    j. Loss of cell phone reception
    k. Mental health issues
    l. None of the above
    m. Other: _____

18. During and after the Thomas Fire, did you or anyone you know experience any of the following mental health issues? (check as many as you want)
    a. Anxiety
    b. Depression
    c. Post-traumatic stress disorders
    d. Stress
    e. Substance abuse
    f. Strains on social relationships
    g. None of the above
    h. Other: _____

19. If you experienced any of the above, were you able to access mental health resources? (Check one)
    a. Yes
    b. No
    c. I didn't experience mental health issues

20. During the Thomas Fire, what steps did you take to keep yourself safe? (check as many as you want)
    a. Followed a planned evacuation route
    b. Evacuated to a public shelter
    c. Evacuated to a friend's or family's home to shelter
    d. Sheltered in place
    e. Used masks to protect yourself from smoke
    f. None
    g. Other: ___

21. How did you get the information during the Thomas Fire? (check as many as you want)
    a. TV
    b. Radio
    c. Internet
    d. Social media
    e. Newspaper
    f. Conversations with other people
    g. Government announcement
    h. None
    i. Other: _____
22. Did you receive any support from government agencies or nonprofit charities?
    a. Yes
    b. No
    c. I don't know

23. If you received any support from government agencies or nonprofit charities, what type of support did you receive? (Open ended)

24. How can the City of Ventura and its partners improve disaster response and preparedness? (Check all that apply)
    a. Expand the emergency communications network
    b. Provide multilingual communications
    c. Use community leaders to distribute information
    d. Improve evacuation routes along Ventura Avenue and other streets
    e. Expand and increase training for neighborhood response teams
    f. Provide protective equipment to residents like air filters and masks
    g. Provide post-disaster housing displacement protections or assistance
    h. Develop local battery storage infrastructure to prevent power outages
    i. Provide more information about health and mental health resources
    j. No recommendations
    k. Other: _____

Climate Change

Recently, climate change has been getting some attention in the news. Climate change refers to the change in the usual weather found in a place. For example, this could be a change in how much rain a place usually gets in a year, or it could be a change in a place's usual temperature for a month or season.

25. Do you think the climate in Ventura is changing? (Check one)
    a. Yes
    b. No
    c. I don't know

26. How well informed are you about the effects of a changing climate in Ventura? (Check one)
    a. Not at all informed
    b. Slightly informed
    c. Moderately informed
    d. Very well informed

27. How concerned are you about the each of the following possible impacts of climate change in Ventura? (Check one for each impact)
    a. More heat waves
    b. Droughts and water shortages
    c. Worse air pollution
    d. Worse wildfires
    e. Sea level rise and flooding

        i. Very concerned

ii. Somewhat concerned
iii. Not too concerned
iv. Not at all concerned
v. Not Sure

28. Preparing for natural hazards can have many benefits. Which of the following are most important to you? *Choose up to three*.
    a. Improve air and water quality
    b. Reduce waste sent to landfills
    c. Save money from lower utility bills
    d. Reduce reliance on fossil fuels, like gasoline
    e. Create green jobs
    f. Save money on transportation costs
    g. Increase our ability to respond to climate-related hazards and natural disasters
    h. Improve public health
    i. Other: _____

Additional Demographics

In addition to the information provided at the beginning, this section of this survey asks additional questions about your personal background.

29. In which part of Ventura do you live? (Check one)
    a. Arundell / North Bank
    b. College Area
    c. Downtown
    d. Eastside / Juanamaria (North of Highway 126)
    e. Eastside / Saticoy (South of Highway 126)
    f. Foothills
    g. Marina
    h. Midtown
    i. Pierpont
    j. Southeast / Montalvo
    k. Thille
    l. Westside / The Avenue
    m. Other part of Ventura
    n. I do not live in Ventura

30. What best describes your annual household income level? (Check one)
    a. Less than $20,000
    b. $20,000 - $44,999
    c. $45,000 - $84,999
    d. $85,000 - $99,999
    e. $100,000 - $199,999

f. $200,000 or more

31. Do you own or rent your residence? (Check one)
    a. Own
    b. Rent
    c. Other: ____

32. What best describes your housing unit type? (Check one)
    a. Accessory Dwelling Unit (Including granny flats, converted garages, etc.)
    b. Apartment
    c. Condo/townhouse
    d. Duplex/Triplex
    e. Mobile Home
    f. Single-family house
    g. Unhoused
    h. Vehicle
    i. Other: _____

33. Do you consider yourself a person with a disability? (Check one)
    a. Yes
    b. No
    c. I don't know

34. How do you connect with the City of Ventura for news and events?
    a. City website
    b. City Council or Commission Meetings
    c. Community Council Meetings
    d. MyVentura or other digital City eNewsletters
    e. Parks & Recreation guidebook (seasonal)
    f. Facebook
    g. Instagram
    h. Twitter
    i. Nextdoor
    j. YouTube
    k. Other

35. If you would to be notified about the following ongoing City planning projects, please check the box(es), and provide your email address.
    General Plan Update

    Active Transportation Plan

    E-mail address: _____

Introduction for the PHONE or IN PERSON

Hi, my name is ____ and I am a staff member / project team member working with the City of Ventura. We are doing a special survey about experiences with recent natural disasters, preparation for possible future natural disasters, and the impacts of climate change.

This survey should take about fifteen minutes. We appreciate your honest responses. If we ask a question that you do not want to answer, you don't need to do so. All your answers will be kept confidential. Any questions?

Appendix B: Spanish Survey

Encuesta comunitaria sobre desastres naturales y cambio climático en la ciudad de Ventura

Versión: Web

Introducción

La ciudad de Ventura está desarrollando un Plan de Acción y Resiliencia Climática. Esta interesante iniciativa es una hoja de ruta sobre cómo la comunidad reducirá las emisiones de gases de efecto invernadero y se preparará para los posibles impactos de los riesgos naturales y el cambio climático en la salud pública, las infraestructuras, los ecosistemas y nuestra economía.

Esta encuesta está diseñada para recabar información sobre las opiniones de los miembros de la comunidad acerca de las experiencias con los recientes desastres naturales, la preparación para posibles desastres naturales futuros y los impactos del cambio climático. Sus respuestas son anónimas y también puede omitir cualquier pregunta. No hay respuestas correctas o incorrectas – queremos conocer sus perspectivas y experiencias.

Demografía

En esta sección de la encuesta se hacen preguntas sobre sus datos personales. Esta información nos ayuda a entender quiénes han respondido a la encuesta y con quiénes tenemos que seguir conversando en nuestra comunidad.

1. ¿Vive usted en la ciudad de Ventura?
    a. Sí
    b. No

2. ¿Cuántos años lleva viviendo en la ciudad de Ventura?
    a. N/A – No vivo en Ventura
    b. Menos de 1 año
    c. 1-5 años
    d. 6-10 años
    e. 11-20 años
    f. 21-40 años
    g. 40 años o más

3. ¿Cuál es su grupo de edad?
    a. 17 años o menos
    b. 18-29 años
    c. 30-39 años

d. 40-49 años
e. 50-59 años
f. 60-69 años
g. 70 años o más

4. ¿Con cuál raza o grupos étnicos se identifica más? (Seleccione todos los que correspondan)
    a. Asiático o Asiático Estadounidense
    b. Negro o Afroamericano
    c. Hispano o Latino
    d. Indígenas de América Central y del Sur
    e. Nativo Americano o Nativo de Alaska
    f. Nativo de Hawái u otra Isla del Pacífico
    g. Blanco o Caucásico
    h. Dos o más razas
    i. Otra raza/etnia (por favor, especifique)

5. ¿Con cuál género se identifica? (Seleccione todos los que correspondan)
    a. Masculino
    b. Femenino
    c. No binario
    d. Transgénero
    e. Género no conforme
    f. Otro (por favor, especifique):

Preparación ante los riesgos

En la siguiente sección se plantean preguntas sobre la preparación para desastres o emergencias a gran escala que le dejarían aislado en su casa o le obligarían a abandonarla durante al menos 3 días. Esto puede incluir desastres naturales como terremotos, incendios, tormentas o apagones. La preparación se refiere a las medidas que toma para asegurarse de que está a salvo antes, durante y después de un desastre o emergencia.

6. ¿En qué medida considera que su hogar está preparado para hacer frente a un desastre o emergencia a gran escala? (Marque una)
    a. Muy preparado
    b. Algo preparado
    c. No está muy preparado
    d. No está preparado en absoluto
    e. No sabe

7. ¿En qué medida considera que el gobierno de la ciudad de Ventura está preparado para hacer frente a emergencias como los desastres naturales? (Marque una)
    a. Muy preparado

b. Algo preparado
c. No está muy preparado
d. No está preparado en absoluto
e. No sabe

8. ¿Hay medidas que usted, su familia, su arrendador u otras personas han tomado en su casa para prepararse para un posible desastre? (marque todas las que quiera)
    a. Utilizó materiales resistentes al fuego para construir, renovar o hacer reparaciones
    b. Despejó y retiró los objetos alrededor de su casa que puedan quemarse
    c. Designó una habitación que pueda cerrarse desde el exterior para evitar la entrada de humo
    d. Se aseguró de tener una fuente de agua exterior con una manguera que pueda llegar a cualquier zona de su casa
    e. Compró un limpiador de aire portátil
    f. Compró un generador eléctrico portátil
    g. Modernizó la casa para las sacudidas sísmicas
    h. Colocó anclajes para estanterías, armarios y objetos pesados
    i. Creó un kit de preparación o “bolso de viaje”
    j. Ninguno de las anteriores
    k. Otros: _____

9. ¿En qué medida está usted informado de los planes de evacuación de su vecindario?
    a. Ninguna información
    b. Ligeramente informado
    c. Moderadamente informado
    d. Muy bien informado
    e. Otros: _____

10. ¿En qué medida le preocupa la adecuación de los planes de evacuación de su vecindario? (Marque una)
    a. Muy preocupado
    b. Un poco preocupado
    c. No me preocupa demasiado
    d. No me preocupa en absoluto
    e. No sabe

11. Si le preocupan los planes de evacuación de su vecindario, ¿qué le preocupa? (Respuesta abierta)

12. ¿Tiene un seguro para propietarios o inquilinos para su residencia? (Marque una)
    a. Sí
    b. No
    c. No sabe

13. ¿Tiene una póliza de seguro contra inundaciones del Programa Nacional de Seguros contra Inundaciones o de una compañía de seguros privada? (Marque una)
    a. Sí
    b. No
    c. No sabe

Experiencias con desastres recientes

En las siguientes secciones se hacen preguntas sobre sus experiencias con desastres o emergencias recientes. Esto podría incluir eventos como el incendio Thomas, los deslizamientos de tierra o la ola de calor de 2018.

14. ¿Usted o su familia han sufrido alguna vez los efectos de un desastre? (Marque una)
    a. Sí
    b. No
    c. No sabe

15. ¿En qué año sufrió los efectos del desastre?
    a. Año: ____

16. ¿Sufrió usted el impacto del incendio Thomas y los posteriores desprendimientos de tierra? (Marque una)
    a. Sí
    b. No
    c. No sabe

17. ¿Qué impactos del incendio Thomas y de los posteriores desprendimientos de tierra experimentó? (marque todos los que quiera)
    a. Pérdida de la vivienda
    b. Daños a la propiedad
    c. Pérdida de trabajo o de ingresos
    d. Lesión
    e. Pérdida de animales domésticos o de ganado
    f. Desplazamiento de la vivienda por el aumento de los alquileres
    g. Pérdida de energía
    h. Pérdida de comestibles
    i. Enfermedades respiratorias o cardiovasculares causadas por el humo
    j. Pérdida de recepción del teléfono celular
    k. Problemas de salud mental
    l. Ninguno de las anteriores
    m. Otro: _____

18. Durante y después del incendio Thomas, ¿usted o alguien que conoce experimentó alguno de los siguientes problemas de salud mental? (marque todos los que quiera)
    a. Ansiedad
    b. Depresión
    c. Trastornos de estrés postraumático
    d. Estrés
    e. Abuso de sustancias
    f. Tensiones en las relaciones sociales
    g. Ninguno de las anteriores
    h. Otro: _____

19. Si experimentó una de las situaciones anteriores, ¿pudo acceder a recursos de salud mental? (Marque una)
    a. Sí
    b. No
    c. No he tenido problemas de salud mental

20. Durante el incendio Thomas, ¿qué medidas tomó para mantenerse a salvo? (marque todas las que quiera)
    a. Siguió una ruta de evacuación planificada
    b. Decidió evacuar a un refugio público
    c. Decidió evacuar a casa de un amigo o familiar para refugiarse
    d. Se refugió en el lugar
    e. Utilizó mascarillas para protegerse del humo
    f. Ninguna
    g. Otra: _____

21. ¿Cómo consiguió la información durante el incendio Thomas? (marque todas las que quiera)
    a. TV
    b. Radio
    c. Internet
    d. Medios Sociales
    e. Periódico
    f. Conversaciones con otras personas
    g. Anuncio del Gobierno
    h. Ninguna
    i. Otros: _____

22. ¿Recibió alguna ayuda de organismos gubernamentales o de organizaciones benéficas sin ánimo de lucro?
    a. Sí
    b. No
    c. No sabe

23. Si recibió alguna ayuda de organismos gubernamentales o de organizaciones benéficas sin ánimo de lucro, ¿qué tipo de ayuda recibió? (Respuesta abierta)

24. ¿Cómo pueden la ciudad de Ventura y sus socios mejorar la respuesta y la preparación ante los desastres? (Marque todas las que correspondan)
    a. Ampliar la red de comunicaciones de emergencia
    b. Proporcionar comunicaciones multilingües
    c. Utilizar a los líderes de la comunidad para distribuir información
    d. Mejorar las rutas de evacuación a lo largo de la Avenida Ventura y otras calles
    e. Ampliar y aumentar la formación de los equipos de respuesta vecinal
    f. Proporcionar equipos de protección a los residentes, como filtros de aire y mascarillas
    g. Proporcionar protecciones o ayudas para el desplazamiento de la vivienda tras el desastre
    h. Desarrollar una infraestructura local de almacenamiento de baterías para evitar los cortes de electricidad
    i. Ninguna recomendación
    j. Otro: _____

Cambio climático

Recientemente, el cambio climático ha recibido cierta atención en las noticias. El cambio climático se refiere al cambio en las condiciones climáticas habituales de un lugar. Por ejemplo, puede tratarse de un cambio en la cantidad de lluvia que suele recibir un lugar en un año, o puede ser un cambio en la temperatura habitual de un lugar durante un mes o una estación.

25. ¿Considera que el clima en Ventura está cambiando? (Marque una)
    a. Sí
    b. No
    c. No sabe

26. ¿En qué medida está informado sobre los efectos del cambio climático en Ventura? (Marque una)
    a. Ninguna información
    b. Ligeramente informado
    c. Moderadamente informado
    d. Muy bien informado

27. ¿En qué medida le preocupa cada uno de los siguientes posibles impactos del cambio climático en Ventura? (Marque una opción para cada impacto)
    a. Más olas de calor
    b. Sequías y escasez de agua

c. Peor contaminación atmosférica
d. Peores incendios forestales
e. Aumento del nivel del mar e inundaciones

i. Muy preocupado
ii. Un poco preocupado
iii. No me preocupa demasiado
iv. No me preocupa en absoluto
v. No está seguro

28. Prepararse ante los riesgos naturales puede tener muchos beneficios. ¿Cuáles de las siguientes opciones son más importantes para usted? *Elija hasta tres*.
    a. Mejorar la calidad del aire y del agua
    b. Reducir los residuos enviados a los vertederos
    c. Ahorrar dinero gracias a la reducción de las facturas de los servicios públicos
    d. Reducir la dependencia de los combustibles fósiles, como la gasolina
    e. Crear empleos ecológicos
    f. Ahorrar dinero en gastos de transporte
    g. Aumentar nuestra capacidad de respuesta ante los riesgos relacionados con el clima y los desastres naturales
    h. Mejorar la salud pública
    i. Otros: _____

Datos demográficos adicionales

Además de la información proporcionada al principio, en esta sección de la encuesta se hacen preguntas adicionales sobre sus datos personales.

29. ¿En qué parte de Ventura vive? (Marque una)
    a. Arundell / North Bank
    b. College Area
    c. Downtown
    d. Eastside / Juanamaria (Norte de la Autopista 126)
    e. Eastside / Saticoy (Sur de la Autopista 126)
    f. Foothills
    g. Marina
    h. Midtown
    i. Pierpont
    j. Southeast / Montalvo
    k. Thille
    l. Westside / The Avenue
    m. Otra parte de Ventura
    n. No vive en Ventura

30. ¿Cuál describe mejor el nivel de ingresos anuales de su hogar? (Marque una)
    a. Menos de $20,000
    b. $20,000 - $44,999
    c. $45,000 - $84,999
    d. $85,000 - $99,999
    e. $100,000 - $199,999
    f. $200,000 o más

31. ¿Es usted propietario o alquila su residencia? (Marque una)
    a. Propiedad
    b. Alquiler
    c. Otro: _____

32. ¿Cuál describe mejor su tipo de vivienda? (Marque una)
    a. Unidad de vivienda accesoria (incluidos los apartamentos de acogida, los garajes transformados, etc.)
    b. Apartamento
    c. Condominio/Casa adosada
    d. Dúplex / Tríplex
    e. Casa rodante
    f. Casa unifamiliar
    g. Sin vivienda
    h. Vehículo
    i. Otro: _____

33. ¿Se considera una persona con una discapacidad? (Marque una)
    a. Sí
    b. No
    c. No sabe

34. ¿Cuál es su medio preferido para conectarse con la Ciudad de Ventura e informarse de noticias y eventos?
    a. Página de internet de la ciudad
    b. Reuniones del Concejo Municipal o de la Comisión
    c. Reuniones del Concejo Comunitario
    d. MyVentura u otros boletines digitales de la ciudad
    e. Guías de parques y recreación de temporada
    f. Facebook
    g. Instagram
    h. Twitter
    i. Nextdoor
    j. YouTube
    k. Otro

35. Si le gustaría recibir notificaciones acerca de los próximos planes y proyectos, por favor seleccione una o más opciones y provea su correo electrónico.
    a. Actualización del plan general
    b. Planes de Transporte Activo
    c. Correo electrónico: _____

Presentación por TELÉFONO o EN PERSONA

Hola, me llamo ____ y soy miembro del personal/equipo de proyecto que trabaja con la ciudad de Ventura. Estamos haciendo una encuesta especial sobre las experiencias con los desastres naturales recientes, la preparación para posibles desastres naturales futuros y los impactos del cambio climático.

Esta encuesta debería durar unos quince minutos. Agradecemos que sus respuestas sean sinceras. Si le hacemos una pregunta que no quiere responder, no es necesario que lo haga. Todas sus respuestas serán confidenciales. ¿Tiene alguna pregunta?

Community Survey on Greenhouse Gas Reduction in the City of Ventura

October 2022

CITY OF VENTURA
OUR VISION, OUR FUTURE

Table of Contents

Survey Overview

The City of Ventura is in the process of creating a Climate Action and Resilience Plan (CARP). This exciting initiative is a roadmap for how the community will reduce greenhouse gas (GHG) emissions and prepare for the potential impacts of natural hazards and climate change on public health, infrastructure, ecosystems, and our economy.

The City launched a Community Survey on Greenhouse Gas Reduction in the City of Ventura (survey), which was open from late July 2022 through mid-August 2022.The purpose of this survey was to gather information about community members' opinions about policy options and behaviors to reduce greenhouse gas emissions and help us meet State reduction goals

The survey was made available in both English and Spanish, and a total of 1,071 unique responses were recorded. This document summarizes the combined responses of both English- and Spanish-language participants.

Survey Methodology and Participation

The survey was developed by City of Ventura staff and the General Plan Update consultant team. In developing the survey, the team considered:

- **Draft Greenhouse Gas Reduction Measures for the CARP**: The survey asks specifically about support for measures in the building energy, land use and transportation, water, and solid waste sectors.
- **Similar Surveys or Polls**: The project team reviewed similar community surveys from other jurisdictions and statistically significant findings from other polls about the topics covered in the survey. Several questions in the survey match questions found in these external tools.
- **Creating a Flexible and Useful Tool to Maximize Engagement**: The survey, in English and Spanish, was developed to measure opinions across all the above areas of interest.

The final survey instruments are attached in the Appendix A and B. Each version of the tool is organized into five sections: demographics, policies and behaviors and actions.

Sampling

This survey was completed by a non-randomized sample (often called a convenience sample) of people who live, work, go to school, or spend time in the City of Ventura.

Using a non-random sample for a survey is commonly used to understand the perspectives and experiences of a group of people ("population"). Data from non-random samples can show the range of views and experiences within a population and be used as a reference point. Data from non-random samples are typically considered more reliable (i.e., more generalizable to the larger population) when they are "triangulated" or validated through additional sources. This survey data will be considered alongside data from focus groups, community meetings, and other public input, with all this data being used to inform decision-making.

Distribution Methods

The survey was available to take online and was produced using the SurveyMonkey platform. The project team developed several outreach graphics and materials, such as social media images and flyers, which were distributed through various methods, including but not limited to:

- **Internet-Based Outreach:** City's GovDelivery listservs (All subscribers; General Plan Update subscribers); GPU Project Website; City's social media accounts (Twitter, Facebook, Instagram, etc.).
- **In-Person Outreach:** Door-to-door canvassing; outreach at the CARP Open House; outreach at the CARP focus groups.

The survey and outreach materials were produced in both English and Spanish. To encourage the participation of typically underrepresented groups, the non-profit organization Central Coast Alliance United for A Sustainable Economy (CAUSE) conducted targeted outreach in heavily Hispanic/Latinx, multi-family neighborhoods on Ventura's Westside. CAUSE staff canvassed door-to-door and recorded survey responses with Spanish-speaking residents in person. When residents did not answer, CAUSE staff left behind flyers with information about how to access the survey.

Demographic and Socioeconomic Characteristics of Survey Participants

Participants were asked several demographic questions during the survey. These questions are intended to help City staff ascertain whether survey respondents generally matched the profile of Ventura and/or whether any groups were over- or underrepresented. Key takeaways are summarized below:

- Almost all respondents (90 percent) are residents of the City of Ventura.
- Of all residents who responded, over half (53 percent) have lived in Ventura for 21 years or more. Residents of one year or less comprised lonely one percent.
- Homeowners made up 77 percent of the respondents, and renters comprised 21 percent of the responses. The survey results overrepresented homeowners (54 percent of the city population) compared to rents (46 percent of the city population).
- Almost three-quarters of survey respondents identify as Non-Hispanic White or Caucasian (compared to the citywide average of 55 percent) Hispanic and Latino individuals were underrepresented (18 percent compared to the citywide average of 36 percent).
- People aged 60 and above comprised almost half (48 percent) of respondents.
- The response for most neighborhoods was proportionate to residential population size.

Policies

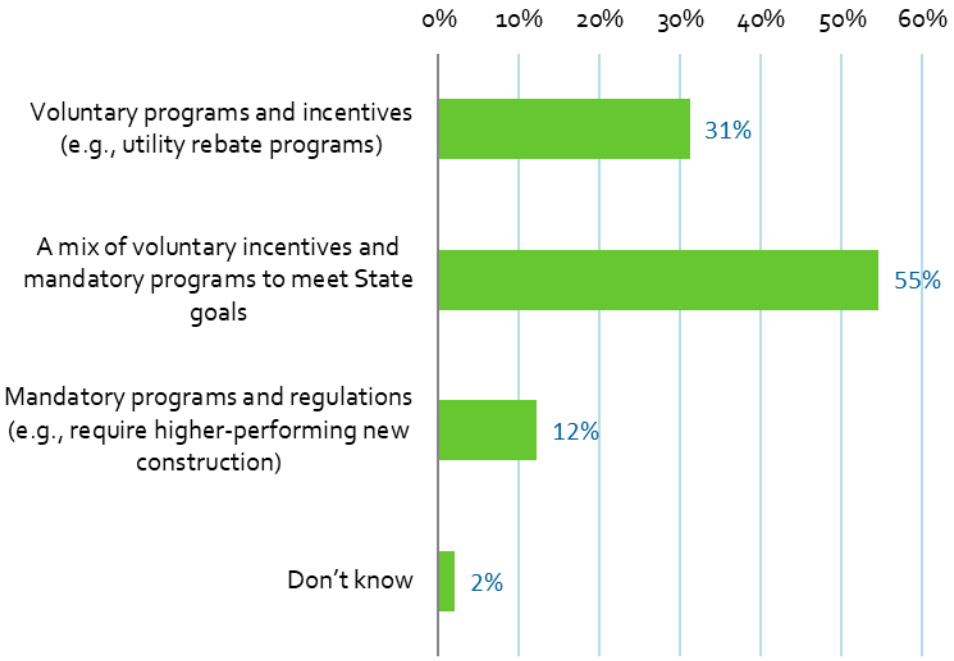
Survey participants were asked questions about their attitudes towards taking climate action. They were also asked a series of policy options to improve energy and water efficiency, reduce air pollution, and reduce greenhouse gas emissions.

Level of Action to Meet GHG Goals

A majority of respondents (81 percent) are aware that California has established GHG emissions. Nearly 60 percent of respondents believe the City should take bold action to meet or exceed those goals. The remaining 40 percent of respondents are split evenly between the City taking moderate or limited action.

However, respondents' stated desire for the City to take bold action is not consistent with their views on how the City should encourage action (Figure 1). Only 12 percent think the City should establish mandatory programs and regulations, while the rest selected the more moderate approach of mixed voluntary and mandatory programs or voluntary programs only.

Figure 1: How the City should Encourage Action to Meet State GHG Goals



Policy Options

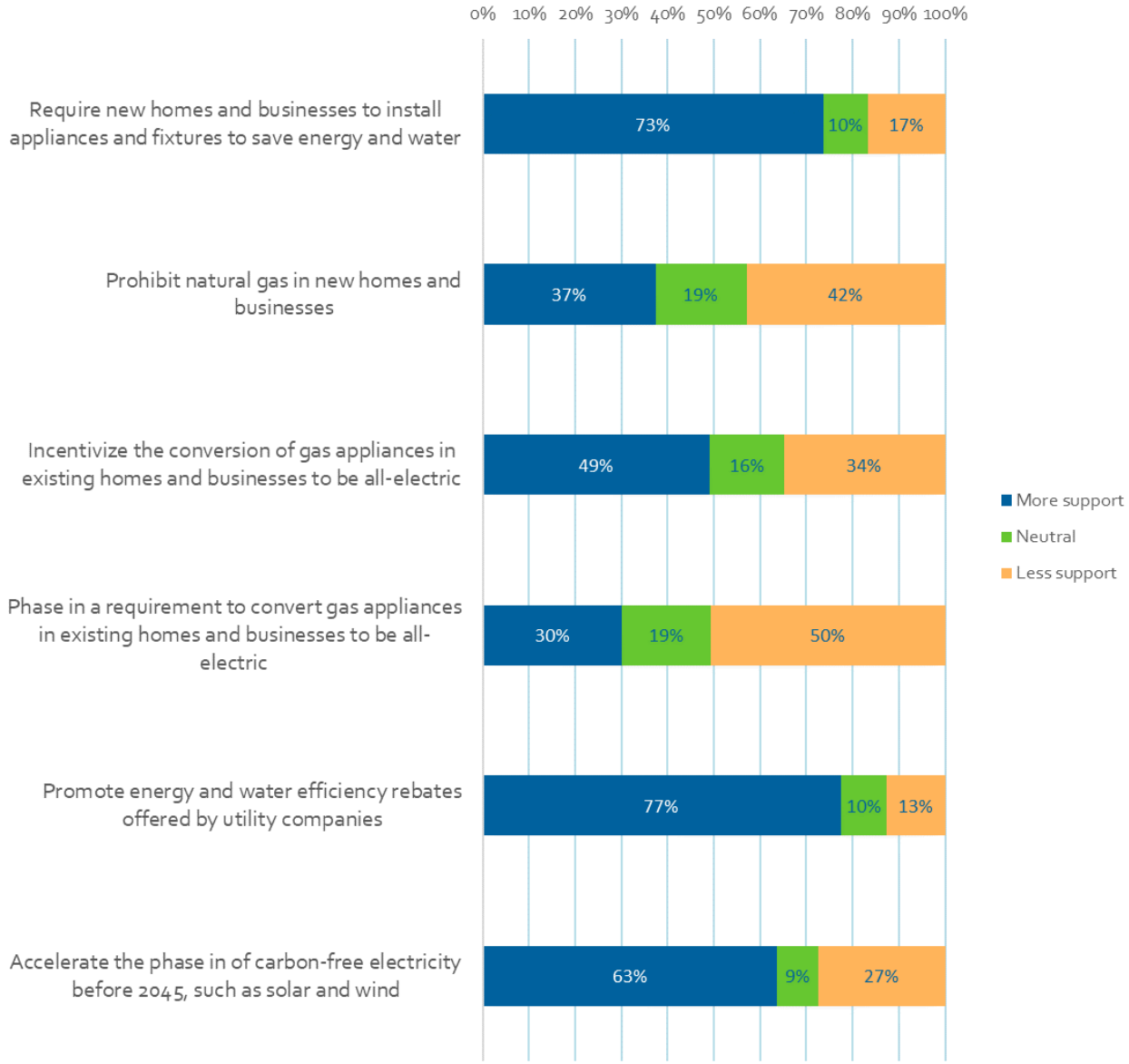
Participants were asked to rank a menu of GHG reduction measures on a scale of 1 to 5, where 1 means "Do not Support" and 5 means "Strongly Support"

Building Energy Policies

About three quarters of respondents support or strongly support promoting water and energy rebates from utilities and requiring new homes and businesses to install efficient appliances and fixtures (77 and 73 percent respectively) (Figure 2). Accelerating the phase-in of carbon-free electricity before 2045 is also supported by a majority (63 percent) of respondents. This measure is more strongly supported by renters than homeowners; 73 percent of renters are in support, compared to 61 percent of homeowners.

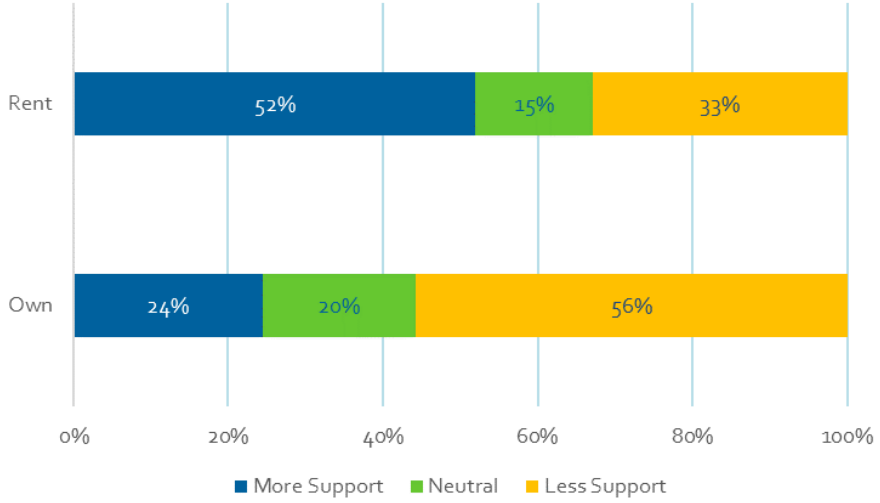
Policy options that respondents are least supportive of are phasing in requirements for converting gas appliances in existing homes and prohibiting natural gas in development (Figure 2). However, these policies also have the highest percentage of "neutral" respondents who could perhaps be swayed to one side through education.

Figure 2: Level of Support for Building Energy Policy Options



Overall respondents are more supportive of incentives than a phased-in requirement when it comes to converting gas appliances to electric in existing development. Broken down by housing tenure, renters are more supportive of both policies than homeowners. 58 percent of renters compared to 47 percent of homeowners support incentives. The difference is stark when it comes to phased-in requirements; only 24 percent of homeowners are in support compared to 52 percent of renters (Figure 3).

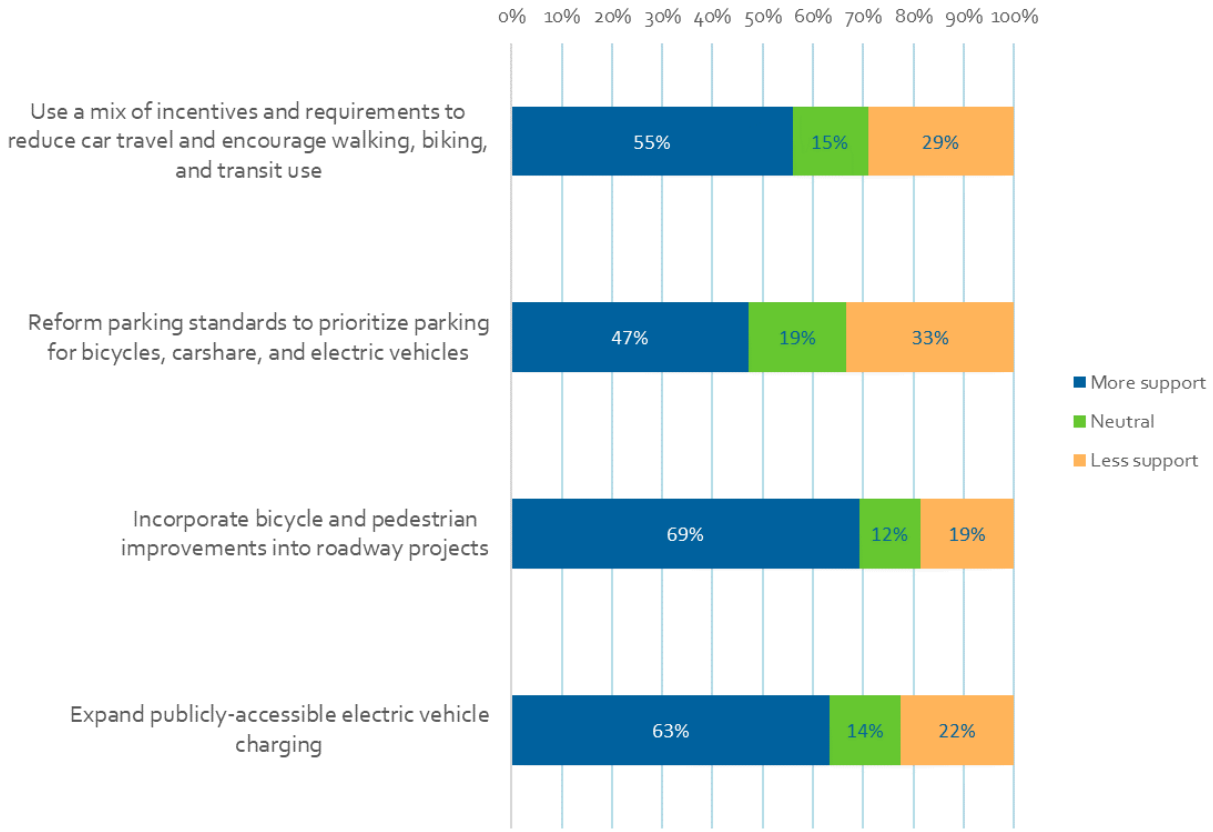
Figure 3: Support of Phased-in Requirements for Gas Appliance Conversion to Electric in Existing Buildings by Housing Tenure



Land Use and Transportation Policies

All of the land use and transportation policies included in the survey are moderately to strongly supported by the overall survey respondents (Figure 4). The most popular options are incorporating bicycle and pedestrian improvements into roadway projects (69 percent support) and expanding publicly accessible EV charging (63 percent support).

Figure 4: Level of Support for Land Use and Transportation Policy Options

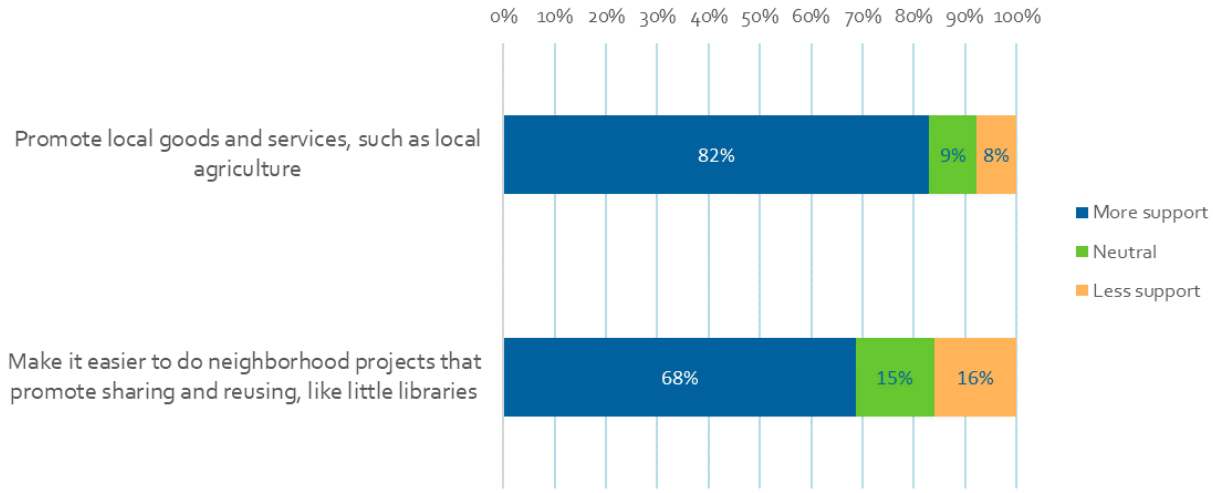


When broken down by housing tenure, respondents who are renters are slightly more supportive of all four policies than homeowners. The policy option with the greatest difference (13 percentage points) between renters and owners is reforming parking standards to prioritize parking for bicycles, carshare, and EVs.

Consumption Reduction Policies

Overall respondents are highly supportive of policies that reduce consumption emissions (Figure 5). Respondents who are renters are more supportive of policies that make it easier to do neighborhood projects that promote sharing and reusing (83 percent of renters support, compared to 65 percent of homeowners).

Figure 5: Level of Support for Consumption Reduction Policy Options



Behaviors

The last section of the survey addressed if respondents currently implement sustainable practices. Respondents could select all options that applied, as well as add their own actions in the "Other" option.

Steps Taken to be more Sustainable

Reducing Energy Use

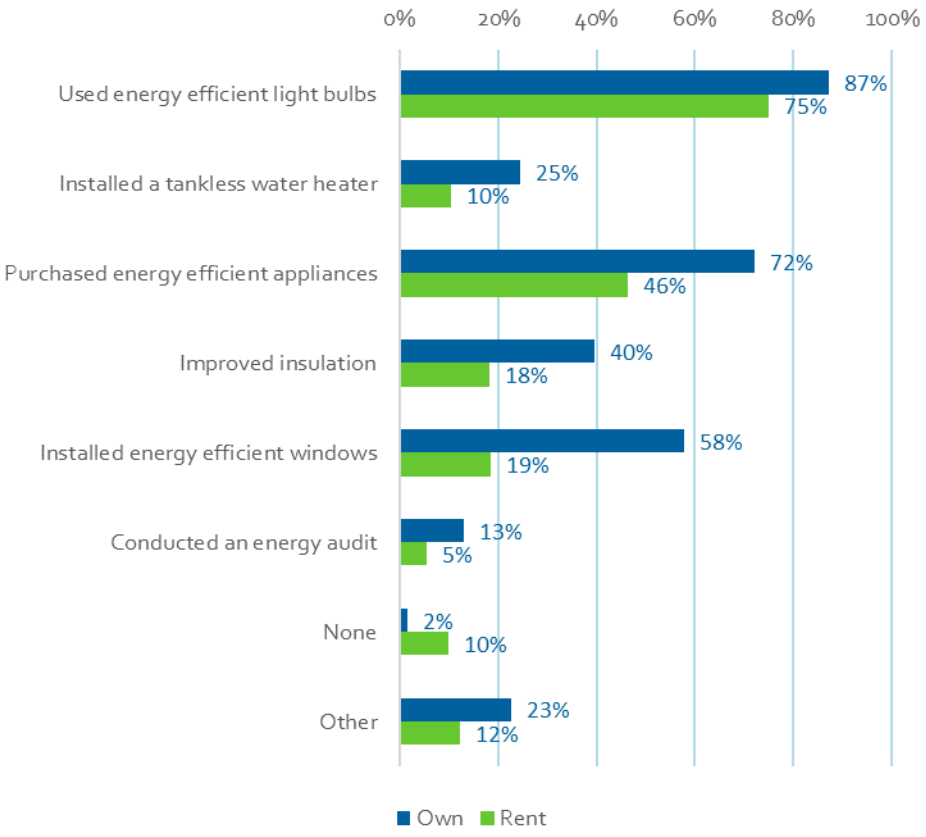
Overall, the most popular actions respondents have taken to reduce home energy use are using energy efficient light bulbs (selected by 91 percent of respondents) and purchasing energy efficient appliances (71 percent). Only a small number of respondents have installed a tankless water heater or conducted an energy audit (23 and 12 percent, respectively).

Common themes in the "Other" responses were:

- Installed or are planning to install solar panels, some with battery backup
- Turn off lights, fans, etc. off when not in use
- Purchased and drive an EV (note: not an energy conservation measure)
- Not using AC, relying more on passive cooling or fans
- Wanting to make the changes listed but being limited as a renter

Because renters have less ability to make changes to their residence, the question asked if they or their landlord have taken the steps to reduce energy use. Even so, renters reported lower implementation of all actions listed (Figure 6). The biggest disparities are in the installation of energy efficient windows, purchase of energy efficient appliances, and improving the building insulation.

Figure 6: Steps Taken Around the Home to Reduce Energy Use by Housing Tenure



Reducing Water Use

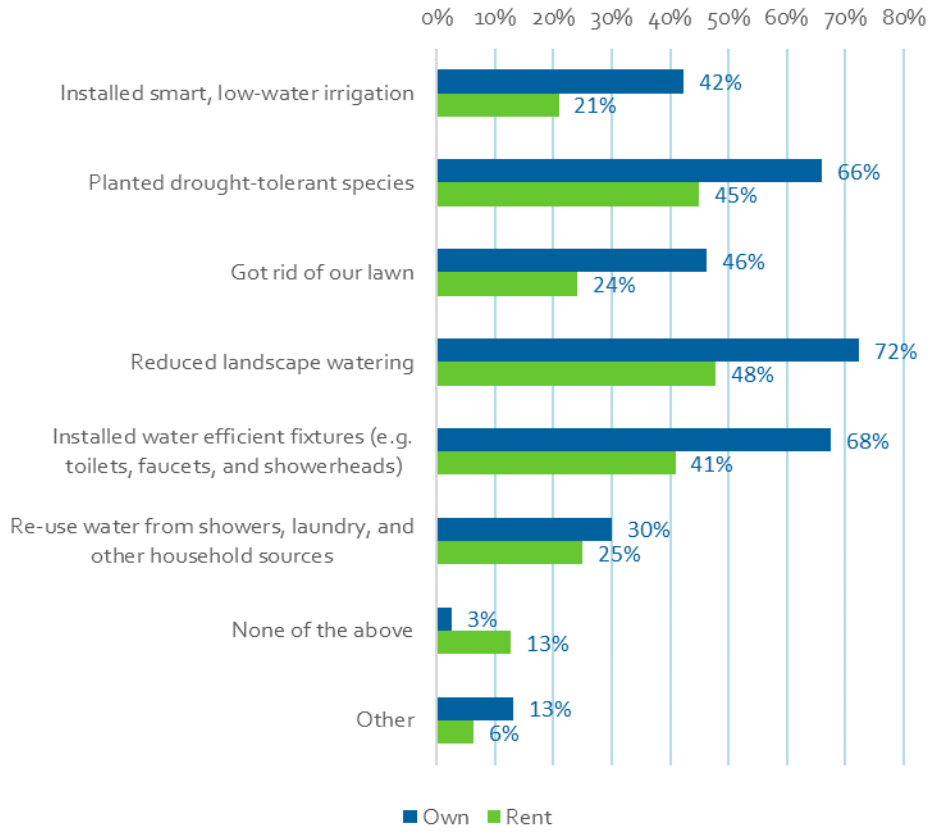
Overall, the most popular actions respondents have taken to reduce home water use are reducing landscape watering (73 percent), installing water efficient fixtures (67 percent), and planting drought-tolerant species (67 percent). Even the less popular actions have decent uptake, with a third to half of respondents implementing low water irrigation, lawn removal, and water re-use. Most of the "Other" responses are more detailed explanations of how people implement the answers in the multiple choice.

Beside the more detailed descriptions of the options in the multiple choice, common themes in the "Other" responses were:

- Shortened the length of showers, sink usage, etc.
- Reduced toilet flushing
- Installed rain barrels
- Installed circulation pumps

Because renters have less ability to make changes to their residence, the question asked if they or their landlord have taken the steps to reduce water use. Even so, renters reported lower implementation of all actions listed (Figure 7).

Figure 7: Steps Taken Around the Home to Reduce Water Use by Housing Tenure



Other Ways to be more Sustainable

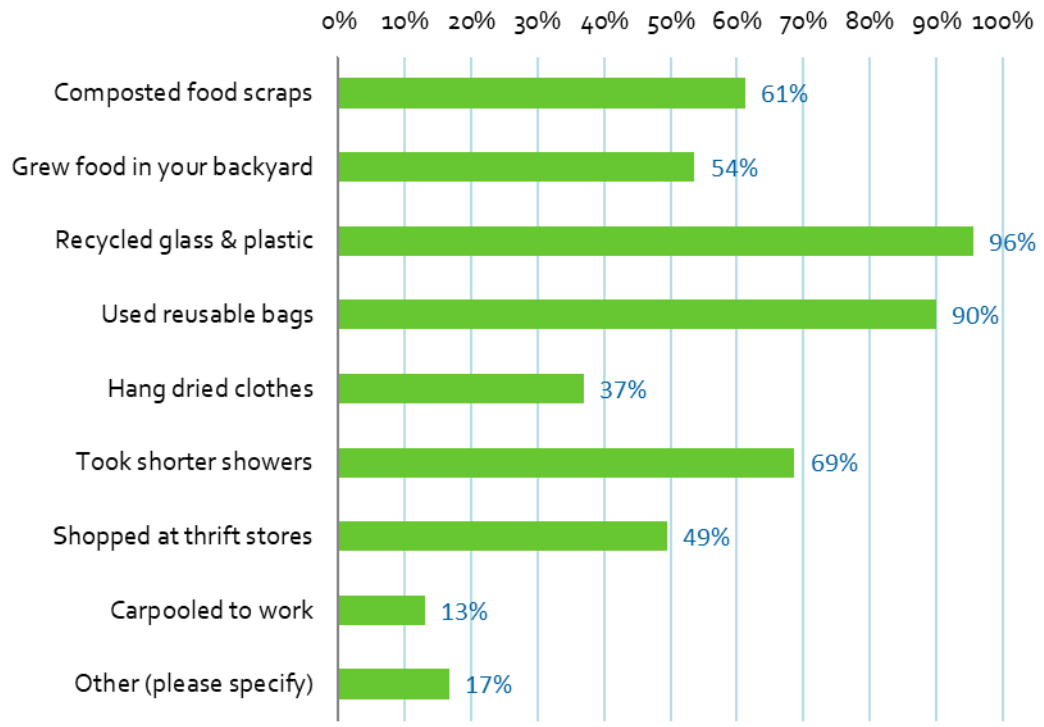
There is a wide variety of other ways households can be more sustainable. Almost all respondents recycle glass and plastic and use reusable bags (96 and 90 percent, respectively), which are ways to reduce landfilled waste. About half of respondents implement measures to reduce consumption emissions, including composting food scraps (61 percent), growing food in their backyard (54 percent), and shopping at thrift stores (49 percent).

The results were mostly consistent between homeowners and renters. However, more renters shopped at thrift stores (57 percent for renters versus 43 percent for homeowners) and carpooled to work (21 percent for renters versus only 9 percent of homeowners).

Common themes in the "Other" responses were:

- Rides a bike, walk, or other active transportation mode to work and run errands
- Uses public transportation
- Uses an EV
- Installed solar panels at home

Figure 8: Other Steps Taken to Help the Environment



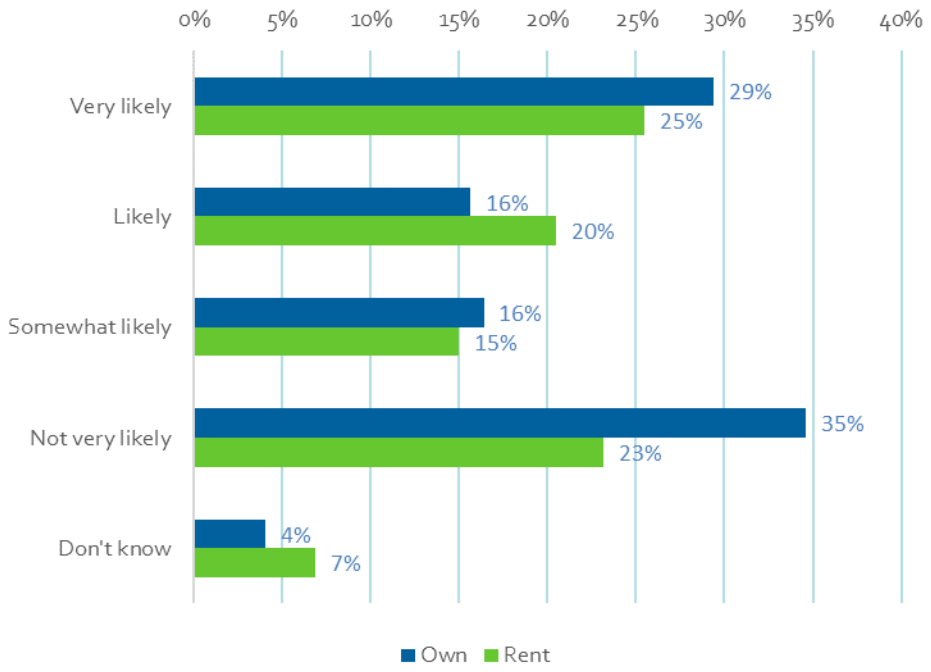
Behavior Change

Opting in to Renewable Energy

Overall, a majority of respondents (62 percent) are aware that they can opt into 100% renewable electricity through their utility. Unfortunately, this knowledge is not accessible to all groups in the City. Only 40 percent of Spanish-speaking respondents and 47 percent of renters are aware of this.

When it comes to likelihood of taking on additional cost to opt into 100% renewable electricity, respondents are pretty evenly split. 46 percent of total respondents are "Very Likely" or "Likely" to opt in, while 48 percent are only "Somewhat Likely" or "Not very Likely" to. The responses of renters versus owners are consistent with the overall result but reveal one slight difference. Fewer renters said they would be "Not very Likely" to opt in to 100% renewable energy (only 23 percent, compared to 35 percent of owners).

Figure 9: Likelihood of Opting In to 100% Renewable Electricity by Housing Tenure

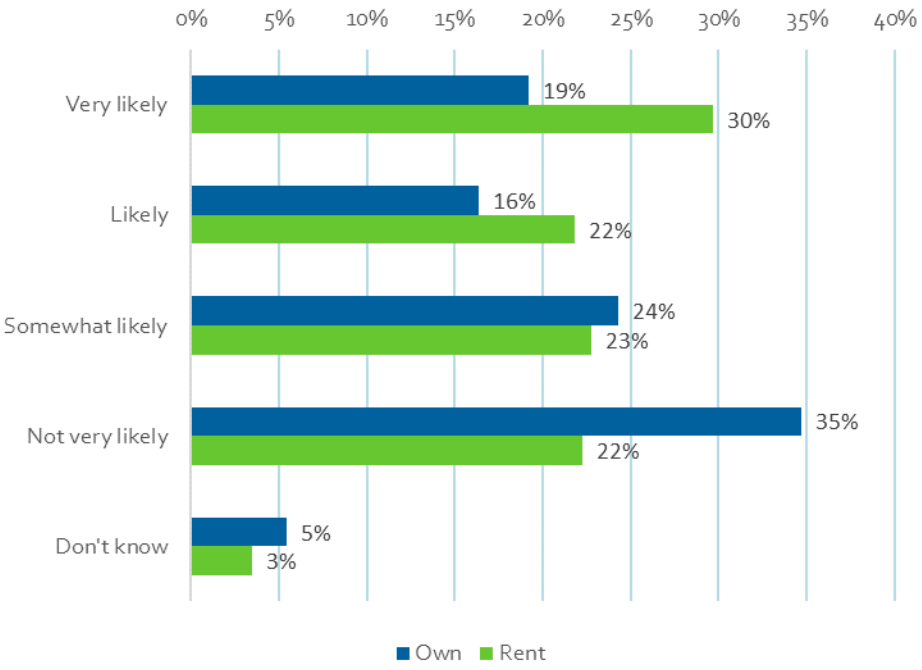


Using Modes of Transportation other than Driving

Respondents who rent their residence use modes other than driving more often than people who own their residence. 46 percent of renters reported that they use active transportation or transit every day or a few times a week, compared to only 32 percent of homeowners. On the other side of the spectrum, 27 percent of renters and 39 percent of homeowners reported that they never use a mode other than driving.

Renters reported more willingness to increase their use of active transportation and transit than homeowners, as 30 percent and 22 percent selecting "Very Likely" or "Likely" respectively (Figure 10).

Figure 10: Likelihood of Increasing Use of Active Transportation and Transit by Housing Tenure



Appendix A: English Survey

Community Survey on Greenhouse Gas Reduction in the City of Ventura

Version: Web

Draft: 7/13/2022

Introduction

The City of Ventura is in the process of developing a Climate Action and Resilience Plan. This exciting initiative is a roadmap for how the community will reduce greenhouse gas emissions and prepare for the potential impacts of natural hazards and climate change on public health, infrastructure, ecosystems, and our economy.

This survey is designed to gather information about community members' opinions about policy options and behaviors to reduce greenhouse gas emissions and help us meet State reduction goals. Your answers are anonymous, and you can also skip any questions. There are no right or wrong answers – we want to know about your perspectives and experiences.

Demographic

This section of this survey asks questions about your personal background. This information helps us understand who responded to the survey and who we still need to talk with in our community.

1. Do you live in the City of Ventura? (Check one)
    a. Yes
    b. No

2. In which part of Ventura do you live? (Check one)
    a. Arundell / North Bank
    b. College Area
    c. Downtown
    d. Eastside / Juanamaria (North of Highway 126)
    e. Eastside / Saticoy (South of Highway 126)
    f. Foothills
    g. Marina
    h. Midtown
    i. Pierpont
    j. Southeast / Montalvo
    k. Thille
    l. Westside / The Avenue
    m. Other part of Ventura

n. I do not live in Ventura

3. Do you own or rent your residence? (Check one)
    a. Own
    b. Rent
    c. Other:____

4. How many years have you lived in the City of Ventura? (Check one)
    a. N/A – I do not live in Ventura
    b. Less than 1 year
    c. 1-5 years
    d. 6-10 years
    e. 11-20 years
    f. 21-40 years
    g. 40 years or more

5. What is your age group? (Check one)
    a. 17 years or younger
    b. 18-29 years
    c. 30-39 years
    d. 40-49 years
    e. 50-59 years
    f. 60-69 years
    g. 70 years or older
    h. Prefer not to answer

6. With which race or ethnic group(s) do you most identify? (select all that apply)
    a. Asian or Asian American
    b. Black or African American
    c. Hispanic or Latino
    d. Central and South American Indigenous
    e. Native American or Alaska Native
    f. Native Hawaiian or other Pacific Islander
    g. White or Caucasian
    h. Two or more races
    i. Another race/ethnicity (please specify)
    j. Prefer not to answer

Policies

This section describes State greenhouse gas reduction goals and a series of policy options to improve energy and water efficiency, reduce air pollution, and reduce greenhouse gas emissions.

7. Do you know the State of California established goals for reducing greenhouse gas emissions? (Check one)
    a. Yes
    b. No

8. How actively should the City work to achieve State greenhouse gas reduction goals? (Check one)
    a. Take bold action to meet or exceed goals
    b. Take moderate action
    c. Take limited action
    d. Don't know

9. To meet State greenhouse gas goals, should the City encourage action through voluntary incentives, establish mandatory requirements, or support a mix of both? (Check one)
    a. Voluntary programs and incentives (e.g., utility rebate programs)
    b. A mix of voluntary incentives and mandatory programs to meet State goals
    c. Mandatory programs and regulations (e.g., require higher-performing new construction)
    d. Don't know

10. The following policy options are efforts the City would have to take to achieve State greenhouse gas emission targets. For each item, rate on a scale of 1 to 5, with 5 being a policy you would strongly support.
    a. Require new homes and businesses to install appliances and fixtures to save energy and water
    b. Prohibit natural gas in new homes and businesses
    c. Incentivize the conversion of gas appliances in existing homes and businesses to be all-electric
    d. Phase in a requirement to convert gas appliances in existing homes and businesses to be all-electric
    e. Promote energy and water efficiency rebates offered by utility companies
    f. Accelerate the phase in of carbon-free electricity before 2045, such as solar and wind
    g. Use a mix of incentives and requirements to reduce car travel and encourage walking, biking, and transit use
    h. Reform parking standards to prioritize parking for bicycles, carshare, and electric vehicles
    i. Incorporate bicycle and pedestrian improvements into roadway projects
    j. Expand publicly-accessible electric vehicle charging
    k. Promote local goods and services, such as local agriculture
    l. Make it easier to do neighborhood projects that promote sharing and reusing, like little libraries

Behaviors and Actions

The following sections asks questions about your behaviors and actions.

11. Are there steps you, your household, your landlord, or others have taken around your home to reduce energy use? (check all that apply)
    a. Used energy efficient light bulbs
    b. Installed a tankless water heater
    c. Purchased energy efficient appliances
    d. Improved insulation
    e. Installed energy efficient windows
    f. Conducted an energy audit
    g. None of the above
    h. Other:_____

12. Are there steps you, your household, your landlord, or others have taken around your home to reduce water use? (check all that apply)
    a. Installed smart, low-water irrigation
    b. Planted drought-tolerant species
    c. Got rid of our lawn
    d. Reduced landscape watering
    e. Installed water efficient fixtures (e.g. toilets, faucets, and showerheads)
    f. Re-use water from showers, laundry, and other household sources
    g. None of the above
    h. Other:_____

12. Are there other steps you and your family have taken to help the environment? (check all that apply)
    a. Composted food scraps
    b. Grew food in your backyard
    c. Recycled glass & plastic
    d. Used reusable bags
    e. Hang dried clothes
    f. Took shorter showers
    g. Shopped at thrift stores
    h. Carpooled to work
    i. Other: _____

13. Do you know that you can opt into 100% renewable electricity through your utility? (Check one)
    a. Yes
    b. No

14. Building energy use accounts for nearly one-third of the City's greenhouse gas emissions. How likely would you be to take on a modest additional cost to opt in to 100% renewable and reliable electricity from your utility to help reduce emissions and meet State greenhouse gas goals? (Check one)
    a. Very likely
    b. Likely
    c. Somewhat likely
    d. Not very likely
    e. Don't know

15. How often do you walk, bike, scoot, or take the train or bus instead of driving? (Check one)
    a. Every day
    b. A few times a week
    c. About once a week
    d. A few times a month
    e. Never

16. Transportation accounts for nearly half of the City's greenhouse gas emissions. How likely would you be to increase the amount of walking, biking, scooting, and train or bus trips to help reduce emissions and meet State greenhouse gas goals? (Check one)
    a. Very likely
    b. Likely
    c. Somewhat likely
    d. Not very likely
    e. Don't know

Thank you for participating in the survey! To learn more about the General Plan and Active Transportation, please visit https://www.planventura.com/ and https://www.activeplanventura.com/ for more details and sign-up for the mailing list.

Introduction for the PHONE or IN PERSON

Hi, my name is ____ and I am a staff member / project team member working with the City of Ventura. We are doing a special survey about policy options and behaviors to reduce greenhouse gas emissions.

This survey should take about fifteen minutes. We appreciate your honest responses. If we ask a question that you do not want to answer, you don't need to do so. All your answers will be kept confidential. Any questions?

Appendix B: Spanish Survey

Encuesta comunitaria sobre la reducción de gases de efecto invernadero en la ciudad de Ventura

Versión: Web

Draft: 7/14/2022

Introducción

La ciudad de Ventura está desarrollando un Plan de Acción y Resiliencia Climática. Esta interesante iniciativa es una hoja de ruta sobre cómo la ciudad reducirá las emisiones de gases de efecto invernadero y se preparará para los posibles impactos de los riesgos naturales y el cambio climático en la salud pública, las infraestructuras, los ecosistemas y nuestra economía.

Esta encuesta está diseñada para recabar información sobre las opiniones de los miembros de la comunidad acerca de las opciones políticas y comportamientos para reducir las emisiones de gases de efecto invernadero y ayudarnos a cumplir los objetivos de reducción del Estado de California. Sus respuestas son anónimas y también puede omitir cualquier pregunta. No hay respuestas correctas o equivocadas – queremos conocer sus perspectivas y experiencias.

Demografía

En esta sección de la encuesta se hacen preguntas sobre sus datos personales. Esta información nos ayuda a entender quienes han respondido a la encuesta y con quienes tenemos que seguir conversando en nuestra comunidad.

1. ¿Vive usted en la ciudad de Ventura? (Marque uno)
    a. Sí
    b. No

2. ¿En qué parte de Ventura vive? (Marque uno)
    a. Arundell / North Bank
    b. College Area
    c. Downtown
    d. Eastside / Juanamaria (Norte de Highway 126)
    e. Eastside / Saticoy (Sur de Highway 126)
    f. Foothills
    g. Marina
    h. Midtown
    i. Pierpont
    j. Southeast / Montalvo
    k. Thille

l. Westside / The Avenue
m. Otra parte de Ventura
n. No vivo en Ventura

3. ¿Es usted dueño de su residencia o alquila? (Marque uno)
    a. Dueño
    b. Alquilo
    c. Otro: ____

4. ¿Cuántos años lleva viviendo en la ciudad de Ventura? (Marque uno)
    a. N/A – No vivo en Ventura
    b. Menos de 1 año
    c. 1-5 años
    d. 6-10 años
    e. 11-20 años
    f. 21-40 años
    g. 40 años o mas

5. ¿Cuál es su grupo de edad? (Marque uno)
    a. 17 años o menos
    b. 18-29 años
    c. 30-39 años
    d. 40-49 años
    e. 50-59 años
    f. 60-69 años
    g. 70 años o mas
    h. Prefiero no responder

6. ¿Con cuál raza o grupo(s) étnico(s) se identifica más? (seleccione todos los que correspondan)
    a. Asiático o Asiático Estadounidense
    b. Negro o Afroamericano
    c. Hispano o Latino
    d. Indígenas de América Central y del Sur
    e. Nativo Americano o Nativo de Alaska
    f. Nativo de Hawái u otra Isla del Pacífico
    g. Blanco o Caucásico
    h. Dos o más razas
    i. Otra raza/etnia (por favor, especifique)
    j. Prefiero no responder

Políticas

Esta sección describe los objetivos estatales para reducir de gases de efecto invernadero y una serie de opciones políticas para mejorar la eficiencia energética y del agua, reducir la contaminación atmosférica y reducir las emisiones de gases de efecto invernadero.

7. ¿Sabe que el Estado de California ha establecido objetivos para reducir las emisiones de gases de efecto invernadero? (Marque uno)
    a. Sí
    b. No

8. ¿En qué medida debe trabajar la Ciudad para alcanzar los objetivos estatales de reducción de gases de efecto invernadero?
    a. Tomar medidas audaces para alcanzar o superar los objetivos
    b. Adoptar acciones moderadas
    c. Tomar medidas limitadas
    d. No sé

9. Para cumplir los objetivos estatales, ¿debe la Ciudad promover acciones mediante incentivos voluntarios, establecer requisitos obligatorios o apoyar una combinación de ambos?
    a. Incentivos y programas voluntarios (por ejemplo, programas de reembolso de servicios públicos)
    b. Una combinación de incentivos voluntarios y programas obligatorios para cumplir los objetivos del Estado
    c. Programas y reglamentos obligatorios (por ejemplo, exigir que construcción nueva sea de mayor rendimiento)
    d. No sé

10. Las siguientes opciones políticas son esfuerzos que la Ciudad tendrá que realizar para alcanzar los objetivos estatales de emisiones de gases de efecto invernadero. Para cada punto, evalúe en una escala de 1 a 5, 5 siendo una política que apoyaría firmemente.
    a. Requerir que los nuevos hogares y empresas instalen aparatos y accesorios que ahorren energía y agua
    b. Prohibir el gas natural en los nuevos hogares y negocios
    c. Incentivar la conversión de los aparatos de gas en los hogares y negocios existentes para que sean totalmente eléctricos
    d. Introducir gradualmente el requisito de convertir los aparatos de gas en los hogares y negocios existentes para que sean totalmente eléctricos
    e. Promover los reembolsos por la eficiencia energética y del agua ofrecidos por las empresas de servicios públicos
    f. Acelerar la introducción progresiva de electricidad libre de carbono antes de 2045, como la energía solar y eólica
    g. Utilizar una combinación de incentivos y requisitos para reducir los viajes en coche y promover los desplazamientos a pie, en bicicleta y en transporte publico

h. Reformar las normas de estacionamiento para dar prioridad al estacionamiento de bicicletas, vehículos compartidos y vehículos eléctricos
i. Incorporar mejoras para bicicletas y peatones en los proyectos de carreteras
j. Ampliar el acceso público a las estaciones de recarga para vehículos eléctricosPromover los bienes y servicios locales, como la agricultura local
k. Facilitar la realización de proyectos vecinales que promueven el intercambio y la reutilización, como las pequeñas bibliotecas

Comportamientos y acciones

En la siguiente sección se hacen preguntas sobre sus comportamientos y acciones.

11. ¿Existen medidas que usted, su hogar, su casero u otras personas han tomado en su casa para reducir el uso de energía? (Marque todas las que correspondan)
    a. Utilizar bombillas de bajo consumo
    b. Ha instalado un calentador de agua sin tanque
    c. Ha comprado electrodomésticos de bajo consumo
    d. Ha mejorado el aislante
    e. Instalación de ventanas energéticamente eficientes
    f. Realización de una auditoria energética
    g. Ninguna de las anteriores
    h. Otro: _____

12. ¿Existen medidas que usted, su hogar, su casero u otras personas han tomado en su casa para reducir el uso de agua? (Marque todas las que correspondan)
    a. Instalación de un sistema de riego inteligente de bajo consumo de agua
    b. Plantado especias tolerantes a la sequia
    c. Nos hemos deshecho del césped
    d. Hemos reducido el riego de los jardines
    e. Instalamos accesorios de bajo consumo de agua (por ejemplo, inodores, grifos y duchas)
    f. Reutilizar el agua de las duchas, la lavandería y otras fuentes domesticas
    g. Ninguna de las anteriores
    h. Otro: _____

12. ¿Hay otras medidas que usted y su familia han tomado para ayudar al medio ambiente? (Marque todas las que correspondan)
    a. Usar los restos de alimentos como abono o compost
    b. Cultivar alimentos en su patio trasero
    c. Reciclar vidrio y plástico
    d. Usar bolsas reutilizables
    e. Colgar la ropa para secar
    f. Tomar duchas más cortas

g. Comprar en tiendas de segunda mano
h. Compartir el coche para ir al trabajo
i. Otro: _____

13. ¿Sabe que puede optar por la electricidad 100% renovable a través de su compañía eléctrica?
    a. Sí
    b. No

14. El uso de energía en los edificios representa casi un tercio de las emisiones de gases de efecto invernadero de la ciudad. ¿Qué probabilidad tendría de asumir un modesto costo adicional para optar por una electricidad 100% renovable y fiable de su empresa de servicios públicos para ayudar a reducir las emisiones y cumplir los objetivos estatales de gases de efecto invernadero? (Marque una)
    a. Muy probable
    b. Probablemente
    c. Algo probablemente
    d. No muy probable
    e. No sé

15. ¿Con que frecuencia camina, anda en bicicleta, en patinete o en autobús en lugar de conducir? (Marque una)
    a. Todos los días
    b. Unas cuentas veces a la semana
    c. Más o menos una vez a la semana
    d. Unas cuantas veces al mes
    e. Nunca

16. La transportación representa casi la mitad de las emisiones de gases de efecto invernadero de la ciudad. ¿Qué probabilidad tendría de aumentar la cantidad de viajes a pie, en bicicleta, en patinete y en tren o autobús para ayudar a reducir las emisiones y cumplir los objetivos estatales de gases de efecto invernadero? (Marque una)
    a. Muy probable
    b. Probable
    c. Algo probable
    d. No muy probable
    e. No sé

Gracias por participar en la encuesta! Para saber más sobre el Plan General y el Plan de Transporte Activo, visite https://www.planventura.com/ y https://www.activeplanventura.com/ para obtener más detalles e inscribirse en la lista de correo.

Introducción por TELEFONO o EN PERSONA

Hola, mi nombre es ___ y soy un miembro del personal de la ciudad del Ventura / del proyecto trabajando con la ciudad de Ventura. Estamos haciendo una encuesta especial sobre opciones políticas y comportamientos para reducir las emisiones de gases de efecto invernadero.

Esta encuesta debería durar unos quince minutos. Agradecemos sus respuestas sinceras. Si le hacemos una pregunta a la que no quiere responder, no es necesario que lo haga. Todas sus respuestas serán confidenciales. ¿Tiene alguna pregunta?

Community Open Houses on Climate Change: Summary of Results

August 2022

CITY OF VENTURA
OUR VISION, OUR FUTURE

Contents

In-Person Open Houses

In-Person Open House Overview

The Climate Action and Resilience Plan (CARP) of Ventura comprises of a new vision for climate action, which includes quantitative goals, tracking metrics, and identification of programs/actions that reduce greenhouse gas emissions and increase resilience. The CARP is a section of the Ventura General Plan, a state-required policy document that establishes a vision for Ventura. California state law requires that a General Plan address eight core topics formally known as "elements" such as housing, economic development, and climate change.

To gain insight into the Ventura community's perspectives on climate action, the City held three open-house style events within the months of July and August. We summarize the ideas shared below and rely on them to inform the City of Ventura Climate Adaptation and Resilience Plan. Materials were provided in English and Spanish, and Spanish-speaking staff were present to engage with residents.

The first two open houses were held in-person at the Ventura City Hall Atrium on July 13th, 2022 and July 14th, 2022. The last open house was held via Zoom on August 11th, 2022. A total of 45 people attended the in-person open houses and 35 attended the virtual event.

Links to the open house materials can be found here.

Participants at the Ventura CARP Open House

Participants interacting with Open House station

Open House Stations

The open house consisted of 7 stations about different topics related to greenhouse gas mitigation and climate adaptation, with detailed descriptions about why each topic matters: Climate Change 101, Visioning for a Climate Ready Ventura, Clean Energy + Buildings, Transportation + Land Use, Solid Waste, Water, and Climate Hazards. Each station had options to record ideas and opinions via sticky notes, voting with stickers for climate-related policies and priorities, and visions. Pictures of the boards used at the In-Person Open Houses can be found in Appendix A.

Station 1: Climate Change and CARP Overview

The first station provided background on what climate change and greenhouse gas emissions are. It also included a summary of what the CARP is, with information such as its components, key terms, and project schedule. Lastly, this station contained a board illustrating the city's communitywide GHG emissions and what they mean for the CARP 's emissions reduction target.

Station 2: My Vision for a Climate Ready Ventura Is…

At station 2, community members were asked to respond to the open-ended prompt: My Vision for a Climate Ready Ventura is… The following summarizes themes from the responses.

Responses related to **mobility** focused on safe, comfortable active transportation (e.g., walking and biking) and transit use including:

- Better transit and less driving
- Keep Main Street closed to traffic and improve infrastructure surrounding the area
- More "open streets" that are car-free and encourage biking and walking
- Separate bike lanes on city streets
- Implement safe routes to school, and lowered speed limits between 7am to 3pm
- Construct electric a light-rail or trolley along Main Street
- Diverse e-mobility options (scooters, bikes, etc.)

Responses related to **energy** focused on transition from natural gas to electricity and renewable energy production including:

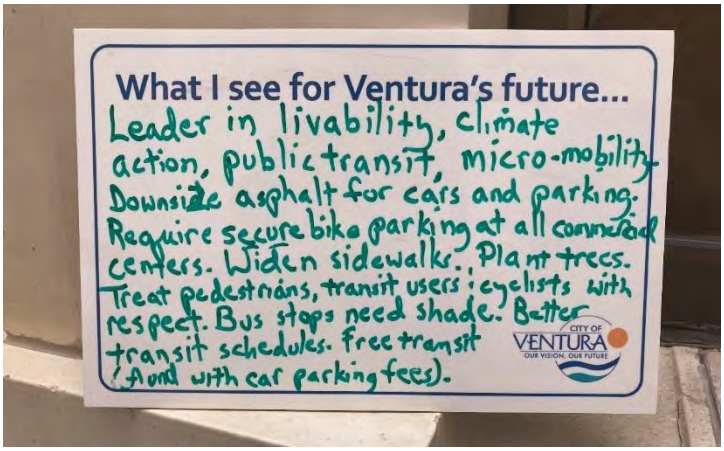
- Electrification of new buildings instead of gas in new constructions
- Distributed solar and microgrids
- Move the Southern California Gas compressor out of Ventura

Responses related to **ecology and open space** focused on trees and urban resilience measures including:

- Implement more projects that mitigate natural hazards and do not cause long-term harm like the Shoreline Retreat-Surfrider Project
- Green incentives for mature trees on residential properties
- Street medians filled with trees

Responses related to **the plan focus and framing** included:

- Environmental justice at the center of the CARP
- We should frame the plan as "Climate Saving" not just "Climate Ready" i.e. not just protecting ourselves from climate hazards
- Support local hillside nonprofits in Ventura



Residents' visions for Climate Ready Ventura

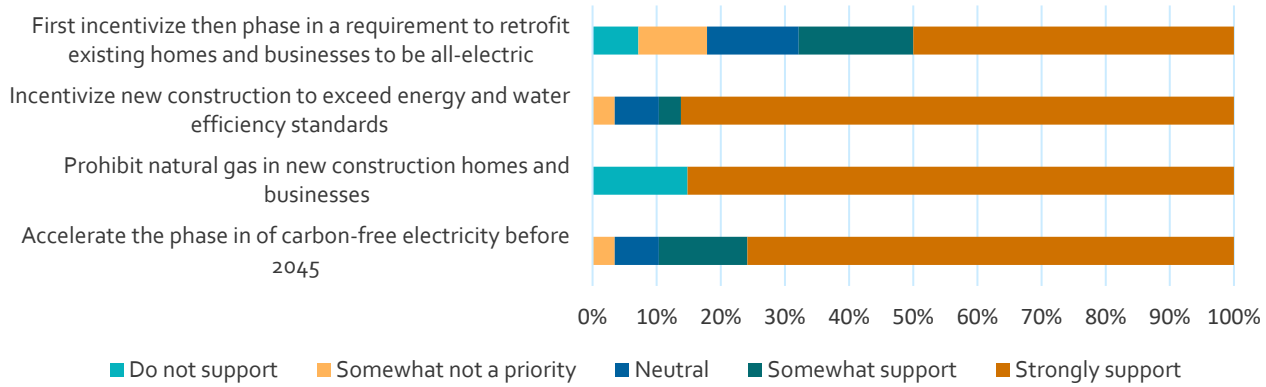
Station 3: Clean Energy + Buildings

At the Clean Energy + Building Station, participants rating a series of policy option the City would have to take to achieve State greenhouse gas emission targets on a scale of 1 (lowest rated) to 5 (highest rated), identified challenges to transitioning to efficient and/or all-electric buildings, and provided other ideas to reduce energy and building emissions.

Policy Rating

Open house participants strongly supported measures to incentivize new construction (86%) to exceed efficiency standards, prohibit natural gas in new construction (85%), and accelerate the transition to carbon free electricity (75%). Approximately 2/3 of respondents strongly supported or somewhat supported phasing in a requirement for existing homes to be all electric.

Figure 1: Ratings for Clean Energy and Building Policy Options (n = 29)



Challenges to All-Electric Buildings

Community members identified the following challenges to transition to more efficient and all-electric buildings:

- Permit timelines and upfront costs
- The need for significant grant money to help with retrofits
- The gas industry's misinformation and lobbying- including the hold they have on the Ventura compression station

Other Ideas to Reduce Energy and Building Emissions

Community members identified the following ideas to reduce energy and building emissions, organized by topic.

Responses related to **renewable energy** focused on:

- Solar panels on city property for community use; for example, parking lots
- Add a carbon tax to properties based on their carbon footprint
- Increase dependency on solar energy

When it came to **building improvements**, participants identified the following:

- Implement a carbon budget for new buildings and permits
- Proper ventilation and discourage air conditioning use
- Restaurants getting rid of gas appliances

Ideas relevant to **urban forestry and trees** called for more shade and tree maintenance:

- Maintain existing and new trees
- Require urban forestry on rooftops of commercial
- More shade trees and reflective roofs
- Adopt a historic tree ordinance

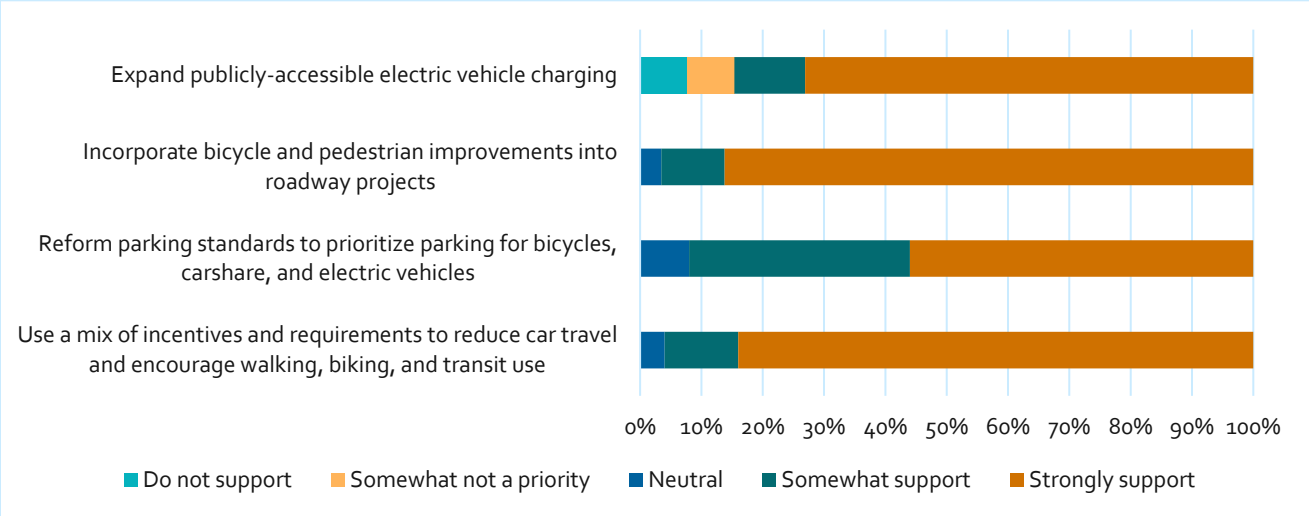
Station 4: Transportation + Land Use

At the Transportation + Land Use Station, participants rated a series of policy options the City would have to take to achieve State greenhouse gas emission targets on a scale of 1 (lowest rated) to 5 (highest rated). In consideration transportation being a major contributor of greenhouse gas emissions, participants identified challenges in shifting away from car use as a primary source of transportation, as well as ideas on reaching the goals.

Policy Rating

Open house participants strongly supported measures to incentivize active transportation across the city. The expansion of electric vehicle charging (72%), bike and pedestrian improvements to existing roads (85%), and parking standard reforms (55%) were all generally strongly supported. About 4/5 participants strongly supported the implementation of a mix of incentives that reduce car travel and encourage active transportation options.

Figure 2: Ratings for Transportation and Land Use Policy Options (n = 29)



Challenges to Active Transportation

Community members identified the following barriers exist to normalizing active transportation in Ventura:

- No e-mobility options available
- Lack of fully protected bike lanes
- The streets are not safe for cyclists or walkers. Ventura prioritizes high car speeds.
- Sidewalk widths are too narrow
- Sidewalk obstructions are in the way

Other Ideas to Reduce Transportation Related Emissions

The following are ideas shared to increase active transportation in the city and reduce transportation related emissions:

- For walkers – shade trees along all sidewalks
- Good-paying jobs within the city
- Requirement for wider sidewalks with no impediments
- Carpool parking by freeways
- Connect all bike lanes
- Grants/rebates for bike purchases (and regular use)
- More resources, education, community promoters for electric vehicle + bike use in the city
- Transit that goes up to the hills

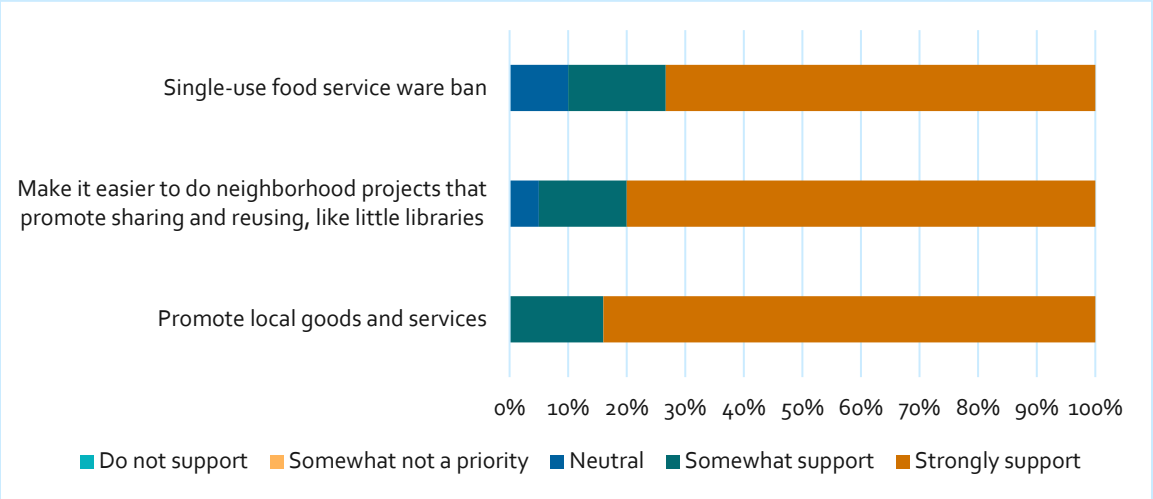
Station 5: Solid Waste

The fifth climate-related station at the open house had information about solid waste in the city. Community members rated solid waste mitigation policy options on a scale of 1 (lowest rated) to 5 (highest rated). Furthermore, participants shared barriers that exist to ensuring that solid waste originating in Ventura is reduced, as well as ideas related to solid waste reduction.

Policy Rating

Open house participants strongly supported all three measures to incentivize the practice of reusing goods and materials. The establishment of a food service ware ban (72%), projects that promote sharing and reusing (80%), and promoting local goods and services that support the reuse of goods (83%) were all of interest to open house visitors.

Figure 3: Ratings for Solid Waste Policy Options (n = 29)



Challenges to Reducing Solid Waste

Participants identified the following challenges or barriers that exist to reducing waste and using less plastic:

- Abundance of single-use products, especially bottles
- Getting folks to participate in waste-reduction practices
- Lack of place where you can reuse plastic; the Refill Shoppe in Ventura is great, but not cheap
- Recycling can come at a high cost to low-income consumers, financial and timewise

Other Ideas Related to Reducing Solid Waste

Ideas shared to reduce solid waste emissions include:

- Modeling recycling programs like those at Harrison's, where recyclables are picked up weekly and their kitchen waste program
- A ban on single-use items should be analyzed though an equity lens- considering people who may need rely on single use plastics
- Banning single-use plastic straws or cups

Station 6: Water

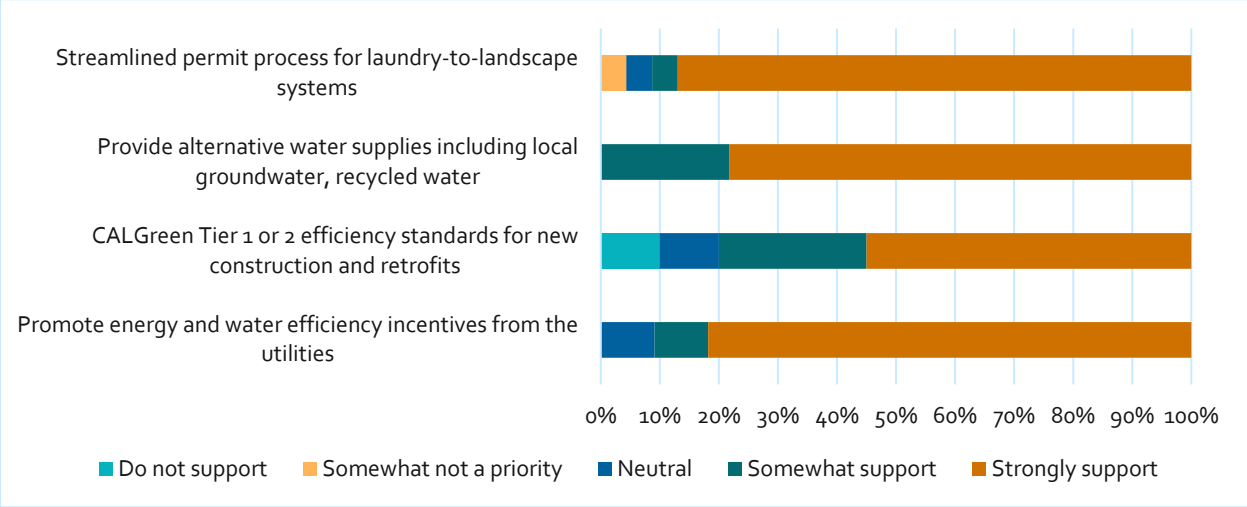
Water conservation is a major issue in the city of Ventura, as the region has a vast agricultural industry and is subject to drought conditions impacting the rest of the state of California. Participants were given the opportunity to rate policy options about water use, as well as provide insight on what challenges exist to conserving water in Ventura.

Policy Rating

Community members rated policy options that are efforts the City would have to take to achieve water conservation targets. Each policy was rated on a scale of 1 (lowest rated) to 5 (highest rated). Open house participants strongly supported all four options to conserve local water in Ventura. The establishment of

a streamlined laundry-to-landscape permit process (88%), alternative water supplies (79%), and CAL Green Trier 1 and 2 efficiency standards (55%) were all of interest to open house visitors. Furthermore, 4/5 visitors agreed that the promotion of energy and water utility incentives would be effective.

Figure 4: Ratings for Water Conservancy Policy Options (n = 29)



Challenges to Water Conservation

These are the challenges related to conserving water identified by community members:

- Disproportionate impacts on agriculture
- No enforcement of wasting water

Other Ideas Related to Conserving Water

- Return snow melt to rainwater
- Expand recycled water to irrigation for trees
- Stop outsourcing park maintenance, we need more staff to monitor landscape and water usage
- We must get water to the medians with innovative landscape design
- Encourage low water use crops
- Remove grass lawns from city property not used for recreation
- Resources dedicated to creating a "protecting water" culture (education, incentives, etc.)
- Incentivize lawn removal

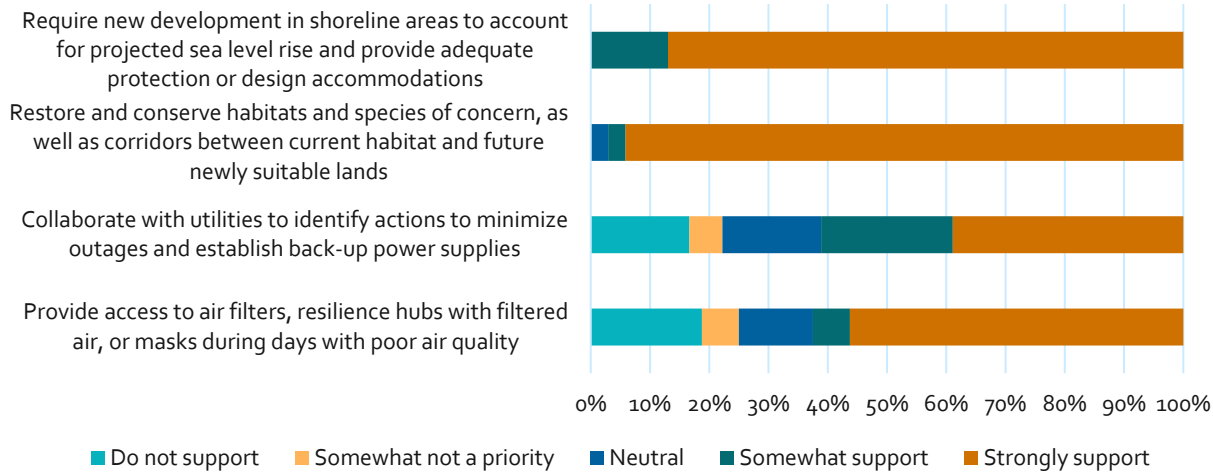
Station 7: Climate Hazards

The final open house station on Climate Hazards prompted community members to weigh in on policies that ensure that the region achieves State greenhouse gas emission targets. Furthermore, they discussed barriers in achieving these goals as well as ideas that the City should explore.

Policy Rating

Community members rated policy options that are efforts the City would have to take to mitigate the potential for climate hazards. Each policy was rated on a scale of 1 (lowest rated) to 5 (highest rated). Open house participants strongly supported policies related to strict protection measures for new shoreline developments (85%) and the restoration and conservation of natural habitats (93%).

Figure 5: Ratings for Water Conservancy Policy Options (n = 29)



Challenges to Climate Hazard Adaptation

These are the challenges related climate hazard adaptation identified by community members:

- Reliance on natural gas
- Region is susceptible to earthquakes landslides, wildfires that can cause line leaks and explosions
- There is no environmentalist on the city council

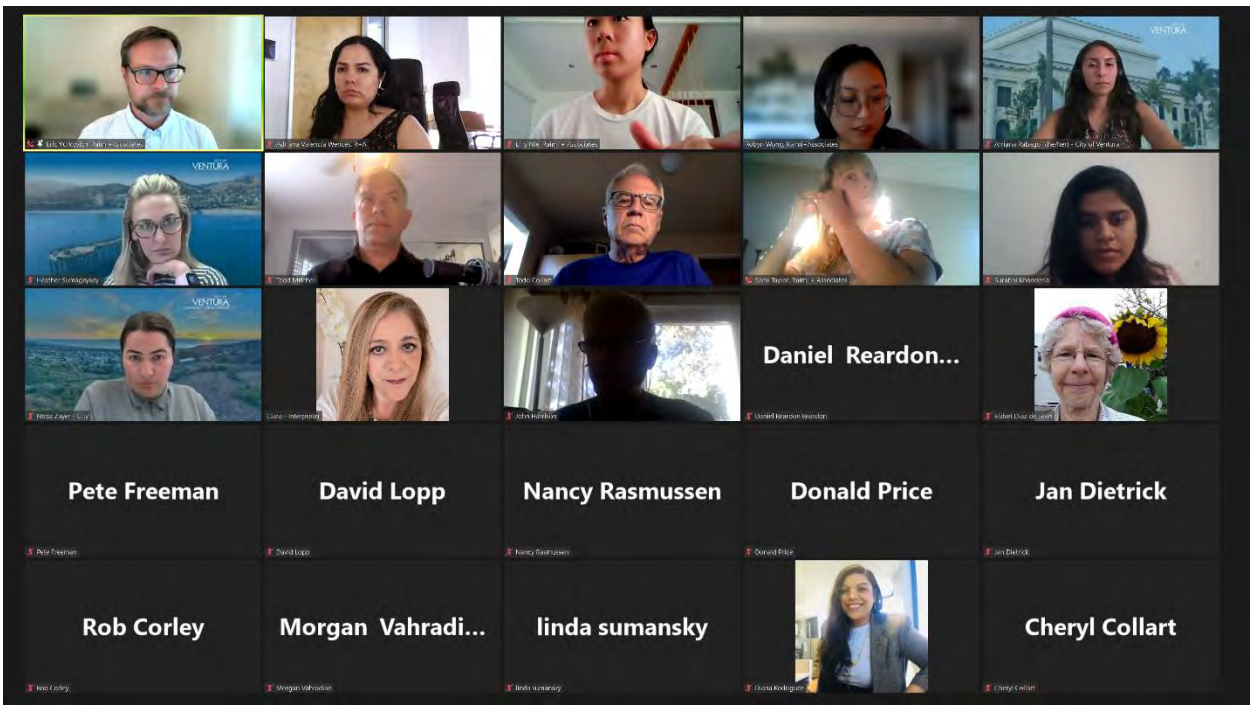
Other Ideas Related to Climate Hazard Adaptation

- Plan for moving the fairgrounds elsewhere in the county
- Redevelop land with sea level in mind
- We could create a nifty shoreline that keeps tourism vital

Virtual Open House

Virtual Open House Overview

The last open house was held via Zoom on August 11th, 2022, with 35 people in attendance. The Virtual Open House started with a brief presentation from the City and consultant team that summarized what climate change is, what the CARP is, the communitywide GHG inventory, and GHG reduction measures. The Virtual Open House interactive portion consisted of various stations like those presented at the in-person open houses a few weeks prior. Participants were asked to share ideas and barriers to a wide range of topics relevant to Climate Action and Resiliency, including transportation, water, and energy. On-demand Spanish interpretation was available for the duration of the event, and the interactive boards contained both English and Spanish text. Pictures of the interactive white boards used in the Virtual Open House can be found in Appendix B.



Participants at the Virtual CARP Open House

Station 1: Clean Energy + Buildings

Challenges to All-Electric Buildings

- Unclear permitting process for laundry-to-landscape and greywater - clients interested but lack of info
- Lack of understanding at City council level
- Need a program to help maintain enrollment in CPA 100% tier
- City needs to identify interests and lobby at the state level to get incentives and laws to allow beneficial tech

Other Ideas on All-Electric Buildings

- City should review Measure O monies to provide funding for mitigation programs
- Incentives need to be designed to support the cost differences between SFR and MF
- Greywater opportunities could provide work for former NG plumbers
- Require solar PV and solar thermal if not electric
- Mandate EV to grid bidirectional chargers - Ford F150 could serve as a battery to power your home - advocate to the CPUC

Station 2: Water

Multi-Benefit Water Strategies

- Landscaping choices that sequester carbon and are drought-friendly
- Lower Ventura River Groundwater Basin restoration and clean up

Station 3: Transportation + Land Use

Challenges to Active Transportation

- Street design really favors cars
- Walking / biking is difficult in most parts of Ventura
- Street parking takes up too much space that can be used for biking
- Need heat island mitigation measures
- Need DC chargers to support fast charging. Need to go beyond Level 2 chargers - need FAST chargers

Other Ideas Related to Transportation Emissions Mitigation

- More mass transit: it is currently not accessible enough
- Public education on sharing the road together
- Electrified postal fleet
- More funding for the Ventura Bike Hub
- Intentional communities formed around transit needs
- Minibus programs for seniors and youth
- Bike share

Station 4: Solid Waste

Ideas Related to Solid Waste

- Bagging food waste
- Food waste recycling at large events and facilities
- Use recycled plastic pallets instead of wooden pallets
- Reusable packaging/containers
- Higher cost of solid waste collection to disincentivize waste generation

Station 5: Climate Hazards

Ideas Related to Climate Hazards

- Establish cooling areas for people to take refuge
- Repave with cool pavements and plant trees
- Do not allow development of houses in the shoreline at all
- Need leadership at Council, school boards, special districts who will actively engage with the topic (and educate themselves
- Motivating/engaging with youth will produce the big political change
- Get back to basics: Natural habitat corridors, remediation, gardens, homesteads will help create a healthy environment and connected ecosystem+ community
- Make sure there's enough funding to ensure parks, rivers, and beachfront are maintained for public benefit
- More education at community colleges to help people get into the green job market (solar install, tankless water heaters, etc.).
- Partner and City should do a public literacy campaign for all ages, and especially students
- See City of Berkeley
- Pair CARP with budget/incentives
- Public maps of where the hazard areas are

Appendix A: In-Person Open House Boards

Figure A - 1. Station 2

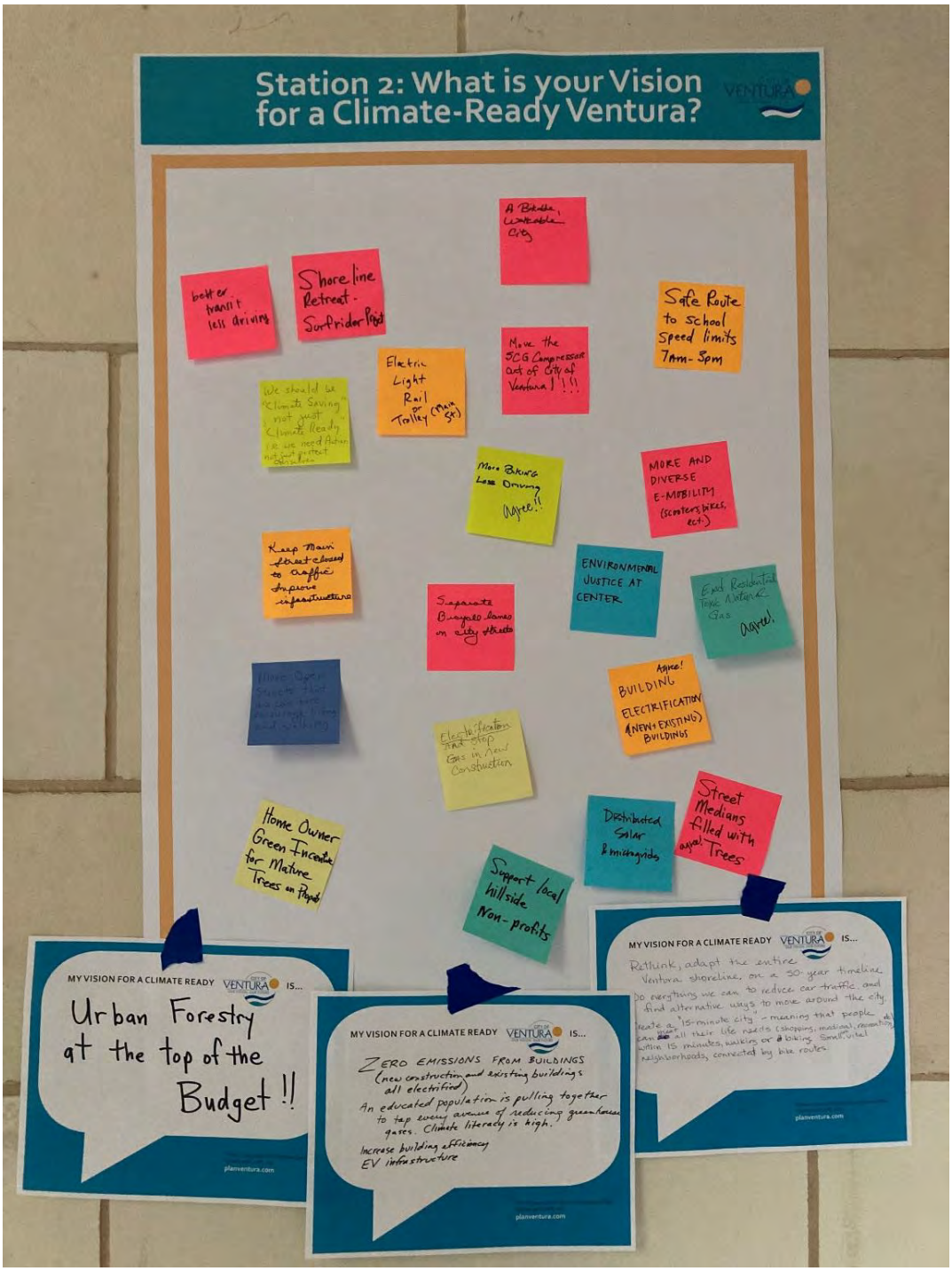


Figure A - 2. Station 3

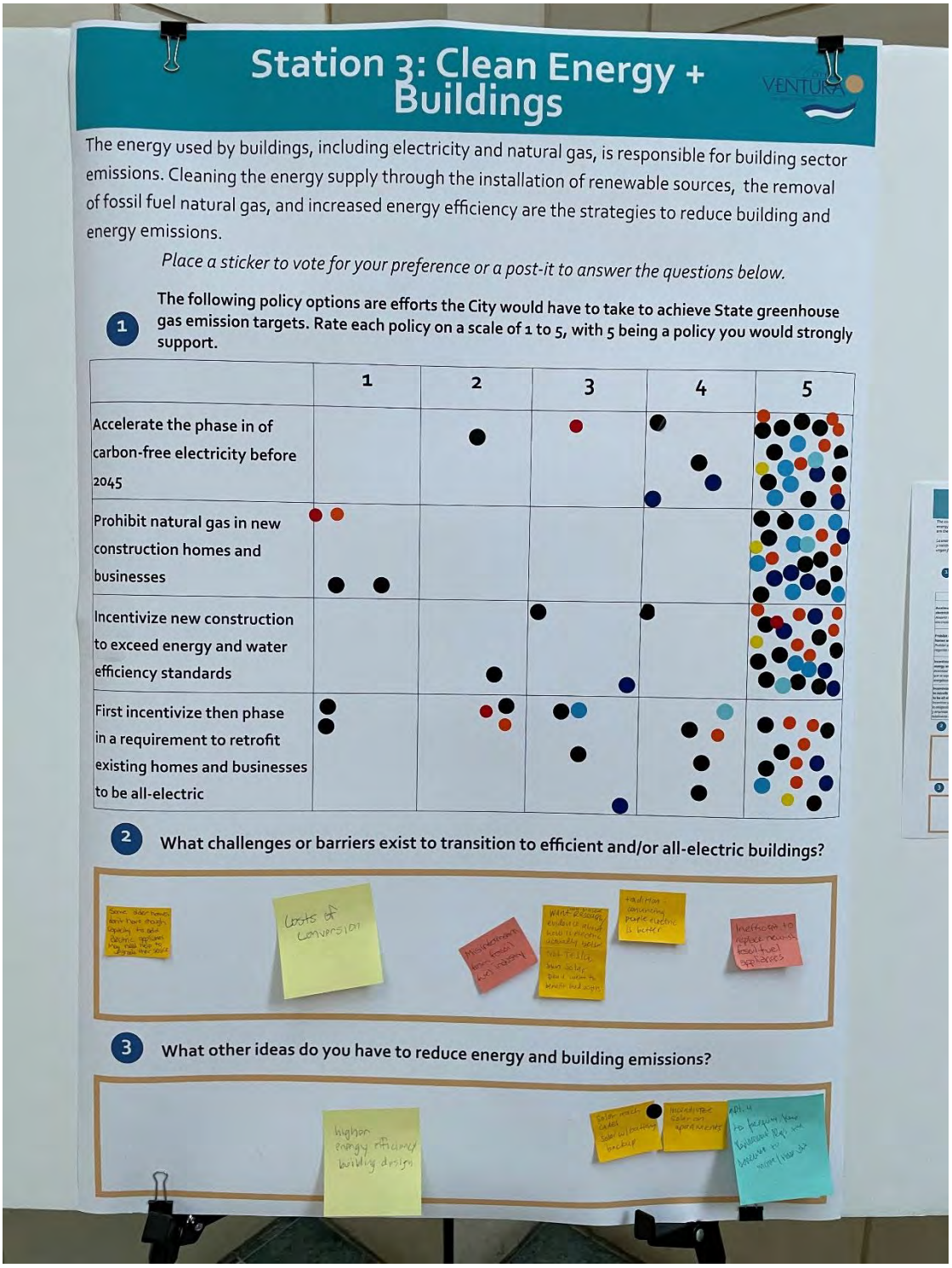


Figure A - 3. Station 4

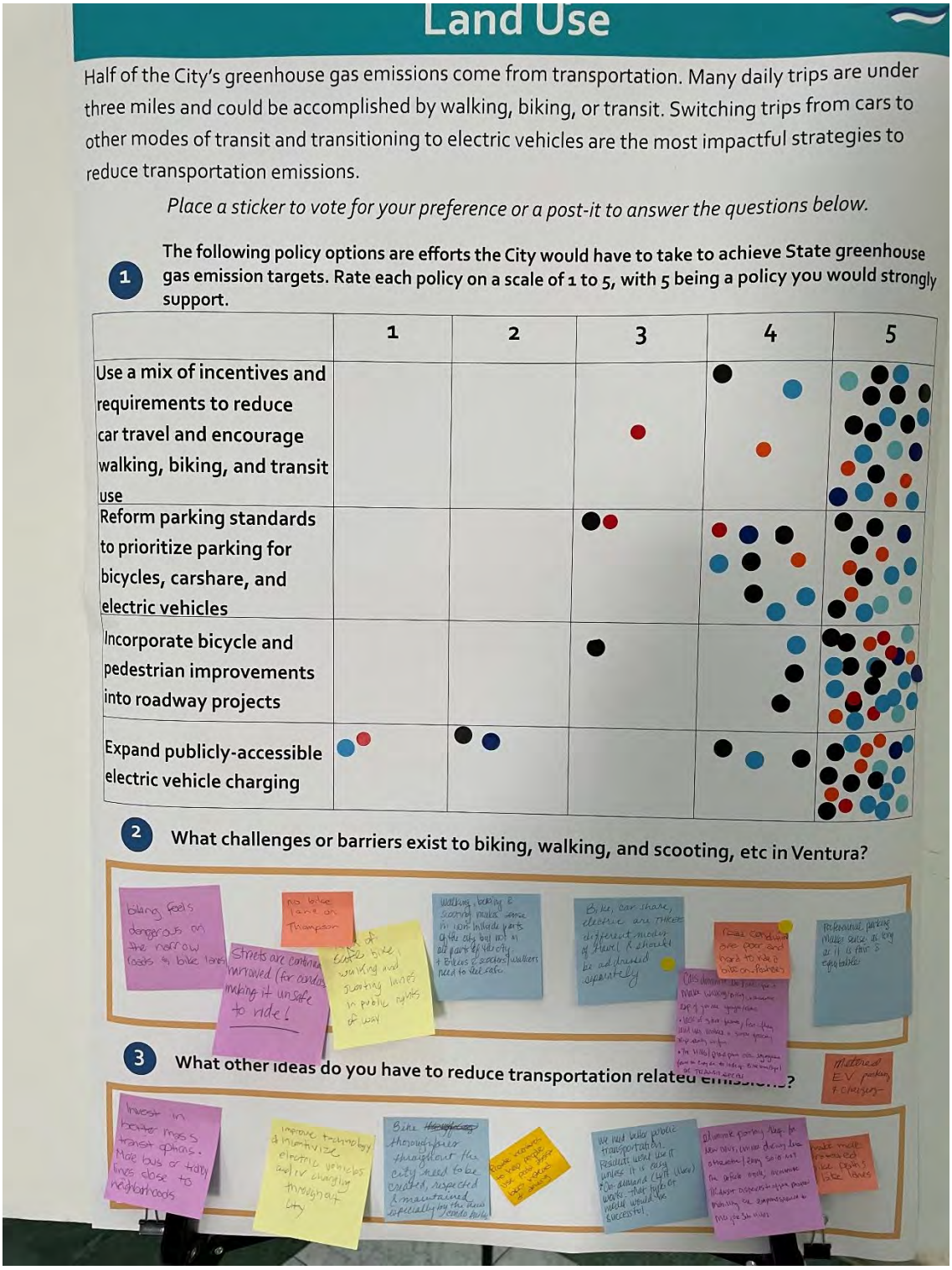


Figure A - 4. Station 5

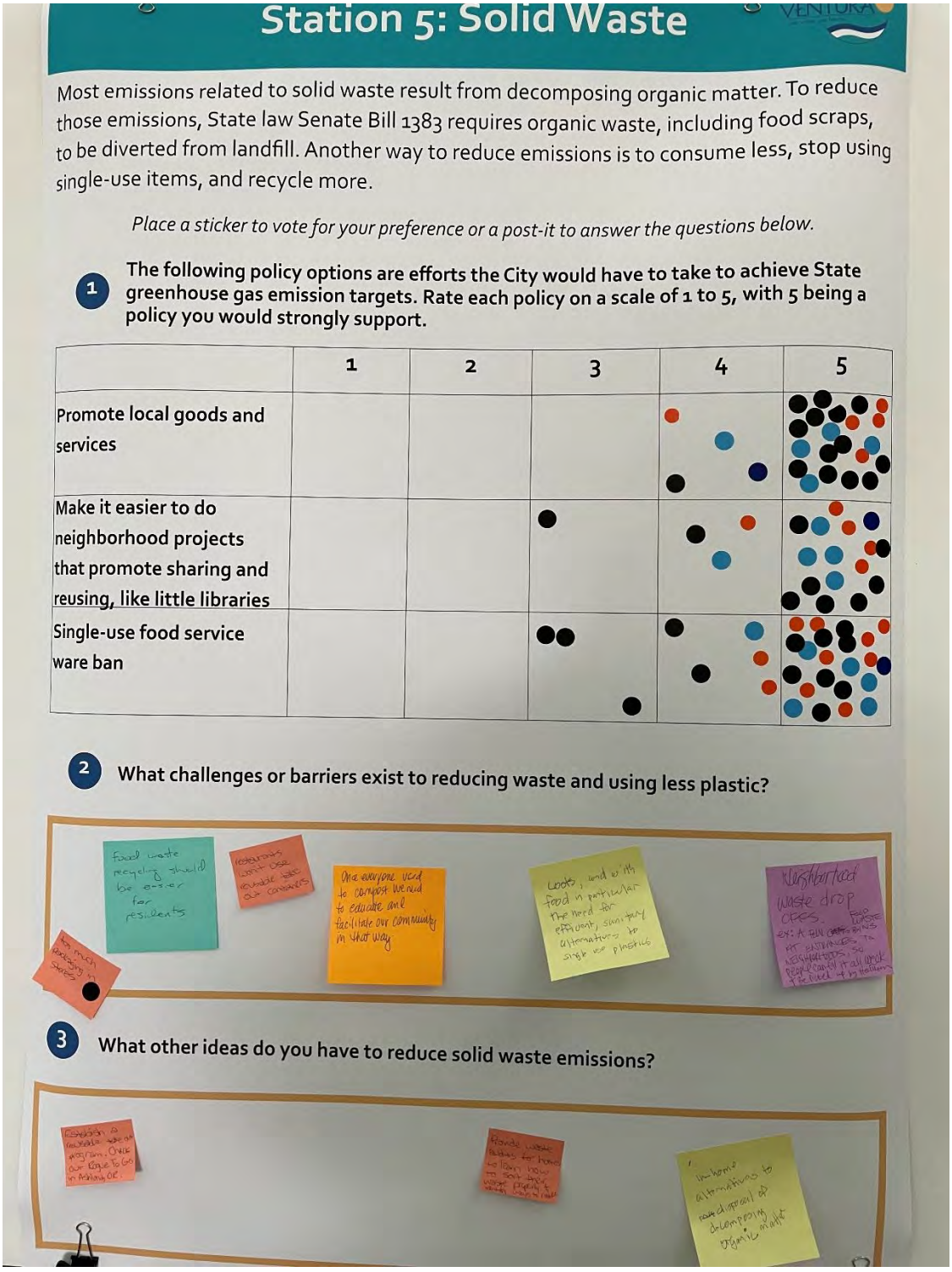


Figure A - 5. Station 6

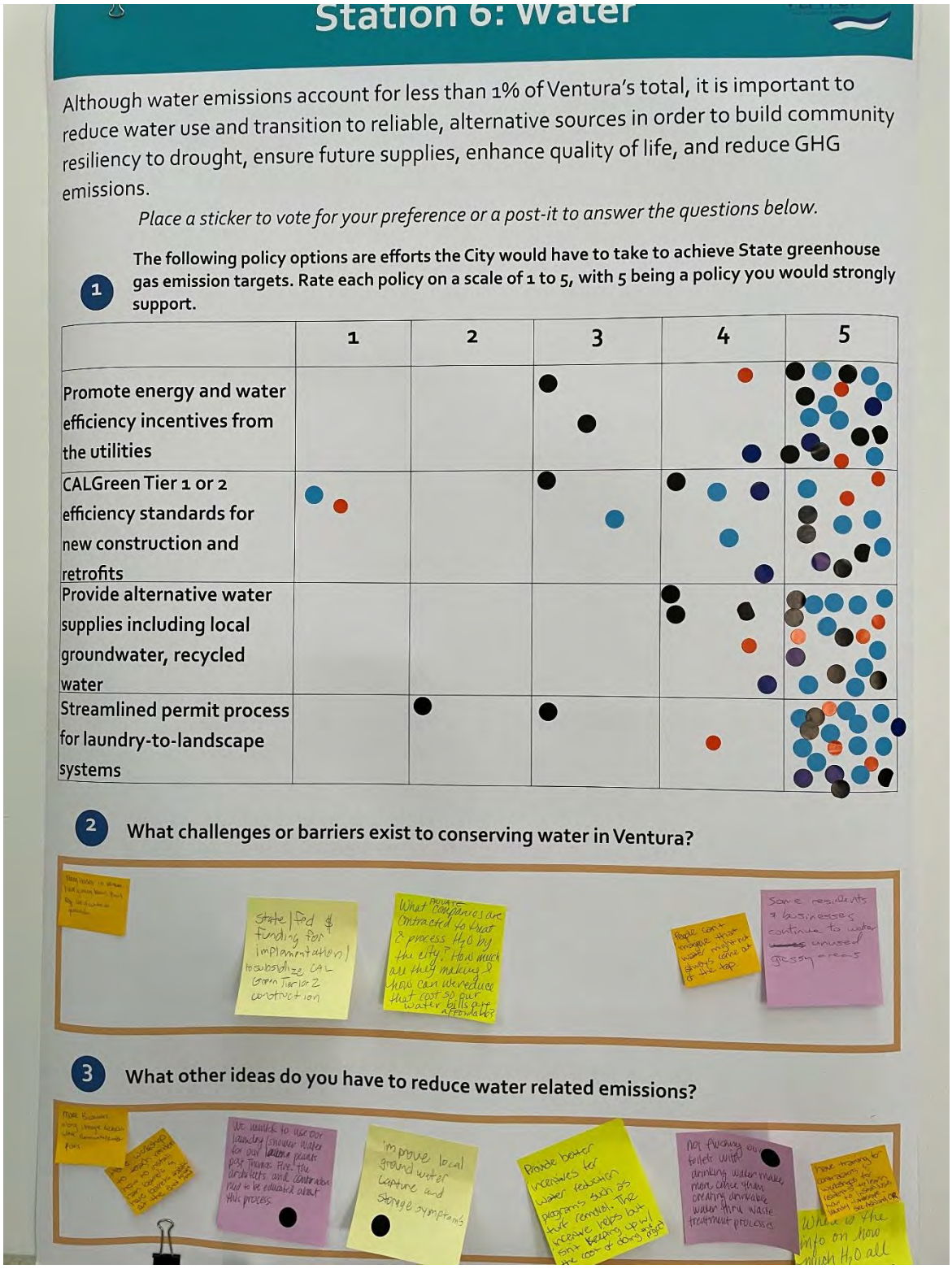
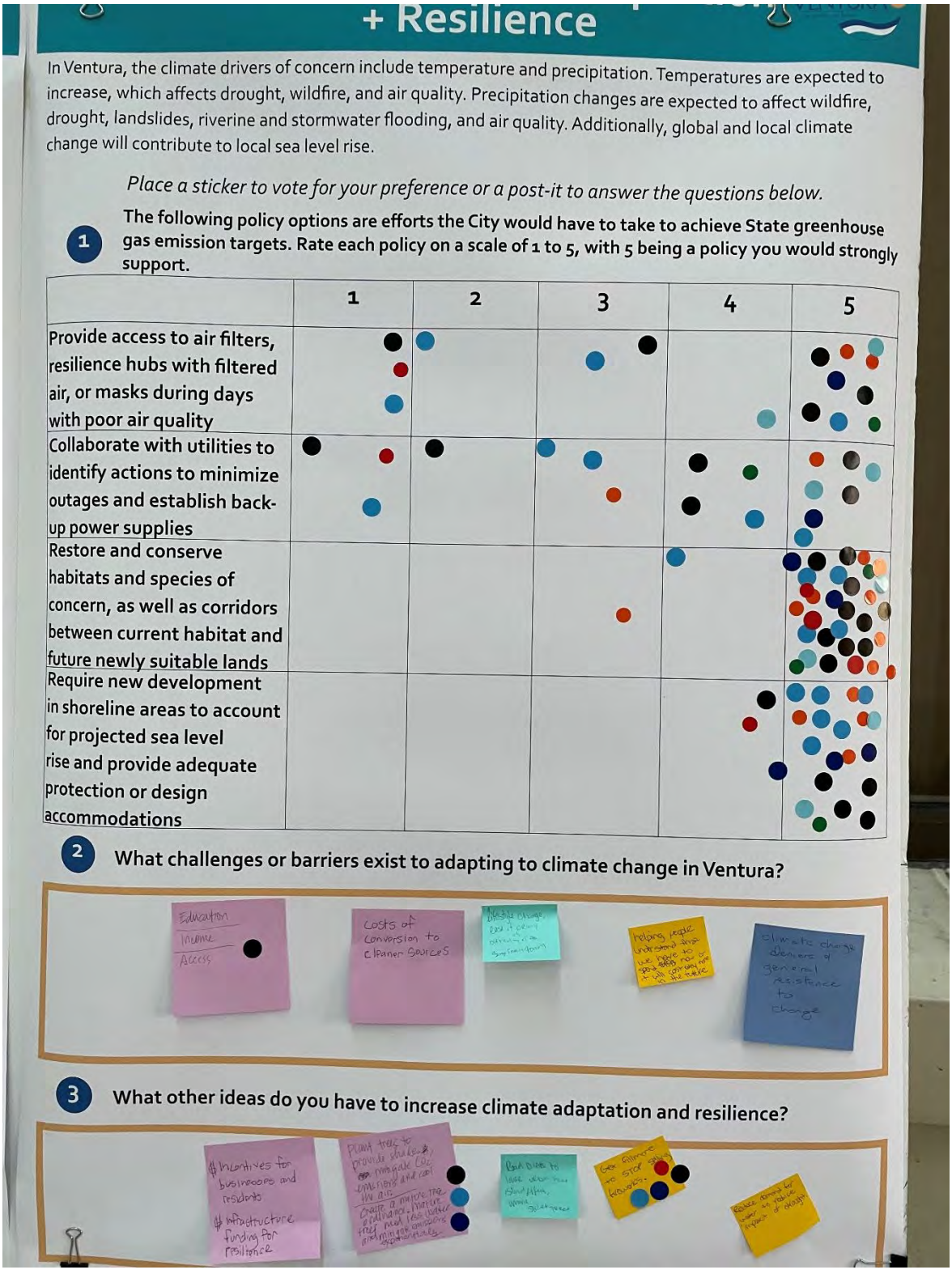


Figure A - 6. Station 7



Appendix B: Virtual Open House Boards

Figure B - 1. Clean Energy + Buildings

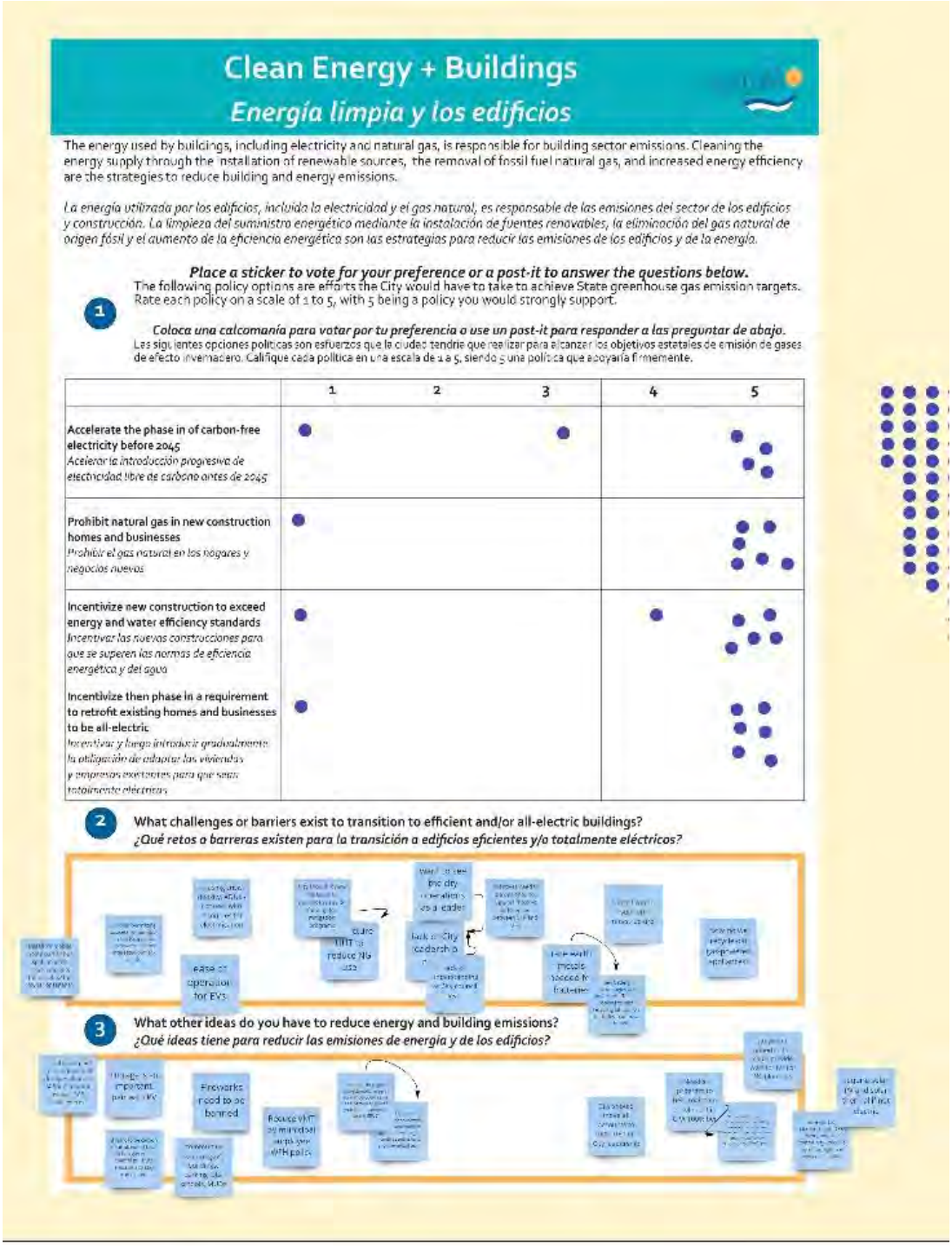
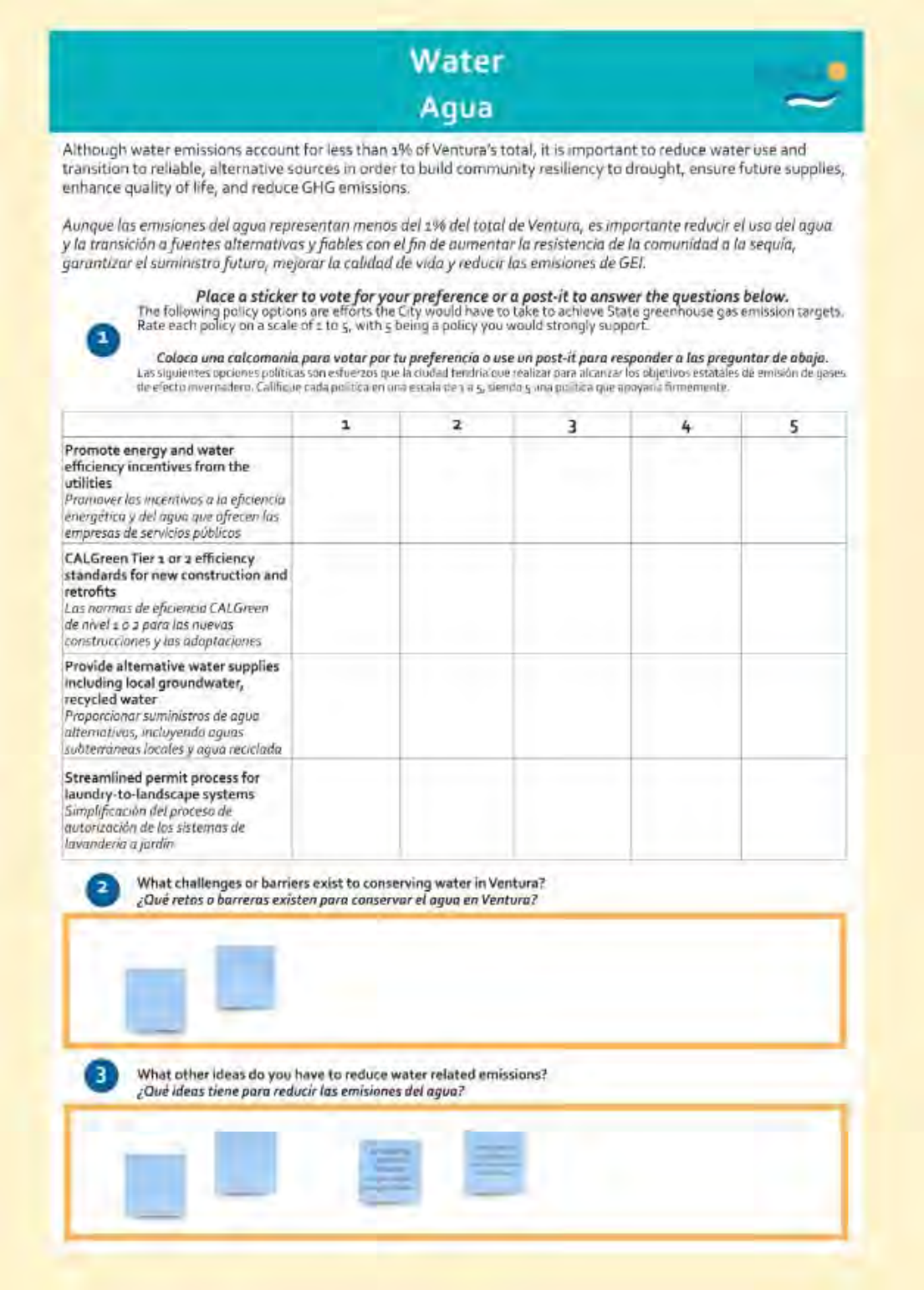


Figure B - 2. Water



Water
Agua

Although water emissions account for less than 1% of Ventura's total, it is important to reduce water use and transition to reliable, alternative sources in order to build community resiliency to drought, ensure future supplies, enhance quality of life, and reduce GHG emissions.

Aunque las emisiones del agua representan menos del 1% del total de Ventura, es importante reducir el uso del agua y la transición a fuentes alternativas y fiables con el fin de aumentar la resistencia de la comunidad a la sequía, garantizar el suministro futuro, mejorar la calidad de vida y reducir las emisiones de GEI.

Place a sticker to vote for your preference or a post-it to answer the questions below.

1 The following policy options are efforts the City would have to take to achieve State greenhouse gas emission targets. Rate each policy on a scale of 1 to 5, with 5 being a policy you would strongly support.

Coloca una calcomanía para votar por tu preferencia o use un post-it para responder a las preguntar de abajo.
Las siguientes opciones políticas son esfuerzos que la ciudad tendría que realizar para alcanzar los objetivos estatales de emisión de gases de efecto invernadero. Califique cada política en una escala de 1 a 5, siendo 5 una política que apoyaría firmemente.

	1	2	3	4	5
Promote energy and water efficiency incentives from the utilities *Promover los incentivos a la eficiencia energética y del agua que ofrecen las empresas de servicios públicos*					
CALGreen Tier 1 or 2 efficiency standards for new construction and retrofits *Las normas de eficiencia CALGreen de nivel 1 o 2 para las nuevas construcciones y las adaptaciones*					
Provide alternative water supplies including local groundwater, recycled water *Proporcionar suministros de agua alternativos, incluyendo aguas subterráneas locales y agua reciclada*					
Streamlined permit process for laundry-to-landscape systems *Simplificación del proceso de autorización de los sistemas de lavandería a jardín*					

2 What challenges or barriers exist to conserving water in Ventura?
¿Qué retos o barreras existen para conservar el agua en Ventura?

3 What other ideas do you have to reduce water related emissions?
¿Qué ideas tiene para reducir las emisiones del agua?

Figure B - 3. Transportation and Land Use

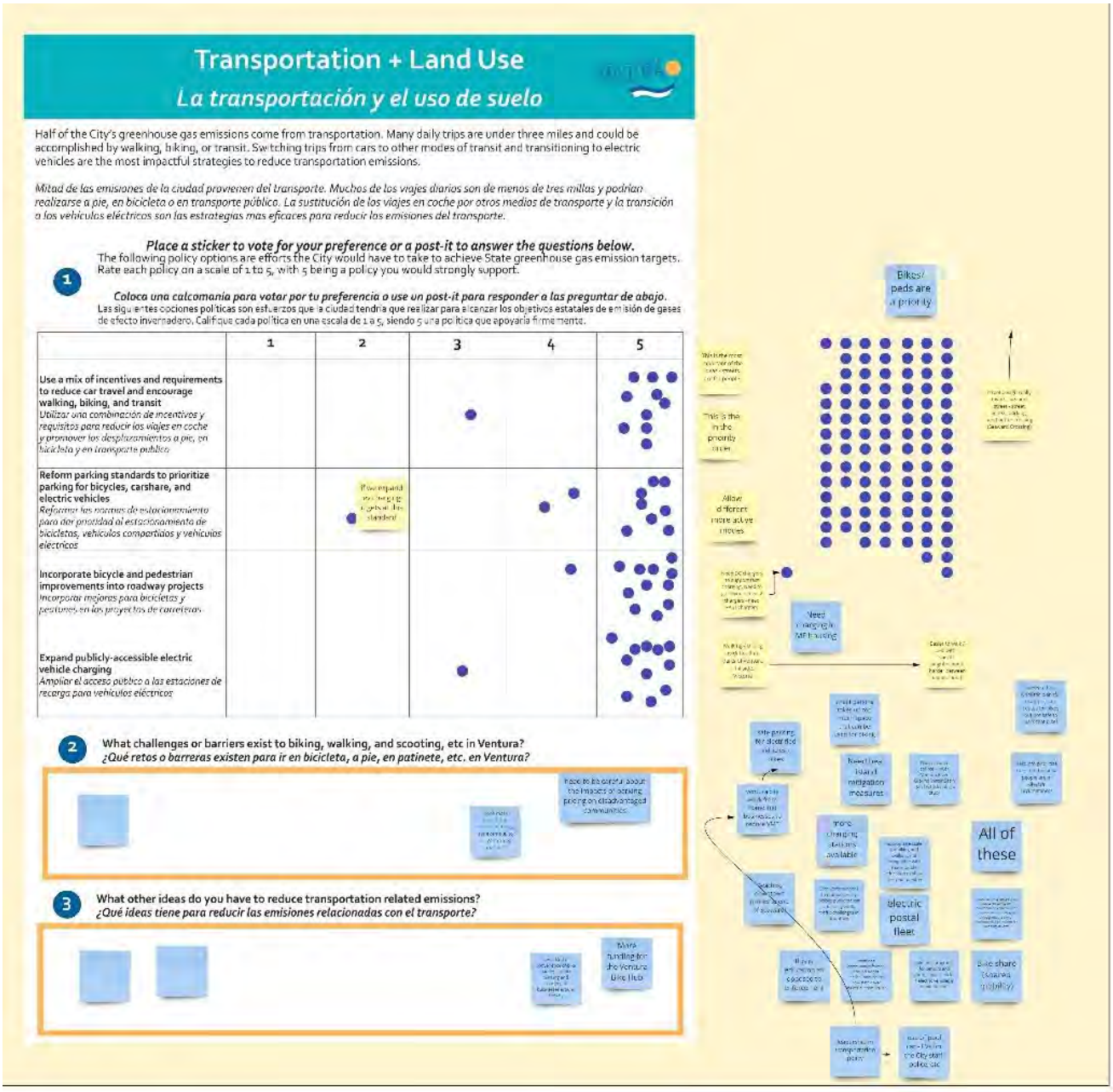


Figure B - 4. Solid Waste

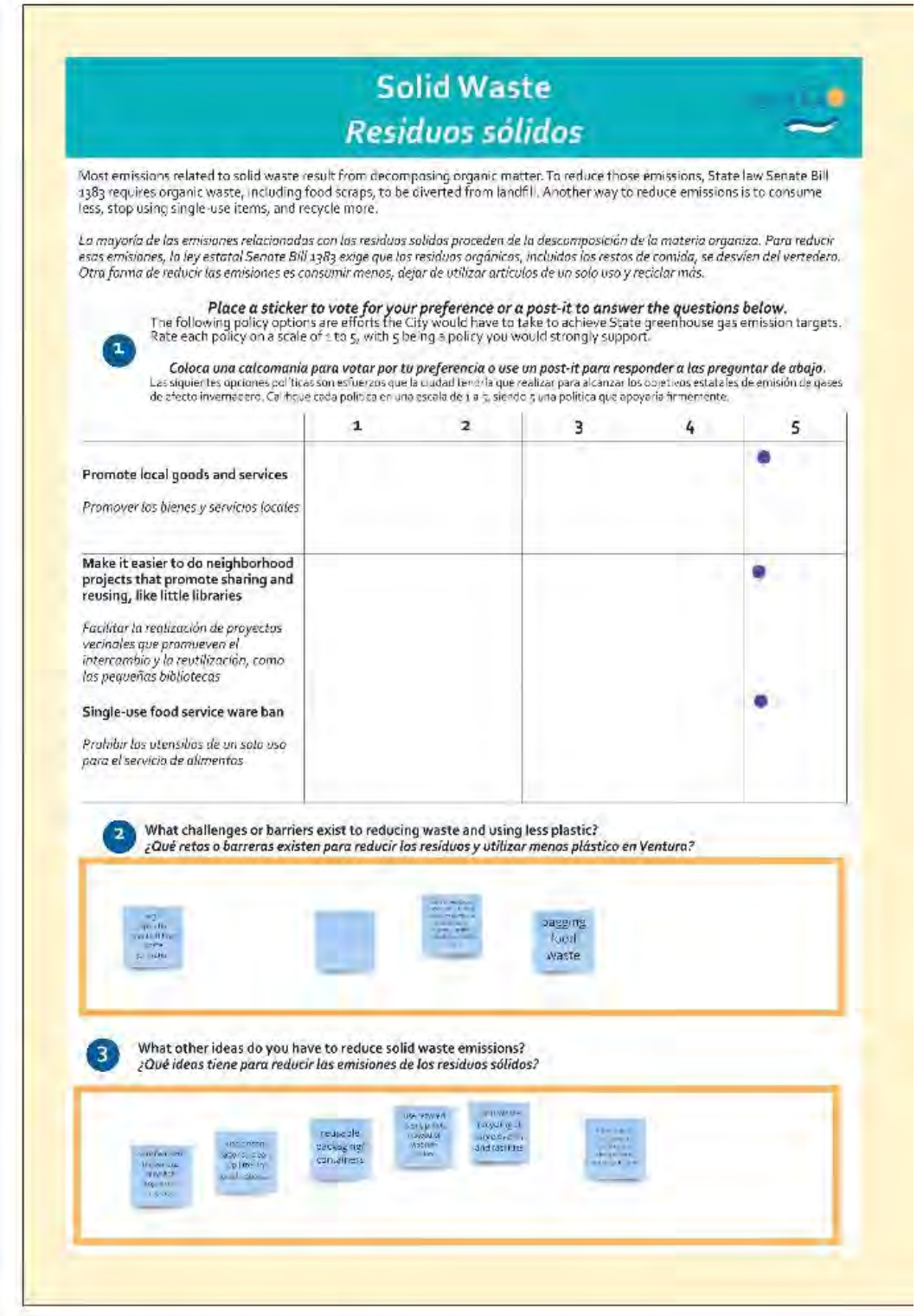
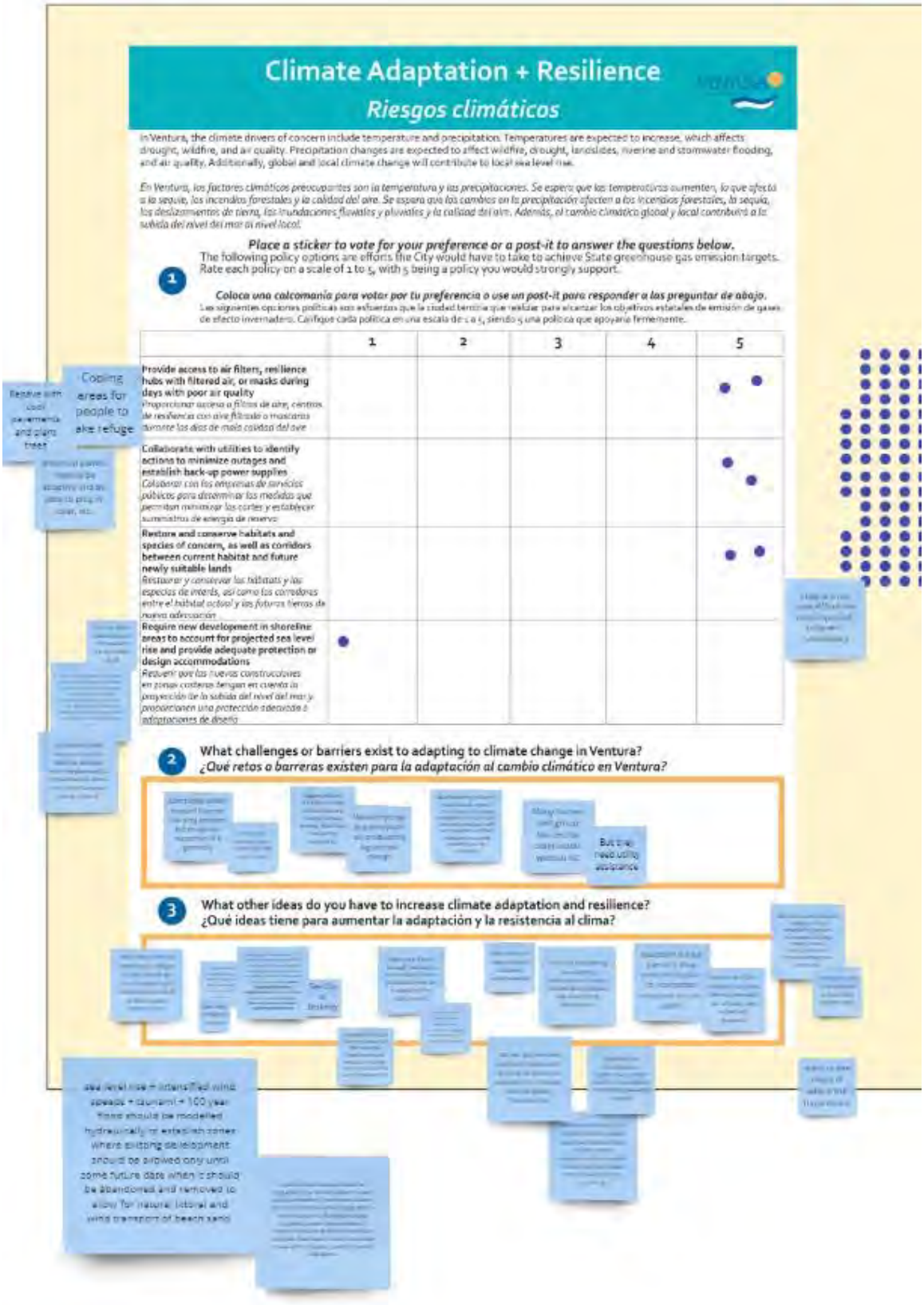


Figure B - 5. Climate Adaptation + Resilience



	1	2	3	4	5
Provide access to air filters, resilience hubs with filtered air, or masks during days with poor air quality *Proporcionar acceso a filtros de aire, centros de resiliencia con aire filtrado o mascarillas durante los días de mala calidad del aire*					
Collaborate with utilities to identify actions to minimize outages and establish back-up power supplies *Colaborar con las empresas de servicios públicos para determinar las medidas que permitan minimizar los cortes y establecer suministros de energía de reserva*					
Restore and conserve habitats and species of concern, as well as corridors between current habitat and future newly suitable lands *Restaurar y conservar los hábitats y las especies de interés, así como los corredores entre el hábitat actual y las futuras tierras de nueva adecuación*					
Require new development in shoreline areas to account for projected sea level rise and provide adequate protection or design accommodations *Requerir que las nuevas construcciones en zonas costeras tengan en cuenta la proyección de la subida del nivel del mar y proporcionen una protección adecuada o adaptaciones de diseño*					

August 16th, 2022

Dear Raimi & Associates,

This report meets CAUSEs subconsultant agreement to hold focus groups as part of the Climate Action and Resilience Plan Engagement. CAUSE conducted Adult and Youth community focus groups on the Westside of Ventura on the dates of July 28th & 29th. The findings from those two groups focused on the City of Ventura's efforts to form a Climate Action & Resilience Plan for Ventura residents and the feedback received from both youth and adults on the obstacles of mitigating climate change locally.

The summary below of the focus groups provides insight on what community members are most concerned about and interested in when discussing climate change issues and are detailed in the full report:

1. Although the Adult and Youth focus groups were on separate days, similar themes were brought up and talked about by both groups. The main focus for these groups were **Clean Energy and Buildings** along with **Land Use/Transportation**. Key themes and responses from both groups noted that although moving towards renewable energy in homes and businesses is a great solution, it is a costly alternative that isn't always accessible or available to all in the community. An emphasis was made on renters who don't have control over when changes such as switching to electric stoves and ovens, solar panels, and electric water heaters could happen simply due to the decisions made by their landlord. Community members with lower incomes don't have the luxury to think about these options when looking for a place to live. Although they support these alternatives, their top priority is finding what works for them financially.
2. Participants also shared their struggles with different forms of transportation outside of personally owned vehicles. Alternative transportation methods such as walking, biking, using public transportation, and switching to electric vehicles were all areas of concern for the attendees. Many mentioned that time plays a big role on how they choose their transportation mode as many youth and adults stated they preferred personal vehicle use.

Participants expressed concerns over transportation safety, sharing stories of stress from taking public transportation during the COVID-19 pandemic. Participants also shared safety concerns over streets and bike lanes in need of repair and the lack of adequate bike infrastructure for those choosing to cycle on the Westside of Ventura.

3. Lastly, participants recommended various solutions to benefit the needs of their community if the city of Ventura is serious about mitigating their contribution to climate change. They suggested that the community be informed about the effects of climate change, what contributes to climate change in their own communities, and financial support for home appliances or renovations that promote clean energy but are costly.

CAUSE Climate Action & Resilience Plan Focus Groups Results

On July 28th & 29th, CAUSE held community focus groups engaging Ventura residents at the Bell Arts Factory on Ventura's Westside. The purpose of these focus groups was to gauge the level of awareness, concern, and feedback from community members on the topic climate change in Ventura and possible solutions moving forward. The focus groups included 15 English-speaking youth and young adults who participated on July 28th and 14 Spanish-speaking adults on the second day July 29th. CAUSE first presented a brief powerpoint on the meaning of climate change, what contributes to climate change, and the different issues that contribute to climate change locally in their communities. After being briefed on the goal for these focus groups, participants were divided into two groups and given different issue areas to discuss. CAUSE staff facilitated each group with one focusing on **Clean Energy and Buildings** and the other on **Land Use/Transportation.** The facilitators switched between the two groups to make sure all participants were able to give feedback on both topics. Below are the common themes and differences discussed, followed by the description of each focus group.

The Cost of Electric Appliances

The common theme between both Youth and Adults discussions showed agreement that a major barrier in shifting from gas powered home appliances to more energy and water efficient appliances as well as 100% renewable electricity at home is the barrier of cost and lack of affordability for many low-income families. CAUSE facilitators asked a number of questions, “What are barriers/difficulties for you and your family to choose 100% clean energy through CA Power Alliance?”, “What are barriers/difficulties for you and your family to switch to energy & water efficient appliances?”, and “How do you think the city should take into account frontline communities when creating goals around energy and gas?”.

Renters Face Additional Burdens: While both adults and youth thought the idea of going all electric in homes was a good way to reduce Ventura’s greenhouse gasses, renters faced additional barriers of costs and affordability. Participants who are renters shared that making the transition seemed particularly difficult for low-income families who are already struggling financially due to the housing crisis and high inflation. Participants also worried that costs for landlords required to upgrade their appliances would be passed down to renters via higher rent costs in a time when rent costs are alarmingly high. Many participants felt that if it was optional, they would be more inclined to keep using gas powered appliances rather than electric if it meant they would pay less monthly. The adult groups in particular went into more detail explaining that currently electricity is more expensive than gas and if their stoves, water heaters, and furnaces were upgraded to be all electric, they fear potentially paying more for the actual appliances (if homeowners) while also paying more in their monthly electricity bill.

Solutions discussed included protections like rent control to ensure any new greenhouse gas reduction policies adopted would prevent landlords from passing the cost to renters who already pay steep rents and avoid further displacement. Other suggestions for a just transition to clean energy and ways to center frontline communities are to: 1) prioritize rebates, grants and other

appliance replacement programs for low-income homeowners and landlords, 2) limiting the penalization of low-income renters and homeowners, and 3) placing a tax on the wealthiest residents and high polluting corporations and businesses which cause a higher proportion of emissions.

Other barriers that adults expressed on switching from electric to gas included the difficulty for people changing an appliance they have been using for decades and the belief and/or perception that “electric stoves don’t work” or cook in the same way as gas stoves and that “the food doesn’t taste the same.”

Lack of Information About Renewable Energy

The second barrier that was most talked about was the lack of accessible information in general about the topic of climate change, specifically what climate change is, how it affects the residents of Ventura and also the lack of availability of information in Spanish for the Latinx community. The adults expressed that if the community was better informed about the Clean Power Alliance-what it is, how it works and the benefits to our health and our environment-that more people would be willing to make the switch even if it’s a little more expensive. Adults also shared that the term “clean energy” is something they had not heard of before. They didn’t know it was related to how energy was being generated so more background needed to be discussed on where our current electricity comes from and how renewable energy is considered “clean” due to the fact that it doesn’t contribute to greenhouse gas emissions compared to coal, oil and gas. Prior to the facilitator explaining the concept, certain adults thought it was a way to have our electricity undergo a cleaning process and that’s what makes it “clean”.

Focus Group participants brought up costs again as a barrier for families who are struggling financially and suggested the need for programs that focused on low income households that would allow reimbursements for these families to make the switch to 100% renewable energy. However, all youth and adults in the focus groups were surprised and glad to hear that the Clean Power Alliance offers two other options where 50% and 40% of the energy comes from renewable sources and that those were the same cost as Edison’s rates or a little less expensive. Youth talked about the importance of knowing how much more it would be to switch to 100% renewable energy to see if a family could afford it because they were unsure of the impact of the 7-9% increase in cost for families. Lastly, adults brought up renters having additional barriers such as those renting a room or who are not on the lease not having a say on which provider and what tier to choose if part of Clean Power Alliance.

Additional Comments Re: Clean Energy & Climate Change

Youth Comments and Questions:

- Is the city doing anything to hold corporations accountable for their greenhouse gas emissions instead of just placing the responsibility on residents?
- Youth expressed and agreed that the City of Ventura needs to improve youth engagement related to climate change due to the following reasons:
    - Often youth are the voice for their parents' needs.
    - Youth and young adults are good messengers to share info with their parents and grandparents.
    - Climate change will have more of an impact on youth and young adults in their lifetimes and their kids' lives than their parents.
    - The information on climate change that is taught in school is very general and not local so it's not as engaging or personal-feels like it's not happening here.
    - Solutions talked about like wind and solar energy are too massive and there are no ways to engage locally in climate actions.
    - Frustrated that climate change decisions being made don't take youth into account just because they are not of voting age (ex: Local Measures A and B on June 2022 Primary ballot for Ventura County)

Adult Comments and Questions:

- What's going to happen to the old appliances and the additional waste it's going to create in our landfills?
- Need more information and engagement from folks that live on the Westside/Avenue, especially in Spanish to bring more awareness about this topic and any programs that come out of it.
- Find it helpful when different programs from either the government or utility companies are explained in person such as when people go knocking on doors to inform people and offer free upgrades to their homes.

Current Issues with City Land Use and Transportation

During the **Transportation** and **Land Use** discussion, groups were asked the following:

1. What are barriers/difficulties to use our personal cars less and rely on walking?
2. What are barriers/difficulties to use our personal cars less and rely on biking?
3. What are barriers/difficulties to use our personal cars less and rely on public transportation?
4. How do you think the city should take into account frontline communities when creating goals around transportation, example: have requirements related to driving less, etc?

CAUSE's goal was to understand why participants rely on personal vehicle use and what changes they would suggest to increase the use of alternatives to driving. Common barriers participants shared were time management, safety concerns, and street accessibility.

Adult Focus Group Responses:

During the Adult focus group discussion, the majority of the participants stated time was the defining factor on why personal car use was their preferred mode of transportation. When talking about walking and biking locally, most responded by stating that in the Westside of Ventura the lack of bike lanes and street space was the biggest issue. Some adults enjoy biking recreationally but feel unsafe doing so in other circumstances due to the lack of designated bike lanes on many streets around their homes. It was also noted that many streets on and around the Westside lacked upkeep and were either too small/narrow to walk comfortably on. In general, walking and or biking was more of a recreational activity rather than a reliable form of transportation for work, social gatherings, or shopping trips because other alternatives take too long or are not practical to meet the needs for their family.

Only a few of the participants used public transportation consistently but out of the two who did, their biggest concern was safety and time. The COVID-19 pandemic and restrictions that followed caused many changes in public transportation such as limiting the number of people allowed on buses at one time, the routes available to regular commuters, and lack of bus drivers that consequently lengthened the wait times. Many participants stated that they avoided taking public transportation due to COVID concerns and these concerns still worry them to this day. Infrequent and overcrowded buses also caused participants to have long wait times including having to wait for the next available bus, causing time conflicts with their work or other priorities.

Possible Solutions:

Participants from the Adult focus group suggested different improvements that the city could do to incentivize the use of walking, biking, or public transportation. These suggestions included:

1. Improve and maintain sidewalks and streets (Ex. cracked roads, old streets, new layouts).

2. Add accessible bike lanes or create wider streets for walking.
3. Improve and expand the city's bus routes and safety protocols.
4. Put more crosswalks on busy streets/neighborhoods.
5. Increase wages for public transportation employees to address the shortage of drivers in Ventura.
6. Lower the fares for public transportation.

Youth Focus Group Responses:

Participants in the Youth focus group had similar sentiments on walking, biking, and using public transportation in Ventura. The majority of participants stated they most often rely on rides provided by their parents or guardian in their personal car to go to school or for other activities. Many participants mentioned that walking was mainly recreational but not a daily option due to time constraints when traveling to school. Biking was often not seen as a viable option due to safety concerns such as the lack of bike friendly infrastructure and lack of bike lanes in certain neighborhoods. In addition, parents and guardians often do not allow youth to bike in certain places because of these same safety concerns. Many stated that if there were designated bike lanes in more areas of Ventura, and not just midtown or the Eastside of Ventura, their choice to use bicycles in their daily routines would increase.

Lastly, use and recommendations of public transportation varied among the youth participants. Many of the youth don't have an accessible bus route to get to school and they thought most trips were too far or would take too much time out of their day to rely on the bus. Those who do rely on public transportation had similar experiences as the adults; buses are often maxed out on capacity due to students needing it after school ends and they often have to wait for a later bus to arrive or wait for their parents to pick them up by car. Youth participants also noted that afternoon activities such as finishing practice from sports or clubs would mean they would leave school at later times. Walking, biking, or taking public transportation during later times in the evening or even at night was also a safety concern and so parents or guardians often give youth rides

Possible Solutions:

Participants from the Youth focus group suggested different improvements that the city could do to incentivize the use of walking, biking, or public transportation. Listed below are the solutions that were suggested:

1. Create more bus school routes in different parts of the city.
2. Add more public bus routes around high schools to lessen the wait times.
3. Create safe bike lanes and routes for students to get to school.
4. Have the city or school provide loaner bikes.
5. Put in more crosswalks to make walking/biking safer and more accessible.

Accessibility to Electric Vehicles

Continuing the conversation with both youth and adults on various forms of transportation, we followed up with their previous responses and asked their opinion on electric powered transportation. Within this discussion, we wanted to learn more about what the community understood and felt about electric vehicles in the city of Ventura and in their personal lives.

We first spoke about what they thought of electric vehicles such as hybrid cars or fully electric cars and if these types of vehicles are an option in their lives. When speaking to both groups, none stated they owned an electric or hybrid vehicle, many did say they either knew a friend, coworker, or even family member who owned one. The majority of adults and youth stated that owning an electric vehicle was simply out of their budget, although they recognize the environmental benefits of owning an electric vehicle, they stated that overall owning a gas powered car was more economical. Here are the reasons that were stated as barriers to owning an electric car:

1. Too expensive to buy a new electric vehicle.
2. There are not enough charging stations around the city.
3. Paying more for electric services such as charging stations and electricity bills.
4. Many stated their electricity bills are being raised and want to avoid heavy usage at home.

Possible Solutions:

Next, we asked their thoughts on the city of Ventura's use of gas and electric powered vehicles. We wanted to know what they thought should be done or changed in heavy industries that pollute different communities. Listed below are thoughts that were stated by both groups:

1. Introduce electric buses or hybrids for public transportation.
2. Impose taxes on big industries and corporations.
3. Electric trailers (Some stated this is already being done in Europe).
4. Stipends or rebates for those who opt to buy an electric vehicle.
5. Support from the city for significant changes to electrifying the communities personal transportations methods.

Overall, the majority of participants stated that going all electric was too much of an obstacle at the moment. The price of a new electric vehicle, electricity bills, local charging accessibility, and lack of support from the city or corporations are the defining factors. Although both youth and adults recognize the importance of going electric to reduce emissions, at the moment the cost to make that change is too high.

Event Conclusion:

Our overall assessment of the focus groups CAUSE held on the dates of July 28th & 29th was that community members who attended found value in discussing and providing personal experiences about the issues of climate change in the city of Ventura. The support and roles from each staff member, Youth Fellow, and Intern contributed to productive and organized community discussions. Hosting the event in one of the most impacted neighborhoods in the city where many of the participants who attended reside was important for us to reach our participant goal and to make sure community members who are most impacted had the opportunity to give their personal feedback.

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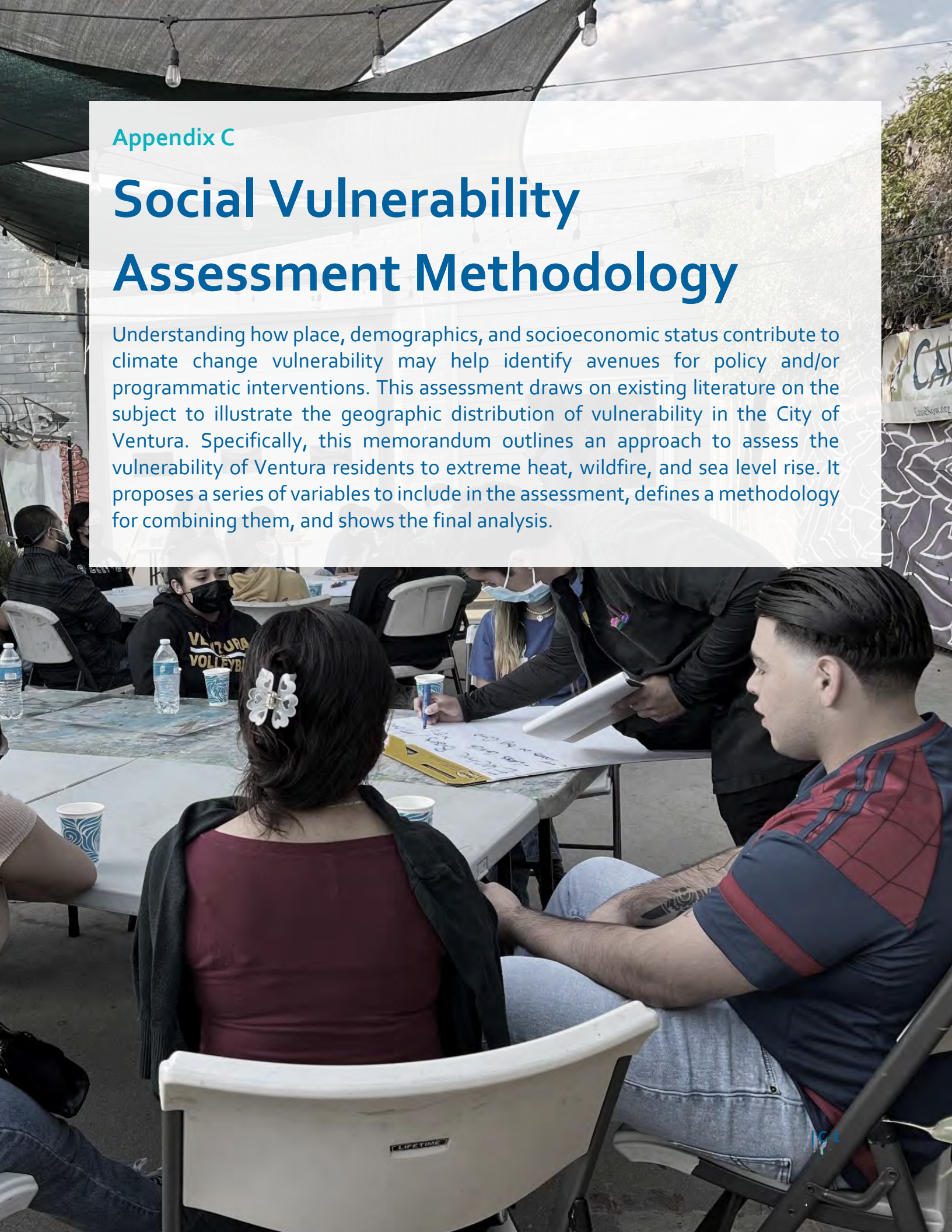
Appendix C

Social Vulnerability Assessment Methodology

Understanding how place, demographics, and socioeconomic status contribute to climate change vulnerability may help identify avenues for policy and/or programmatic interventions. This assessment draws on existing literature on the subject to illustrate the geographic distribution of vulnerability in the City of Ventura. Specifically, this memorandum outlines an approach to assess the vulnerability of Ventura residents to extreme heat, wildfire, and sea level rise. It proposes a series of variables to include in the assessment, defines a methodology for combining them, and shows the final analysis.



Literature Review

Raimi + Associates conducted a brief literature review of climate change vulnerability to inform the City of Ventura's Social Vulnerability Index. Overall, there are many social, economic, and environmental factors that influence community and individual vulnerability to climate impacts and their ability to adapt to climate change.

For example, outdoor workers are at greater risk of heat stroke and related illnesses from extreme heat events, lower income residents have fewer resources to repair flood or fire damage and may live in poor housing conditions, and people with limited English language proficiency are less likely to access programs that could help during or after an extreme weather event. Moreover, individual biological factors, such as age or health status, can amplify a population's sensitivity to climate change.

Furthermore, communities of color are often burdened with multiple, overlapping factors that cumulatively impact their ability to adapt or respond to climate change. Structural and institutional racism in economic, government, and social systems has resulted and continues to result in the disproportionate distribution of climate burdens and exposures, such as a low concentration of tree canopy coverage and a high concentration of impervious surfaces. In addition, a growing body of social epidemiological research has found that repeated experiences of racism become biologically embedded in the body and results in "weathering" or premature physiological deterioration, which in turn increases a population's sensitivity to climate hazards.

Model Indices

As part of the literature review, four indices that measure social vulnerability and disadvantage were assessed to inform the City of Ventura's Social Vulnerability Index. All four indices are publicly available and utilize data from several verified sources of information.

Social Vulnerability Index

The Social Vulnerability Index was developed by the Centers for Disease Control and Prevention (CDC) and the Agency for Toxic Substances and Disease Registry (ATSDR) to help public health officials and local planners better prepare for and respond to emergency events, like hurricanes, disease outbreaks, or exposure to dangerous chemicals. This index includes fifteen indicators from the U.S. American Community Survey, which are organized into four domains: socioeconomic status, household composition, race/ethnicity/language, and housing/transportation. Overall index scores are calculated on a percentile rank basis by ranking census tracts in comparison to all other census tracts in the state and in the nation. The index is commonly used to identify communities that will need support before, during, or after natural disasters and public health emergencies.

CalEnviroScreen

In California, disadvantaged communities are often identified through the California Environmental Health Screening Tool (CalEnviroScreen), which is a statewide index developed by the Office of Environmental Health Hazards Assessment (OEHHA) and California's Environmental Protection Agency (CalEPA). In 2021, OEHHA and CalEPA released version 4.0 of the tool, which includes data on 21 indicators at the census tract level that are organized into four categories: pollution exposures, environmental effects, sensitive populations, and socioeconomic factors. CalEnviroScreen's overall index scores are calculated relative to all census tracts in California and are not on an absolute numeric basis.

Based on guidance from the Governor's Office of Planning and Research, disadvantaged communities are identified as the top 25% scoring census tracts in comparison to all other census tracts in the state. Overall, CalEnviroScreen helps jurisdictions to identify communities disproportionately burdened by multiple sources of pollution.

Climate Change and Health Vulnerability Indicators (CCHVIs)

The CCHVIs is a data visualization platform developed by the Climate Change and Health Equity Section at the California Department of Public Health (CDPH). The platform provides data on nineteen climate change and health indicators, which are organized into three domains: environmental exposures, population sensitivity, and adaptive capacity. Although CCHVIs is not itself an index, it provides information to better understand the people and places in California that are more susceptible to adverse health impacts associated with climate change, specifically extreme heat, wildfire, sea level rise, drought, and poor air quality.

Healthy Places Index

The California Health Places Index (HPI) is a weighted index of twenty-five healthy community indicators developed by the Public Health Alliance of Southern California. Indicators are organized at the census tract level into eight domains: economic, education, transportation, social, neighborhood, clean environment, housing, and healthcare access. Indicators are standardized into z-scores and averaged for each domain, and the overall scores are calculated as the weighted sum of all domain scores. Unlike other indices that measure vulnerability, higher scores indicate greater health conditions relative to the rest of California. Overall, the HPI is a comprehensive tool for measuring health equity and is used by many public health departments across California.

Variables and Methodology

Social Vulnerability Index

Based on the results of the literature review, Raimi + Associates compiled a list of social, economic, and environmental indicators commonly associated with climate change vulnerability. This preliminary list was further refined by prioritizing cross-cutting variables that applied to at least two distinct hazards. Fifteen vulnerability indicators were chosen for this analysis. Indicators were then sorted into five distinct risk categories: demographic characteristics, socioeconomic status, race and ethnicity, housing conditions, and neighborhood conditions. Table C-1 lists the proposed risk categories, vulnerability indicators, geographic scales, and data sources of the datasets to be included in the analysis.

Two units of geography are proposed for the social vulnerability analysis:

- **Census Tract:** A statistical subdivision of a county designated by the U.S. Census Bureau. A census tract has a population size between 1,200 and 8,000 people, with an optimum size of 4,000 people. Census tracts are often used in demographic analysis because their optimum size allows for community-level data with low margins of error.
- **Census Block Group:** A small statistical subdivision of county designated by the U.S. Census Bureau. A block group has a population size between 600 and 3,000 people. Every census tract has at least one block group, and block groups are uniquely numbered within a census tract.

Table C-1: Social Vulnerability Indicators

Risk Category	Indicator	Geographic Scale	Data Source
Demographic Characteristics	Percent Age 65 or older	Block Group	ACS 15-19, Table B01001
	Percent Age 17 or younger	Block Group	ACS 15-19, Table B01001
	Percent with Any Disability	Census Tract	ACS 15-19, Table B18101
Socioeconomic Status	Percent Age 25 or older with less than a bachelor's degree	Block Group	ACS 15-19, Table B15003
	Percent of Households Below 80% of Area Median Income	Block Group	ACS 15-19, Table B19011
	Percent Agricultural Workers[21]	Census Tract	ACS 15-19, Table C24050
	Percent Construction Outdoor Workers	Census Tract	ACS 15-19, Table C24050
Race and Ethnicity	Percent Population of Color	Block Group	ACS 15-19, Table B03002
	Percent Linguistic Isolation (speak English less than well)	Census Tract	ACS 15-19, Table C16001
Housing Conditions	Percent Renter-Occupied Housing Units	Block Group	ACS 15-19, Table B25003
	Percent Pre-1980 Housing	Block Group	ACS 15-19, Table B25034
	Percent Mobile Homes	Block Group	ACS 15-19, Table B25024
	Percent No Vehicle Households	Block Group	ACS 15-19, Table B25044
	Percent of Households with Housing Cost Burden	Census Tract	ACS 15-19, Table B25106
Neighborhood Conditions	Percent of Households Without Broadband Internet	Block Group	ACS 15-19, Table B28002
	Percent Impervious Surface	Census Tract	MLRC National Land Cover Database (2011)
	Percent No Tree Canopy[22]	Census Tract	MLRC National Land Cover Database (2011)

[21] Note: The ACS does not have specific estimates for the number of farmworkers. The closest employment category available is "Agriculture, Forestry, Fishing And Hunting, And Mining". Thus, this category was used as a proxy for farmworkers.
[22] Percent of area in the census tract not covered by tree canopy, weighted by population

Figure C-1: Social Vulnerability Assessment

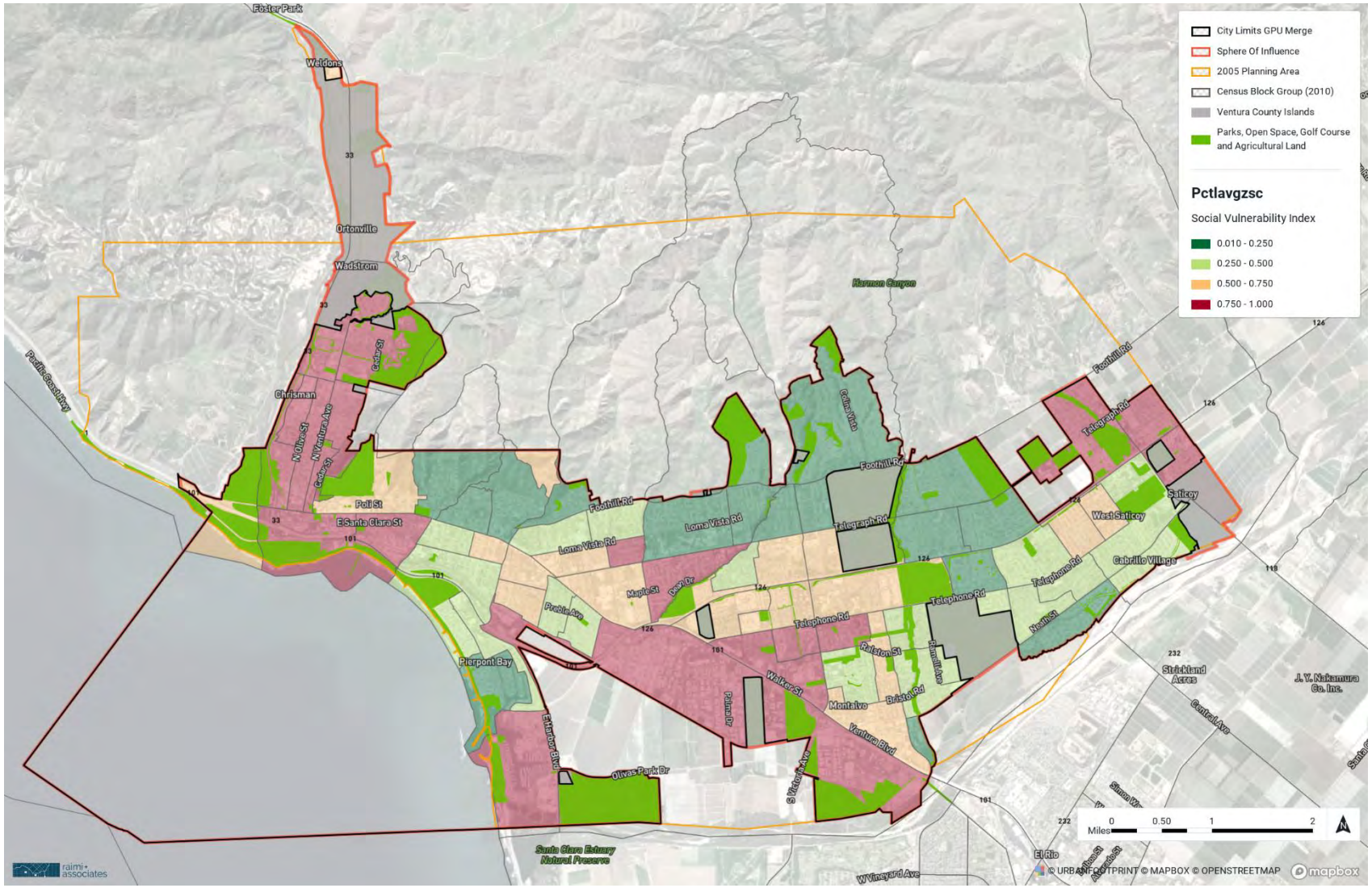


Figure C-2: Social Vulnerability Assessment with SB 1000 Disadvantaged Communities

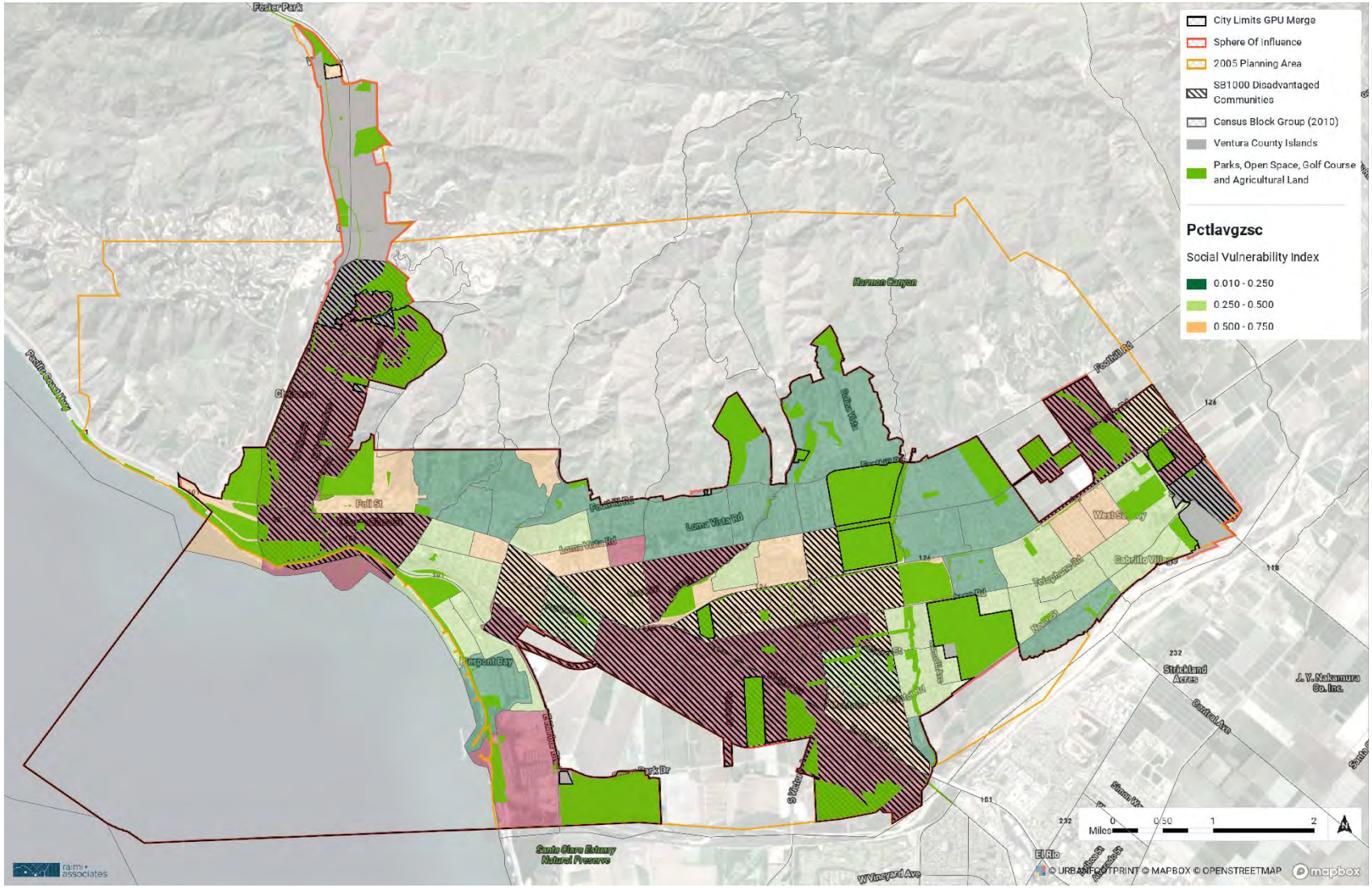


Figure C-3: Social Vulnerability Assessment with Fire Hazard Severity Zones

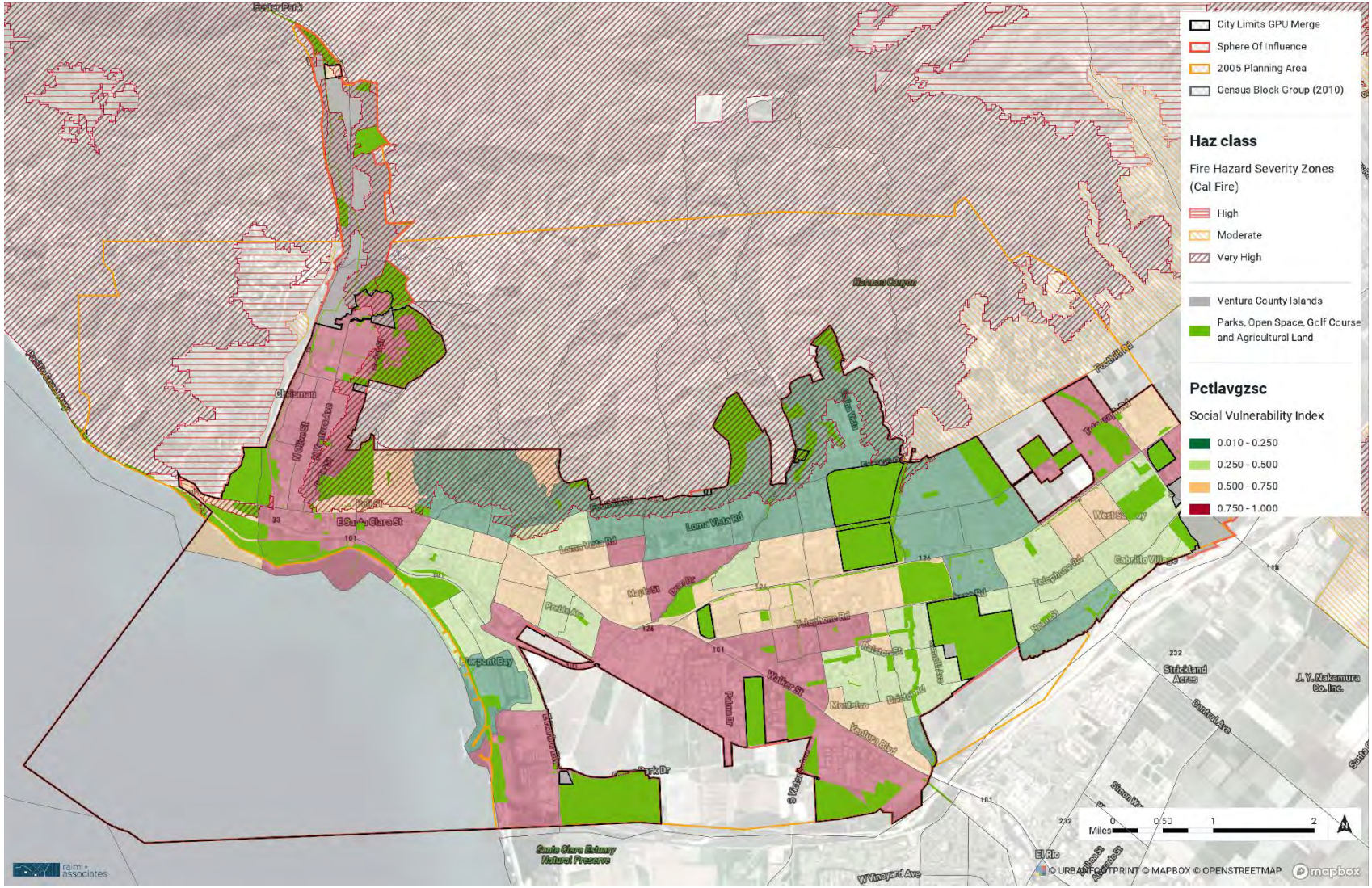


Figure C-4: Social Vulnerability Assessment with FEMA Flood Zones

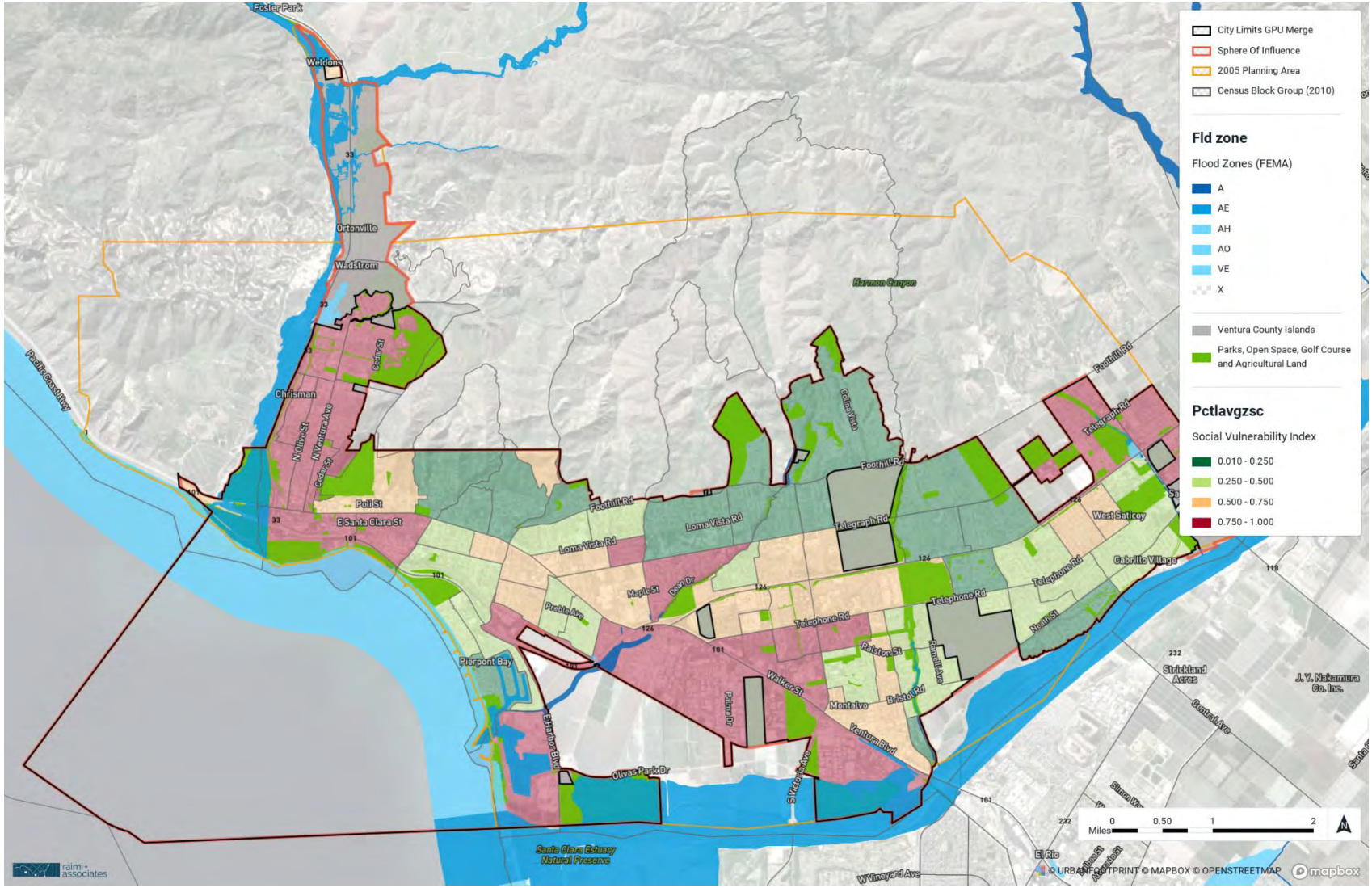
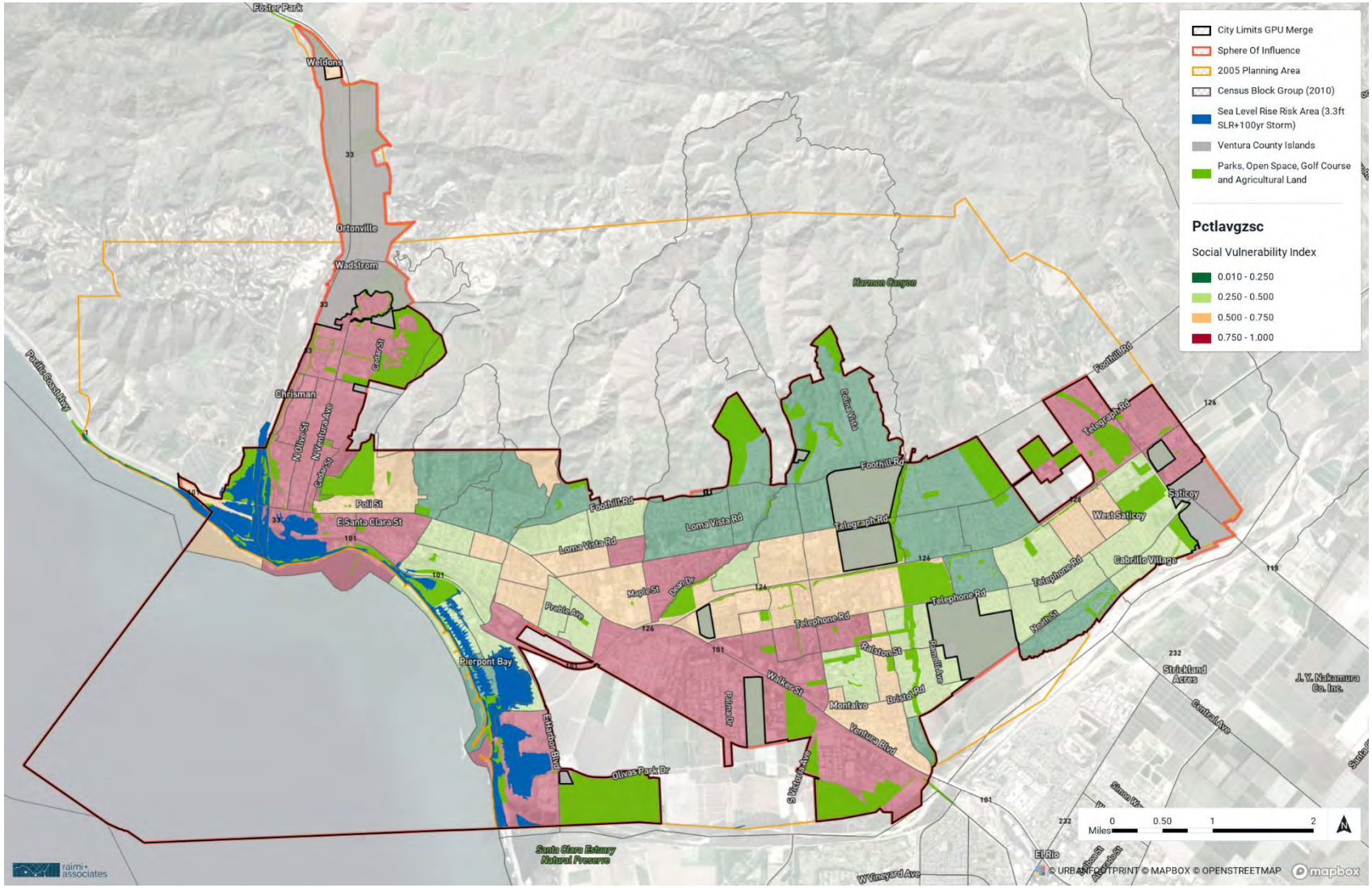


Figure C-5: Social Vulnerability Assessment with Sea Level Rise Inundation Zones



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Appendix D

Climate Change Vulnerability Assessment

This assessment evaluates how climate change may impact vulnerable community members, natural resources, buildings and facilities, and services and infrastructure in the City of Ventura. This report is consistent with Government Code § 65302 (as amended by Senate Bill (SB) 379) which requires cities, counties, and unincorporated areas across California to prepare a Climate Change Vulnerability Assessment to inform updates to the Public Safety Element of the General Plan. Understanding Ventura's vulnerabilities to climate change provides a foundation to develop required climate adaptation goals, policies, and implementation programs for the CARP and the City's Public Safety Element.

City of Ventura

Climate Change Vulnerability Assessment

July 2022

Prepared by

Rincon Consultants, Inc.

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1 Introduction

1.1 Background on Climate Change

This report evaluates how climate change may impact vulnerable community members, natural resources, buildings and facilities, and services and infrastructure in the City of Ventura. This report is consistent with Government Code § 65302 (as amended by Senate Bill (SB) 379) which requires cities, counties, and unincorporated areas across California to prepare a Climate Change Vulnerability Assessment to inform updates to the Public Safety Element of the General Plan. Understanding Ventura's vulnerabilities to climate change provides a foundation to develop required climate adaptation goals, policies, and implementation programs for the City's Public Safety Element. This report consists of the following:

Causes of Climate Change

Climate change is caused by the addition of excess greenhouse gases (GHGs) to the atmosphere, which traps heat near the earth's surface raising global average temperatures in what is referred to as the greenhouse effect. This increase in average temperatures across the globe affects sea level rise, precipitation patterns, the severity of wildfires, the prevalence of extreme heat events, water supply, and ocean temperatures and chemistry (NASA 2022). According to the Intergovernmental Panel on Climate Change (IPCC), GHGs are now higher than they have been in the past 400,000 years, raising carbon dioxide levels from 280 parts per million to 410 parts per million in the last 150 years (IPCC, 2021). The dramatic increase in GHGs is attributed to human activities beginning with the industrial revolution in the 1800s, which represented a shift from an agrarian and handicraft-based economy to one dominated by industry and machine manufacturing (NASA 2022).

1.2 City of Ventura Snapshot

The City of San Buenaventura is in Ventura County, California. Ventura is a coastal City set against the Pacific Ocean, undeveloped hills, and flanked by the Ventura River along its western edge and the Santa Clara River along its southern edge. The City is surrounded by the Transverse Range which are part of a large ecosystem comprised of hillsides, rivers, and seven miles of shoreline that provide rich habitat for many species. The Ventura region has been inhabited for thousands of years, initially by the Chumash, and was incorporated into a city in 1866 (County 2022).

The City borders the Pacific Ocean to the west, Oxnard to the south, Santa Paula to the east and Casitas Springs to the north. The County boundaries extend from Santa Barbara to Los Angeles along state route 101 and the City of Ventura encompasses an area of 32.09 square miles. In 2020, the City's population was 106,276 (County 2022).

For most of the 20th Century, Ventura was economically sustained by its role in the region's oil and agriculture industries. Today, the City of Ventura supports more diversified land uses with protected open spaces, managed parks, and extensive recreation opportunities. Beaches, museums, the harbor, the neighboring Channel Islands, and downtown areas attract over a million visitors annually. Oil and agriculture continue to provide economic stability, with diminishing importance, and County government currently remains the City's largest employer (City 2005).

1.3 Report Overview

1. **Introduction** provides a lexicon of terms used throughout the report and describes the methodology and key data sources used to prepare the Climate Change Vulnerability Assessment.
2. **Exposure to Climate Hazards** outlines climate drivers, relevant climate hazards, historical hazards events, how hazards are expected to change, and includes figures mapping climate hazards spatially across the City of Ventura.
3. **Sensitivity** identifies populations and assets most at risk to climate change.
4. **Adaptive Capacity** summarizes plans, policies, and programs that help the City of Ventura cope with climate hazard events.
5. **Vulnerability Analysis** describes potential impacts for each hazard based on sensitive community, natural, and built assets, with consideration given to their adaptive capacity. The chapter includes vulnerability scores of low, medium, or high for each population group and asset. See Vulnerability Scoring Methodology section below for more detail.
6. **Conclusion** presents the key findings of this report.

1.4 Lexicon

Several words and phrases are used throughout the plan to illustrate climate vulnerabilities within Ventura.

- **Adaptation.** The process of adjustment to actual or expected climate and its effects, either to minimize harm or exploit beneficial opportunities. In natural systems, human intervention may facilitate adjustment to expected climate (IPCC, 2012).
- **Adaptive Capacity.** Ventura's ability to cope with and adjust to the impacts of climate change (Cal OES 2020).
- **Asset.** Referential to a resource, structure, facility, or service that is relied on by a community.
- **Cascading Impact.** Climate hazard caused impacts that compromise infrastructure or disrupt critical services (i.e., power supply or water conveyance) broadening the scope of impact past a singular subject to reliant subsystems and populations (Collins et al. 2019).
- average events occur simultaneously and increase the scope of impact or severity of the event; an additional risk brought about by increased frequency of events from climate change (Seneviratne et al. 2012).
- **Impact.** Effects on natural and human systems including effects on lives, livelihoods, health, ecosystems, economies, societies, cultures, services, and infrastructure by interactions of climate hazards and the vulnerabilities of the effected (IPCC 2012).
- **Mitigation.** An act or sustained actions to reduce, eliminate, or avoid negative impacts or effects (Cal OES 2020).
- **Resilience.** The capacity of an entity (an individual a community, an organization, or a natural system) to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience (Cal OES 2020).

- **Climate Driver.** A change in the climate which acts as the main source of change for subsequent climate hazards. Climate drivers relevant to the City and discussed in this report are temperature and precipitation.
- **Climate Hazard**. A dangerous or potentially dangerous condition created by the effects of the local climate (Cal OES 2020). Climate hazards of concern for the City of Ventura are extreme heat, warm nights, chill hours, drought, wildfire, landslides, tule fog, riverine and stormwater flooding, and air quality.
- **Compounding Risk.** When two or more extreme events or
- **Sensitivities**. The degree to which a species, natural system, community, asset, or other associated system would be affected by changing climate conditions (Cal OES 2020).
- **Vulnerable Populations.** Vulnerable populations experience heightened risk and increase sensitivity to climate change and have less capacity and fewer resources to cope with, adapt to, or recover from climate impacts (Cal OES 2020).
- **Vulnerability.** The propensity or predisposition to be adversely affected (IPCC 2012).

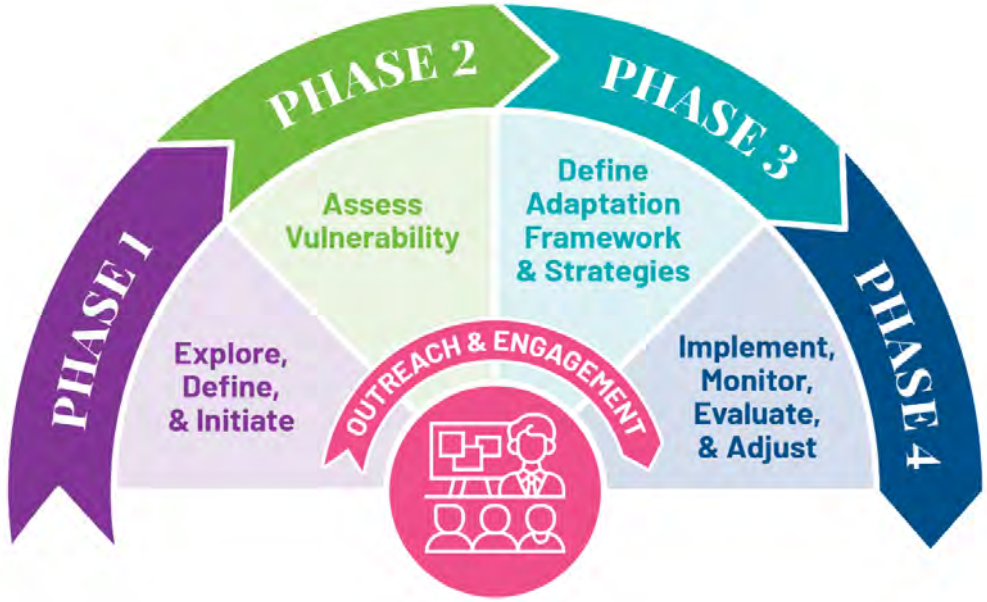
1.5 Vulnerability Assessment Methodology

The following section details state guidance, methods, and sources used in the production of this report.

California Adaptation Planning Guide Phases

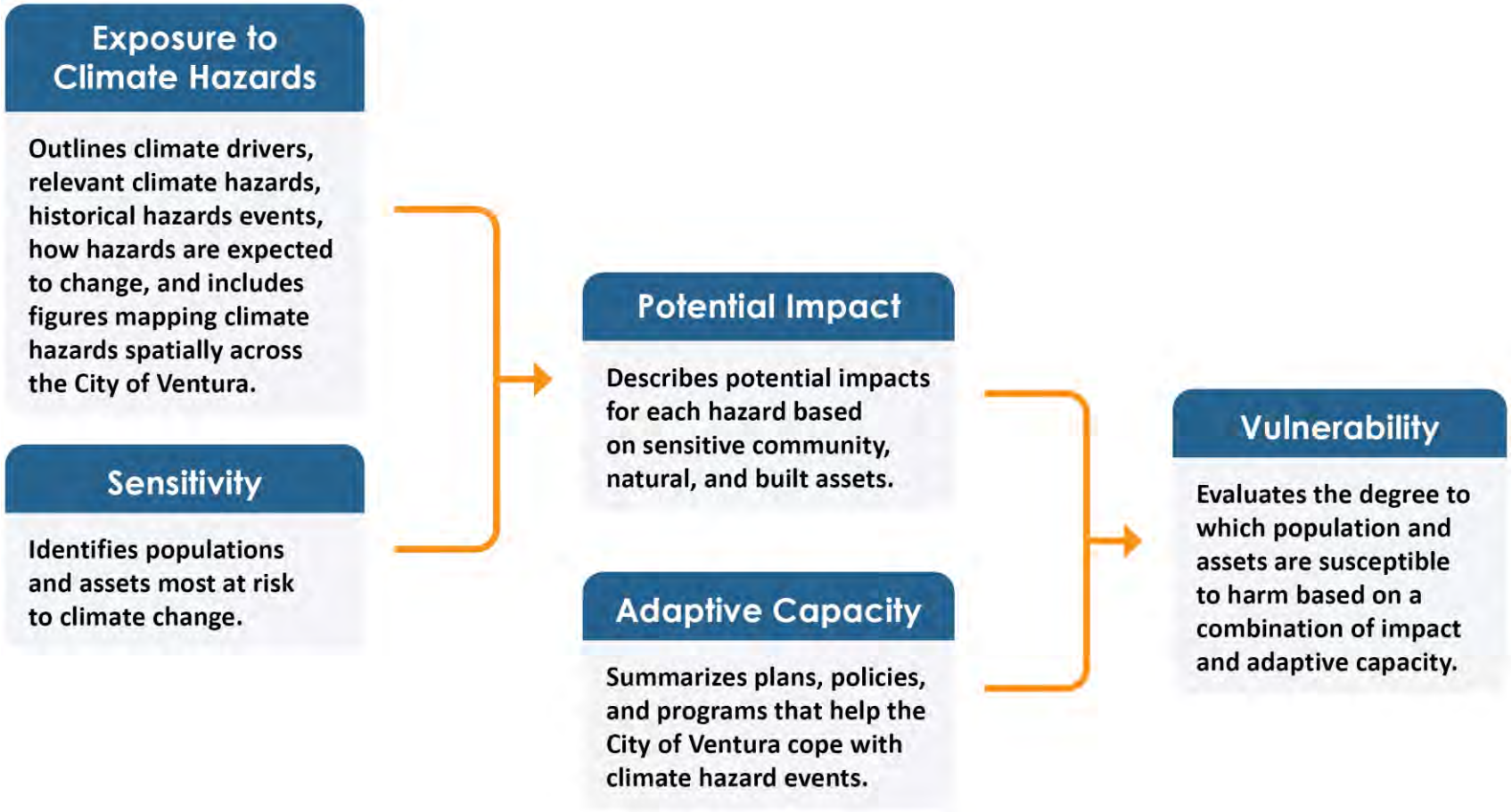
The City of Ventura Climate Change Vulnerability Assessment follows the vulnerability assessment process recommended by the California Governor's Office of Emergency Services (Cal OES), as documented in the 2020 California Adaptation Planning Guide (Cal APG). The adaptation planning process outlined by the Cal APG consists of four phases, illustrated in the graphic below, with Phase 2 detailing the vulnerability assessment process (Cal OES, 2020). The City of Ventura Climate Change Vulnerability Assessment is prepared consistent with Phase 2 of the Cal APG (see Figure 1) and is composed of the following parts found in Figure 2.

Figure 1 California Adaptation Planning Phases to Assessing Vulnerability



Source: 2020 California Adaptation Planning Guide

Figure 2 Vulnerability Assessment Flow Diagram



Key Data Sources

The following data sources and tools, many of which are recommended within the Cal APG, were used in preparation of this report.

- **U.S. Census, 2015-2019 American Community Survey (ACS)** presents demographic data by census tract and was used to supplement the HPI percentile score. U.S. Census data was used to identify the percentage of the City of Ventura population that corresponds to each vulnerable group
- **Cal-Adapt** is an online tool that presents historic and modeled projections based on 10 different global climate models. The tool was developed and is maintained by the University of California with oversight from the California Energy Commission (CEC). This tool is used to present projection data related to minimum and maximum temperature, precipitation, extreme heat, warm nights, drought, and wildfire.
- **California's Fourth Climate Change Assessment** was developed by the CEC and other State of California coordinating agencies to present up-to-date climate science, projections and potential impacts associated with climate change. The CEC and coordinating agencies developed nine regional reports to provide regional-scale climate information to support local planning and action. The Los Angeles Region Summary Report (2018) presents an overview of climate science, regional projections, specific strategies to adapt to climate impacts, and key research gaps needed to safeguard the greater Los Angeles area (including Ventura) from climate change. The Los Angeles Region Summary Report was used to understand regional changes that may affect the City of Ventura both directly and indirectly.
- **The California Healthy Places Index (HPI)** is an online mapping tool that reports on community conditions that are known to predict health outcomes and life expectancy. The tool was prepared by the Public Health Alliance of Southern California, a collaborative of local health departments in Southern California. HPI displays 25 community characteristics at various legislative boundaries, including census tracts and city and county boundaries. The community characteristics relate to the following identified Policy Action Areas: economic, education, housing, health care access, neighborhood, clean environment, transportation, and social factors. HPI applies a relative percentile score across all census tracts in California using statistical modeling techniques based on the relationship of the Policy Action Areas to life expectancy at birth. Low percentile scores reflect unhealthy conditions. HPI was used to prepare the social sensitivity index score as described in more detail below. HPI is a useful in providing both big picture and localized insights into community health. HPI was updated in the Spring of 2022 to include data averages from the U.S. Census 2015-2019 ACS.
- **The Nature Conservancy (TNC) Coastal Resilience Web Tool** is an online mapping tool showing potential impacts from sea level rise and coastal hazards designed to help communities develop and implement solutions that incorporate ecosystem-based adaptation approaches. This tool is available statewide but has detailed modelling for the Ventura area.
- **Ventura County Multi-Jurisdictional Hazard Mitigation Plan** presents information on existing processes and plans in place that address Ventura County and the City's ability to prepare for climate change impacts and informed the adaptive capacity discussion of this report. The Multi-Jurisdictional Hazard Mitigation Plan (2022) was also used to identify recent historical events.

- **Ventura County Resilient Coastal Adaptation Project** The County of Ventura's Resilient Coastal Adaptation Project (VC Resilient) uses best available science to develop a balanced and forward-thinking response to sea level rise. It considers various coastal hazards and has several web tools and story maps to help disseminate SLR information to the affected communities. The website contains many resources including related county ordinances, plans, projects, and tools. The associated **Ventura County Sea Level Rise Assessment** is specific to unincorporated Ventura County, however, information in the assessment pertaining to the broader Ventura region is included in this report.

Data Limitations

- The limitations of this report and analysis stem from gaps in data availability and completeness of data methods. Census data can miss portions of the population (e.g., homeless populations) and general demographic information may not accurately capture populations vulnerable to climate change (Cantwell 2021). Federal Emergency Management Agency (FEMA) 100-year and 500-year flood plains do not account for climate change projections, zones are instead based on historical information. The California Department of Forestry and Fire Protection (CalFire) very high fire hazard severity zones are based on vegetation, fire history, and terrain but also has similar limitations, projections of future fire are not included (OSFM 2022). Extrapolating landslides and air quality hazard exposure data in the context of climate change is difficult and therefore expected exposures are likely to be underestimated.
- The data presented in **Cal-Adapt** tools are projections, or estimates, of the future. The limitation in these projections is that the long-term behavior of the atmosphere is expressed in averages – for example, average annual temperature, average monthly rainfall, or average water equivalent of mountain snowpack at a given time of year. The averages discussed often downplay the extremes by which daily weather events occur and when presented as an average, only show moderate changes within the climate. For example, what is using averages can result in an omission of the frequency of extremes. For example, in the case of like extreme weather events, atmospheric rivers may increase, while low-moderate intensity weather events decrease through the end of the century. In instances of modeled precipitation projections, an average maintains a quantification similar to historic levels which does not account for anticipated fluctuations in extremes (CEC 2021).

Vulnerability Scoring Methodology

Vulnerability scoring is a valuable step in the climate vulnerability assessment process because it identifies which assets and populations face the highest threat to climate hazards. This can aid in the prioritization of adaptation actions. The vulnerability score is a combination of the impact and adaptive capacity score and is discussed in the Vulnerability Analysis section of this report. The impact and adaptive capacity scores are developed using a qualitative methodology outlined in the Cal APG, as seen in Table 1. Impact and adaptive capacity scores are identified for each asset and population for each climate hazard.

Table 1 Impact and Adaptive Capacity Scoring Rubric

Score	Impact	Adaptive Capacity
Low	Impact is unlikely based on projected exposure; would result in minor consequences to public health, safety, and/or other metrics of concern.	The population or asset lacks capacity to manage changes; major changes would be required.
Medium	Impact is somewhat likely based on projected exposure; would result in some consequences to public health, safety, and/or other metrics of concern.	The population or asset has some capacity to manage climate impact; some changes would be required.
High	Impact is highly likely based on projected exposure; consequences to public health, safety, and/or other metrics of concern.	The population or asset has high capacity to manage climate impact; minimal to no changes are required.

Source: Cal OES 2020

The vulnerability score is prepared by combining the two scores as demonstrated in Table 2. The range of potential impacts spans 1 through 5 with 4-5 being at highest threat.

Table 2 Vulnerability Score Matrix

Potential Impacts	**High**	3	4	5
	Medium	2	3	4
	Low	1	2	3
		High	**Medium**	**Low**
		Adaptive Capacity		

Source: Cal OES 2020

2 Exposure to Climate Hazards

Climate change is a global phenomenon that can impact local health, natural resources, infrastructure, emergency response, and many other aspects of society. Projected changes to the climate are dependent on location. The Cal-Adapt tool provides climate data from global scale models that have been localized (downscaled) to 3.7 mile by 3.7-mile grids (CEC 2021). The data in Cal-Adapt is combined with information from the California Fourth Climate Change Assessment to model future changes in specific types of hazards within this report. Projections throughout this section are outlined by two separate Representative Concentration Pathways (RCPs) (CEC 2021).

- RCP 4.5 is a medium emissions scenario where global emissions peak by the year 2040
- RCP 8.5 is a high emissions scenario in which global emissions continue to rise through the end of the 21st century.

Additionally, projections are forecasted to mid-century (2035-2064) and end-century (2070-2099) as 30-year averages to be compared to a modeled historical baseline (1961-1990) (CEC 2021).

This section presents information on temperature and precipitation, which are characterized as climate drivers. The section then provides information on projected changes to natural hazards, including extreme heat and warm nights, drought, wildfire, landslides, riverine and stormwater flooding, air quality, and sea level rise, which result from changes to climate drivers.

2.1 Climate Drivers

In Ventura, the climate drivers of concern include temperature and precipitation. All projections are pulled from the Cal-Adapt Local Climate Change Snapshot tool and supplemented with the Los Angeles regional information found in the California Fourth Climate Change Assessment (CEC 2021, Hall et al. 2018).

Temperature

The average maximum and minimum temperatures are expected to increase in Ventura with mid-century projections showing a 3.5°F (RCP 4.5) to 4.3°F (RCP 8.5) increase in temperature maximum and minimums (CEC 2021). End-Century projections show a 4.5°F (RCP 4.5) to 7.1°F (RCP 8.5) increase in Ventura. Temperature increases affect extreme heat and warm nights, drought, wildfire, and air quality. Global temperature increases cause ocean temperatures to rise which expands ocean waters. Glaciers, ice caps, and ice sheets melt from rising temperatures which further contribute to sea level rise (Hall et al. 2018).

Precipitation

Ventura precipitation projections under RCP 8.5 demonstrate a 0.132-inch increase by mid-century and 0.289-inch increase by end-century in annual precipitation totals (CEC 2021). However, as already observed in recent decades precipitation changes are largely observed as more extreme variability with intensely wet years followed by extreme droughts (Hall et al. 2018). It is projected that the wettest day every year will increase by 25-30% by the end

of the century in some parts of the Los Angeles Region (Hall et al. 2018). There will be more dry periods punctuated by increased precipitation intensities of the largest storms or wet periods, producing little net change in precipitation totals but more extreme conditions (Hall et al. 2018). Precipitation changes are expected to affect wildfire, drought, landslides, riverine and stormwater flooding, and air quality.

2.2 Hazards

This section outlines projected changes for the following climate hazards:


Extreme Heat and Warm Nights


Drought


Wildfire

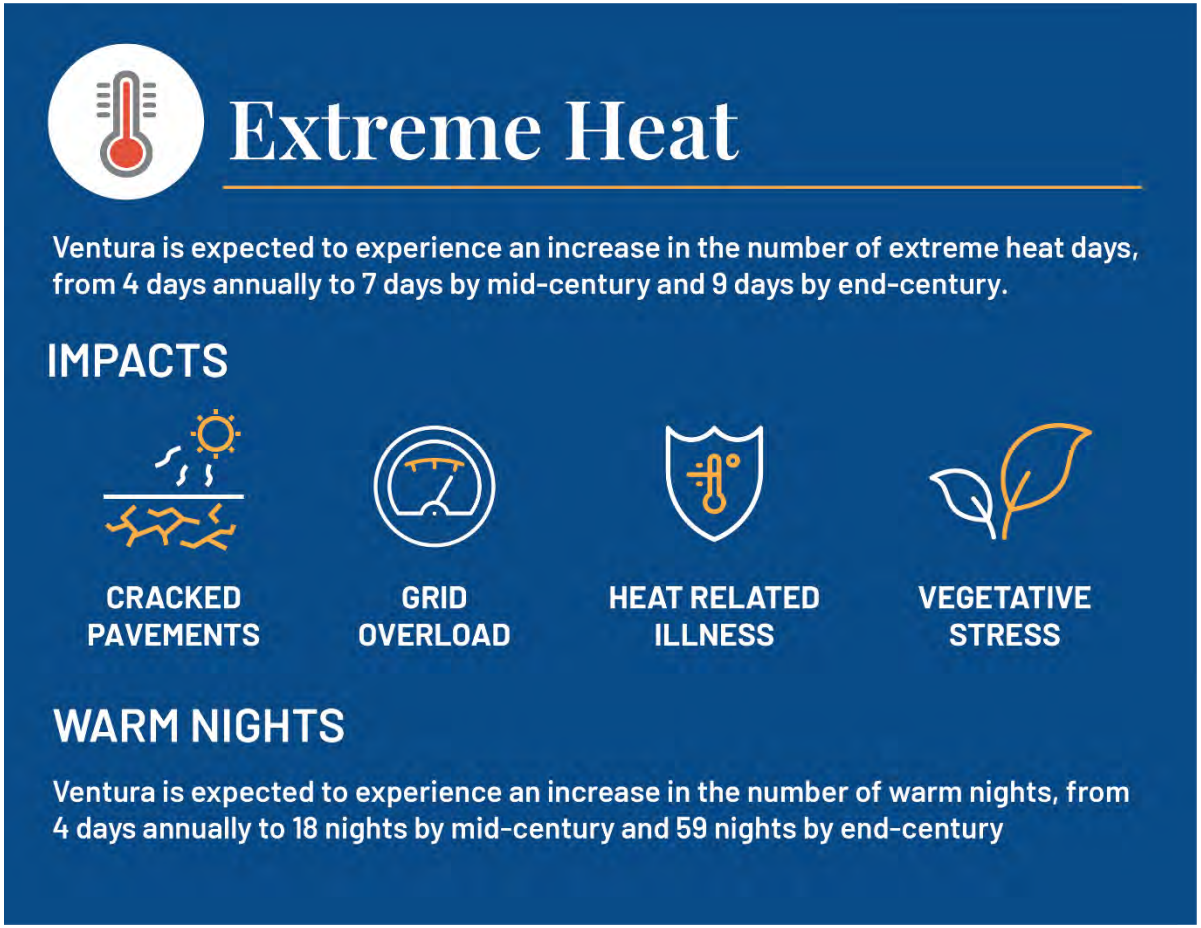

Landslides


Riverine and Stormwater Flooding


Air Quality


Sea Level Rise

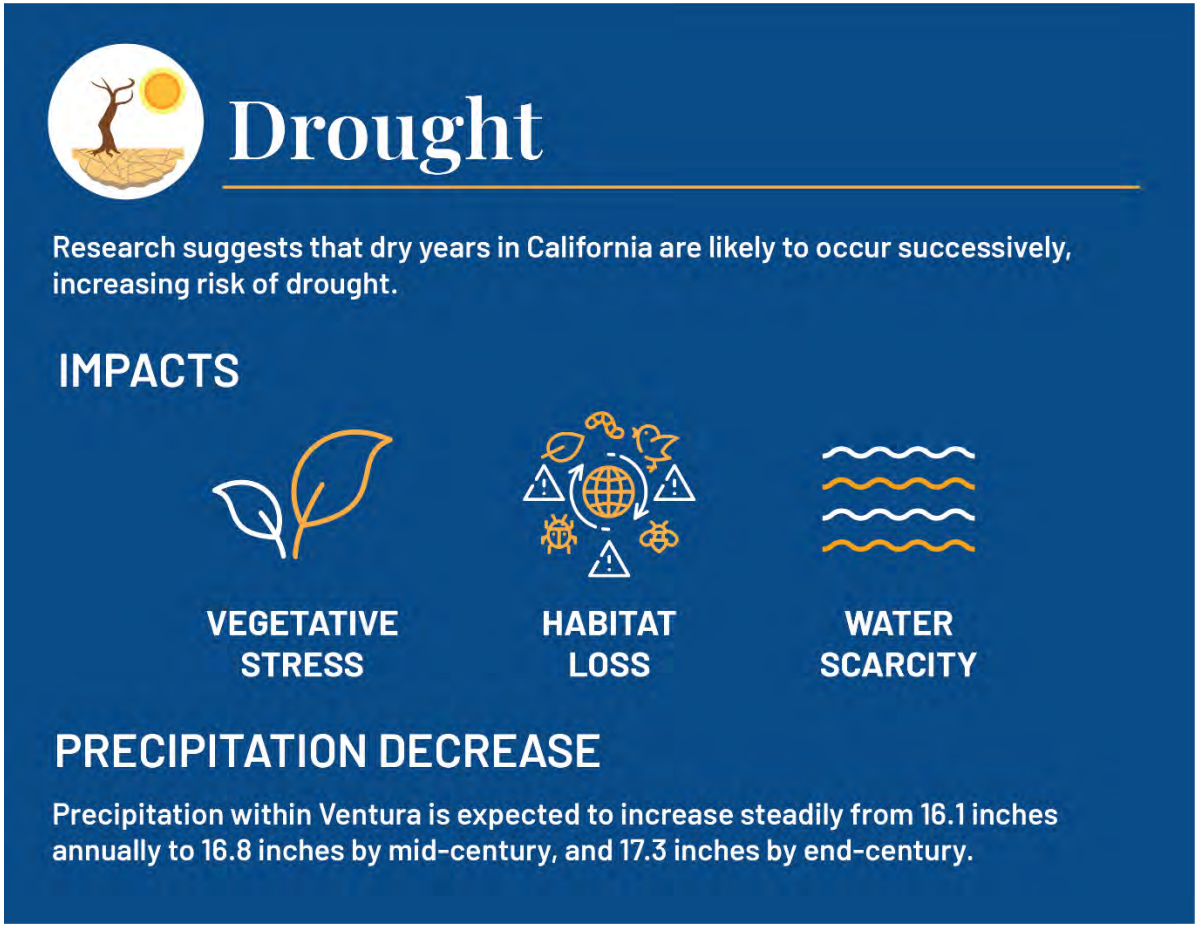
Extreme Heat and Warm Nights



Extreme heat events are defined as days in which the daily maximum temperature exceeds the 98thpercentile value of the historical average (CEC 2021). For Ventura, the threshold temperature is 91.9°F (CEC 2021). Increased frequency of extreme heat days can result in increased public health risks, which tend to be disproportionate for vulnerable populations such as those experiencing homelessness, outdoor workers, older adults, children, and individuals with underlying chronic diseases. These include increased likelihood of heat-related illnesses such as heat stroke, and vector-borne illnesses. Warm nights can further exacerbate the risk of heat illness because they affect the body's ability to cool after a day of heightened temperatures, which may be mitigated with at home cooling systems including fans, air conditioning, and proper insulation. Due to the cost of acquiring and utilizing these systems, disproportionate effects are experienced by those with economic disadvantages. High concentrations of impervious surfaces such as pavements and roofs coupled with minimal tree canopy and green space can increase urban heat effect. This effect can cause temperature increases in urban areas by multiple degrees and is further exacerbated during heatwaves (Hall et al. 2018). Ventura has historically experienced 4 warm nights a year and is projected to experience a mid-century total of 25 nights (RCP 8.5) and an end-century total of 26 (RCP 4.5) to 59 nights (RCP 8.5) (CEC 2021). Extreme heat can also damage roadways, overload electrical grid systems, and result in vegetation die-off or stress.

Drought

Climate change will increase the likelihood that low-precipitation years will coincide with above-average temperature years. Warming temperatures increase seasonal dryness and the likelihood of drought due to decreased supply of moisture and increased atmospheric demand for moisture as evaporation from bare soils and evapotranspiration from plants increases. The increased moisture loss from soils and vegetation amplifies dryness during periods without precipitation. In California's highly variable climate setting, climate models project less frequent but more extreme daily precipitation, with year-to-year precipitation becoming more volatile and the number of dry years increasing (Hall et al. 2018).



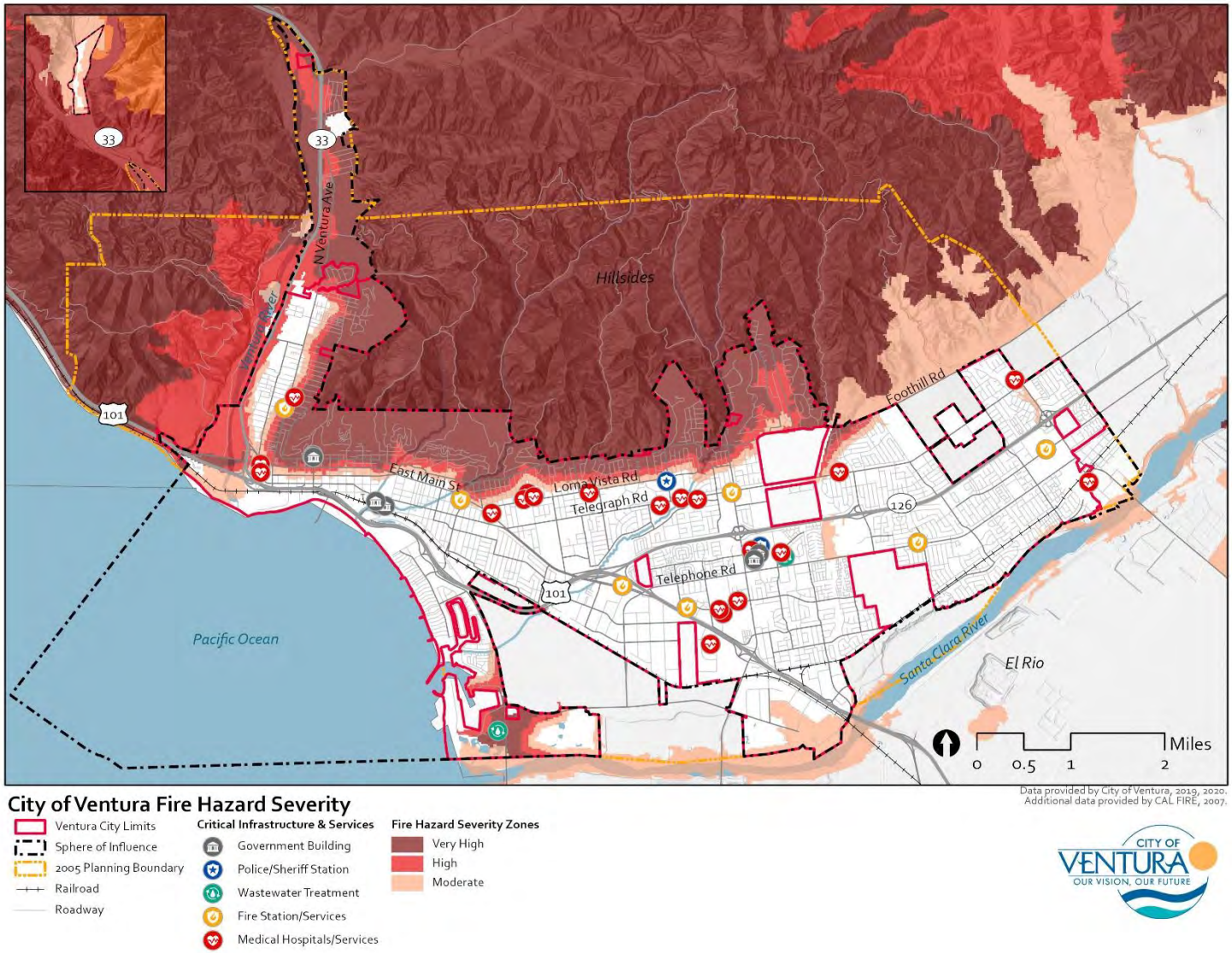
The duration of dry spells is projected to vary based on emissions scenario. Like patterns in precipitation some of the annual variability is obscured within 30-year averages. Despite this, the clear trend is for maximum lengths of dry spells to increase through the end of century (CEC 2021).

Drought can affect vulnerable populations as can suppress economic productivity throughout the Ventura region. Vulnerabilities for natural resources can include stressed vegetation and habitat depletion and populations may be more vulnerable to heat stress and dehydration (Hall et al. 2018). Additionally, sustained drought conditions can lead to dry, dusty conditions which can impact health, as discussed in the section on air quality below.

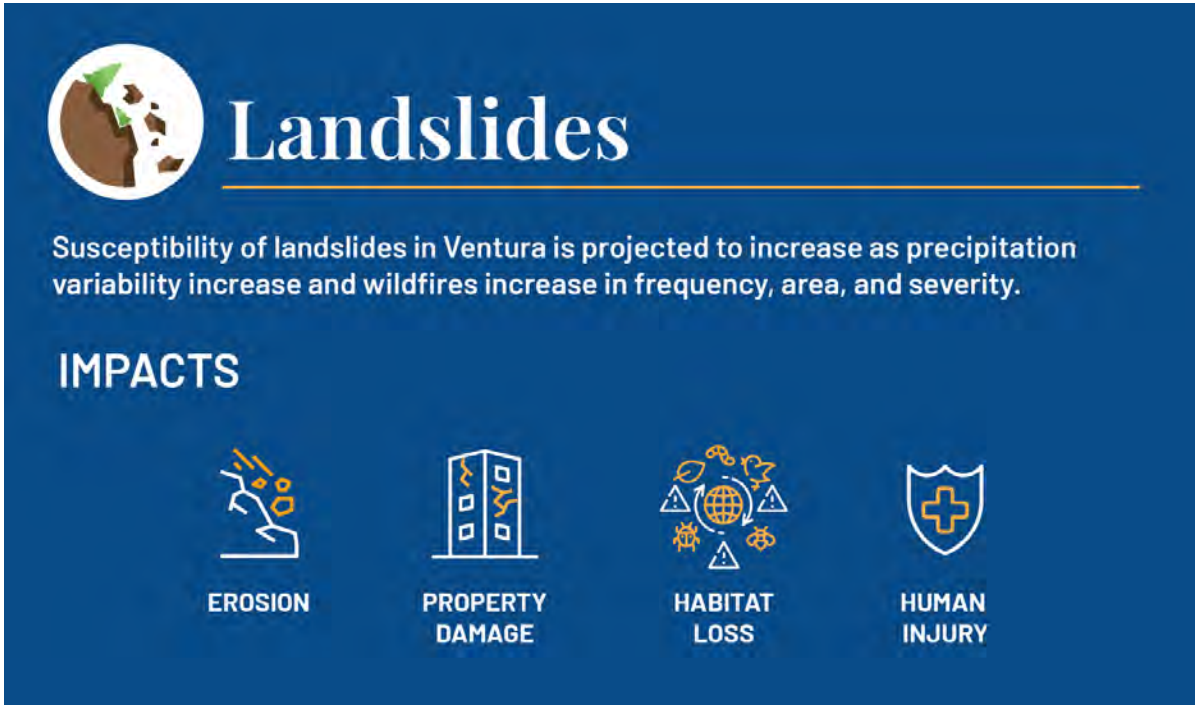
Wildfire

The occurrences of wildfires have increased significantly within California in frequency and intensity over the past two decades (Hall et al. 2018). For Ventura this trend is projected to follow through mid and end-century projections (CEC 2021). Wildfire events are a product of temperature increases compounded with precipitation declines creating wildfire prone conditions. Ventura County's wildfires are influenced by Santa Ana Winds, downed power lines, and fuel availability (Hall et al. 2018). Areas in Ventura that are of significant risk to wildfire are located along the northern portion of the City. These areas are categorized as CAL FIRE very high fire hazard severity zones (VHFHSZ), shown in Figure 3. There are several critical facilities within proximity to the VHFHSZ including medical facilities, government buildings, fire stations, and the police station. Several roads and residential areas are also located within the City's fire zone. Wildfires can create risk of injury, death, or financial hardship if personal property is damaged as well as physical damage to all other assets creating cascading risks for vulnerable populations when infrastructure is damaged or off-line. For example, individuals with chronic health conditions who rely on medical equipment for critical health care could be severely impacted by a wildfire-caused power outage. Since 2005 there have been 14 federal disaster declarations for Wildfire events in Ventura County, including the 2017 Thomas Fire which burned numerous structures and residences in the City of Ventura (County 2022).

Figure 3 Wildfire Hazard Severity Zones in the City of Ventura



Landslides

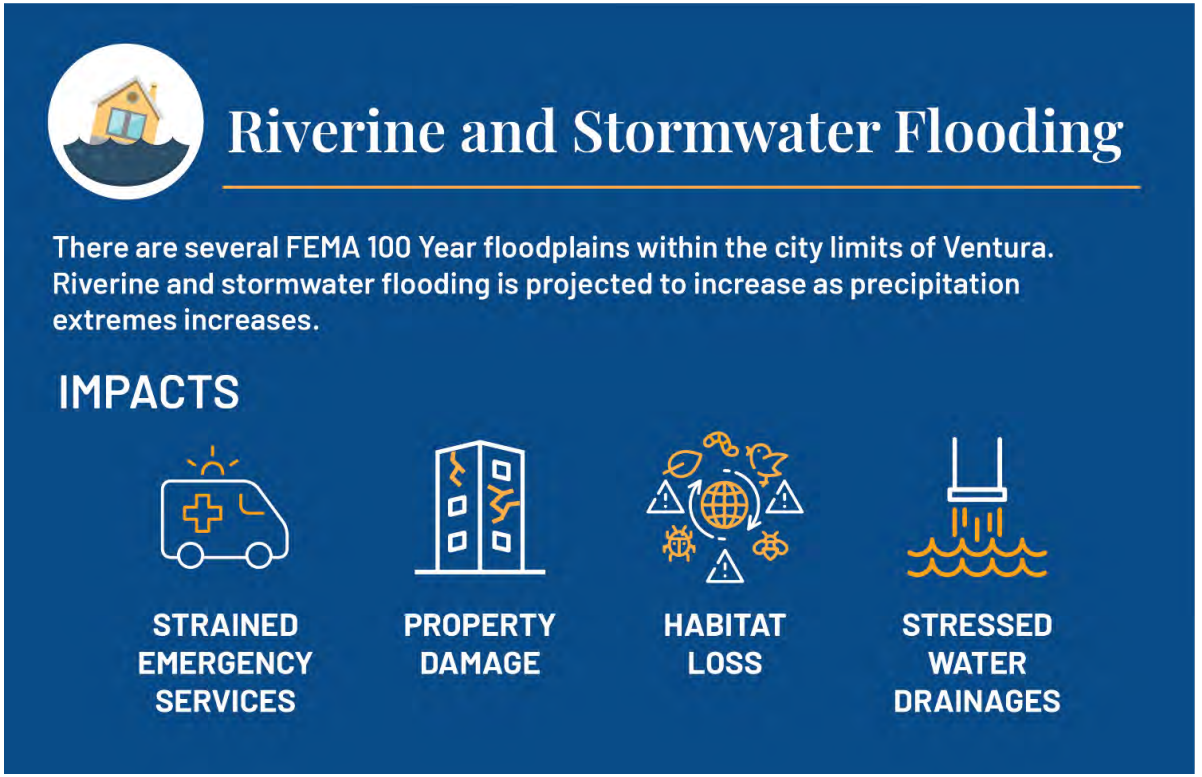


Triggered by extreme bouts of precipitation or wildfires, the susceptibility of the larger Ventura region to landslides is projected to increase as precipitation variability increases and wildfires increase in frequency, area, and severity (Hall et al. 2018). The Ventura Region is projected to experience increases to wildfire and precipitation and subsequently landslide-prone conditions (CEC 2021). Historically, landslides have occurred in the hillsides south of the Santa Clara River, and the east side of the Ventura River. Additional landslide prone regions in the City of Ventura overlap with wildfire zones (CDOC 2021). The Ventura County Multi-Jurisdictional Hazard Mitigation Plan ranks the risk for landslides as the highest of all other climate hazards for the City of Ventura. In 2017, The Thomas Fire burned over 500 homes in the City and left burn scars in the hillsides susceptible to landslides (County 2022). The susceptibility to deep-seated landslides is classified as high along most of the northern border of the City as well as along both sides of Highway 33. Specifically, the hillsides north of Poli Street/Foothill Road, and east of Ventura Avenue and Cedar Street contain several landslide prone areas and are likely to sustain future landslide activity (City 2021). The projected increase in precipitation extremes, alone and in combination with the projected increase in wildfires, creates increased overall potential for floods, mudslides, and debris flows in the City.

Historical Debris Flows

Following heavy rains and winter storms, substantial debris flows have occurred in the Santa Clara River, Ventura River, as well as other local streams and culverts. Debris flows following wildland fires are particularly bad and can require removal of material from streams, streets, culverts, and beaches.

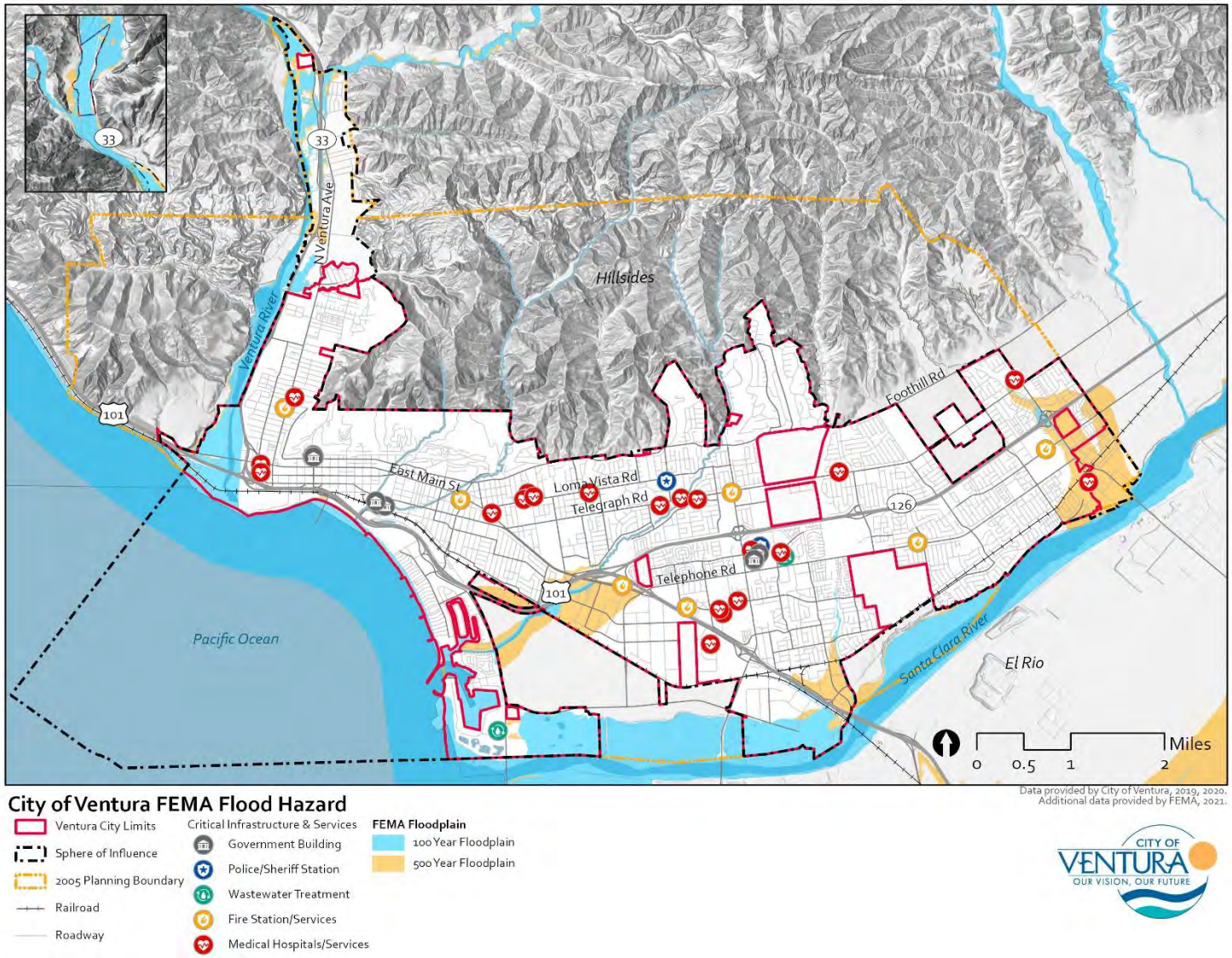
Riverine and Stormwater Flooding



Climate change may cause low-lying areas throughout Ventura to experience more frequent flooding and could increase the extent of 100-year floods, as seen in Figure 4. Stormwater systems may be overwhelmed more frequently as more extreme rain events occur, causing localized flooding which could impact properties and close streets. The Santa Clara and Ventura Rivers run through the City, as well as a series of seasonal watercourses called barrancas. FEMA regulates development along all City watercourses in the case of a 100-year flood event. While 100-year flood hazard zones for Ventura's watercourses are relatively limited, the largest recorded flood event along the Santa Clara and Ventura rivers in 1969 exceeded the 100-year flood zone (Ventura GPU 2005). The Multi-Jurisdictional Hazard Mitigation Plan for Ventura County identifies flooding as a medium risk, and notes that numerous areas of the City are subject to flooding during periods of high rain. The impact of the flooding includes street closures, and damage to property, vehicles, and buildings (County 2022).

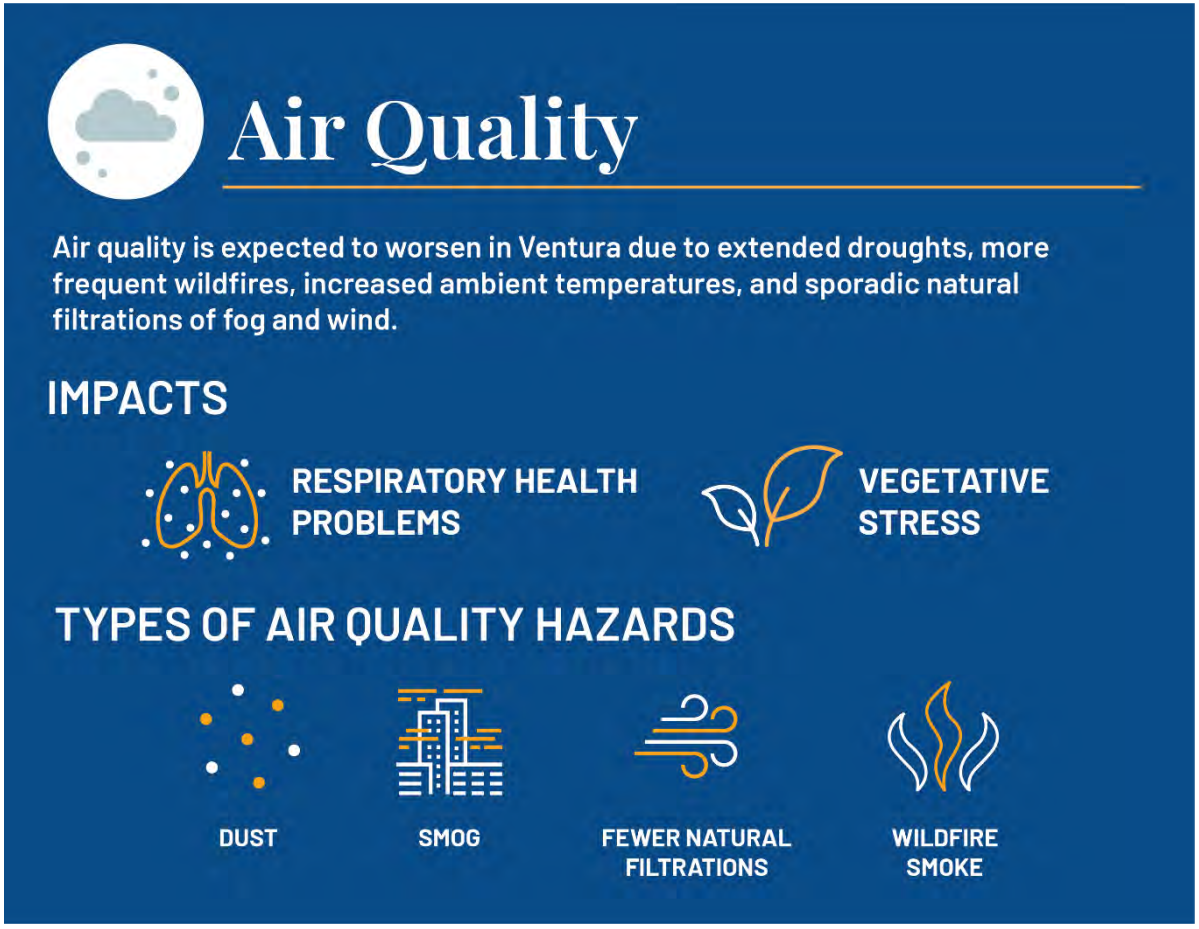
On record, there have been 23 flood events since 1954 that warranted Federal Disaster Declarations in Ventura County. These tend to occur in the winter and early spring following severe storms and/or wildfires and have become more frequent in recent history (County 2022). Flooding impacts cause physical damages from inundation, and can also have cascading effects on power, wastewater, and storm drainage infrastructure, exacerbating public health concerns (Hall et al. 2018).

Figure 4 100 and 500 Year Floodplain in the City of Ventura



Air Quality

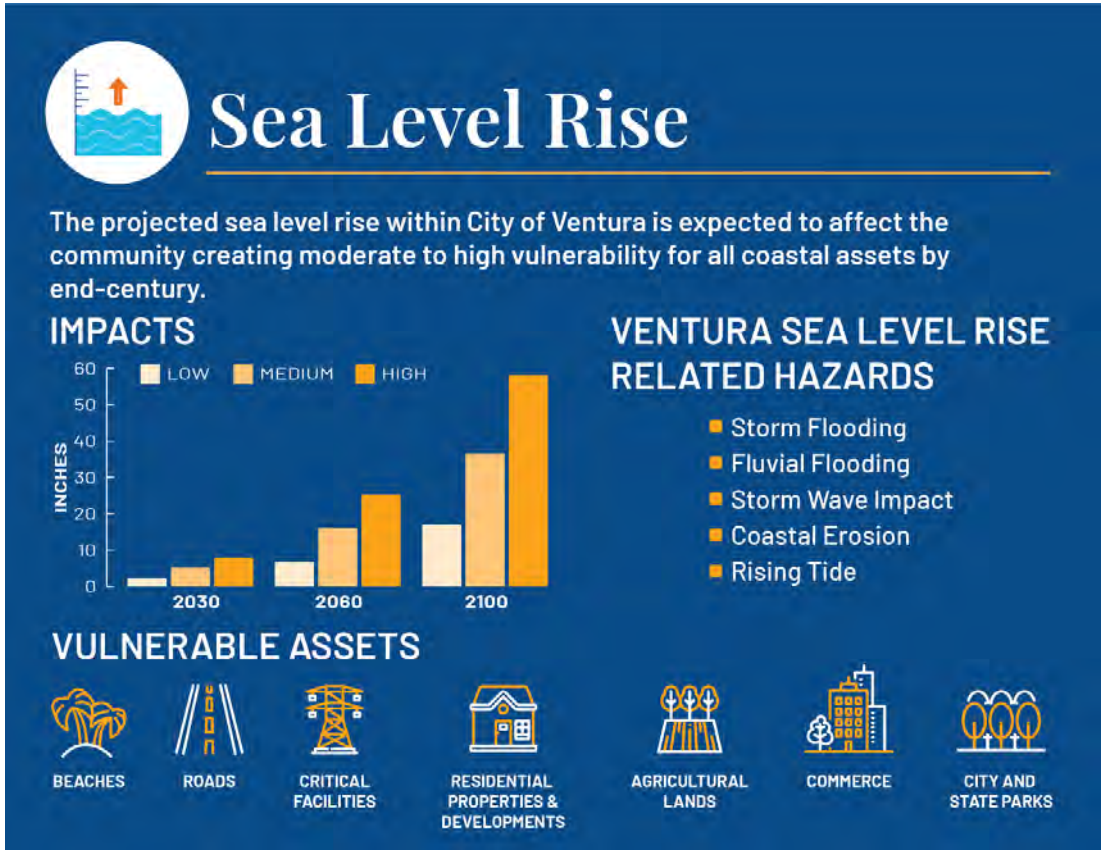
Worsening air quality due to climate change can create respiratory issues for vulnerable populations and impact indoor areas without adequate air filtration systems. There are several types of air quality decline sources found below:



- **Dust.** Increased temperature leads to dry, dusty conditions also associated with drought (Hall et al. 2018).
- **Smog.** Increases in ambient temperature can lead to higher rates of smog also referred to as ozone. Ground-level ozone specifically will be experienced at higher rates leading to raised cardiovascular and respiratory morbidity and mortality rates (CDPH, 2014). Ground-level ozone has also been shown to have particularly disproportionate adverse impacts on populations experiencing homelessness and lower median income (PNAS 2021). The City of Ventura will experience increases in ozone concentrations in parallel to temperature increases.
- **Fewer Natural Filtrations.** Precipitation variability and long periods of dry spells lead to less reliable air quality for the entire region. Moisture in the air can filter pollutants and provide for overall improved conditions.
- **Wildfire Smoke.** Temperature, severe wildfire conditions, and the area burned by wildfires throughout the state has increased and will continue to increase. Higher temperatures accompanied by an increase in the incidence and extent of large wildfires will lead to increased wildfire smoke and associated toxins and air pollution (Hall et al. 2018).

Sea Level Rise

- Sea levels in California are expected to rise in the coming decades as a result of global greenhouse gas emissions. It is anticipated that until mid-century, the most damaging events for the California coast will be dominated by large El-Niño-driven storm events in combination with high tides and large waves. By the end of the century, as sea levels continue to rise, scientists project that even small storms will cause substantial damage and large events will have unprecedented consequences (CCC 2018). The effects of sea level rise in Ventura include regular rising tides, coastal erosion, wave impact, storm flooding, and fluvial flooding. Climate change is expected to increase the rate of sea level rise dependent on the extent of warming temperatures. The Nature Conservancy Coastal Resilience Model provides precise hazard predictions and has been used for all the coastal planning in the Ventura region. This tool is available statewide and has detailed modeling for Ventura County. The following are Coastal Resiliency projections for SLR and related hazards for the Ventura region. They are provided for the years 2030, 2060, and 2100 at low, medium, and high SLR rates (TNC n.d.)
- By 2030, sea level is expected to rise 2.3" (in a low modeling scenario), 5.2" (in a medium outcome scenario), and 8.0" (in a high outcome scenario).
- By 2060, sea level is expected to rise 7.4" (low), 16.1" (medium), and 25.3" (high).



- By 2100, sea level is expected to rise 17.1" (low), 36.5" (medium), and 58.1" (high).

The following sub-sections discuss sea level rise related hazards and their current and projected impacts on the City of Ventura.

Coastal Erosion

Large portions of the California coast are susceptible to coastal erosion. As sea levels rise, the amount of time that beaches are exposed to waves and abnormally high tides increases, furthering beach erosion and substantially altering the width of beaches (CCC n.d.) Figure 6 shows projected coastal erosion in the City of Ventura for 2030, 2060, and 2100 (TNC n.d.) Sandy beaches and dunes are at risk of erosion related to sea level rise, with low-lying beaches, such as those in the City, being at particular risk (TNC 2021). 2030 projections show erosion potential surpassing the beach line and entering the residential community along Ventura Beach. The By 2060 and 2100, estimation of erosion impacts are expected to increase with the greatest change taking place north of Sanjon Road, where erosion will impact Shoreline Drive and the neighboring commerce.

Fluvial Flooding

The City of Ventura is set between two rivers, the Santa Clara and Ventura Rivers, both of which deposit into the Pacific Ocean. Fluvial flooding during storm events is expected to worsen as ocean water levels rise (TNC n.d.) As seen in Figure 4, models project fluvial floodplains along these rivers in the event of 100-year flood. The 100-year floodplain for the Santa Clara River extends from Olivas Park Drive to West Gonzales Road, with a breakout area reaching south of West Gonzales Road between South Victoria Avenue and West 5th Street.

Storm Flooding

Climate change may cause low-lying coastal areas to experience more frequent flooding and an increase in the inland extent of 100-year coastal floods. Drainage systems that discharge close to sea level may also have similar issues and inland areas may become flooded if outfall pipes back up with saltwater (CCC n.d.) Figure 7 shows projected storm flooding in the City of Ventura for 2030, 2060, and 2100 (TNC n.d.) During winter storms, increased temporary short-term flooding in tandem with sea level rise. If coupled with high tides and large waves, significant erosion and property damage is likely to occur. In a moderate SLR scenario of 14 inches or less – likely to occur before 2050—the risk of serious flooding to life and property would increase by orders of magnitude (Hall et al. 2018). The 2030 projections show impacts to nearly all the residences and commercial areas south of East Harbor Blvd. By 2060 and 2100, projections show flooding surpassing the Ventura Freeway at the intersection of Highway 33. This level of flooding could affect roads, residential developments, the wastewater treatment facility, and medical facilities, as well as commercial and industrial areas in the City.

Storm Wave Impact

Rising sea levels will cause waves to force water further inland, especially during coastal storm events (CCC n.d.) If waves become larger and more frequent, they are expected to increase erosion of beaches, possibly damaging properties, and development. Figure 8 shows projected storm wave impact in 2030, 2060, and 2100 in the City of Ventura (TNC n.d.) In 2015, waves of up to 15 feet resulted in the evacuation and closure of the Ventura Pier, and caused 15 pylons to break, causing an extended closure while repairs were made (County 2022). In 2030, storm wave impacts are expected encroach on the communities south of Ventura Beach, and the

Marina Park and Harbor areas. By 2060 and 2100, the impacts are magnified, and are projected to extend beyond the Ventura Highway at the intersection of Highway 33. These impacts could affect residential areas, parks and open space, medical and governmental facilities, as well as commercial and industrial areas in the City.

Rising Tide

Sea level rise will cause areas not currently exposed to the tide to become inundated (CCC n.d.) Unlike flooding, inundation results in permanent wetting, often resulting in the need to either protect or move infrastructure and development. Figure 9 shows projected rising tide impacts in 2030, 2060, and 2100 in the City of Ventura (TNC n.d.) In the City of Ventura, people experiencing homelessness live on or near the beach and are therefore at a greater risk during high tide events (County 2022). Near term impacts (i.e., 2030 and 2060) from projected rising tide in the City is minimal. By 2100, the rising tides are expected to impact Seaside Wilderness Park and residential and commercial structures near Marina Park in the area known as the Ventura Keys.

Figure 5 Sea Level Rise in the City of Ventura

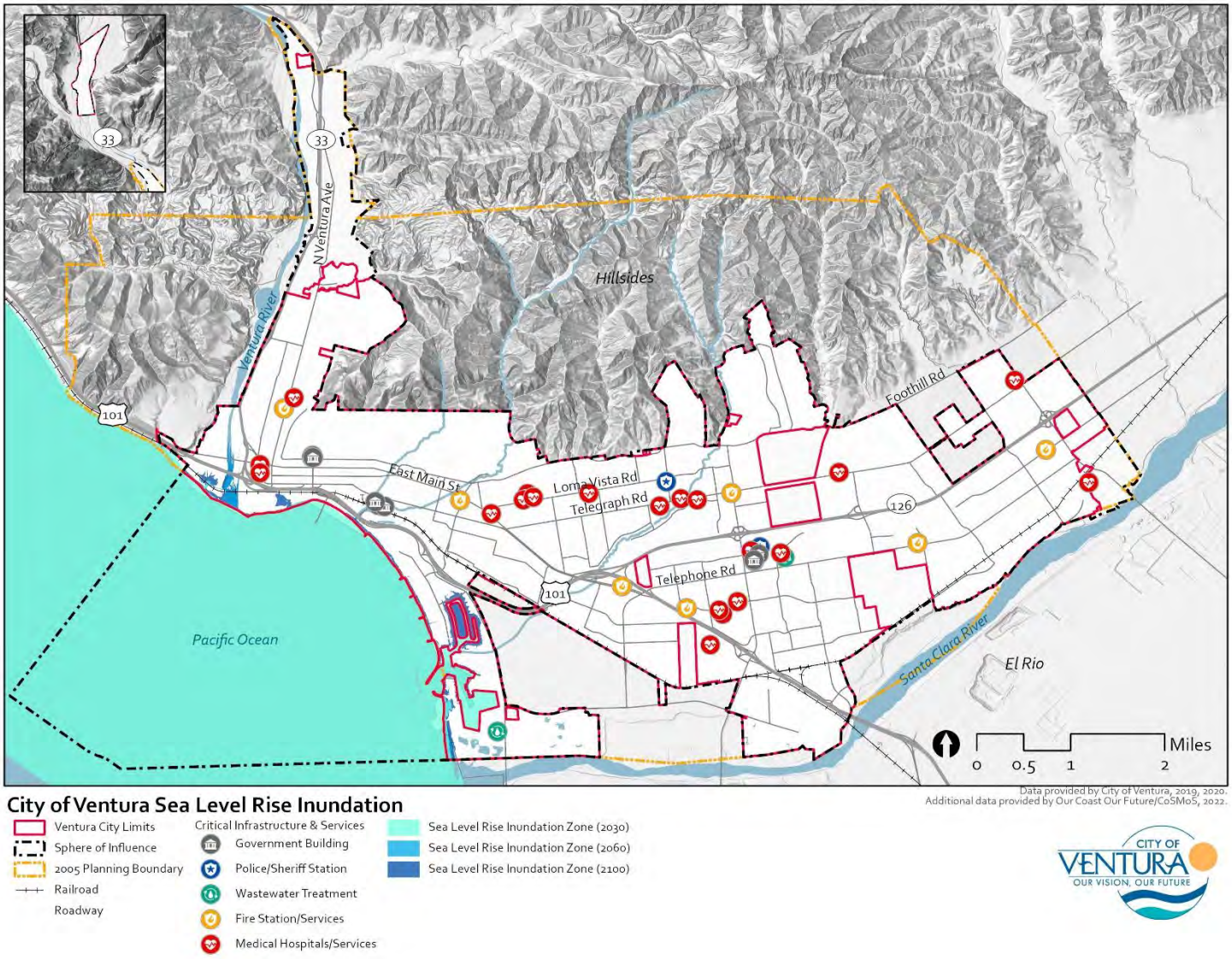


Figure 6 Coastal Erosion in the City of Ventura

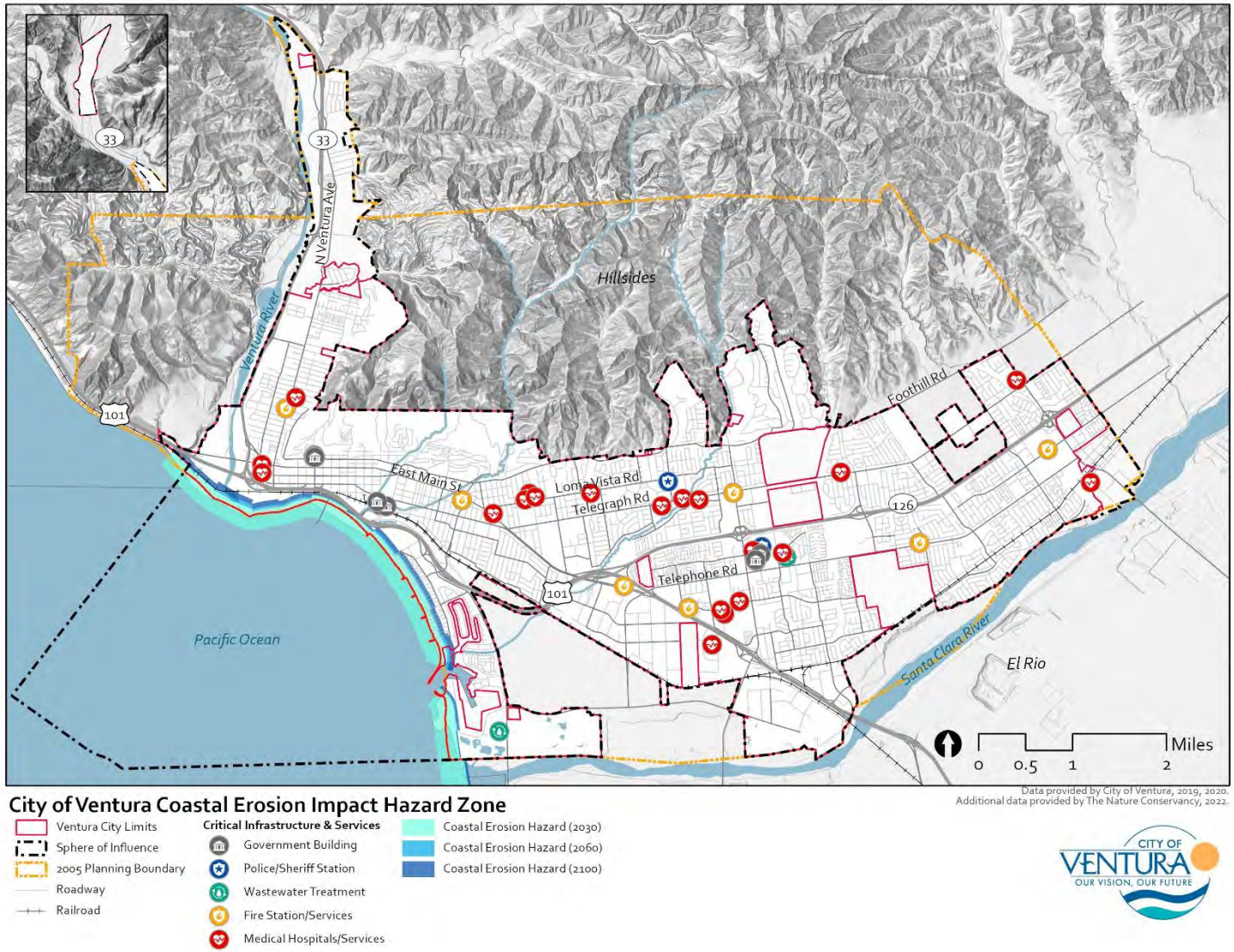


Figure 7 Coastal Storm Flooding in the City of Ventura

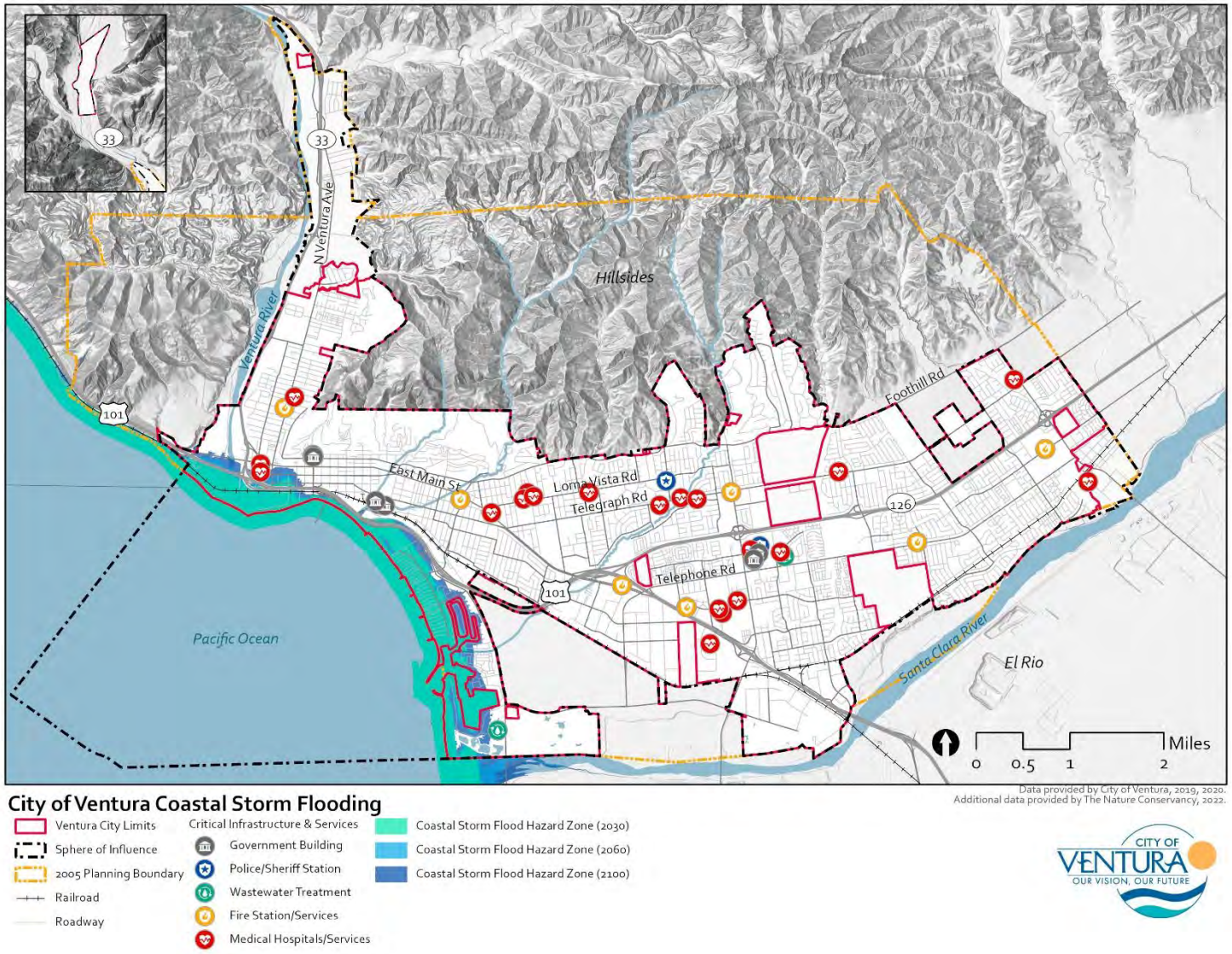


Figure 8 Storm Wave Impact in the City of Ventura

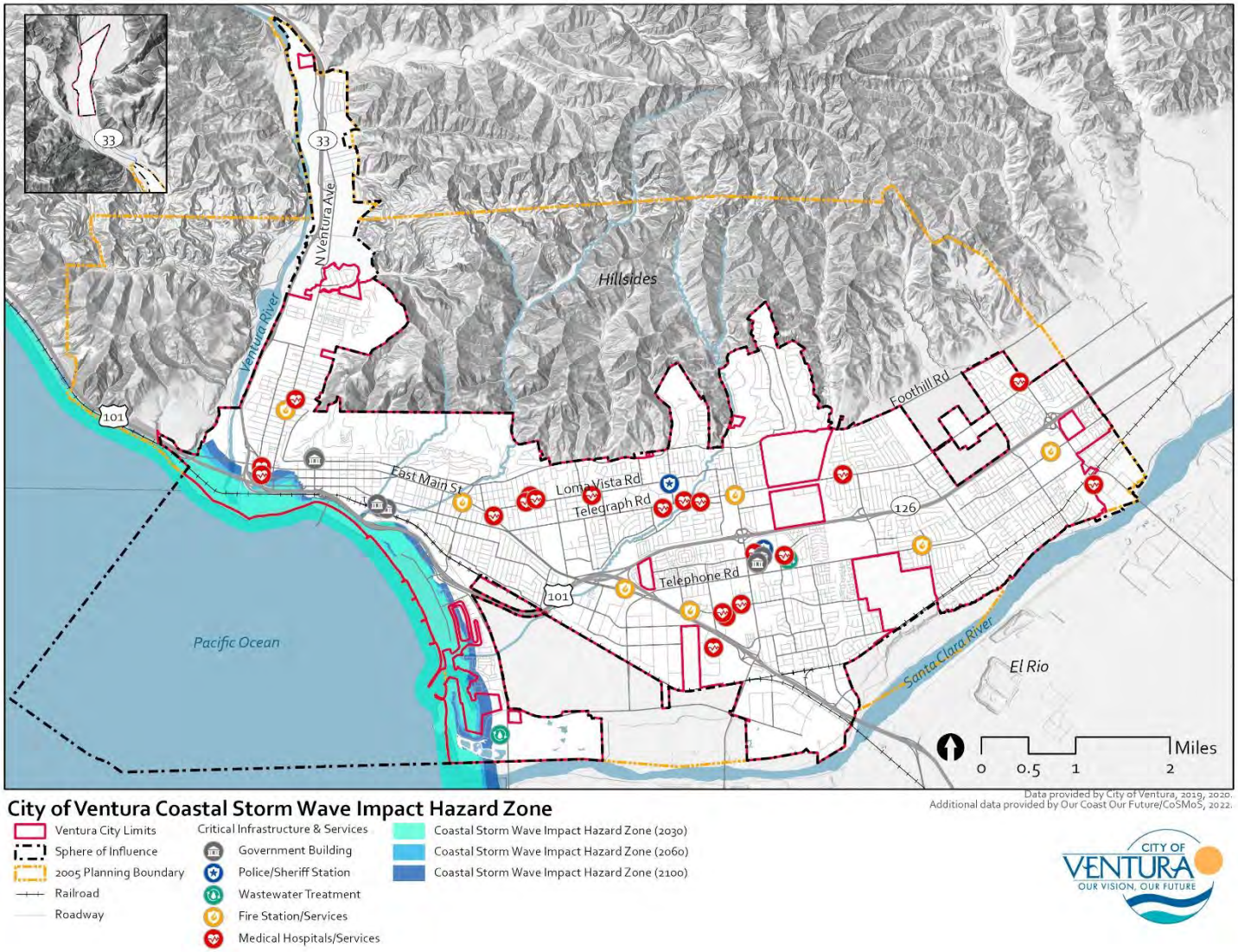
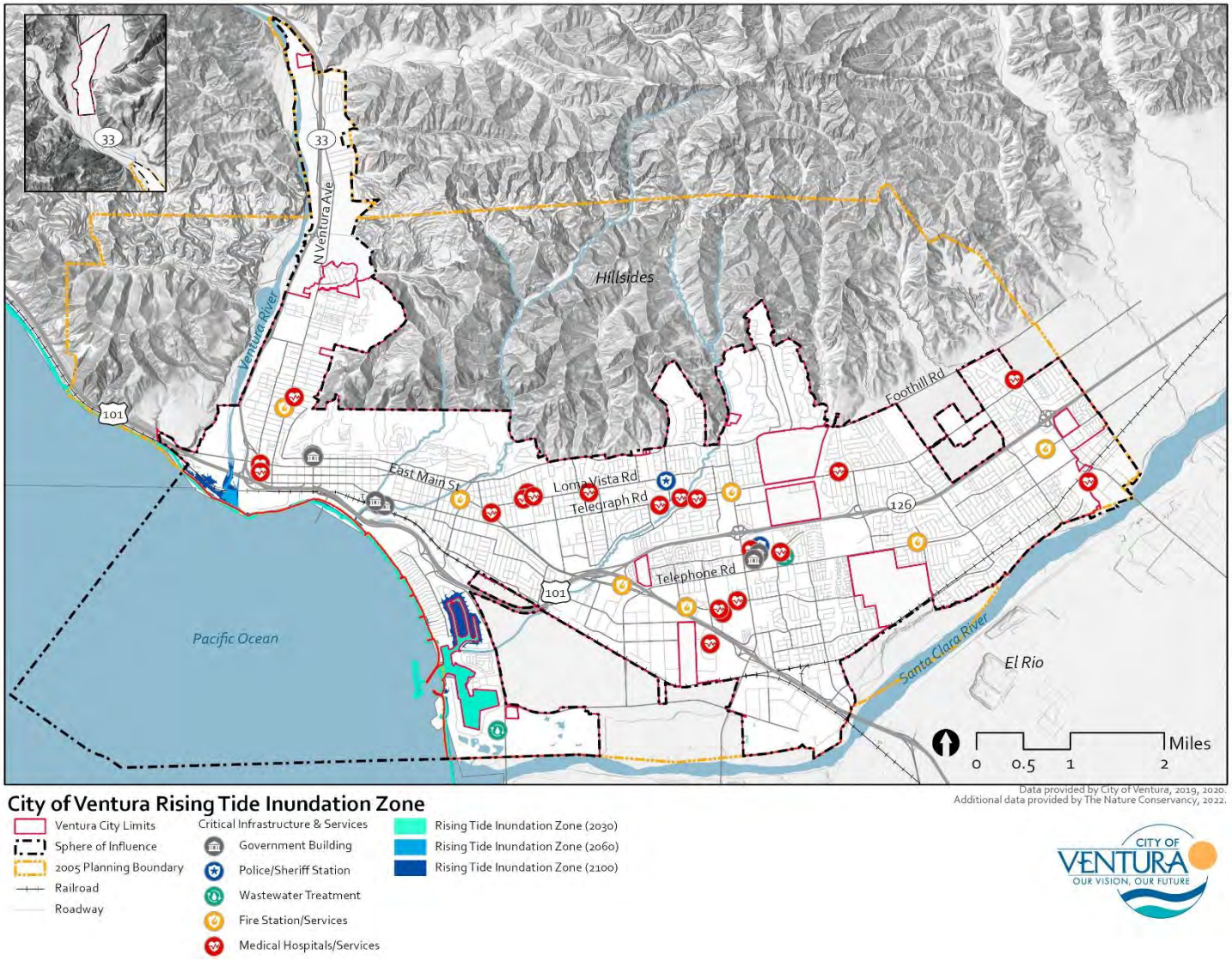


Figure 9 Rising Tide Inundation in the City of Ventura



3 Sensitivity

Populations and assets are affected by climate change depending on their sensitivity to climate hazards. This section identifies sensitive populations and assets within the City of Ventura. Potential impacts from the climate hazards of concern on sensitive populations and assets are presented in the Vulnerability Analysis section. Assets are grouped in the following manner:


Vulnerable Populations


Natural and Managed Resources


Buildings and Facilities


Infrastructure and Critical Services

3.1 Vulnerable Populations


While all people in a community will experience climate change, some may be more affected than others. For example, older adults and young children may be more at-risk to heat illness during an extreme heat event. Several factors influence sensitivity to climate hazards including an individual's health, age, and ability, societal disadvantages, inequities in access to health care, economic opportunity, education and other resources, and inequities found in basic needs and exposure to environmental stressors (Cal OES 2020). Vulnerable populations experience heightened risk to climate change and have fewer resources to adapt and recover from climate change impacts. Following guidance from the Southern California Adaptation Planning Guide, vulnerable population groups were identified for the City (SCAG 2020). Indicators of vulnerable populations were also identified as part of the Social Vulnerability Assessment for the City of Ventura Climate Action and Resilience Plan using data gathered from U.S Census Bureau's 2-15-2019 American Community Survey (ACS). The City of Ventura has several vulnerable populations that will disproportionately experience the impacts of climate change, listed in Table 3 below.

Vulnerable populations were grouped based on potential exposure to climate hazards, access to resources to prepare, cope with, or recover from climate hazards, whether individuals face societal disadvantages, or if individuals have heath conditions or health sensitivities that leave them vulnerable to climate hazards.

Table 3 Vulnerable Populations in the City of Ventura

Population	Population Description	Total Number, Percentage of Population, or Households
Renters*	Percent renter-occupied housing units	45.5%
Population of color*	All individuals that do not identify as white	45%
Seniors*	Percentage 65 years or older	16.6%
Foreign-Born-Non-Citizens	Percent of people born outside of the US that are not US citizens	47.3%
Individuals with no health insurance	Individuals aged 18 to 64 years old currently uninsured	9.7%
Individuals with disabilities*	Individuals with any of the six disability types (hearing, vision, cognitive, ambulatory, self-care, and independent living difficulty)	12.3%
Youth and Children*	Percent age 17 or younger	21.4%
Miliary Veterans	Individuals who have served but are not currently serving in the US Armed Forces	6,656
Linguistically isolated individuals*	Individuals 5 years and older who speak English less than very well	8.8%
Agricultural workers*	Individuals who are employed, 16 and older, and work in agriculture	2.9%
Outdoor construction workers*	Individuals who are employed, 16 and older, and work outdoors in construction	6.4%
Isolated Individuals*	Percent no vehicle households	6.5%
People experiencing homelessness	Individuals who currently lack fixed, regular, and adequate housing	531
Tribal and Indigenous communities	American Indian or Alaska Native	0.427%
Housing cost burdened*	Percent of households with housing cost burden (renter and homeowner)	39.9%
Individuals with education attainment less than 4 years of college*	Percent age 25 or older with less than a Bachelor's degree	64.9%
Mobile Homes*	Percent of mobile homes	5.2%
Pre-1980 Housing*	Percent of pre-1980 housing	70%
Low Income*	Percent of households below 80% of area median income	47.7%
Households without broadband internet*	Households without access to broadband internet	17.7%

Source: The percentages used in this table were acquired from the California Healthy Places Index 3.0 and the U.S. Census American Community Survey (ACS) 2015-2019 5-year estimates acquired from Social Explorer.

Notes:

*These indicators were identified as part of the Social Vulnerability Assessment for the City of Ventura Climate Action and Resilience Plan.

Often individuals have characteristics that make them vulnerable in a variety of ways; however, for the purpose of this report, they were grouped based on the sensitivity that increases their risk the most. Vulnerable populations are grouped below:

- **Individuals with High Outdoor Exposure.** Agricultural workers, outdoor construction workers, and people experiencing homelessness.
- **Under-Resourced Individuals.** Individuals with no health insurance, low income, renters, isolated individuals, housing cost burdened, pre-1980 housing occupants, mobile home occupants, individuals with education attainment less than 4 years of college, and individuals without broadband internet**.**
- **Individuals Facing Systemic Discrimination.** Populations of color, linguistically isolated, Tribal and Indigenous communities, and foreign-born-non-citizens.
- **Individuals with Chronic Health Conditions or Health Related Sensitivities.** Seniors, Youth, Individuals with disabilities, and Military Veterans.

3.2 Natural and Managed Resources

Natural and managed resources within the City of Ventura are detailed in the City's General Plan. Natural resources include coastal resources and beaches, hillsides, rivers (Ventura River, Santa Clara River) and barrancas, riparian and freshwater marshes, and the related biodiversity. Recreational resources include neighborhood, community, citywide, linear parks, and agricultural lands. The City oversees nearly 600 acres of developed park facilities (City 2005). Agriculture has been a dominant industry in Ventura for decades and can be found in various parts of the City including Midtown, the North Bank, and at Taylor's Ranch (City 2005). These various resources provide habitat, sources of community resilience, recreation, and economic productivity to the City. These resources are spread throughout the City and face various levels of exposure to climate hazards.

3.3 Buildings and Facilities

Climate change is expected to amplify extreme weather and climate hazards in the City of Ventura. A jurisdiction's vulnerability increases when buildings and facilities are not designed, operated, and/or maintained to function effectively under extreme weather conditions or can be damaged by extreme weather conditions. The following buildings and facilities would be particularly sensitive to climate change including residential buildings and developments, and educational facilities.

3.4 Critical Infrastructure and Services

Within the City of Ventura there is a wide array of critical infrastructure and services that are vulnerable to the impacts of climate change. Assets within this category include water supply, wastewater treatment, solid and hazardous material waste and recycling, government buildings, fire services, police services, medical services, utilities and major utility corridors, communication facilities, energy services, public transportation, roadways, and active transportation routes. This asset group is sensitive to climate change as the impacts of hazards can affect the service line ability to provide resources and the infrastructure in place may not be adequately prepared to sustain increasing and compounding hazards.

4 Adaptive Capacity

Adaptive capacity is the ability to adjust to the consequences of climate change. This section summarizes the ways in which the City currently manages for the negative impacts of climate change. Types of adaptive capacity include adjustments in behavior, resources, and technologies. The City of Ventura has actively taken steps to increase the City's adaptive capacity. Existing policies, plans, programs, and institutions that increase the City's resilience to climate change impacts are organized by climate hazard and listed in Table 4.

4.1 Programs, Plans, and Policies to Manage Impacts of Climate Hazards

Table 4 lists programs, plans, and policies that help communities become more resilient to an increase in climate hazards.

Table 4 Program, Plans, and Policies to Manage Impacts of Climate Hazards

Existing and Planned Programs, Plans, and Policies	Objectives	Climate Hazard Mitigated
Ventura County Contingency Plan for Heat/Cold Weather Events (County 2020)	This document outlines responses to an extended heat wave or cold weather that could endanger the lives of citizens of Ventura County, especially those who are medically fragile, those living alone, and disabled individuals. Some considerations discussed include community centers as refuges from weather, creation of Voluntary Relief Centers, and proposed establishment of Cooling Centers.	Severe weather
Heatwave Safety (City of Ventura n.d.)	The City of Ventura webpage under emergency preparedness provides information about extreme heat and how to prepare for a heat emergency. The page Includes resources for shelter from extreme heat and signs of heat-related illnesses.	Severe weather
Surfers Point Managed Retreat Project (Surfrider Foundation 2022)	This project focuses on moving infrastructure away from the beach to preserve the beach and surf break. Instead of building coastal armor such as a seawall, this project will move the parking lot, pedestrian path, and bike path away from the tideline. The project also includes planting and maintaining native vegetation within sand dunes and bioswales.	Sea level rise, stormwater runoff

Existing and Planned Programs, Plans, and Policies	Objectives	Climate Hazard Mitigated
2020 Draft Urban Water Management Plan for the City of San Buenaventura (City of Ventura 2020)	The 2020 Urban Water Management Plan for the City of San Buenaventura includes descriptions of the community's water supply sources, projected water demands, and supply reliability during normal water years, single dry years, and five-dry years. The plan includes a discussion of the potential impacts of climate change on the system as well as reliability planning and a water shortage event contingency plan. The Urban Water Management Plan does not include strategies for mitigation and adaptation.	Drought, flooding
Coastal Resilience Ventura Project (TNC n.d.)	This program uses a web-based mapping tool to help identify Ventura County's vulnerability from coastal hazards. Vulnerable populations are identified under various climatic scenarios. Critical infrastructure in coastal zones is identified under various sea level rise and storm surge scenarios as well.	Sea level rise, severe storm
Ventura Land Trust Community Wildfire Protection Plan (Ventura Land Trust 2022)	The Ventura Land Trust's Community Wildfire Protection Plan (CWPP) identifies wildfire risks and clarifies priorities for funding and programs to reduce impacts of wildfire on communities at risk. Some actions include vegetation management, wildfire safety education programs, and establishment and maintenance of evacuation routes.	Wildfire, air quality
Ventura Regional Fire Safe Council Home Hardening Resiliency Program (VRFSC 2020)	The Ventura Regional Fire Safe Council has implemented Wildfire Safety Liaisons to lead in facilitating educational workshops as well as free home hardening assessments in locations designated as high-risk for wildfire.	Wildfire
The 2005 City of Ventura General Plan (City 2005)	The 2005 City of Ventura General Plan includes actions that assess wildfires, flood hazards, air quality, water supply, and emergency response practices. General Plan policies include actions to optimize firefighting and minimize exposure to air pollution associated with point sources, project design review, land use compatibility, and compliance with the Ventura County Air Pollution Control District requirements. The General Plan also describes the water supply and system including the Casitas Municipal Water District, Ventura River surface water intake, subsurface water and wells (Foster Park), Mound groundwater basin, Oxnard Plain groundwater basin (Fox Canyon Aquifer), and Santa Paula groundwater basin. The General Plan includes policies for resource conservation, policies to minimize flood hazards and mitigation for new development within flood hazard zones.	Wildfire, flooding, air quality, drought
Ventura County Multi-Jurisdiction Hazard Mitigation Plan (Ventura County 2022)	The Ventura County Multi-Jurisdiction Hazard Mitigation Plan describes hazard mitigation policies for landslides, flooding, wildfires, sea level rise, and drought. The policies within the plan are regarding FEMA 100-year tide	Landslides, flooding, wildfires, sea level rise, drought, severe weather, severe storm

Existing and Planned Programs, Plans, and Policies	Objectives	Climate Hazard Mitigated
	and sea level rise, compliance with NFIP, flood plain management, and long-term resilience to sea level rise and extreme storms for communities and critical assets adjacent to San Buenaventura Beach, Santa Clara River, Ventura River, and nearby areas of the shoreline. The plan also describes the County's StormReady program, Ventura Water Pure Program, Hall Canyon Channel Drainage Basin Improvement Project, and wildfire awareness program.	
City of Ventura Emergency Response Team (CERT) Program (City of Ventura 2020)	The CERT program trains volunteers in basic first aid, light search and rescue, and small fire suppression, and is closely associated with Ventura's Fire Department. CERT volunteers may assist neighbors and other emergency personnel in times of emergency, and support evacuations along with other responsibilities.	Severe weather, severe storm, landslide, flooding, wildfire
City of Ventura Emergency Operations Plan (City of Ventura 2021)	Ventura's Emergency Operations Plan details protocols to improve emergency preparedness, response, and recovery from natural disasters. The plan provides a system for the effective management of emergency situations and identifies lines of authority and responsibility. The plan reviews the hazards most likely to impact the City, especially those exacerbated by climate change including drought, extreme heat, wildfire, flooding, and severe winter storms.	Drought, extreme weather, wildfire, flooding, severe storm
City of Ventura Tree Master Plan (City 2018)	The City Tree Master Plan is a guide to effective administration and management of a comprehensive Urban Forest program in the City. Tree canopy is low in the City and this Plan discusses the climate adaptation benefits of tree canopy.	Drought, extreme heat, air quality

5 Vulnerability Analysis

This section describes the impacts each climate hazard has on community assets and services described in the Sensitivity section. Existing plans, policies, and programs that contribute to the adaptive capacity is summarized throughout. An impact score and an adaptive capacity score is identified for each asset by climate hazard, along with an overall vulnerability score consistent with the scoring methodology described in Vulnerability Assessment Methodology.


Vulnerable Populations


Natural and Managed Resources


Buildings and Facilities


Critical Infrastructure and Services

5.1 Vulnerable Populations


Individuals with High Outdoor Exposure including agricultural workers, outdoor construction workers, mobile home occupants, and people experiencing homelessness face disproportionate direct exposure to climate hazards, causing them to be extremely vulnerable to the effects of climate change.

Under-resourced individuals often do not have access or the ability to afford resources needed to prepare for, cope with, and recover from climate change impacts. Individuals who are unemployed or are low-income often face financial barriers when preparing for and recovering from climate change hazards. Individuals in these groups often live in homes that are less protected against climate hazards. Low-income individuals may not be able to take time off work to address health concerns either caused by or exacerbated by climate hazards. Individuals with educational attainment of less than 4 years of college usually have lower earning potential than those with a 4-year college degree. As defined by the U.S. Census Bureau, this population group does not include individuals who have attended trade schools, apprentice programs, or who have attained associates degrees. Individuals with 4-year degrees are half as likely to be unemployed than those who only have a high school degree (Association of Public and Land-Grant Universities n.d.). Under-resourced individuals in this group are less likely to have access to transportation, healthcare, and other basic needs. These individuals often lack the financial resources to evacuate from a climate hazard and/or find an affordable place to evacuate to.

Individuals Facing Systemic Discrimination are subject to disproportionate impacts of climate change. People of color are more likely to live in high hazard risk areas and less likely to be homeowners, which leaves them vulnerable to climate hazards. If evacuation and/or advisory notices, hazard preparedness material, or governmental guidance is not provided in languages other than English, linguistically isolated individuals, and foreign-born non-citizens may not be able to prepare for, cope with, or recover from a climate hazard (Gamble et al. 2016). The close relationship some

tribal communities have with their surrounding ecosystems and natural resources leaves these populations particularly at risk to climate change impacts because the natural systems their livelihoods are dependent on are rapidly changing (Baird 2008).

Individuals with chronic health conditions or health related sensitivities are socially and physiologically vulnerable to climate change impacts and hazards. Seniors and individuals with disabilities may have limited or reduced mobility, mental function, or communication abilities, making it difficult to evacuate during or prepare for a climate hazard event (CDPH 2020). They may also have medical needs for electricity which may be impacted during a public safety power shutoff or climate hazard event. Individuals in these groups are more likely to have pre-existing medical conditions and/or chronic illnesses that may exacerbate the risk of illnesses and medical problems from climate hazards. Children are socially and physiologically vulnerable to climate hazards with limited understandings of climate hazards and insufficient resources to independently prepare for and safely respond during a climate hazard event. Children, especially young ones, are reliant on their parental figures to ensure their health, safety, and wellbeing (CDPH 2020). Children also have vulnerable physical characteristics because they have not fully physiologically developed and are therefore more vulnerable to health effects of climate change impacts (Kenny et al. 2014). Military veterans are more likely to be low-income and experience homelessness after their service, which also makes them vulnerable to preparing for and responding to climate hazards (Olenick et al. 2015).

Potential Impacts

Extreme Heat and Warm Nights

Outdoor workers and people experiencing homelessness are at risk to health impacts from extreme heat. Outdoor workers, including construction workers and agricultural workers, are often subject to strenuous work conditions and are vulnerable during extreme heat events. People experiencing homelessness are exposed to health-related impacts associated extreme heat because they have limited access to shelter and air conditioning. The primary health impacts to these populations are heat-related illnesses, such as heat stress, heat stroke, and dehydration, which can be life-threatening (CDPH 2020).

Under-resourced individuals may not be able to pay for adequate air conditioning or fans, increasing their exposure to extreme heat. Isolated individuals don't have access to a vehicle to travel to cooling centers or move to temporary shelters during extreme heat event (Cooley et al. 2012). Under-resourced individuals are less likely to receive medical care for illnesses triggered or exacerbated by extreme heat. Households without a computer or broadband internet may not receive heat advisory warnings or governmental guidance, causing them to experience health impacts from extreme heat exposure (CDPH 2017). Additionally, individuals with no health insurance may not be able to receive care in the case of extreme heat related illness.

People experiencing systemic discrimination, including populations of color, linguistically isolated, foreign-born-non-citizens, and Tribal and Indigenous communities are at risk to impacts of extreme heat. Communities of color and Indigenous communities often live in housing with insufficient protection from extreme heat events and limited or no affordable air conditioning (Gamble et al. 2016). Linguistically isolated individuals may not to be able to read heat

advisory warnings or governmental guidance, potentially causing them to experience greater exposure to extreme heat (Gamble et al. 2016). The primary health impacts to these populations are heat-related illnesses, such as heat stress, heat stroke, and dehydration, which can be life-threatening (CDPH 2020). These populations may not have access to medical services to treat heat-related illnesses.

Individuals with chronic health conditions or health related sensitivities are particularly at risk to heat related illnesses during extreme heat events. Individuals with disabilities, older adults, youth, and children may have difficulty turning on air conditioning or traveling to cooling centers during extreme heat events. Extreme heat conditions can exacerbate asthma, cardiovascular disease, certain disabilities, and other respiratory and cardiovascular conditions, potentially causing heat-related illnesses such as heat stress, heat stroke and dehydrations, which can be-life threatening (CDPH 2020). Children are still physiologically developing which means that they are less able to regulate their bodies during extreme heat events (Kenny et al. 2014).

Drought

Individuals with high outdoor exposure are at risk to drought conditions and associated cascading impacts. During prolonged drought conditions, people experiencing homelessness may have difficulty accessing clean and affordable drinking water (Gamble et al. 2016).

During periods of prolonged drought, under-resourced individuals are more likely to experience the cost burden associated with increased water rates (Feinstein et al. 2017). These individuals may struggle to access clean and affordable drinking water which may cause dehydration and/or exacerbate underlying health conditions and illnesses (Gamble et al. 2016).

Individuals facing systemic barriers may face discrimination and restrictive policies when seeking to access affordable and clean water supplies, which may cause dehydration and/or exacerbate underlying health conditions and illnesses (Gamble et al. 2016). Tribal communities may experience food insecurity if a drought negatively impacts local food sources (Lynn et al. 2011).

Individuals with chronic health conditions or health related sensitivities are at risk to drought conditions and associated cascading impacts. Prolonged drought conditions can lead to water scarcity and individuals may need to rely on poor quality water supplies. Individuals with chronic health conditions or health related sensitives may experience negative health impacts if they become dehydrated. Children, youth, and older adults are especially at risk to dehydration as their bodies are not able to regulate as well (Kenny et al. 2014). Dehydration may exacerbate underlying health conditions and illnesses. (CDPH 2017).

Wildfire

Outdoor workers may be exposed to hazardous work conditions during wildfire events and may become injured from smoke inhalation or burns. People experiencing homelessness are particularly at-risk during wildfire events as they often suffer from respiratory conditions, mental illness, and chronic health conditions that may be exacerbated from physical contact with wildfire or smoke inhalation. People experiencing homeless have limited access to shelter and do not have access to transportation to evacuate from burning areas. They may also have their personal belongings destroyed or damaged during a wildfire event (CDPH 2017).

Under-resourced individuals may experience injuries or death from smoke inhalation or burns and are less likely to receive medical treatment (CDPH 2017). These individuals are more likely to live in

wildfire hazard zones and in housing with insufficient protection and thus may have their belongings, homes, and health damaged by wildfire and/or smoke. If this occurs, under-resourced individuals are likely to suffer from the cost burden associated with losses or damage. Households without a computer or internet may not receive communications and evacuations to safely evacuate from hazard areas. Isolated individuals are vulnerable during wildfires because they no do have access to a vehicle to evacuate. Renters have limited control over home hardening and improvements that may protect against fire and smoke. Subsequently, they may experience economic and health impacts and a greater loss of belongings than homeowners (Gamble et al. 2016).

Populations experiencing system discrimination may experience disproportionate impacts during wildfires. Communities of color and Indigenous people are more likely to be in wildfire hazard zones and in housing with insufficient protection against wildfire. Linguistically isolated individuals and foreign-born-non-citizens may not be able to read wildfire or smoke advisory warnings or governmental guidance, potentially causing them to experience greater exposure to smoke and/or wildfire. Individuals in these groups may face systematic and/or cultural barriers to access resources to safely evacuate hazard areas (Gamble et al. 2016). As a result, individuals in these groups may experience injuries or death from smoke inhalation or burns (CDPH 2017).

Individuals with chronic health conditions or health related sensitivities may experience injuries or death from smoke inhalation or burns (CDPH 2017). Seniors, military veterans, and pollution burdened individuals are vulnerable to health impacts from wildfire smoke pollutants because they are more likely to have underlying respiratory and/or cardiovascular conditions and illnesses. Youth and children may experience respiratory health impacts from wildfire smoke because their respiratory systems are not fully developed and are therefore more sensitive to stressors. Individuals with disabilities, youth and children, and seniors may have difficulty evacuating from wildfires, increasing the risk of health impacts and or death from wildfire, smoke inhalation, or fire burns (EPA 2022).

As seen in Figure 10, the communities along the East side of the Ventura River have a social vulnerability index (SVI) between 0.81-1.0 and are at high and very high risk of wildfires. Along Loma Vista Road, communities at varying social vulnerability levels are in VHFHSZ's, including those along the Northern edge of East Main Street, who have an SVI of 0.91-1.0.

Landslides

Vulnerable populations living in areas with high landslide risk may be subjected to disproportionate negative impacts during landslide and debris flow events. Communities of color and Indigenous people are more likely to be situated in wildfire scar zones or landslide prone areas. Linguistically isolated individuals and foreign-born-non-citizens may not be able to read landslide advisory warnings or governmental guidance, potentially causing missed critical evacuation information or limited ability to safely evacuate hazard areas (Gamble et al. 2016).

Riverine and Stormwater Flooding

Outdoor workers may be exposed to hazardous work conditions during riverine and/or stormwater flooding events and therefore are vulnerable to health impacts (CDPH 2020). People experiencing homelessness are disproportionately at risk to health impacts during flood events because they often live in flood hazard areas and do not have access to transportation to evacuate inundated areas. They may also have their personal belongings destroyed or damaged during a flood event (Ramin & Svoboda 2009).

Under-resourced individuals may experience injuries or death because of high velocity flooding and are less likely to receive medical treatment (CDPH 2017). Individuals in these groups may experience cost burdens if their belongings and homes are damaged from floodwater inundation. Isolated individuals have limited or no access to a vehicle to evacuate flood hazard areas. Households without a computer or internet may not receive communications and emergency alerts to safely evacuate from hazard areas (CDPH 2020). Renters have limited control over home improvements that may protect against flood damage. Subsequently, they may experience economic and health impacts and a greater loss of belongings than homeowners (Gamble et al. 2016).

Populations that experience system discrimination are at greater risk to impacts of extreme heat. Communities of color and Indigenous groups are more likely to live in flood hazard areas and in housing with insufficient protection against riverine and stormwater flooding. Linguistically isolated individuals and foreign-born-non-citizens may not be able have access to flood warning or governmental guidance in their language, potentially causing them to experience greater exposure to flooding. Individuals in these groups may face systematic and/or cultural barriers when seeking to access resources needed to safely evacuate hazard areas (Gamble et al. 2016).

Seniors, youth, and children are particularly at risk to injury and/or death from high velocity flooding (CDPH 2017). Riverine and stormwater flooding may also limit access to transportation systems, healthcare centers, and emergency response to those that are injured or in need or consistent medical care, such as those with chronic health conditions or illnesses. Youth, children, seniors, individuals with disabilities, and individuals with chronic health conditions or illnesses may not be able to safely evacuate floodwater hazard areas.

Many communities along the Western portion of the Santa Clara River are located in the FEMA 100- and 500-year flood plains, including communities with an SVI of 0.81-0.9, visible in Figure 11.

Air Quality

Individuals with high outdoor exposure, such as outdoor workers and people experiencing homelessness, are disproportionally vulnerable to poor air quality because they are outdoors and are therefore directly exposed to air pollutants (CDPH 2017).

Under-resourced individuals may be disproportionally impacted by poor air quality if their housing lacks sufficient air filtration, and they may not be able to afford supplemental air filtration equipment (Gamble et al. 2016). Individuals in these groups may experience the development or exacerbation of respiratory illnesses and are less likely to receive medical treatment (California Department of Public Health 2017).

Individuals experiencing system discrimination are at higher risk of negative health outcomes associated with air quality. Tribal communities and populations of color are vulnerable to health impacts associated with poor air quality because their housing may lack sufficient air filtration and they may not be able to afford supplemental air filtration equipment (Gamble et al. 2016). Linguistically isolated individuals and foreign-born-non-citizens may not have access to air quality advisory warnings or governmental guidance that are in their primary language, potentially causing them to experience greater exposure to extreme heat (CDPH 2017).

Individuals with chronic health conditions or health related sensitivities are at risk of developing or experiencing exacerbated health impacts from poor air quality. Youth and children are extremely vulnerable to health impacts from poor air quality because their respiratory system has not fully developed yet (CDPH

2017). Seniors, military veterans, and individuals with disabilities are vulnerable to health impacts from poor air quality because they are more likely to have underlying health conditions (EPA 2022).

Sea Level Rise

People who live in inundation zones may need to retrofit homes to adapt to sea level rise and associated impacts, such as mold. This activity is particularly difficult for those with limited access to resources including individuals who are unemployed, and low-income individuals. Linguistically isolated individuals may not have access to non-English versions of sea-level-rise preparedness guidance and therefore may not be able to prepare for and cope with sea-level-rise. (Cooley 2012).

The Ventura County Resilient Coastal Adaptation Project (VC Resilient Report) identifies seniors, youth and children, and low-income populations as most affected by flood hazards (County 2018). Seniors may have decreased mobility, and may not have access to emergency warning systems, and in the case of a loss of property or belongings, may lack financial resources to recover. Renters are vulnerable in the mitigation and recovery stages of hazards because they lack the authority over their residence to aptly prepare for flooding. Additionally, they are less likely to have insurance to cover their belongings in the case of a flood event (County 2018).

The figures below show the projections of SLR and related hazards in relation to the City of Ventura's citizens social vulnerability indices. Areas with an SVI of 0.81-1.0 are located along the coast in potential sea level rise and rising tide inundation areas such as along the intersection of highway 1 and highway 33, as well in the areas surrounding the Ventura Harbor, as seen in Figure 12 and Figure 16. Storm flooding has the potential to impact coastal communities, extending beyond Shoreline Drive, and reaching up to West Main Street on the Northern end of the City and up to Outrigger Avenue on the Southern end. The impacted communities have a breadth of SVIs ranging from 0.21-1.0, as seen in Figure 13.

In Figure 14, coastal erosion projections show impacts to all coastal communities in the City, with impacted groups having SVIs ranging from 0.21-1.0. Storm wave impacts will expand beyond highway 101 in many places along the City's coastline, causing impacts to communities beyond those directly on the coast. These communities have SVIs ranging between 0.21-1.0, as shown in Figure 15.

Adaptive Capacity

The City of Ventura has plans, policies and programs in place that protect vulnerable populations from all climate hazards. The level of enforceability, implementation, and efficacy varies based on the hazard type.

Ventura only has 4 percent of land with tree canopy, which is lower than 75 percent of other California cities and towns. Tree canopy is beneficial in many ways but particularly can be essential in mitigating the effects of extreme heat events (HPI 2022). The Ventura County Contingency Plan for Heat/Cold Weather Events plan outlines responses to extended heat waves that could endanger the lives of vulnerable populations in Ventura, including seniors and individuals with disabilities. The Heatwave Safety webpage provides emergency preparedness information for the community to prepare for heat emergencies.

Plans concerning stormwater flooding and drought mainly address infrastructure resilience and water reliability. The Ventura County Sea Level Rise Assessment includes an appendix which discusses stormwater flooding impacts on vulnerable populations. Plans like the Urban Water Management Plan, the General Plan, and the City

of Ventura Emergency Response Plan serve as a baseline of water assurance planning for the general populations in response to drought events, but do not explicitly address vulnerable populations. The City of Ventura has just over 50 percent impervious surface cover and is in the 82.5th percentile in California, implying that there is more impervious cover than most other cities and towns in the states. These materials cover the ground and prevent water from soaking into soil which can exacerbate flooding and reduce groundwater reserves (HPI 2022).

Though air quality is mentioned in the City's General Plan as well as the Wildfire Plan as a health hazard, no specific programs or actions are discussed to mitigate related harm to vulnerable populations.

The Ventura County Muti-Jurisdiction Hazard Mitigation Plan assigns a modest capacity to the City residents' ability to adapt to climate impacts. The plan acknowledges that vulnerable populations within the City may not be able to relocate or protect their home in the case of a flood but provides no guidance on how to address vulnerable populations in the case of SLR or flooding events (County 2022). The Ven-6 action outlined in the plan aims to improve long-term resilience to all population groups in SLR and extreme storms in the areas adjacent to the beach and the rivers (County 2022).

Vulnerability Score for Vulnerable Populations

Climate Hazard	Impact Score	Adaptive Capacity Score	Vulnerability Score
Extreme Heat	High	Medium	**4-High**
Drought	Medium	Medium	**3-Medium**
Wildfire	High	Medium	**4-High**
Landslides	Medium	Low	**4-High**
Riverine and Stormwater Flooding	Medium	Medium	**3-Medium**
Air Quality	High	Low	**5-High**
Sea Level Rise	High	Low	**5-High**

Vulnerable populations in the City of Ventura are most vulnerable to extreme heat/warm nights, drought, wildfire, landslides, air quality, and sea level rise.

Figure 10 Wildfire Hazard Severity Zones and Social Vulnerability in the City of Ventura

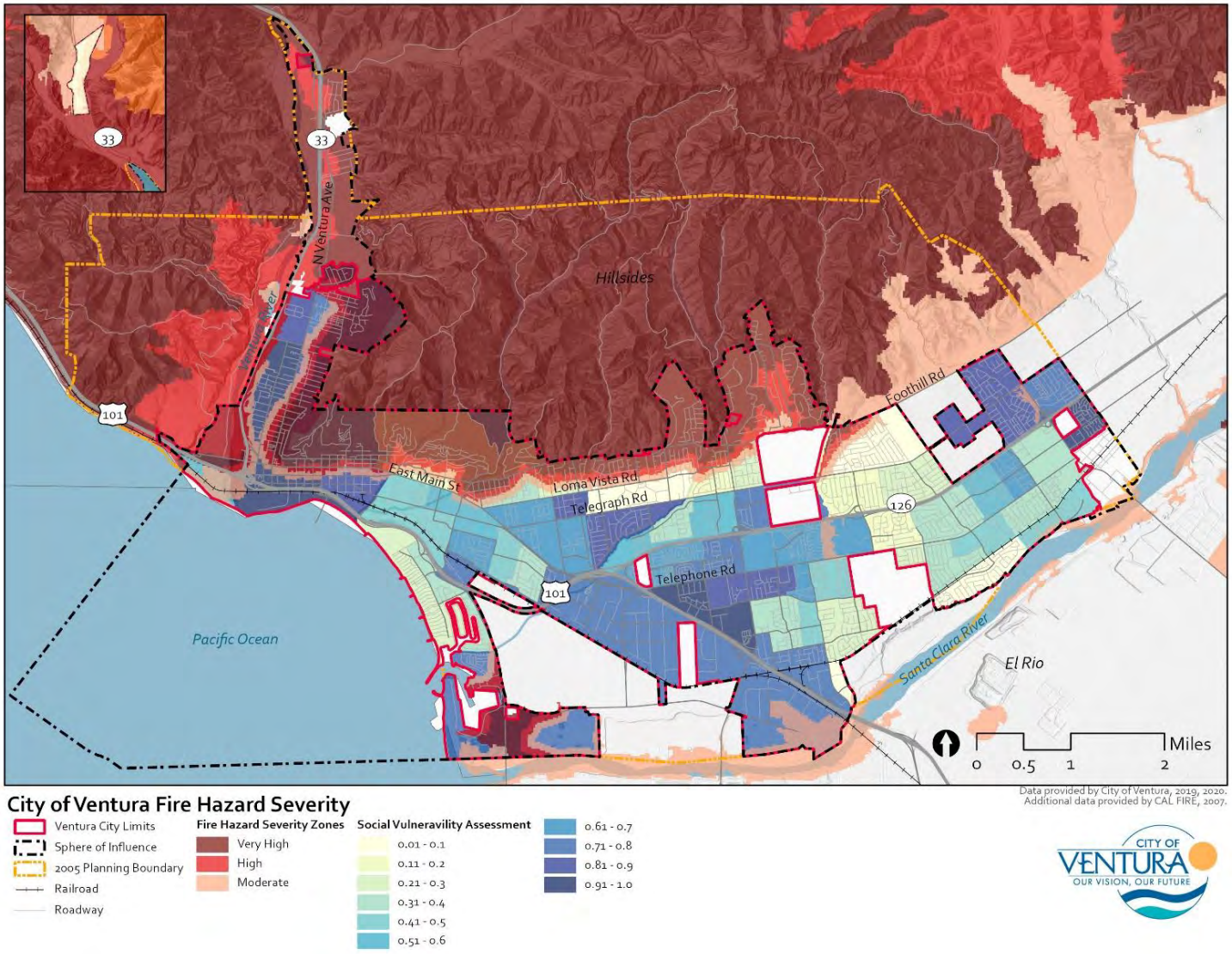


Figure 11 FEMA Flood Hazard Zones and Social Vulnerability in the City of Ventura

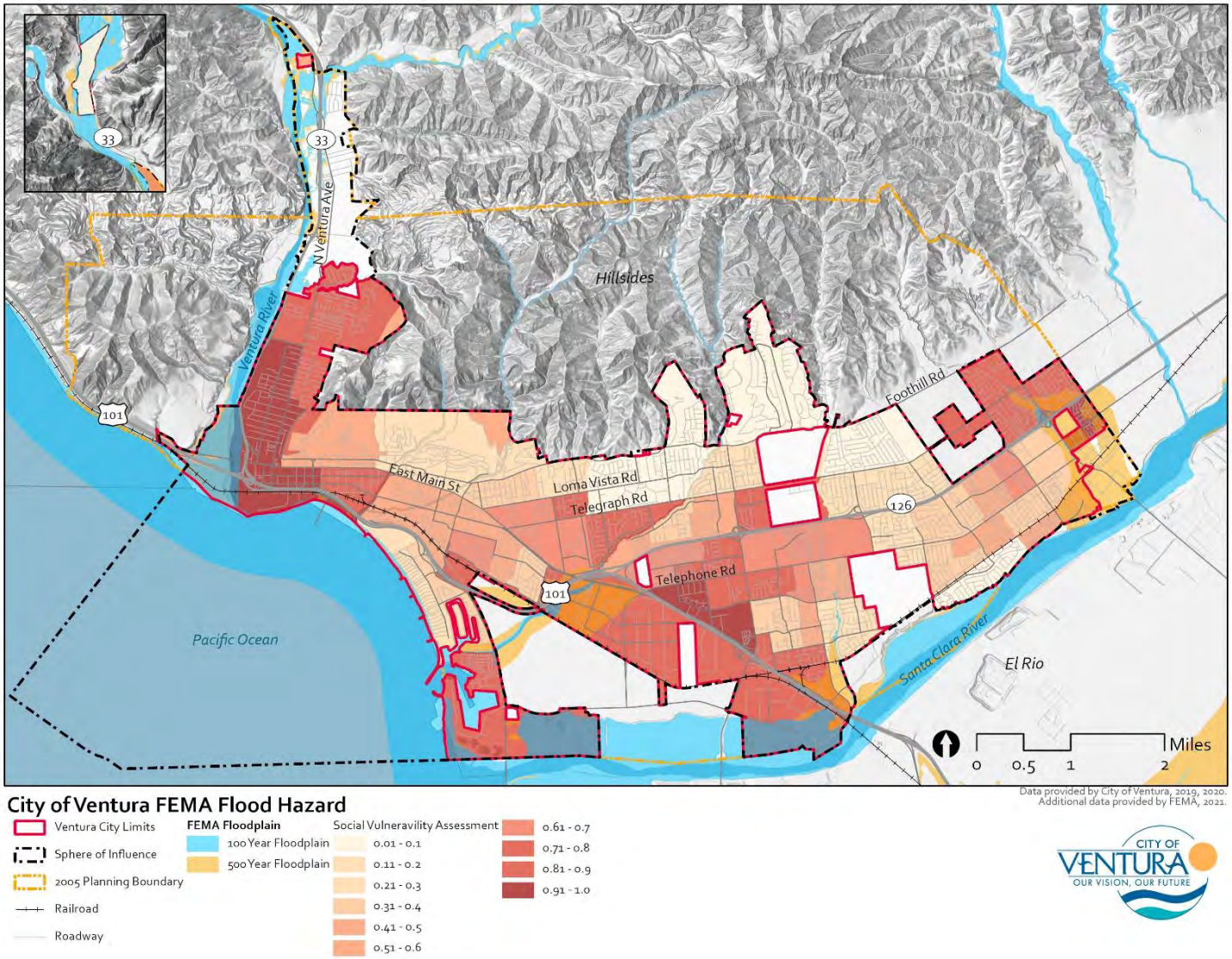


Figure 12 Sea Level Rise and Social Vulnerability in the City of Ventura

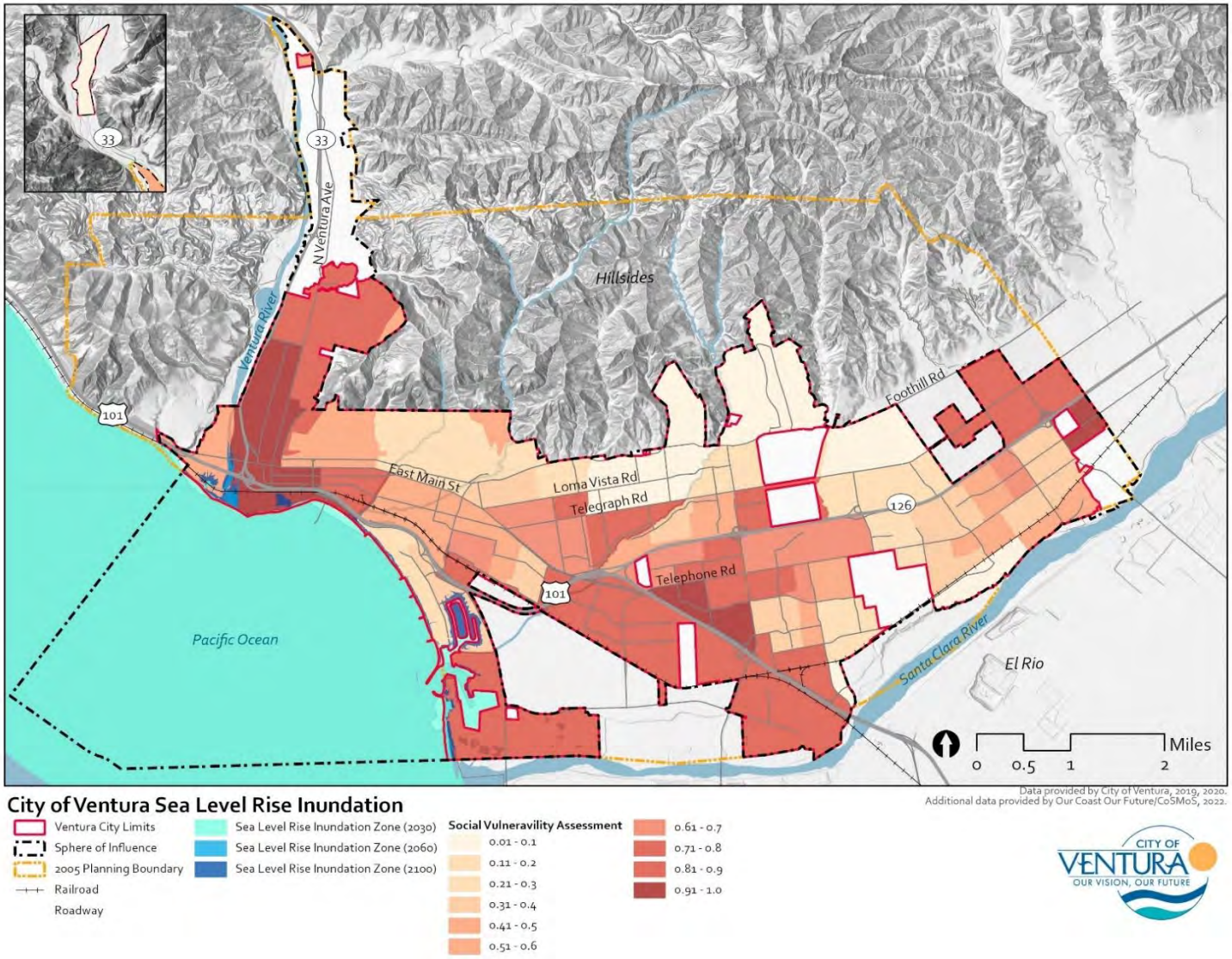


Figure 13 Coastal Storm Flooding and Social Vulnerability in the City of Ventura

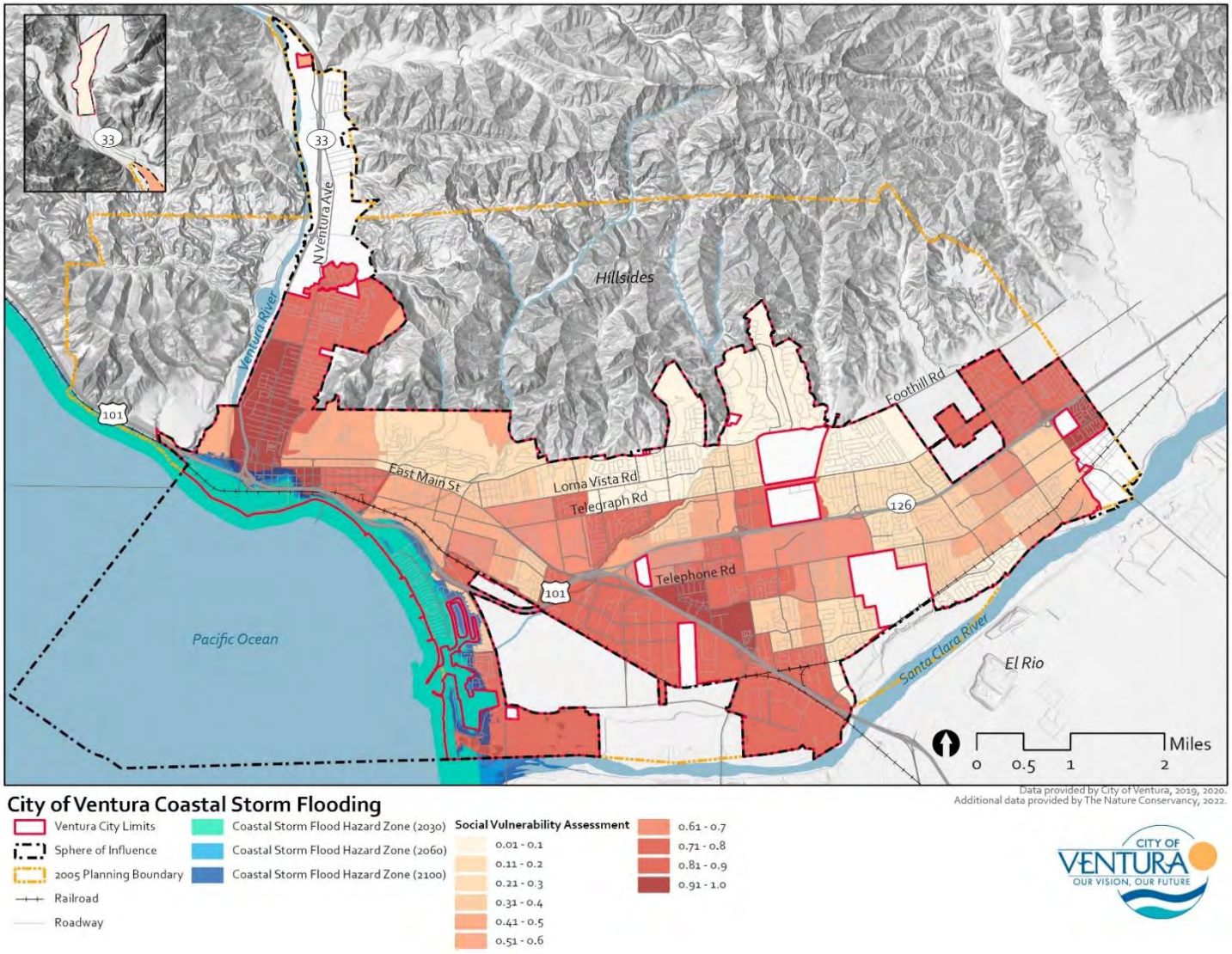


Figure 14 Coastal Erosion and Social Vulnerability in the City of Ventura

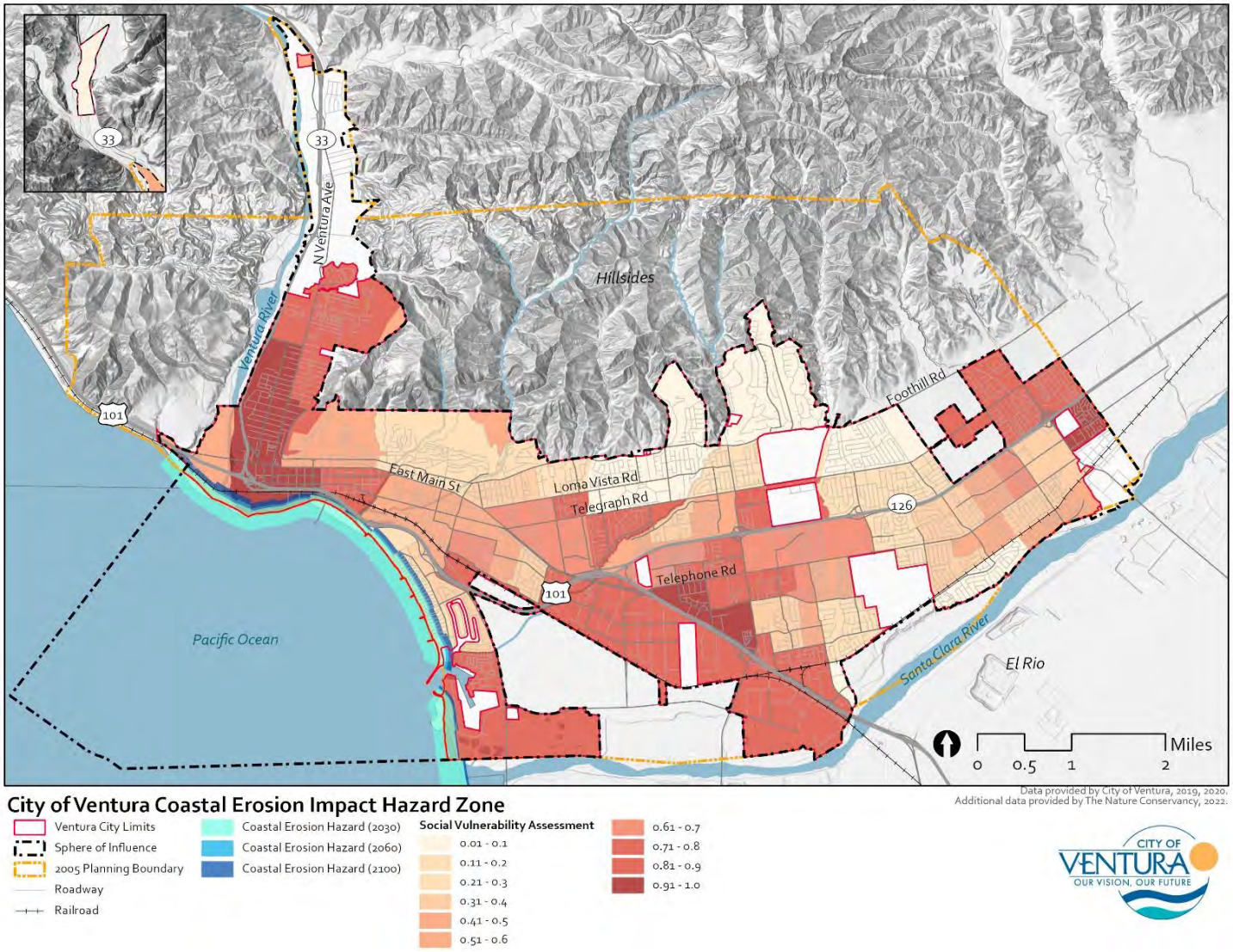


Figure 15 Coastal Storm Wave Impact and Social Vulnerability in the City of Ventura

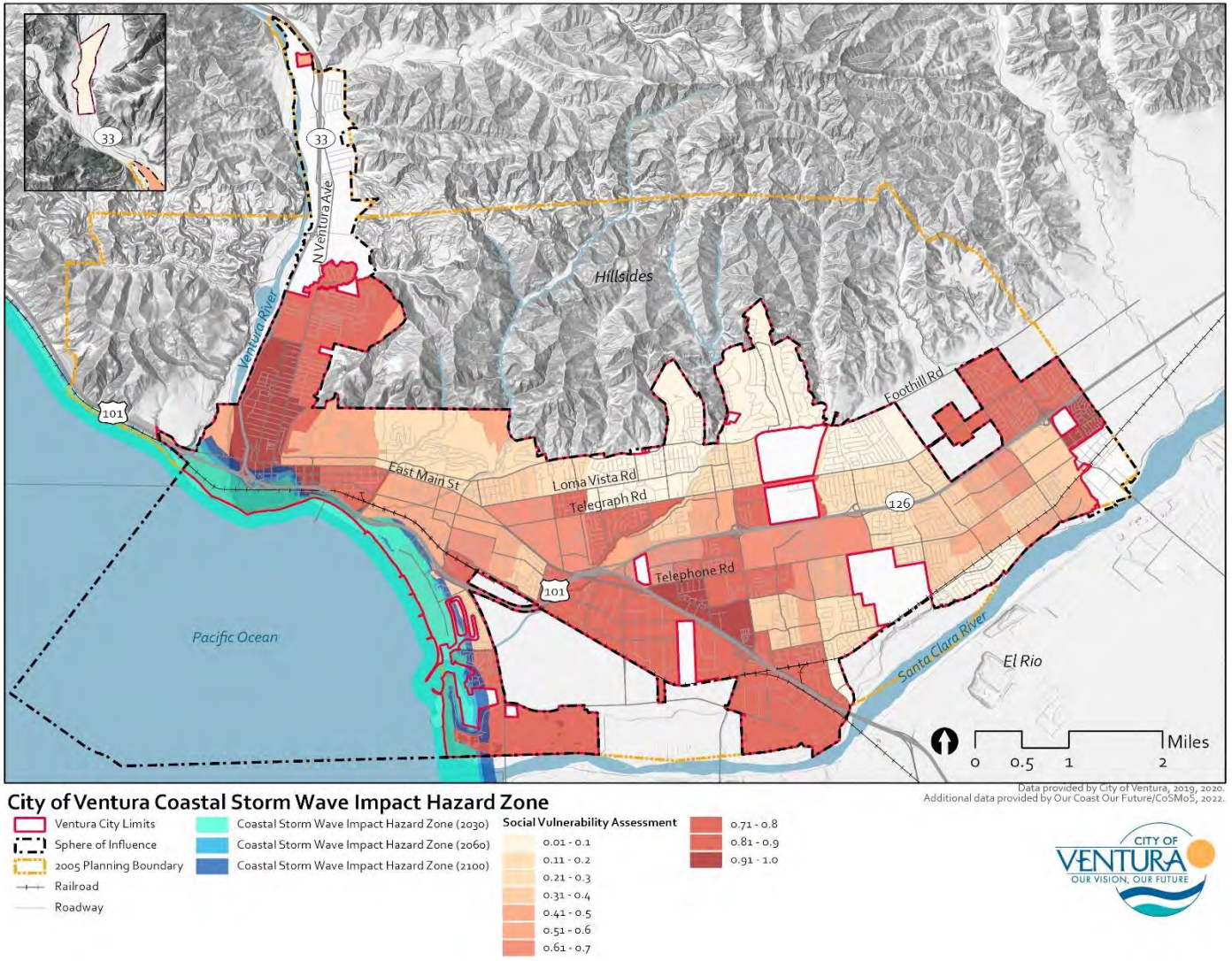
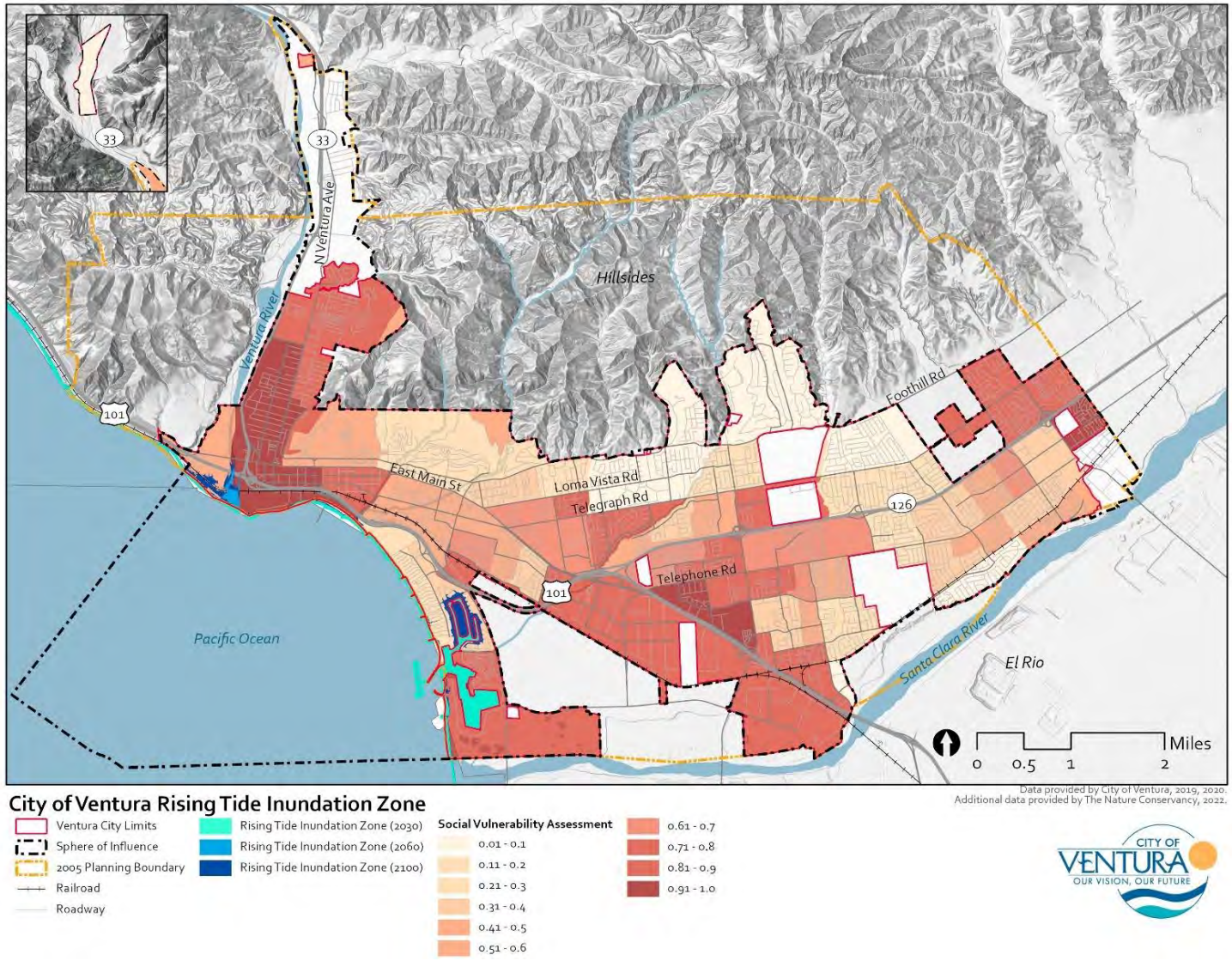


Figure 16 Rising Tide Inundation and Social Vulnerability in the City of Ventura



5.2 Natural and Managed Resources

Primary vulnerabilities for natural resources are associated with climate hazard-caused stress and physical damage to resource types within this asset group. Compounding climate hazards stress natural ecosystems past their ability to absorb individual climate hazards. Wildlife will seek out more conducive habitats during climate hazards such as extreme heat or drought which tend to be where people recreate (USDA 2018). Impacts related to habitat shifts are exacerbated in comparison with rural communities, as densely populated and isolated open space areas have limited opportunities for natural re-seeding or re-habitation from adjacent areas. Both natural resources (beaches, hillsides, rivers and barrancas, riparian and freshwater marshes, biodiversity) and managed resources (parks and agricultural lands) in the City of Ventura, are highly affected by and vulnerable to the effects of climate change.

Potential Impacts

Extreme Heat

The impacts to natural and managed resources in the City of Ventura during extreme heat and warm nights are similar to the impacts experienced by vulnerable populations. Wildlife under these conditions face heat stress and heat related illness as well as disrupted reproductive cycles, and compounding risks associated with early and extended seasonal temperature increases (Backlund 2008). Because it is seasonally warmer earlier in the year species can emerge early with no food source and potentially face an untimely cold front, which increases mortality rates. Timing of seasonal warmth may not overlap with food sources and extreme heat may stress dependent vegetation communities and wildlife (Dale 1997, Hamerlynck 1995, Maclean 2011). Plants are more likely to experience heat stress and drying, habitat ranges may shift, and native species may be outcompeted by invasive species capable of surviving the harsh conditions. Some pests can proliferate more easily with warmer temperatures (Hamerlynck 1995), and some plants and animals ill-suited to the new warmer conditions may suffer increased mortality rates (CA, 2022). Natural resources are highly exposed to extreme heat and warm nights. Both mid- and end- of century projections depict dramatic increases in extreme heat days (CEC 2021).

Higher temperatures will decrease the snowpack in California and raise the snowline, decreasing one of the most important surface water reserves for agriculture in the state (CA 2022). Extreme heat and warm nights can result in declines in crop yields because of heat stress and anomalous warmth during periods that are typically cooler (Parker et al. 2020). Lower crop yields can increase costs and ultimately decrease agriculture profitability. Livestock operations are potentially less viable during extreme heat events as livestock may suffer from heat related illness.

Drought

Impacts from drought involve risks associated with water scarcity and availability for reliant natural resources. Drought will disrupt habitats and will decrease the resiliency of wildlife. Extended or variable drought conditions effect the amount and duration of water available in ephemeral and permanent sources, which impacts plants and wildlife dependent on those aquatic resources (Burkett 2000).

Like extreme heat and warm nights, drought is linked to declines in crop yields, increasing costs, and decreasing crop profitability.

Drought can result in regional losses of crops and can stress the statewide water supply. Crops grown in Ventura, such as fruit, nuts, vegetables, cut flowers, and livestock and poultry are dependent on high depths of water and subsequently higher water intensity needs. In Ventura County in 2020, there were 96,523 acres of irrigated cropland (VCAC 2020).

Wildfire

The largest direct impacts to natural resources are caused by wildfires. The severity and frequency of wildfires can lead to long term habitat conversions, or vegetative communities that no longer support reliant species, and the landscape provides minimal alternative habitats (Bell et al. 1999, Stephenson et al. 1999, Coop et al. 2020). As discussed with the Exposure to Climate Hazards section, extreme wildfire risk days in the City of Ventura are projected to increase through the end of the century (CEC 2021). Figure 3 depicts the delineation of VHFHSZ's which both border and fully encompassing areas with natural resources including many recreational areas and city parks.

Given the projected expansion of wildfire prone areas, larger areas of croplands may be within fire hazard severity zones in the future due to climate change. Wildfires can destroy crops and disrupt rangeland operations while wildfire smoke may stress the health of crops and livestock.

Landslides

Landslide susceptibility is limited and the likelihood of landslides occurring is determined by precipitation and wildfire occurring sequentially (CA, 2022). In the event of a landslide there is potential for loss of lands, habitat, and disruption of waterbodies in areas of debris flow. Wildlife and plants face a compounding risk when presented with landslide events. The hillsides north of Poli Street/Foothill Road, and east of Ventura Avenue and Cedar Street contain several landslide prone areas and are likely to sustain future landslide activity (City 2021).

The majority of the City's cropland is in the foothills, where landslide potential is greatest, and are therefore at high risk of related disruption or destruction (VCAC 2020).

Riverine and Stormwater Flooding

The major impacts of flooding on natural and managed resources are the damage and destruction that occurs because of related erosion, as well as the degradation of water quality, which impacts survival rates of aquatic species and fish (Talbot 2018). One way that stormwater flooding reduces water quality is by causing algae blooms which lead to plant and wildlife health issues within wetlands and waterbodies (EPA 2022). Other impacts include damage from inundation in storm flooded areas including natural habitats and public and private land surrounding waterbodies in the City. Riverine and stormwater flooding will mostly affect sensitive species of plants and wildlife that are based in low-lying areas of the City, specifically those adjacent to the rivers and barrancas in the area. The 100-year flood hazard area for the Ventura River is confined to the area west of the levee, near the River mouth. A 100-year flood along the Santa Clara river would cause a limited area of the City just north of the river, including Olivas Park and Buenaventura Golf Courses to be impacted (City 2021).

Agricultural operations neighboring the Santa Clara river are susceptible to the impacts riverine and stormwater flooding. These operations have the potential to be disrupted during flood events, and inundation is likely to result in crop yield reductions. Agricultural worker's residences could also be damaged by floodwater inundation (VCAC 2020).

Air Quality

The direct effects of air quality declines on natural resources relates to plant and wildlife health as increased air pollutants is correlated to increased stress and mortality rates. Impacts from air quality can further impact natural resources since air quality declines correspond with other hazards (such as wildfire and extreme heat events), which compounds risks.

The direct impacts of air quality on crop yield and livestock health within the City of Ventura are of concern as livestock are dependent on clean air for overall health, and smoke damage may render crops unsaleable.

Sea Level Rise

The extent to which coastal inundation affects habitats, wildlife, and plants is significant in the City of Ventura. The Ventura Sea Level Rise Vulnerability Assessment outlines several coastal resources that will be vulnerable to SLR through the end of the century throughout Ventura County. Coastal sand dunes, beaches estuarine ecosystems, and various coastal recreation areas are the most vulnerable to sea level rise and potentially at risk of flooding and coastal erosion. Ventura's beaches draw many visitors annually and brings a significant economic benefit to the City. Under existing projections, the beaches are subject to coastal erosion and flooding, which will render many unusable at high tide (County 2018)

Though most agricultural land in the City in the foothills, some plots near the Santa Clara river are susceptible to the impacts of SLR related hazards (VCAC 2020).

Adaptive Capacity

There are no explicit plans, programs, or policies directly increasing the adaptive capacity of the City of Ventura's natural resources to the climate hazard of extreme heat, drought, or landslides.

The Coastal Resilience Ventura Project provides data with projections of SLR- related hazards which highlights natural and managed resources that will be impacts in the coming decades.

Related to wildfire, there are existing programs and plans outlined in the Ventura Land Trust Community Wildfire Protection Plan. The plan identifies natural and managed resources that are susceptible to wildfire and plans for vegetation management as a mitigation effort. Indirect planning, such as emergency notification and alert systems, exists within the 2020 Urban Water Management Plan, the 2005 City of Ventura General Plan, the 2022 Ventura County Multi-Jurisdictional Hazard Mitigation Plan, and the 2021 City of Ventura Emergency Response Plan to provide awareness of natural and managed resources impacts around climate hazards.

Phase 1 of the Surfers Point Managed Retreat Project has been completed which is an effort to relocate bike trails, parking lots, and other beach access amenities away from the shoreline in SLR and coastal erosion areas.

Vulnerability Score for Natural and Managed Resources

Climate Hazard	Impact Score	Adaptive Capacity Score	Vulnerability Score
Extreme Heat/Warm Nights	High	Low	**4-High**
Drought	High	Low	**4-High**
Wildfire	High	Medium	**4-High**
Landslides	High	Low	**4-High**
Riverine and Stormwater Flooding	High	Medium	**3-Medium**
Air Quality	Medium	Medium	**3-Medium**
Sea Level Rise	High	Medium	**4-High**

Natural and managed resources in the City of Ventura are most vulnerable to extreme heat/warm nights, drought, landslides, wildfire, and sea level rise.

5.3 Buildings and Facilities

Vulnerabilities within this asset category primarily concern physical exposure and damages to residential areas, commercial and industrial buildings, and educational facilities in relation to climate hazards. Impacts associated with operations of critical services are discussed under the Critical Infrastructure and Services section.

Potential Impacts

Extreme Heat and Warm Nights

Extreme heat could impact occupants of buildings and facilities that are not adequately weatherized for increased temperatures.

Drought

Drought will have minimal impact on the physical structures of buildings and facilities across the City of Ventura.

Wildfire

The structures and buildings that occupy wildfire hazard zones are at risk of structural damage from wildfires. There are several residential areas in the City's wildfire hazard zones shown in Figure 3.

Landslides

Landslide susceptibility for the City of Ventura overlaps with sloped wildfire hazard zones (CDOC 2021). Impacts to buildings and facilities as outlined in the multi-jurisdiction hazard mitigation plan encompass many residential neighborhoods as well as some commercial developments.

Riverine and Stormwater Flooding

There is some risk of riverine and stormwater flooding to the physical structures outlined under this asset category. The location of floodplains in Figure 4 show only a slight risk of impact based on current flood conditions, primarily to residences neighboring the Santa Clara and Ventura Rivers.

Air Quality

The impact of reduced air quality will have a similar effect as extreme heat on buildings and facilities. The ability to filter air will greatly affect the subsystems, services, and populations that are reliant on the buildings and facilities, but the direct impact on structures is low.

Sea Level Rise

Physical damages to buildings and facilities brought about by coastal flooding are mainly related to structural damages--residential properties, coastal commercial industry, and some industrial facilities (County 2018).

The Ventura Sea Level Rise Vulnerability Assessment found that losses to residential land made up 95% of all land use vulnerabilities --primarily concentrated in oceanfront neighborhoods comprised primarily of single-family residences (County 2018).

Adaptive Capacity

The City of Ventura has minimal existing adaptive capacity to increase the weatherization of buildings and facilities throughout the City. This means that risks related to climate hazards including wildfire, landslides, riverine and stormwater flooding, and air quality are significant.

The Multi-Jurisdiction Hazard Mitigation Plan provides some actions to retrofit, purchase, or relocate structures located in hazard areas, with priority on those that have experienced repetitive loss or are in high-risk areas (County 2022).

The 2005 Ventura City General Plan acknowledges several concerns in the City's ability to provide swift and successful response in the case of a wildfire that may impact buildings and facilities: lack of fire protection systems in older structures, lengthy response times to far reaching areas in the City, insufficient staffing levels, and a need for a reliable and sustainable source of revenue for fire response (City 2005).

Vulnerability Score for Buildings and Facilities

Climate Hazard	Impact Score	Adaptive Capacity Score	Vulnerability Score
Extreme Heat/Warm Nights	Low	Low	**3-Medium**
Drought	Low	Low	**3-Medium**
Wildfire	High	Medium	**4-High**
Landslides	Medium	Medium	**3-Medium**
Riverine and Stormwater Flooding	Medium	Medium	**3-Medium**
Air Quality	Low	Low	**3-Medium**
Sea Level Rise	High	Medium	**4-High**

Buildings and facilities in the City of Ventura are most vulnerable to wildfires and sea level rise.

5.4 Critical Infrastructure and Services

Overall vulnerabilities associated with this asset category involve structural preparedness and service reliability in the face of climate change. This section is mainly concerned with the cascading impacts physical damages to buildings and facilities can have on services and infrastructure.

Potential Impacts

Extreme Heat and Warm Nights

As temperatures increase, roadways, active transportation routes, and railroads are vulnerable to damages through sustained heat such as buckled railroad ties and cracked surfaces (Hall et al. 2018). Additional impacts from extreme heat are associated with increased emergency service calls which could strain medical services. Electrical infrastructure may become overwhelmed by demand and result in blackouts, or energy providers may conduct power safety shutoffs to avoid impacts to electrical facilities. Power outages have significant impacts on communication networks, water conveyance, and vulnerable populations, and are a cascading impact of extreme heat events, which place additional strain on infrastructure and critical services.

Drought

Drought can impact water reliability and water infrastructure. All emergency services depend on water, particularly firefighters, who rely on adequate water supply for fire suppression. Water providers within the City will encounter increased difficulty as drought decreases general service reliability. Drought impacts can create service strain for emergency and medical services. Cracked pavements from drought compounded with extreme heat affects roadways and transportation routes.

Wildfire

There are some critical facilities, such as the police station, several medical facilities, fire stations, and government buildings, located in the high and moderate fire hazard severity zones as shown in Figure 3 that are at risk of damage and destruction caused by wildfires. Additionally, utility lines have the potential to be damaged in high-risk locations, resulting in oil and gas leaks and power outages. Utility lines under certain high wind conditions can also trigger wildfires through downed power lines (Hall et al. 2018). Power safety shut offs in response to wildfire risk can affect service reliability of power. Increased frequency of wildfires can place strain on fire and emergency services. Evacuation routes could be disrupted during a wildfire event limiting emergency responders and ability for people to evacuate as well. Post-wildfire there are additional issues of displacement and needs for temporary shelters for uprooted communities.

Landslides

The Thomas Fire burned over 500 homes in the City and left burn scars in the hillsides susceptible to landslides (County 2022). Landslides risk is high along most of the northern border of the City as well as along both sides of Highway 33, which leaves critical facilities and services, including the police station, several medical facilities, fire stations, and government buildings vulnerable.

Riverine and Stormwater Flooding

Impervious surfaces can impede the absorption of water and increase stormwater flooding in areas of the City. There is risk of

damage from increased extreme precipitation events including erosion, washouts, and sinkholes. Storm drainage and flood protection services for the City may be impacted by these events. In flood events, water quality decreases, which may lead to cascading impacts such as limited availability for fire suppression.

Air Quality

Higher incidence of unsafe air quality caused by increased smog, dust and wildfire smoke can create general strain on existing critical services and infrastructure through increased rates of hospitalization and emergency and medical services (CDPH 2020).

Sea Level Rise

The SLR-related hazards that the City of Ventura is expected to experience are significant. Critical services and infrastructure including critical transportation, coastal highways, and infrastructure corridors are vulnerable to sea level rise and related hazards. The Pacific Coast Highway is the most vulnerable road on the coast (County 2018). SLR will likely impact the City's wastewater treatment facility, located on the northern bank of the Santa Clara River. Additionally, coastal medical facilities and government buildings may be impacted by rising sea level and related hazards.

Adaptive Capacity

The relevant existing plans, policies, and programs for the City of Ventura are mainly multi-hazard based. All multi-hazard plans, programs and systems are designed to address service and infrastructure failings and contingencies. Existing planning cover wildfires, drought, landslides, flooding, severe weather and storms, and sea level rise. Relevant plans and systems in place are found below:

- Ventura County Multi-Jurisdictional Hazard Mitigation Plan
- City of Ventura Emergency Response Plan
- City of Ventura Emergency Response Team (CERT) Program
- City of Ventura 2005 General Plan Public Safety Element

The Multi-Jurisdiction Hazard Mitigation Plan includes action Ven-21 which highlights City fire facilities and develops plans to retrofit fire facilities in accordance with local regulations and industry standards (County 2022).

Cascading risks of services and power dependencies are addressed in relation to the aforementioned hazards throughout these plans and programs.

Vulnerability Score for Critical Services and Infrastructure

Climate Hazard	Impact Score	Adaptive Capacity Score	Vulnerability Score
Extreme Heat/Warm Nights	High	Low	**5-High**
Drought	High	Medium	**4-High**
Wildfire	High	High	**3-Medium**
Landslides	Medium	Low	**4- High**
Riverine and Stormwater Flooding	High	Low	**5-High**
Air Quality	Medium	Low	**4-High**
Sea Level Rise	High	Medium	**4-High**

Critical services and infrastructure in the City of Ventura are most vulnerable to extreme heat/warm nights, drought, landslides, riverine and stormwater flooding, air quality, and sea level rise.

6 Conclusion

This report evaluates how climate change may impact vulnerable community members, natural resources, critical facilities, buildings, services, and infrastructure in the City of Ventura. The report provides a list of vulnerable population groups and assets for which adaptation policies and programs should be developed and implemented to increase community resilience. Vulnerability is based on the combination of potential impacts and adaptive capacity, as identified in the Vulnerability Analysis section of the report.

A list of asset categories and related vulnerability scores is provided on the next page. Highly vulnerable assets are discussed below:

- All sensitive population groups identified are highly vulnerable to many climate hazards including extreme heat, air quality, wildfires, flooding, landslides, and sea level rise.
- Natural and managed resources are highly vulnerable to extreme heat, drought, wildfire, flooding, landslides, and sea level rise.
- Buildings and facilities in the City are highly vulnerable to wildfire and sea level rise. Buildings and facilities located in inundation zones are at risk of structural damage from sea level rise.
- Critical infrastructure and services are highly vulnerable to extreme heat, flooding, landslides, air quality, and sea level rise. Several facilities are in the wildfire hazard severity zones of the City. These buildings and facilities are at risk of structural damage from wildfire. Infrastructure and dependent populations experience additional cascading impacts around power outages from downed utility lines, power safety shut offs and grid overload. All forms of power outages can affect how critical services are able to perform their needed functions during a hazard.

This report establishes a foundation for identifying adaptation policies and programs that can increase resilience in the City of Ventura. The City of Ventura Safety Element will include policies and programs to increase the resilience of the population groups and asset categories with the highest vulnerability to climate change.

Climate Hazard	Impact Score	Adaptive Capacity Score	Vulnerability Score
Vulnerable Populations			
Extreme Heat	High	Medium	**4-High**
Drought	Medium	Medium	**3-Medium**
Wildfire	High	Medium	**4-High**
Landslides	Medium	Low	**4-High**
Riverine and Stormwater Flooding	Medium	Medium	**3-Medium**
Air Quality	High	Low	**5-High**
Sea Level Rise	High	Low	**5-High**
Natural and Managed Resources			
Extreme Heat/Warm Nights	High	Low	**4-High**
Drought	High	Medium	**4-High**
Wildfire	High	Medium	**4-High**
Landslides	Low	Low	**4-High**
Riverine and Stormwater Flooding	High	Medium	**3-Medium**
Air Quality	Medium	Medium	**3- Medium**
Sea Level Rise	High	Medium	**4-High**
Buildings and Facilities			
Extreme Heat/Warm Nights	Low	Low	**3-Medium**
Drought	Low	Low	**3-Medium**
Wildfire	High	Medium	**4-High**
Landslides	Medium	Medium	**3-Medium**
Riverine and Stormwater Flooding	Medium	Medium	**3-Medium**
Air Quality	Low	Low	**3-Medium**
Sea Level Rise	High	Medium	**4-High**
Critical Services and Infrastructure			
Extreme Heat/Warm Nights	High	Low	**5-High**
Drought	High	Medium	**4-High**
Wildfire	High	High	**3-Medium**
Landslides	Medium	Low	**4- High**
Riverine and Stormwater Flooding	High	Low	**5-High**
Air Quality	Medium	Low	**4-High**
Sea Level Rise	High	Medium	**4-High**

7 References

Association of Public & Land-Grant Universities. N.d. How does a college degree improve graduates' employment and earnings potential? https://www.aplu.org/our-work/5-archived-projects/college-costs-tuition-and-financial-aid/publicuvalues/publicuvalues-resources/q3/employment-and-earnings.pdf

Bell, C., J. DiTomaso, and M. Brooks. Invasive Plants and Wildfires in Southern California. https://ucanr.edu/sites/SAFELandscapes/Fire_in_Southern_California_Ecosystems/

Burkett, V. and J. Kusler. 2000. Climate change: Potential impacts and interactions in wetlands of the United States. Journal of the American Water Resources Association 36(2):313-320

California Department of Conservation (CDOC). 2021. CGS Map Sheet 58: Deep-Seated Landslide Susceptibility. https://www.arcgis.com/home/item.html?id=3cdc744bec6b45c28206e472e8ad0f89#

California Department of Public Health (CDPH). 2014. Average Daily Maximum Ozone Concentration. https://www.cdph.ca.gov/Programs/OHE/CDPH%20Document%20Library/CHVIs/BRACE_Ozone_801_Narrative.pdf

California Department of Public Health (CDPH). 2017. Climate Change and Health Profile Report San Diego County. https://www.cdph.ca.gov/Programs/OHE/CDPH%20Document%20Library/CHPRs/CHPR073SanDiego_County2-23-17.pdf

California Department of Public Health (CDPH). 2020. Climate Change and Health Vulnerability Indicators for California. https://www.cdph.ca.gov/Programs/OHE/Pages/CC-Health-Vulnerability-Indicators.aspx

California Energy Commission (CEC). Cal-Adapt Local Climate Change Snapshot for Ventura. 2021. https://cal-adapt.org/tools/local-climate-change-snapshot/

California Office of Emergency Services (Cal OES). 2018. California State Hazard Mitigation Plan. https://www.caloes.ca.gov/cal-oes-divisions/hazard-mitigation/hazard-mitigation-planning/state-hazard-mitigation-plan

City of San Buenaventura. 2020. Draft Urban Water Management Plan. https://www.cityofventura.ca.gov/DocumentCenter/View/27446/2020-Draft-Urban-Water-Management-Plan-Main-Text

City of Ventura. 2005. City of San Buenaventura 2005 Ventura General Plan. https://www.cityofventura.ca.gov/DocumentCenter/View/1805/2005-Ventura-General-Plan-PDF?bidId=

City of Ventura. n.d.-a. Community Emergency Response Team (CERT) Program. https://www.cityofventura.ca.gov/DocumentCenter/View/299/CERT-Fact-Sheet-PDF?bidId=

City of Ventura. 2021. Emergency Operations Plan. https://www.cityofventura.ca.gov/DocumentCenter/View/26922/City-of-Ventura---Emergency-Operations-Plan---Public-Version-5-18-2021?bidId=

City of Ventura. n.d.-b. Heatwave Safety Information on City Web page. https://www.cityofventura.ca.gov/2116/Heat-Wave-Safety

Collins M., M. Sutherland, L. Bouwer, S.-M. Cheong, T. Frölicher, H. Jacot Des Combes, M. Koll Roxy, I. Losada, K. McInnes, B. Ratter, E. Rivera-Arriaga, R.D. Susanto, D. Swingedouw, and L. Tibig, 2019: Extremes, Abrupt Changes and Managing Risk. In: IPCC Special Report on the Ocean and Cryosphere in a Changing Climate [H.-O. Pörtner, D.C. Roberts, V. Masson-Delmotte, P. Zhai, M. Tignor, E. Poloczanska, K. Mintenbeck, A. Alegría, M. Nicolai, A. Okem, J. Petzold, B. Rama, N.M. Weyer (eds.)]. In press.

Cooley, Heather, Eli Moore, Matthew Heberger, and Lucy Allen. Social Vulnerability to Climate Change in California. 2012. https://pacinst.org/wp-content/uploads/2012/07/social-vulnerability-climate-change-ca.pdf.

Coop, et al. 2020. Wildfire-Driven Forest Conversion in Western North American Landscapes BioScience 70: 659–673. Published by Oxford University Press on behalf of the American Institute of Biological Sciences. doi:10.1093/biosci/biaa061

County of Ventura. 2018. VC Resilient Coastal Adaptation Vulnerability Assessment Report. https://docs.vcrma.org/images/pdf/planning/programs/vcrcap/Vuln_Assess_Report_12-14-18.pdf

County of Ventura. 2020. Contingency Plan for Heat/Cold Weather Events. https://s29710.pcdn.co/wp-content/uploads/2022/03/Contingency-Plan-for-Heat-Cold-Event-2020.pdf

County of Ventura. n.d.-a Local Coastal Program. https://vcrma.org/en/local-coastal-program

County of Ventura. n.d.-b Ventura County Resilient Coastal Adaptation Project. https://vcrma.org/en/vc-resilient-coastal-adaptation-project#:~:text=The%20VC%20Resilient%20Coastal%20Adaptation%20Project%20%28VC%20Resilient%29,when%20sea%20level%20rise%20impacts%20are%20more%20severe

Dale, Virginia H. First published: 01 August 1997.Photosynthetic and stomatal responses to high temperature and light in two oaks at the western limit of their range ERIK HAMERLYNCK1,2 and ALAN K. KNAPP1 1 Division of Biology, Kansas State University, Ackert Hall, Manhattan, KS 66506-4901, USA 2 Present address: Department of Biological Sciences, University of Nevada Las Vegas, 4505 Maryland Parkway, Box 454004, Las Vegas, NV 89154-4004, USA Received May 25, 1995 https://doi.org/10.1890/10510761(1997)007[0753:TRBLUC]2.0.CO;2

EPA. 2022. Climate Change and Harmful Algae Blooms. https://www.epa.gov/nutrientpollution/climate-change-and-harmful-algal-blooms#:~:text=Extreme%20storms%20followed%20by%20periods,waterbodies%2C%20feeding%20more%20algal%20blooms.

Feinstein Laura, Phurisamban Rapichan, Ford Amanda, Christine Tyler, and Crawford Ayana. 2017. Drought and Equity in California. https://pacinst.org/wp-content/uploads/2017/01/PI_DroughtAndEquityInCA_Jan_2017_Executive_Summary.pdf

Gamble & Balbuls. 2016. The Impacts of Climate Change on Human Health in the United States. https://health2016.globalchange.gov/low/ClimateHealth2016_09_Populations_small.pdf

Hall, Alex, Neil Berg, Katharine Reich. (University of California, Los Angeles). 2018. Los Angeles Summary Report. California's Fourth Climate Change Assessment. Publication number: SUM-CCCA4-2018-007.

IPCC. The Intergovernmental Panel on Climate Change Sixth Assessment Report. 2021. https://www.ipcc.ch/report/ar6/wg1/#FullReport

IPCC. 2012. Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation, a special report of Working Groups I and II of the IPCC, ed. C. B. <https://www.ipcc.ch/site/assets/uploads/2018/03/SREX_FD_SPM_final-2.pdf>.

Kenney WL, Craighead DH, Alexander LM. Heat waves, aging, and human cardiovascular health. Med Sci Sports Exerc. 2014 Oct;46(10):1891-9. doi: 10.1249/MSS.0000000000000325. PMID: 24598696; PMCID: PMC4155032.

Lauren E Parker, Andrew J McElrone, Steven M Ostoja, Elisabeth J Forrestel, (Parker et al.). Extreme heat effects on perennial crops and strategies for sustaining future production, Plant Science, Volume 295, 2020, 10397, ISSN 0168-9452, https://www.sciencedirect.com/science/article/pii/S0168945219315705. Accessed April 7, 2022

Lynn Kathy, MacKendrick Katharine, Donoghue M. Ellen. 2011. Social Vulnerability and Climate Change Synthesis of Literature. https://permanent.fdlp.gov/gpo12563/pnw_gtr838.pdf

Maclean, M.D. and R.J. Wilson. 2011. Recent ecological responses to climate change support predictions of high extinction risk. Proceedings of the National Academy of Sciences. Published online before print July 11, 2011.Magness, D.R, and J.M. Morton.

The National Aeronautics and Space Administration (NASA). 2022. The Effects of Climate Change. Available: https://climate.nasa.gov/effects/.

The Nature Conservancy. 2021. Coastal Resilience Story Map. Ventura County.

https://coastalresilience.org/project/ventura-county/

The Nature Conservancy. n.d.-a. Coastal Resilience California. Flood and Sea Level Rise Web Tool.

https://maps.coastalresilience.org/california/

The Nature Conservancy. n.d.-b. Ventura County Coastal Resilience Project. https://coastalresilience.org/project/ventura-county/

Proceedings of the National Academy of Sciences of the United States of America (PNAS). 2021. Spatial variation in the joint effect of extreme heat events and ozone on respiratory hospitalizations in California. https://doi.org/10.1073/pnas.2023078118

Public Health Alliance of Southern California (PHASoCal). The California Healthy Places Index (HPI). 2022. https://map.healthyplacesindex.org/

Ramin & Svoboda. 2009. Health of the Homeless and Climate Change. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2704276/

Seneviratne, S.I., et al. 2012. “Changes in climate extremes and their impacts on the natural physical environment,” In: Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change (IPCC). Cambridge University Press, Cambridge, UK, and New York, NY, USA, pp. 109-230. 2012 https://www.ipcc.ch/site/assets/uploads/2018/03/SREX-Chap3_FINAL-1.pdf

Southern California Association of Governments (SCAG). 2020. Southern California Adaptation Planning Guide. https://scag.ca.gov/sites/main/files/file-attachments/socaladaptationplanningguide_oct2020_0.pdf

State of California (CA). San Joaquin Valley Region Report, California Fourth Climate Change Assessment. 2022. https://www.energy.ca.gov/sites/default/files/2022-01/CA4_CCA_SJ_Region_Eng_ada.pdf

Talbot, C.J., Bennett, E.M., Cassell, K. et al. The impact of flooding on aquatic ecosystem services. Biogeochemistry 141, 439–461 (2018). https://doi.org/10.1007/s10533-018-0449-7

USDA Forest Service RMRS-GTR-375. 2018 Chapter 10: Effects of Climate Change on Outdoor Recreation. Michael S. Hand, Jordan W. Smith, David L. Peterson, Nancy A. Brunswick, and Carol P. Brown

Ventura County. 2020. Ventura County 2040 General Plan. Hazards and Safety Element. https://vcrma.org/vc2040.org/images/Draft_2040_General_Plan_-_Jan._2020/VCGPU_07_Hazards_and_Safety_Element_2020_01_08.web-compressed.pdf

Ventura Land Trust 2022. Ventura County Community Wildfire Protection Plan. https://www.dropbox.com/s/qtrrmt0maqanmrf/CWPP%20VLT.docx.pdf?dl=0

Ventura County. 2022. Multi-Jurisdictional Hazard Mitigation Plan Vol.2. https://s29710.pcdn.co/wp-content/uploads/2022/06/2022-06_VenturaHMP_Vol2_Final.Reduced.pdf

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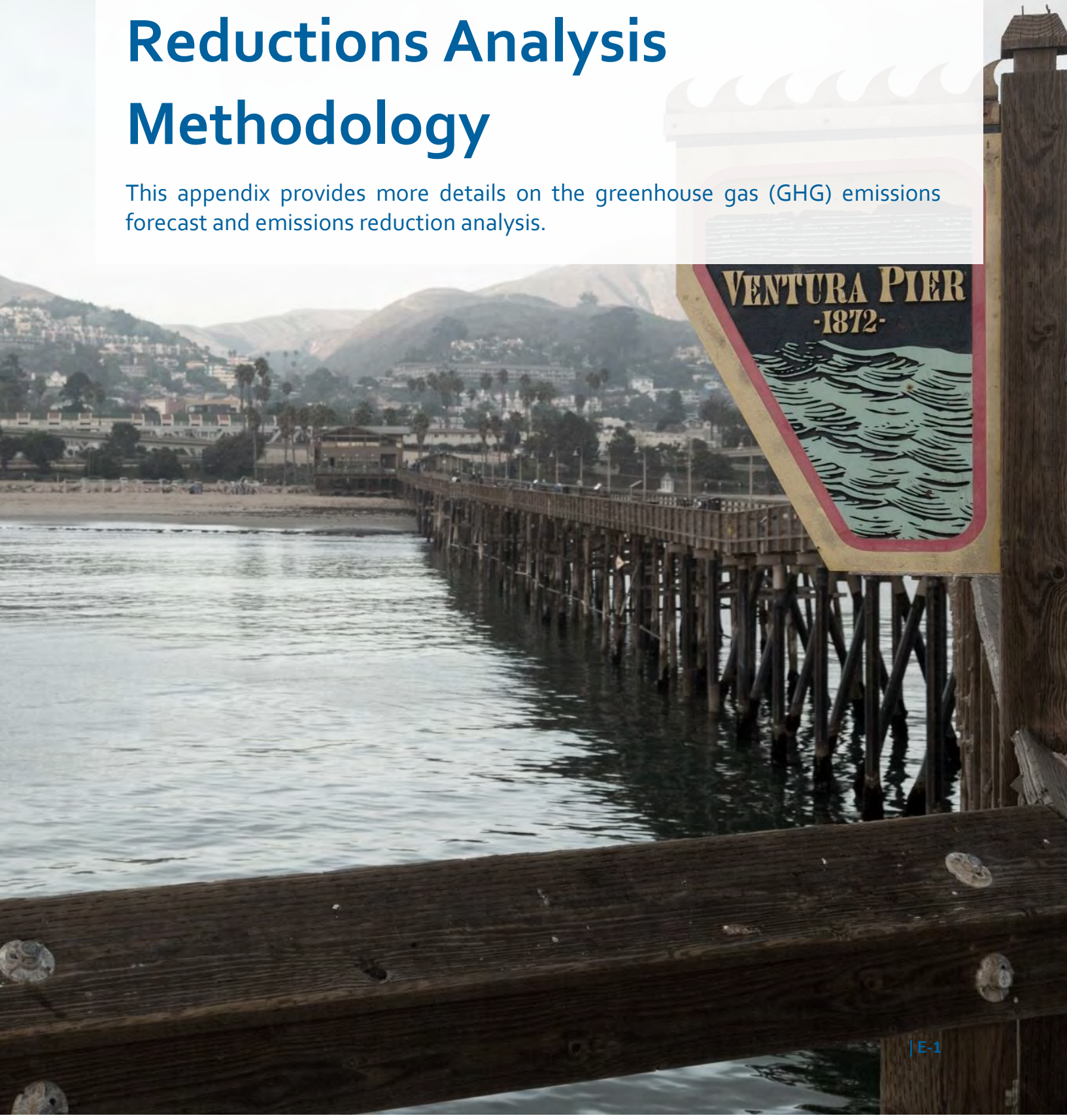
Appendix E

Greenhouse Gas Forecast and Reductions Analysis Methodology

This appendix provides more details on the greenhouse gas (GHG) emissions forecast and emissions reduction analysis.



Greenhouse Gas Emissions Forecast

A GHG emissions forecast estimates future GHG emission changes by accounting for projected community growth as defined by Palmdale's General Plan Update. The forecast is built off the 2017 communitywide GHG emissions forecast and thus includes the same sectors and facilities.

Calculating the difference between the GHG emissions forecast and GHG emissions reduction targets set by a jurisdiction determines the gap in GHG emissions that needs to be closed through the implementation of local GHG reduction policies as outlined in the CARP. Two forecast scenarios were developed for Ventura out to horizon year 2045:

- Business-as-usual scenario (BAU): Provides a forecast of how future GHG emissions would change if consumption trends continued as they did in 2019 and growth were to occur as projected in the City's General Plan, absent any regulations that would reduce local emissions.
- Legislative adjusted scenario (ABAU): Provides a forecast of how currently adopted legislation would reduce GHG emissions from the business-as-usual scenario. The legislative adjusted scenario represents the state's contribution to reducing local GHG emissions to meet state goals.

The adjusted forecast incorporates the impact of state regulations that provide GHG emission reduction potential to offer a more accurate picture of future GHG emissions growth and the responsibility of the City for GHG emissions reduction. The state legislation included in the adjusted forecast result in GHG emissions reduction related to transportation, building efficiency and renewable electricity.

The following State policies were included in the ABAU forecast:

- **Transportation**: Major regulations incorporated into the CARB's 2021 transportation modeling used for forecast development include the Advanced Clean Truck Rule, SAFE Vehicle Rules and Actions, and Innovative Clean Transit Rule.[23]
- **Title 24**: The California Code of Regulations Title 24, Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings is updated triennially to allow consideration and possible incorporation of new energy-efficient technologies and methods. The SB 32 Scoping Plan calls for the continuation of ongoing triennial updates to Title 24 that will yield regular increases in the mandatory energy and water savings for new construction.
- **Renewable Portfolio Standard (SB 100)**: The RPS requires utilities to increase procurement from eligible renewable energy resources to 50% of total procurement by 2026, 60% of total procurement by 2030, and GHG-free sources to 100% of total procurement by 2045. The GHG emission reduction from SB 100 are accounted for by reducing the GHG emissions associated with each unit of energy in line with the increasing stringent RPS requirements. In 2045, all retail electricity is assumed to be completely carbon neutral.

The City of Ventura CARP includes the following GHG emissions targets:

- Reduce GHG emissions to 40% below 1990 levels by 2030 (SB 32 target year)

[23] California Air Resources Board. (2021). EMFAC2021 Volume III Technical Document Version 1.0.1. Accessed from: https://ww2.arb.ca.gov/sites/default/files/2021-08/emfac2021_technical_documentation_april2021.pdf.

- Achieve carbon neutrality by 2045 (EO B-55-18 target year)

The equivalent 1990 GHG emission levels are derived by comparing the State's GHG emissions from relevant sources from given year to the statewide GHG emission in 1990, using relevant GHG emission sectors. This assumes that GHG emissions in the City of Ventura have generally scaled with the State's GHG emissions, as vehicle fuel economy standards, waste reduction policies, and increased renewable energy procurement would have similar effects in the City as they did statewide. For the state minimum targets presented here, the State's GHG emissions in 2005 were compared to 1990, with the agricultural GHG emission sector excluded. This showed that 2005 State GHG emissions levels were approximately 15% less than 1990 levels, and as such the City's 2005 GHG emission levels are also assumed to be 15% less than 1990 levels.

The above GHG reduction analysis presented in the CARP shows that Ventura can reduce its fair share of emissions and achieve the SB 32 target of a 40% reduction by 2030. As a result, Ventura's CARP can be considered a Qualified Plan under CEQA. The concept of having a "qualified" CAP means that a climate action plan meets the criteria specified in CEQA Guidelines Section 15183.5(b) for a plan for the reduction of greenhouse gas emissions, such that a "qualified" CAP may then be used for the specific purpose of streamlining the analysis of GHG emissions in subsequent projects. Local governments have discretion on what levels or targets are established in a "qualified" CAP, provided they address adopted policies and are based on substantial evidence.

GHG Reduction Estimates

The table below shows the detailed greenhouse gas reductions that the City can achieve by implementing the mitigation strategies and actions in the CAP. It also shows the participation assumptions and level of effort needed to achieve the associated reductions for each strategy based on the GHG reduction model. For example, to achieve the GHG reductions associated with the electrification strategy, 35% of existing residential and nonresidential buildings within the city have transitioned to all-electric in 2035 and 56% by 2045 and the annual number of dwelling units or buildings transitioning is 1,225 units and 65 nonresidential buildings.

Table E-1. Projected GHG Reduction Results

Strategy	Assumptions	Cumulative Participation Rate 2035	Cumulative Participation Rate 2045	Annual Participation	GHG Reductions 2030	GHG Reductions 2045
Buildings + Energy						
Existing Building Electrification	**Phased-in:** voluntary until 2035, mandatory after (assume 2.5% annual participation then 5% participation)	35%	62%	1,347 dwelling units 78 nonresidential buildings	33,158	70,256
Residential New Construction Reach Code	**Mandatory:** assume 100% participation	100%	100%	N/A	876	983
Energy Efficiency Retrofits	**Voluntary:** assume 2.5% annual participation	13%	21%	480 dwelling units 28 nonresidential buildings	9,256	21,378
Nonresidential and Multi-family Building Retrocommissioning	**Voluntary:** assume 2.5% annual participation rate	13%	21%	480 dwelling units 28 nonresidential buildings	2,612	6,175
Clean Power Alliance	Assume 50%-100% RE	RPS	100% carbon free	94% of customers	46,876	0
Local Solar Installations	**Voluntary:** assume 2.5% annual participation	5%	9%	200 dwelling units 52 nonresidential buildings	0	0

Transportation + Land Use						
EV Adoption	Assume adoption rate in line with Ventura County	5% of households	11% of households	510 vehicles	7,356	14,878
Mode Split	**Mandatory:** TDM program for employers	Carpool: 15% Transit: 6% Walk/Bike: 7%	Carpool: 18% Transit: 10% Walk/Bike: 10%	N/A	21,748	58,602
Materials + Consumption						
Organics Diversion	**Mandatory:** SB 1383 compliance	75% reduction	75% reduction	N/A	3,885	3,723
Natural Systems + Water Resources						
Tree Planting	**Voluntary**	N/A	N/A	400 trees	156	368
Water Efficiency	**Voluntary:** assume 2.5% annual participation	28%	48%	1,200 dwelling units 63 nonresidential buildings	237	0
Total Reductions ($MTCO_2e$)					126,161	176,364
Forecasted ABAU emissions					487,135	446,803
Remaining ABAU emissions					360,974	270,439
1990 % Reduction					**-40%**	**-55%**

GHG Reduction Calculator Data Sources

Emissions forecast: Raimi + Associates. (Updated 2022). Based on City of Ventura provided 2019 GHG Communitywide Inventory.

Demographic data: California Department of Finance, SCAG, and US Census Bureau adjusted by Raimi + Associates to align with the Ventura General Plan Update Demographic estimates

- Housing units: 3x RHNA for City of Ventura
- Jobs growth: 1:1 with housing

Clean Energy

Avg. DC system size (kW): NREL PVWatts Calculator default value: https://pvwatts.nrel.gov/pvwatts.php

Annual kWh generated by PV: NREL PVWatts Calculator default value: https://pvwatts.nrel.gov/pvwatts.php

% homes using natural gas: California Residential Building Electrification Market Assessment https://www.ethree.com/wp-content/uploads/2019/04/E3_Residential_Building_Electrification_in_California_April_2019.pdf

Avg. Building size: California Residential Building Electrification Market Assessment https://www.ethree.com/wp-content/uploads/2019/04/E3_Residential_Building_Electrification_in_California_April_2019.pdf

Avg. appliance efficiencies: https://rael.berkeley.edu/wp-content/uploads/2017/07/Raghavan-Wei-Kammen-WaterHeating-_-ENergyPolicy-2017.pdf

Energy savings of retrocommissioning and solar installation: CEC Options for Energy Efficiency in Existing Buildings

Energy Savings of nonresidential retrofits: Advanced Energy Retrofit Guides https://www.pnnl.gov/main/publications/external/technical_reports/PNNL-20814.pdf, https://www.pnnl.gov/main/publications/external/technical_reports/PNNL-20761.pdf

Energy Savings of residential retrofits: CEC Large Scale Residential Retrofit Program https://ww2.energy.ca.gov/2017publications/CEC-500-2017-009/CEC-500-2017-009.pdf.

EPIC emissions factor: 75% carbon neutral electricity estimated as 25% of current emissions factor for electricity

Buildings

Commercial building assumptions: A Look at the U.S. Commercial Building Stock: Results from EIA's 2012 Commercial Buildings Energy Consumption Survey (CBECS) https://www.eia.gov/consumption/commercial/reports/

SCE emissions factor: Raimi + Associates. 2017 Communitywide GHG Emissions Inventory. (Updated 2022).

SoCalGas emissions factor: Raimi + Associates. 2017 Communitywide GHG Emissions Inventory. (Updated 2022).

Transportation

EV Fuel assumptions: Hybrid and Plug-In Electric Vehicle Emissions Data Sources and Assumptions https://afdc.energy.gov/vehicles/electric_emissions.html

Number and Types of EVs in Los Angeles County: California Plug-In Electric Vehicle Infrastructure Projections: 2017-2025 https://www.nrel.gov/docs/fy18osti/70893.pdf

VMT per trip: Ventura County 2016 EMFAC model

Current mode split: US Census Bureau.

VMT: Forecasted to increase by service population demographic data.

Mode split estimates: CAPCOA Quantifying Greenhouse Gas Mitigation Measures

Waste

Tonnage data: CalRecycle

Sequestration

Annual CO_2 accumulation per Tree: CAPCOA Quantifying Greenhouse Gas Mitigation Measures