CAAP

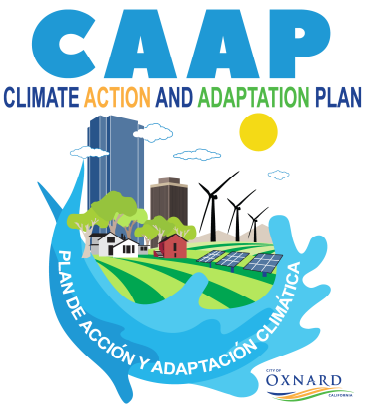
CLIMATE ACTION AND ADAPTATION PLAN

CITY OF OXNARD CALIFORNIA

Adopted December 7, 2022

City of Oxnard

Climate Action and Adaptation Plan



City of Oxnard
Community Development Department
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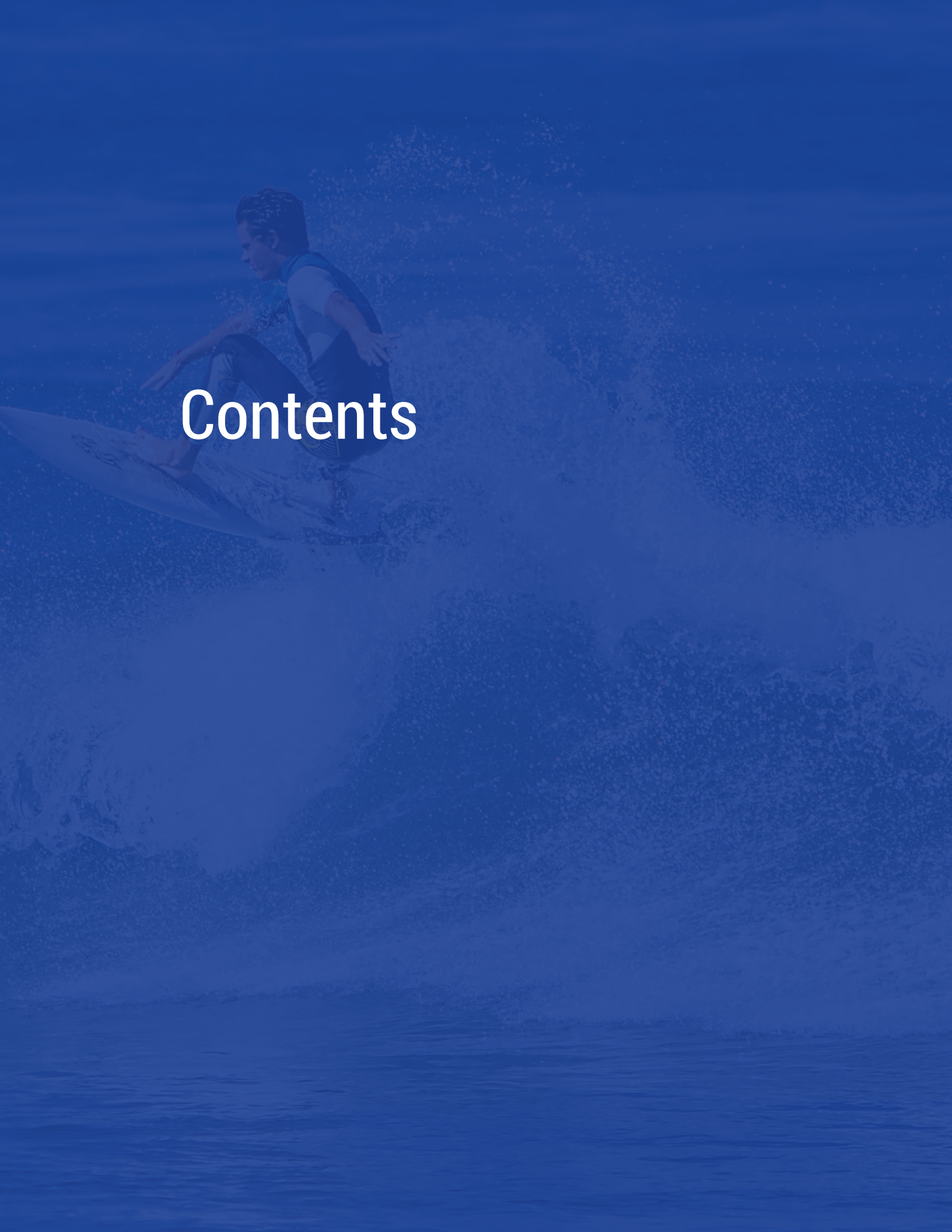
Adopted December 7, 2022



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Acknowledgments

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In addition to the Oxnard community and stakeholders who took the time to participate in the Climate Action and Adaptation Plan (CAAP) community outreach process to share their experiences and priorities with us, we would like to thank Individuals from the Oxnard City Council, Planning Commission, City Manager's office, Community Development Department and other City staff who provided additional guidance, feedback, and content throughout the development and adoption process. Their oversight was invaluable to the creation of this CAAP and will continue to be instrumental throughout its implementation.

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Terms and Abbreviations

TERM/ACRONYM	DEFINITION
3C-REN	Tri-County Regional Energy Network
AB 32	Assembly Bill 32, the California Global Warming Solutions Act of 2006, establishes a comprehensive program of regulatory and market mechanisms to achieve real, quantifiable, cost-effective reductions of greenhouse gases for the state of California. Makes the California Air Resources Board responsible for monitoring and reducing statewide greenhouse gas emissions, with a target to reduce emissions to 1990 levels by 2020.
AB 341	Assembly Bill 341 (2011) mandates commercial recycling collection for businesses generating more than 4 cubic yards of solid waste per week
AB 1550	Assembly Bill 1550 (2016) requires 25 percent of proceeds from the Greenhouse Gas Reduction Fund to go to projects that are located within and benefit disadvantaged communities, and requires an additional 10 percent to go to low-income households or communities
AB 1826	Assembly Bill 1826 (2014) mandates organic waste collection for businesses that generate more than 2 cubic yards of solid waste per week
ACF	CARB's draft Advanced Clean Fleets regulation
Adjusted BAU	An adjusted emissions forecast that includes the effects of statewide emissions reductions measures such as updates to building energy standards and implementation of programs to decrease emissions from on-road vehicles
AHSC	Affordable Housing and Sustainable Communities Program, a state program that funds land use, housing, transportation, and land preservation projects to support infill and compact development that reduce greenhouse gas emissions
ASR	Aquifer Storage & Recovery
ATP	Active Transportation Program, a suite of legislative actions signed by Governor Brown on September 26, 2013, that is intended to encourage the increased use of active modes of transportation (i.e., walking and biking)
Baseline Inventory	The base year for assessment of GHG trends against which future progress can be measured for a single calendar year (e.g., 2010)
BAU	Business as Usual, a scenario that assumes that no new local actions will be taken to reduce energy usage or associated greenhouse gas emissions from current and future residents and businesses within the city
BIPOC	Black, Indigenous, People of Color, the term to acknowledge that not all people of color face equal levels of injustice. BIPOC is significant in recognizing that Black and Indigenous people are severely impacted by systemic racial injustices.
C&D	Construction and demolition debris is waste that is generated during construction activities
CAAP	Climate Action and Adaptation Plan
CAFE	Corporate Average Fuel Economy, federal fuel-efficiency standards enacted in 1975 to improve the average fuel economy of cars and light trucks produced for sale in the United States
Cal-Adapt	A tool provided by the state of California that provides peer-reviewed data that portrays how climate change might affect California at the state and local levels
Cal/OSHA	California's Division of Occupational Safety and Health
CalEnviroScreen	CalEnviroScreen is a mapping tool that helps identify California communities that are most affected by many sources of pollution, and where people are often especially vulnerable to pollution's effects
CalEPA	California Environmental Protection Agency
CALeVIP	California Electric Vehicle Infrastructure Project
CAL FIRE	California Department of Forestry and Fire Protection
CALGreen	Refers to CALGreen component of the California Building Code; see California Building Code

TERM/ACRONYM	DEFINITION
California Building Code	California Code of Regulations Title 24, also known as the California Building Standards Code, composed of 12 parts including Title 24, Part 6, which sets forth energy-efficiency standards for residential and nonresidential buildings. The code was established in 1978 in response to a legislative mandate to reduce California's energy consumption.
CalRecycle	California Department of Resources Recycling and Recovery
CalSHAPE	California Schools Healthy Air, Plumbing, and Efficiency Program
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association, an association of air pollution control officers that represents all thirty-five local air quality control agencies in California
CAPG	California Adaptation Planning Guide, which includes a step-by-step process for local and regional climate vulnerability assessment and adaptation strategy development
CARB	California Air Resources Board
CCA	Community Choice Aggregation, sometimes referred to as Community Choice Energy (CCE), a type of energy supply program that allows cities and counties to aggregate the buying power of individual customers within a jurisdiction to secure alternative energy supplies
CCC	California Coastal Commission
CCE	Community Choice Energy, sometimes referred to as Community Choice Aggregation (CCA)
CCI	California Climate Investments is a statewide initiative that puts the state's cap-and-trade revenue to work reducing greenhouse gas emissions
CDFW	California Department of Fish and Wildlife
CDP	Coastal Development Permit, issued by the California Coastal Commission
CEC	California Energy Commission
CEESP	California Long-Term Energy-Efficiency Strategic Plan, a plan adopted by the California Public Utilities Commission in 2008 that presents a single roadmap to achieve maximum energy savings across all major groups and sectors in California.
CEQA	California Environmental Quality Act
CFCs	Chlorofluorocarbons
CFL	Compact fluorescent light
CH_4	Methane
CHAT	California Heat Assessment Tool developed as part of California's Fourth Climate Change Assessment, for local and state health practitioners to better understand dimensions of heat vulnerability driven by climate change
CIP	Capital improvement plan
CMWD	Calleguas Municipal Water District
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent, a metric used to compare the emissions of various greenhouse gases based upon their global warming potential (GWP). The carbon dioxide equivalent for a gas is derived by multiplying the tons of the gas by the associated GWP factor. For example, the GWP factor for methane is 25. This means that emissions of 1 million metric tons (MT) of methane is equivalent to 25 million $MTCO_2e$.
Community-wide	Refers to all activities within a community's or city's geographic boundary.
CPA	Los Angeles County Clean Power Alliance
CPUC	California Public Utilities Commission

TERM/ACRONYM	DEFINITION
DAC	Disadvantaged Community
Demand Response	Mechanism for managing end-user electricity consumption in response to energy supply conditions, especially during summer periods when electricity demand on the California power grid is high
Direct Access Electricity	Direct access service is when customers elect to purchase electricity and other services from an electric service provider, instead of from a public or private utility company
DOE	United States Department of Energy
DOF	California Department of Finance
EIR	Environmental Impact Report
EJ	Environmental justice refers to the equitable distribution of environmental benefits and burdens
ENERGY STAR	A joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy to provide consumers with energy-efficiency information and incentives to purchase the most energy-efficient products available
ERD	City of Oxnard's Environmental Resources Division
ESA	Environmental Science Associates
ESCO	Energy service company
EV	Electric vehicle, a vehicle that uses an electric battery to power its operation
FCEV	Fuel cell electric vehicle, a vehicle that is powered by hydrogen fuel cell technology
FEMA	Federal Emergency Management Agency, a part of the U.S. Department of Homeland Security (DHS)
FHA	Federal Housing Administration
First Cost	Immediate purchase and installation cost; first costs do not include lifecycle or long-term operating costs, which may result in long-term cost savings from increased efficiency, reduced maintenance, and other factors
FY	Fiscal year
GCTD	Gold Coast Transit District
GGRF	Greenhouse Gas Reduction Fund, an account established by the State of California to receive cap-and-trade auction proceeds to support programs that reduce greenhouse gas emissions. Funds are administered by the California Climate Investments (CCI) program.
GHG	Greenhouse gases, gases that cause heat to be trapped in the atmosphere, resulting in warming effects for the earth
GIS	Geographic Information System, designed to capture, store, analyze, manage, and present spatial or geographic data
gpcd	Gallons per capita per day
GREAT	Oxnard's Groundwater Recovery Enhancement and Treatment Program
Green Building	Sustainable or "green" building is a holistic approach to design, construction, and demolition that minimizes the building's impact on the environment, the occupants, and the community
Green Team	A formal or informal group of people within an organization or community that promotes more environmentally sustainable practices and sustainability plans and management approaches
Greenhouse Gas Inventory	A greenhouse gas inventory provides estimates of the amount of greenhouse gases emitted to and removed from the atmosphere by human activities. A city or county that conducts an inventory looks at both community emissions sources as well as emissions from government operations.
GWh	Gigawatt-hour, a unit of electricity
GWP	Global warming potential is a relative measure of how much heat a greenhouse gas traps in the atmosphere
HCD	California Department of Housing and Community Development

TERM/ACRONYM	DEFINITION
HFCs	Hydrofluorocarbons
HOV	A High-Occupancy Vehicle lane is a restricted traffic lane reserved for the exclusive use of vehicles with a driver and one or more passengers, including carpools, vanpools, and transit buses
HPI	Healthy Places Index, a data and policy platform created by the Public Health Alliance of Southern California
HPS	High-Pressure Sodium, a type of lamp commonly used for street lighting
HQTC	High Quality Transit Corridor
HUD	U.S. Department of Housing and Urban Development
HVAC	Heating, Ventilation, and Air Conditioning
ICLEI	International Council for Local Environmental Initiatives is an international association of local governments and national and regional local government organizations that have made a commitment to sustainable development
ILG	Institute for Local Government
IPCC	Intergovernmental Panel on Climate Change is a scientific intergovernmental body under the auspices of the United Nations
JPA	Joint Powers Agency/Authority
kWh	Kilowatt-hour, a unit of energy equivalent to 1,000 watts of energy used for an hour. For example, if an appliance requires 1 kW of energy to function, leaving the appliance on for one hour would consume 1 kWh of energy.
LCFS	Low-Carbon Fuel Standard, requires fuel providers in the state to decrease lifecycle fuel carbon intensity by 2030
LCP	Local Coastal Program
LED	Light-Emitting Diode
LEED	Leadership in Energy and Environmental Design, an internationally recognized green building certification system that provides third-party verification that a building or community was designed and built using sustainable approaches, with particular regard to energy savings, water efficiency, CO_2-emissions reductions, and improved indoor environmental quality, among others
LHMP	Local hazard mitigation plan
LID	Low-impact development
LiHEAP	Low-Income Home Energy Assistance Program, a state program that provides assistance with energy costs to families in California
Metrolink	Regional light-rail transit agency serving six Southern California counties, including Ventura County
MGD	Million gallons per day
mpg	Miles per gallon
MPO	Metropolitan Planning Organization
MTA	Los Angeles County Metropolitan Transportation Authority (MTA or Metro)
$MTCO_2e$	Metric tons of carbon dioxide equivalent
Municipal	Refers to energy use and greenhouse gas emissions from City-owned and -operated facilities and equipment
N_2O	Nitrous oxide
NAS	National Academy of Sciences
NEM	Net Energy Metering
NOAA	National Oceanic and Atmospheric Administration

TERM/ACRONYM	DEFINITION
NREL	National Renewable Energy Laboratory
NSHP	California Energy Commission's New Solar Homes Partnership, part of the comprehensive statewide solar program, known as the California Solar Initiative
OED	Office of Economic Development, which serves as California's single point of contact for economic development and job creation efforts
OPR	California Governor's Office of Planning and Research
PACE	Property-Assessed Clean Energy, a form of long-term financing that creates municipal finance districts to provide loans to homeowners and businesses for energy-efficient retrofits and renewable-energy-system installations. Loans are repaid through an annual surcharge on property tax assessments.
PEV	Plug-in-battery Electric Vehicle
PFCs	Perfluorocarbons
POU	Publicly Owned Utility
PPA	Power Purchase Agreement
ppm	Parts per million, a measurement unit of concentration
PV	Photovoltaic, refers to method of converting solar energy into direct current electricity using semiconducting materials
Rebate	Offered by the state, utility, or local government to promote the installation of renewables and energy-efficiency projects
Renewable Energy	Energy from sources that regenerate and are less damaging to the environment, such as solar, wind, biomass, and small-scale hydroelectric power
REN	Regional Energy Network
RNG	Renewable Natural Gas
RPS	California's Renewable Portfolio Standard requires utility providers to increase the portion of generated energy that comes from renewable sources
RTP/SCS	Regional Transportation Plan/Sustainable Community Strategy, a plan that identifies transportation projects across an entire region, with the aim of reducing vehicle trips and associated GHG emissions
RTPA	Regional Transportation Planning Agency
SB 32	California Senate Bill 32 (2016) expands upon AB 32 to mandate statewide GHG emissions reduction of 40 percent below 1990 levels by 2030
SB 97	Senate Bill 97 (2007) requires the Governor's Office of Planning and Research to develop and adopt CEQA guidelines for the mitigation of greenhouse gas emissions
SB 100	Senate Bill 100 (2018) increases the California RPS requirement to 60 percent eligible renewables by 2030 and 100 percent by 2045
SB 350	Senate Bill 350 (2015) requires California to (1) generate half of its electricity from renewable energy sources; (2) double energy efficiency for both electricity and natural gas end uses in all buildings by 2030; and (3) substantially improve the infrastructure for electric vehicle transportation
SB 375	Senate Bill 375 (2008) enhances California's ability to reach its climate stabilization goals by planning more-sustainable communities
SB 379	Senate Bill 379 (2015) requires that climate adaptation be addressed in the safety element of a city's general plan and/or in the local hazard mitigation plan (LHMP)
SB 535	Senate Bill 535 (2012) requires 25 percent of the Greenhouse Gas Reduction Funds to go to projects that provide benefits to disadvantaged communities, and requires CalEPA to identify such communities

TERM/ACRONYM	DEFINITION
SB 1383	Senate Bill 1383 (2016) aims to reduce organic waste disposal statewide by 75 percent from 2014 levels by 2025, and requires that the City provide organics collection service to all residents and businesses, develop an edible food recovery program, and conduct education and outreach to the community regarding the requirements of the law
SBEA	Small Business Energy Alliance
SBx707	The Water Conservation Bill of 2009
SCAG	Southern California Association of Governments
SCE	Southern California Edison
SCS	Sustainable Community Strategy
SEEC	California Statewide Energy Efficiency Collaborative
SF_6	Sulfur hexafluoride, a powerful greenhouse gas
SGC	Strategic Growth Council
SGMA	Sustainable Groundwater Management Act
SLCP	Short-Lived Climate Pollutant, a greenhouse gas that persists for a relatively short time in the atmosphere but has a significant atmospheric warming impact
SLR	Sea Level Rise
SoCalGas	Southern California Gas Company
SoCalREN	Southern California Regional Energy Network
SOI	Sphere of influence
SOV	Single-Occupancy Vehicle
STP	Sustainable Transportation Plan
TCC	The Strategic Growth Council's Transformative Climate Communities (TCC) Program funds community-led development and infrastructure projects that achieve major environmental, health, and economic benefits in California's most-disadvantaged communities
TDM	Transportation demand management, the application of strategies and policies to reduce travel demand
Title 24	California Code of Regulations Title 24, also known as the California Building Standards Code (composed of 12 parts); Title 24, Part 6, established California's energy-efficiency standards for residential and nonresidential buildings; see California Building Standards
Transit mode share	Share of persons taking public transportation for all types of trips
U.S. EPA	United States Environmental Protection Agency
USDA	U.S. Department of Agriculture
UWMP	Urban Water Management Plan
VCAPCD	Ventura County Air Pollution Control District
VCREA	Ventura County Regional Energy Alliance
VCTC	Ventura County Transportation Commission
VMT	Vehicle Miles Traveled
WWTP	Wastewater Treatment Plant
ZEV	Zero-Emissions Vehicle
ZNE	Zero Net Energy, for buildings, means the use of no more energy over the course of a year than can be generated on site through renewable resources such as solar, wind, or geothermal power


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Executive Summary

In recent years, Oxnard has experienced the effects of climate change. The local community, particularly farmworkers and other vulnerable groups, have suffered from prolonged heat waves and poor air quality from wildfire smoke. Without any action to reduce global greenhouse gas (GHG) emissions, we can expect greater frequency and severity of extreme weather events like heat waves, drought, sea level rise, and floods. As such, the City of Oxnard's Climate Action and Adaptation Plan (CAAP) builds on the City's successes of implementing the City's 2030 General Plan and recommits to furthering the City's sustainability goals and policies. The CAAP establishes a target—to reduce greenhouse gas (GHG) emissions 40 percent below 1990 levels by 2030, consistent with state law. The CAAP presents an inventory of GHG emissions originating from the City, and sets forth strategies and actions to reduce emissions and help the community adapt to a changing climate. Together with the community and partnering organizations, the City is leading a coordinated effort to build an equitable, sustainable and resilient community for current and future generations.

A Message from the Mayor

Dear Oxnard Community Members:

It's our responsibility to plan a sustainable future for the next generation of Oxnard residents. As a coastal city in California, we are susceptible to the impacts of climate change, such as extreme heat and drought. Reducing our greenhouse gas emissions and transitioning to renewable energy are common-sense solutions to address a warming planet.

Through the City's Climate Action and Adaptation Plan (CAAP), a diverse group of Oxnard community members has assisted us in creating strategies that will address these climate issues and adapt to those challenges. Our plan is a direct result of staff and community collaboration to help guide the City of Oxnard in recommitting to furthering our sustainability goals and policies while reaching the State's reduction goals.

This comprehensive plan is both achievable and necessary for our growing and robust community. It aims to build an equitable, sustainable, and resilient community for generations to come. I am confident that if we address the climate change challenge together, we will make a difference.

Your continued engagement and dedication is vital in supporting this plan and reaching our goals. By implementing this plan, we can improve our quality of life in every neighborhood in Oxnard as we work to reduce greenhouse gas emissions, adapt to our changing climate, and support our most vulnerable.

Thank you,

John C. Zaragoza
Mayor, City of Oxnard

Plan at a Glance

This CAAP is organized into the following five chapters, as described below, with more detail provided on the following pages:

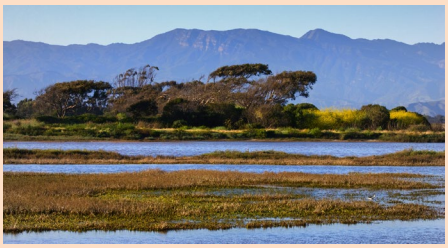
- **Chapter 1: Introduction and Background.** This chapter provides an overview of the document, the purpose and scope of the CAAP, the basic science behind climate change, and the importance of considering equity when taking action. In addition, Chapter 1 provides a brief explanation of potential impacts of climate change in the City of Oxnard, the community benefits of taking action, the process for engaging with the community and stakeholders, and a discussion of the state and local actions to reduce GHG emissions.

- **Chapter 2: Understanding Oxnard's Greenhouse Gas Emissions.** This chapter presents a summary of GHG emissions being generated by the community and by municipal operations. It provides an understanding of where GHG emissions are originating from, including trends and forecasts, and what can be done to reduce them. Finally, Chapter 2 establishes Oxnard's GHG reduction target.

- **Chapter 3: Reducing Greenhouse Gas Emissions.** Achieving the community GHG-reduction targets will require taking action at the local level regarding energy use, transportation and land use, solid waste management, and water consumption. Chapter 3 addresses each of these sectors, summarizing their contribution to total citywide emissions and describing the strategies and actions that will be implemented to reduce emissions from each category over time.

- **Chapter 4: Community Resilience and Adaptation.** This chapter presents an overview of the impacts the City of Oxnard is expected to experience due to projected changes in the climate, and what the City can do to begin preparing for them. It describes expected local impacts and vulnerabilities, and potential adaptation planning strategies.

- **Chapter 5: Implementation and Monitoring.** This chapter outlines recommended steps for implementing the GHG-reduction strategies described in Chapters 3 and 4, and for monitoring the progress of implementation. It identifies funding sources and assigns implementation and monitoring responsibility to specific City departments, presenting a schedule for implementation.



Community Input

From the outset, the intent of the Oxnard CAAP has been to create a plan that understands and responds to community needs and desires. Hundreds of Oxnard community members and stakeholders informed the development of this CAAP through community surveys, public workshops, stakeholder focus group meetings, and ongoing engagement with partnering organizations, committees and commissions. Input received from the public engagement activities informed the development of strategies and actions in the CAAP that are designed to reduce GHG emissions and increase the community's resilience to climate change. Extreme heat, poor air quality, and drought were the climate change impacts that were of the greatest concern to the community.

Community Input

The input received from engagement efforts revealed a strong interest in strategies that:

- Emphasize equity
- Distribute benefits fairly
- Protect and prioritize vulnerable communities
- Consider economic feasibility and cost benefits
- Ongoing education and collaboration through Plan implementation were also key themes highlighted in the engagement process.

Martin Luther King Jr. Day

What Causes Climate Change and Why It Matters

As described in Chapter 1, carbon dioxide (CO_2) and other GHGs work to retain heat in our atmosphere (see Figure 1-1). If it weren't for carbon dioxide, earth's ocean would be frozen solid. Plants take in CO_2 from the air, keep the carbon and release the oxygen, which we need to breathe. Carbon dioxide is so effective at holding in heat, that even a small increase in the atmosphere can overheat the planet. Over the last century, human activities have released CO_2 and other GHGs faster than the ocean and plant life can absorb them. This increase in GHGs has affected the earth's energy balance and is a primary cause of global warming and climate change. The average air temperatures near earth's surface have gone up about two degrees Fahrenheit in the last century. While this may not seem like a lot, it's having big impacts on the health of plants, animals and ecosystems. The warming of our oceans and atmosphere is affecting weather patterns, which in turn affects our water and food supplies, our air quality, our health, and even our economy. Unless the City and community continue to take action, climate change will cause worsening impacts, threatening the lives and livelihoods of the Oxnard community and beyond.

Greenhouse Gas Emissions in Oxnard

As detailed in Chapter 2, the majority of the City's GHGs come from transportation (e.g., driving cars and trucks) (44 percent), followed by the use of electricity (24 percent) and natural gas (19 percent), and the disposal of solid waste (8 percent).[1] Greenhouse gases from off-road equipment (e.g., equipment used for construction and landscaping), wastewater treatment, passenger rail, and water use make up the rest of the GHG emissions. From 2010 to 2018, annual emissions in Oxnard dropped by more than 21 percent. The biggest reductions were associated with electricity use, wastewater treatment, and water treatment and delivery. These reductions were due largely to the state's requirements for cleaner electricity and more fuel-efficient vehicles, as well as the City's progress in implementing the 2013 Energy Action Plan. By 2030, the City expects to see large emissions reductions within the energy, transportation and solid waste sectors as a result of existing state programs and regulations.

Oxnard's GHG Reduction Target

This CAAP provides a road map for the City to reduce GHG emissions in line with California's statewide GHG target that is mandated by Senate Bill (SB) 32, which is to reduce emissions statewide by 40 percent below 1990 levels, by the year 2030.

In addition to state regulations, however, local actions are needed to achieve Oxnard's GHG reduction target. The greatest need for additional emissions reductions is in the on-road transportation, natural gas, electricity, and solid waste sectors. Combined, these sectors represent nearly 94 percent of the City's expected emissions in 2030.

[1] Percentages based on the City's most recent community-wide inventory of emissions, for the calendar year 2018.

Strategies to Reduce Greenhouse Gas Emissions

In developing this CAAP, the City of Oxnard considered many potential strategies and actions to reduce GHG emissions throughout the community. Best-suited measures were chosen primarily based on community support, their effectiveness in reducing emissions, and cost-benefit characteristics, with additional considerations for funding availability and feasibility of implementation. As the City is in the early stages of shifting towards a low-carbon economy, high priority was also given to strategies and actions that support local economic development by creating new jobs and new local green businesses, reducing energy costs, increasing energy security, and reducing traffic congestion. Additional considerations included public health benefits, energy security, air quality impacts, and quality-of-life impacts.

The strategies and actions that the City will take to reduce GHG emissions are organized into the seven major categories as shown below and described in detail in Chapter 3. Combined with state-required measures, local actions will enable the City to meet its 2030 target and put the City on a path to achieving deeper reductions by 2050. The following chart summarizes the local actions that the City will take, in addition to those required by the state:

GHG REDUCTION STRATEGIES

	**Clean Energy** The City will take actions to procure zero-carbon electricity, increase solar energy generation and develop energy storage/microgrids.
	**Green Buildings** The City will improve the energy efficiency of existing residential, commercial and municipal buildings.
	**Transportation** The City will expand infrastructure to support zero emission vehicles (ZEV) and increase bicycle and pedestrian activity; transition the City fleet to greener alternatives; and expand car and bike sharing.
	**Land Use** The City will support transit-oriented and mixed-use development.
	**Water Conservation and Reuse** The City will reduce community and municipal per capita water use through water conservation and reuse.
	**Waste Reduction and Recycling (R)** The City will divert solid waste and organics from landfills.
	**Nature-Based Solutions** The City will increase local carbon sequestration by using native and drought resistant species in the City's tree canopy cover.

How the Community Can Help

Just as input from the community played an important role in shaping the CAAP to reflect community needs and desires, so too will participation from the community be critical to successful implementation of the CAAP. Many strategies to reduce GHG emissions and increase the community's resilience to climate change will depend on active participation by residents and businesses. **Table 5-1** in Chapter 5 lists many actions that community members can take to help reduce GHG emissions in their own homes, businesses, and everyday lives, while also saving money. Examples include washing laundry in cold water, riding a bike to local destinations, and replacing turf in outside landscaping with water-efficient plants. While these individual actions might seem insignificant, they add up collectively to make significant progress towards achieving Oxnard's climate goals.

Strategies to Adapt to Climate Change

The City of Oxnard faces a range of climate-related challenges that include more extreme heat events, sea level rise, flooding, worsening air quality, and drought. Climate science demonstrates how these hazards will worsen over time. As outlined in this plan, the City's goal of reducing GHG emissions will contribute to the global goal of mitigating the worst effects of climate change, but adaptation measures are also needed for Oxnard to be a more prepared and resilient community in the face of these hazards. Effective adaptation requires changes in systems and specific actions that will help our neighborhoods, natural systems, and infrastructure withstand the effects of climate change. Chapter 4 identifies the vulnerabilities faced by the community, as well as potential adaptation strategies that will help protect valuable community resources and vulnerable population groups.

The potential strategies to adapt to a changing climate were chosen primarily based on community support and in response to the hazards of most concern to the City of Oxnard. Adaptation strategies begin with increasing community preparedness. Community preparedness strategies respond to the community's interest in expanding climate change education and becoming more integrated into the climate adaptation process, and include direction for prioritizing collaborations, information-sharing, and accessibility for Oxnard members. Community preparedness strategies also help the City better position itself to access state funding that is earmarked for climate adaptation and resilience projects. Climate adaptation strategies are provided for each of the major climate hazards impacting the City of Oxnard, as summarized below and described in detail in Chapter 4.

CLIMATE ADAPTATION STRATEGIES

	**Extreme Heat** The City will take action to adapt to extreme heat by improving community accessibility to cooling facilities and amenities, providing cooling for households and public facilities, improving community infrastructure to combat heat, and providing support for vulnerable populations to stay safe from extreme heat hazards.
	**Extreme Drought** The City will take action to adapt to extreme drought by providing expanding education and awareness of water conservation and water reuse practices, increasing the city's use of reclaimed water across various facilities and services, and collaborating with local organizations to build capacity for vulnerable groups to respond to drought conditions.
	**Smoke and Air Pollution** The City will take action to improve local air quality by reducing mobile pollution sources, increasing access to air filtration, improving indoor air quality, and making hazard alert systems and worker protections more effective for those who are most vulnerable to poor air quality.
	**Sea Level Rise** The City, through its Local Coastal Plan, will adapt to sea level rise through strategies that decrease hazard risk, relocate or remove development out of hazard areas, rely on a combination of natural and manmade infrastructure to protect coastal development.
	**Extreme Storms** The City will adapt to extreme storm events by prioritizing low-impact development, improving critical infrastructure, monitoring flood impacts, coordinating evacuation procedures, implementing green infrastructure, and remedying areas with stagnant water.

Implementation

The City of Oxnard will be responsible for overseeing and implementing the CAAP and for providing annual updates as to the City's progress in reducing GHG emissions and building community resilience. Success of the CAAP will be measured by the implementation status of each strategy and action, using key performance indicators, and tracking economic, health and resilience indicators over time. Effective implementation will require a commitment of staff time and resources, strategic partnerships, funding, public participation, and effective systems for tracking and monitoring. The CAAP is a living document, and it is expected that, over time, community priorities may shift, City staff and partnering organizations may evolve, new legislation will be introduced, and environmental conditions will change. Therefore, the City will be responsible for undertaking comprehensive revisions of the CAAP at least every 5 years to ensure that the CAAP continues to be an effective and impactful roadmap towards carbon neutrality and community resiliency.

City Council Adoption

The City Council Resolution of Approval to adopt the CAAP is included as Appendix G.

chapter**one**

Introduction and Background

The City of Oxnard (City) is joining an increasing number of cities committed to addressing climate change at the local level. Given the scientific consensus that manmade greenhouse gas (GHG) emissions are contributing to global climate change, the City recognizes the increasing risk that climate change poses to its residents, business owners, and visitors. While state and regional policies and programs are being implemented to reduce GHG emissions, local action is critical to ensure that the City is doing its part to mitigate climate change and adapt to its current and future effects. This Climate Action and Adaptation Plan (CAAP) takes a common-sense approach to reducing GHG emissions in Oxnard and increasing climate change resilience—through strategies and cost-effective actions—that the City itself, as well as its residents and businesses, can implement now and in the years to come.

Why Prepare a CAAP?

In recent years, Oxnard has experienced heat waves and wildfire smoke that have impacted the health of the local community, particularly farmworkers and other vulnerable groups. The Intergovernmental Panel on Climate Change (IPCC) has reported that "human-induced climate change, including more frequent and intense extreme events, has caused widespread adverse impacts and related losses and damages to nature and people, beyond natural climate change variability" (IPCC 2022). While many say extreme heat and wildfire smoke are the "new normal," the City and community are not standing idly by to wait for conditions to worsen. Together with the community and partnering organizations, the City is taking action to address its climate vulnerabilities. The CAAP has two major objectives: to reduce the City's greenhouse gas (GHG) emissions that contribute to climate change, and to increase the community's ability to recover from and adapt to the anticipated impacts of climate change. By implementing the plan, the City intends to align with the State of California's GHG targets, and be better prepared for rising temperatures, extended droughts and wildfire seasons, and sea level rise, to name a few of the more worrisome climate trends.

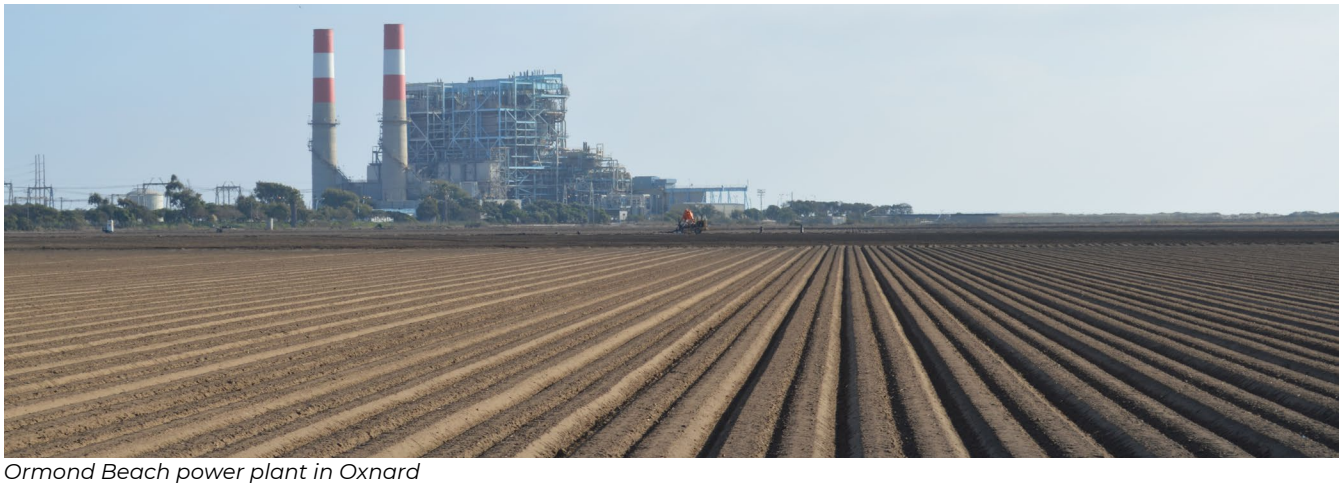
California's Climate Laws

Assembly Bill 32: Known as the Global Warming Solutions Act of 2006, AB 32 directs the state to reduce statewide GHG emissions to 1990 levels by 2020.

Senate Bill 32: Signed by Governor Brown in 2016, SB 32 deepens the state's commitment to reduce GHG emissions to 40 percent below 1990 levels by 2030.

Senate Bill 379: SB 379 (2015) requires each city and county to address climate change in the safety element of its general plan and/or in its local hazard mitigation plan.

This CAAP outlines goals, strategies, and actions for reducing emissions and for increasing community resilience to climate change. It is designed to ensure that Oxnard does its part to contribute to the goals of California's **Global Warming Solutions Act of 2006** (Assembly Bill [AB] 32) and its successor legislation **Senate Bill (SB) 32**, while remaining consistent with the City's General Plan vision for future growth. The reduction of GHG emissions can ultimately establish the City as a leader in addressing the root causes of climate change within its own community. It is also designed to help the City comply with the requirements of **SB 379** by identifying the threats the City faces with climate change and providing a list of recommended strategies to address climate change in the next update to the City's Safety Element of the General Plan.



Ormond Beach power plant in Oxnard

What Causes Climate Change?

As opposed to weather, which refers to short-term atmospheric conditions, climate is the weather of a specific region, usually averaged over a 30-year period. In most places including Oxnard, weather can change from minute-to-minute, hour-to-hour, day-to-day, and season-to-season. Oxnard's' climate, however, is the average of its weather over time. A useful way to think about the difference is that climate is what you expect, like a cool and wet winter, and weather is what you experience, like a warm dry day in January.

Carbon dioxide and other GHGs trap heat in the atmosphere and regulate the earth's temperature (**Figure 1-1**), a natural effect that is responsible for maintaining a habitable climate. Over the last century, however, human activities have greatly increased concentrations of GHGs in the atmosphere. This increase of human-generated GHG emissions, which has accelerated since the mid-20th century, is a primary cause of global warming and climate change. According to the National Academy of Sciences, concentrations of the key GHGs that contribute to global atmospheric warming have all increased since the Industrial Revolution due to human activities. Carbon dioxide, methane, and nitrous oxide concentrations – three of the most impactful GHGs that

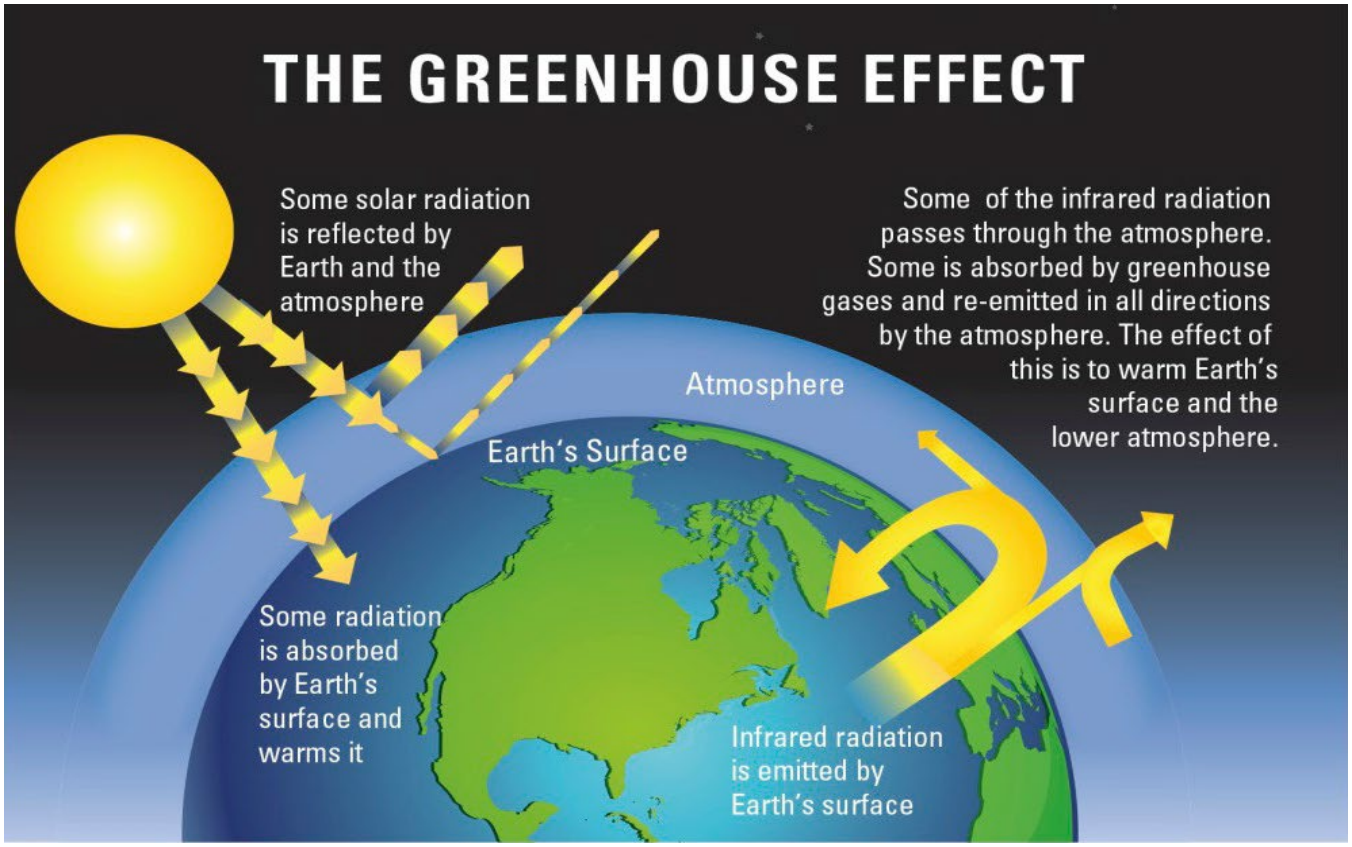


FIGURE 1-1 **The Greenhouse Effect**[2]

[2] Figure from The Royal Society, 2022.

result from human activity – are now more abundant in the earth's atmosphere than any time in the last 800,000 years (NAS 2020). Land use changes, burning of fossil fuels, and agricultural practices have all contributed to this observed increase.

Global warming is leading to other changes in the earth's systems, including changing patterns of rainfall and snow, melting of glaciers and ice, and warming of oceans. The extent of climate change in the future depends in large part on how successfully our global civilization can reduce emissions over the next several decades.

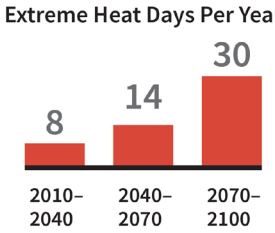
Why Is Climate Change a Concern for Oxnard?

Regional changes in climate, particularly temperature increases and changing precipitation patterns, are already affecting natural systems worldwide, and will have widespread impacts on water availability, food production, ecosystem biodiversity, and human health. These changes are already having significant impacts to the health, economy, and environment of Oxnard and beyond. As shown in the **Figure 1-2**, and further documented in Chapter 4, the Oxnard community, as a result of climate change, is expected to experience a rise in extreme heat events, worsening air quality, more frequent and intense flooding, extended droughts, rising seas and more severe coastal storms. Many members of the community are more vulnerable and prone to suffer worse than others. Roads, buildings, and other assets are also at risk from flooding and rising sea levels that can inundate coastal resources. Unless the City and community continue to take action, climate change will cause worsening impacts, threatening the lives and livelihoods of the Oxnard community.

Seabridge

How will climate change impact Oxnard?

1. Temperatures and extreme heat days will continue to rise.



2070 - 2100
+1.7°- 7.6°F

2040 - 2070
+3.4°- 10.8°F

Higher temperatures may increase energy use for air conditioning, water use for irrigation, and the need for cooling centers.

Lower income areas and communities of color are more likely to live in areas prone to suffer from urban heat island effect, which increases the magnitude of extreme heat events.

2. Air quality expected to worsen.

Increased regional wildfires, higher ozone concentrations, and worsening allergens may exacerbate:

Respiratory Illness

Missed school & work

Allergies

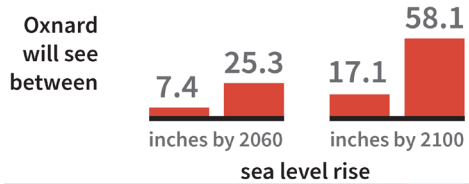
3. Extreme precipitation events are expected to become more intense and more frequent.

By the late 21st century, total rainfall on the wettest day of year in Oxnard may increase by as much as 25-30 percent under the high emissions scenario (RCP 8.5).

4. The State and region is expected to have more frequent, longer and more intense droughts.

Droughts may increase water restrictions and place stress on municipal water supply and regional agriculture operations. Droughts may increase the risk of wildfires in Southern California which may worsen air quality in Onxard.

5. Sea levels will rise and worsen coastal storms and erosion.



Rising sea levels and more severe coastal storms have the potential to inundate coastal resources such as beaches, damage infrastructure, and flood residential and commercial properties.

Source: CalAdapt, 2022

FIGURE 1-2 **Climate Impacts Expected in Oxnard**

Vulnerable Communities and Social Equity Considerations

While climate change presents significant threats to community health and well-being, these threats will not affect everything and everyone equally. The IPCC has reported that "across sectors and regions the most vulnerable people and systems are observed to be disproportionately affected … Vulnerability of ecosystems and people to climate change differs substantially among and within regions, driven by patterns of intersecting socio-economic development, unsustainable ocean and land use, inequity, marginalization, historical, and ongoing patterns of inequity …" (IPCC 2022). According to the City's Local Hazard Mitigation Plan and 2021 Emergency Operations Plan, vulnerable communities in Oxnard include individuals who are subject to heightened risk and increased sensitivity to climate change and have less capacity and fewer resources to cope with, adapt to, or recover from climate impacts, including, but not limited to, the elderly, low-income families, undocumented immigrants, Black, Indigenous, and People of Color (BIPOC) communities, and individuals already suffering from chronic diseases. Contributing factors include, but are not limited to, race, class, sexual orientation and identification, national origin, and income inequality (ICARP 2021). Chapter 4 provides more information on Oxnard's vulnerable populations.

Beach clean-up day

Oxnard's most-vulnerable communities often have less access to healthy and energy-efficient housing, transit, or safe bicycling and walking routes. Many individuals experience multiple and intersecting vulnerabilities which can put them particularly at risk with regard to climate change. For example, black and Hispanic mothers are more likely to be single heads of household and are also more likely to be low-income, live in flood prone areas, and have health issues that can be exacerbated by climate change. These impacts can be further exacerbated by reduced access to key information and available programs and services that transcend language, cultural, or geographic barriers.

Strategies to reduce GHG emissions and to improve environmental conditions must reduce disparities while ensuring the most-vulnerable communities experience the benefits of climate planning. This CAAP incorporates climate equity considerations by understanding socio-economic disparities and taking strides to reduce the unequal burdens faced by the City's most-vulnerable populations. Climate equity ensures the fair distribution of the benefits of climate action and resilience efforts as the community transitions to a low-carbon future. This also means not making existing disparities worse and striving to reduce disparities.

Youth Voices

Youth in Oxnard have volunteered and organized with the Central Coast Alliance United for a Sustainable Economy (CAUSE), the Food and Water Watch (FWW), Climate First: Replacing Oil & Gas (CFROG), the 350 Ventura County Climate Hub, and Oxnard College. Many young people are concerned about the environmental health hazards of polluting projects in their community, especially pesticide safety on farms and fracking/oil. It is important to involve youth voices and organizations because they will be the future generation that inherits the air, the water, and the land. Youth already will continue to suffer from the growing number of climate change consequences. Therefore, they should have a say in their future by including them in discussions about climate action.

Water Calendar July 2017

Community Benefits of Taking Action

Climate equity strategies can help to overcome deeply interrelated challenges community members face. For example, if affordable housing is located far from job centers, workers must commute long distances, increasing vehicle miles traveled and worsening air quality for all. Locating housing near services or key destinations can enable community members to take advantage of healthy and environmentally friendly mobility options such as biking or walking.


Beach clean-up day

Vulnerable communities face higher health costs from exposure to worsening air quality and at the same time pay a greater percentage of their income and time using unreliable public transit services. More-frequent and clean transportation options can improve health outcomes and access to regional employment. Industrial manufacturing and waste disposal also contribute to health and climate inequities. Creating pathways for new jobs in composting, recycling and reuse, and edible food recovery that are well paying and do not require higher education can address food insecurity, reduce community exposure to toxins, and increase economic opportunity.

Strategies that invest in building energy efficiency can improve public health and reduce utility bills and maintenance costs. By investing in skilled workers and new low-carbon technologies like clean energy and renewable materials, Oxnard can develop new engines for "green" job growth and sustainable economic prosperity.

Many of the actions that address climate change can improve the health and well-being of vulnerable communities. By instituting measures to deal with climate impacts such as extreme heat and air quality impacts, Oxnard is planning for climate change in a way that protects vulnerable populations and provides an equitable distribution of costs, benefits, and opportunities for all members of the community. The City has an important role, in partnership with public agencies and community-based organizations, to alleviate historic disparities, to educate and engage the public on climate change issues, and to promote community involvement in actions to reduce climate change risks.

Climate-related policies and regulations are generating profound economic change. The state recognizes that reaching its ambitious GHG reduction targets requires innovation, public and private investments, and market

Arbor Day tree planting

adoption of new technologies in energy, transportation, materials, agriculture, water, waste management, and land management. New economic opportunities are emerging as state and regional agencies direct investment, policy, and planning resources toward reducing GHG emissions. Many of the CAAP's measures represent local business and green job opportunities related to renewable energy generation, energy-efficiency improvements, waste reduction, and new forms of mobility, to name a few.

This CAAP is not just a plan to reduce emissions; it is a plan for a sustainable and equitable Oxnard. From housing to transportation to waste and urban greening, it is important to incorporate principles of equity throughout the plan to ensure all community members benefit from climate planning.

Community and Stakeholder Participation

Community Engagement Process

From the outset, the intent of the Oxnard CAAP has been to create a plan that understands and responds to community needs and desires. In order to create a successful plan that reflects the community of Oxnard's vision of climate resilience, the City implemented a robust stakeholder engagement process throughout the development of the CAAP.

The City took multiple approaches to stakeholder and community engagement with the goal of making participation as accessible as possible, especially for those that are most impacted by the effects of climate change. Engagement began in May 2021 and continued through April 2022, and consisted of topic-specific stakeholder focus groups, community workshops, and an online survey. The key findings from public engagement activities are included in **Appendix A**. Input received from the public engagement activities informed the development of strategies and actions in the CAAP that are designed to reduce GHG emissions and increase the community's resilience to climate change.

Input from the Community

The first round of engagement in May 2021 had the goal of familiarizing stakeholders and the community with the CAAP, identifying the climate change impacts of most concern to the community, and gathering ideas about the best ways to reduce GHGs in the community. Round 1 activities included an online community survey in both English and Spanish (which received 133 responses), six stakeholder group meetings, and two public workshops (also held in both English and Spanish). The stakeholder focus groups included environmental organizations; local businesses and commerce; utilities, franchises, and agency representatives; community-based organizations; education and healthcare organizations; and City of Oxnard departments. The input received from the first round of engagement efforts revealed a strong interest in strategies that emphasize equity, distribute benefits fairly, and do not put vulnerable communities at further risk. Extreme heat, poor air quality, and drought were the climate change impacts that were of the greatest concern to the community. Participants in both the stakeholder meetings and community workshops identified communities and populations of particular concern – such as renters or individuals living in older housing stock, older residents, and outdoor workers – and identified mitigation and adaptation strategies for addressing their vulnerabilities.

A second round of stakeholder engagement meetings occurred in January 2022, after the vulnerability assessment was completed and preliminary adaptation strategies were identified. The consultant team presented findings regarding community vulnerabilities to climate change and social vulnerability in Oxnard and received feedback on draft adaptation strategies. Many themes brought up during Round 1 of engagement were echoed in Round 2, including the importance of prioritizing vulnerable populations, the importance of public education, the need to consider economic feasibility and cost-benefits when prioritizing and implementing strategies, and the importance of collaborating with local and regional partners to increase the efficiency and effectiveness of strategies. The input received from the second round of stakeholder outreach helped refine the CAAP strategies and shape the framework for implementing the plan.

Relationship to State Policy

California has been a global leader in developing policies and programs that address climate change. Since 2005, California has been passing legislation that seeks to control emissions of gases that contribute to global warming. These have included regulatory approaches, such as mandatory reporting for significant sources of GHG emissions and caps on emission levels, as well as market-based mechanisms, such as market-based **cap-and-trade**. Some regulations apply at the state level, but others are state-imposed mandates that are applicable at the municipal level and are required of local agencies and jurisdictions.

AB 32 directs the state to reduce statewide GHG emissions to 1990 levels by 2020, while SB 32 deepens that commitment to 40 percent below 1990 levels by 2030. To achieve these reductions, the California Air Resources Board (CARB) and the state Office of Planning and Research recommend that local governments develop community-wide targets that are consistent with these statewide targets. As such, this plan sets a 2030 community-wide GHG target for the City consistent with state recommendations, and it outlines the strategies and actions the City will take to reduce GHG emissions and track progress towards reaching that target.

Cap and Trade

Launched in 2013, California's cap-and-trade program is the nation's first economy-wide GHG emissions market. The program sets a limit on GHG emissions from power plants and other large industrial facilities that decline over time. Covered entities are issued annual emissions allowances, which can be bought and sold by companies depending on their needs. This effectively sets a price on carbon and creates an incentive for industry and businesses to reduce their emissions more efficiently.

California SB 379 requires each city and county to address climate change in the safety element of its general plan and/or in its local hazard mitigation plan. The bill requires the updated plan to include climate adaptation and resiliency strategies based on a vulnerability assessment that is specific to the local geography.

In September 2022, the State of California adopted Assembly Bill 1279 (AB 1279), which creates a legally binding goal that the state achieve carbon neutrality — meaning the state either eliminates or captures all of its GHG emissions — by no later than 2045. CARB is charged with leading the statewide planning effort to achieve this long-term target and is in the process of updating the current Climate Change Scoping Plan to lay out a path for the State of California to achieve carbon neutrality by 2045.

In addition to these important policies and legislative actions, the CAAP is informed by a long list of state actions regarding climate change, the details of which are described in **Appendix B**.

Relationship to Regional and Local Plans

This CAAP, in presenting strategies and actions for reducing community GHG emissions and increasing resilience to climate change, is closely aligned with the goals and policies outlined in regional and local plans, including the Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS) for Southern California, the City of Oxnard General Plan, and other City plans and policies related to sustainability. This CAAP is a standalone policy document and will help the City meet its long-term planning goals.

Southern California Association of Governments Regional Transportation Plan and Sustainable Communities Strategy

The Southern California Association of Governments (SCAG) is the regional planning agency for Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties, and it serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. Connect SoCal, adopted in 2020, is SCAG's latest RTP/SCS, a long-range visioning plan that balances future mobility and housing needs with economic, environmental and public health goals

Car show

SCAG worked with Ventura County partners to develop Connect SoCal, including the Ventura County Transportation Commission (VCTC), elected officials, and local jurisdictions. The plan includes $48.7 billion in transportation investments specific to Ventura County and incorporates all the projects VCTC identified as local priorities. Connect SoCal builds upon and expands land use and transportation strategies established over several planning cycles to increase mobility options and achieve a more sustainable growth pattern. It charts a path toward a more mobile, sustainable, and prosperous region by making connections between transportation networks, between planning strategies, and between the people whose collaboration can improve the quality of life in the SCAG region. The RTP/SCS does not mandate future land use policies for local jurisdictions; rather, it provides a foundation of regional policy upon which local governments can build. Local jurisdictions, including the City, partner with SCAG and are active members in the development and implementation of the RTP/SCS.

The City of Oxnard CAAP uses socioeconomic growth forecasts that are consistent with the SCAG RTP/SCS, as well as the growth forecasts used by VCTC's Transportation Model for Ventura County.

City of Oxnard 2030 General Plan

Development of the CAAP is informed and guided by the goals and policies in the City of Oxnard General Plan, which was most recently updated comprehensively in 2011. The City of Oxnard 2030 General Plan sets out a

vision to guide future development in the City to the year 2030. Five of the City's General Plan elements—Sustainable Community, Community Development, Infrastructure and Community Services, Environmental Resources, and Safety and Hazards—include policies that are directly related to climate change and the reduction of GHG emissions.

- The **Sustainable Community (SC) Element** was developed to better understand and provide a vision for addressing climate change, sea level rise, and energy conservation. This element states the City's commitment to supporting implementation of SB 375 (Sustainable Communities Strategy Bill), the state's primary legislation related to local planning for reducing GHG emissions (AB 32). The policies contained within this element focus on the conservation of energy, water and natural resources, improvements for local infrastructure and water systems, and planning for renewable and alternative energy production as critical issues related to long-term sustainable development. Two policies in particular from the Sustainable Communities Element inform and guide the development of this CAAP:
    - *SC-1.2 – Support Statewide Global Warming and Climate Change Mitigation:* Continue to monitor and support the efforts of the California Air Resources Board and other agencies as they formulate Global Warming and Climate Change adaption and mitigation strategies and programs.
    - *SC-1.3 – Develop a Climate Action and Adaptation Plan (CAAP) That Supports the Regional SB 375 Sustainable Communities Strategy:* Develop a Climate Action and Adaption Plan that implements requirements adopted by the California Air Resources Board and/or the Ventura County APCD that establishes a GHG emissions qualitative and quantitative threshold of significance, establishes GHG reduction targets, and supports the regional SB 375 Sustainable Communities Strategy.
- The **Community Development (CD) Element** guides the makeup, distribution, and intensity of land use types and development within the city. Policies focus on revitalization of existing neighborhoods

Meet Up, Clean Up event

and new development, and continued greenbelt and agriculture uses within the city. The element further contains specific policies and programs for supporting alternative transportation modes, reducing vehicular emissions, and "greening" community areas and roads.

- The **Infrastructure and Community Services (ICS) Element** provides descriptions of infrastructure and community services relating to traffic and circulation, public works, long-term water supply, police and fire protection, libraries, parks, schools, public safety, and other public facilities and services. ICS policies are designed to ensure that infrastructure and community services keep pace with the public's needs and quality expectations. Relating to climate change, there are several policies that promote the efficiency of the transportation system, improving infrastructure to support all modes of travel, shifting to zero-emissions vehicles, improving water systems, utilizing sustainable materials in development, and promoting conservation practices.

Recycling truck

- The **Environmental Resources (ER) Element** describes the City's vision for maintaining responsible stewardship of the environment. Policies and programs within this element address the conservation, development, and use of natural resources, and also explores the managed production of resources, significant buildings and historic sites, water resources, biological resources, and agricultural resources.
- The **Safety and Hazards (SH) Element** addresses safety and noise in the community, with a focus on seismic and geologic hazards, flooding, tsunami, hazardous materials and wastes, emergency preparedness, and other hazards that pose risks to people, infrastructure, and other community services and assets. The SH Element provides policies that guide the safe handling, transportation, storage, and designation of hazardous materials and related industries and that improve practices for reducing emissions within these sectors.

City of Oxnard Housing Element Update

The CAAP's future land use and socioeconomic growth forecasts are consistent with those used in the City of Oxnard 2021-2029 Housing Element, adopted on October 5, 2021. Housing elements are regularly updated to assess and respond to local demand for residential development. The Housing Element plans for additional units, including affordable housing that aligns with the Regional Housing Needs Assessment allocation established by SCAG. The Housing Element identifies housing programs that will aid Oxnard in meeting its housing allocation in a manner that best serves its citizens.

Energy Action Plan

In 2013, the City adopted its Energy Action Plan (EAP) for the City government and for the community, as an implementation of General Plan Sustainable Communities Element policies SC-3.2 and SC-3.3. Through the

EAP, the City commits to reducing energy consumption and increasing renewable energy production in the community (government, residential, commercial, agricultural, and industrial) relative to planned growth through the year 2020. The EAP established an overall energy reduction target and identified programs to achieve the target over time, building upon existing energy conservation efforts and identifying energy conservation and production programs consistent with 2030 General Plan goals and policies, utility company programs, and state and federal legislation and initiatives. The CAAP is informed by the EAP, incorporating or updating many of its strategies and programs related to renewable energy as well as energy efficiency and conservation.

Local Coastal Program (LCP) Update

The California Coastal Act requires local governments to prepare and implement local coastal plans to protect natural and man-made coastal resources and maximize public access to the shoreline. The City is currently undergoing an update to its LCP to address coastal hazard risks to various community sectors: residential land, commercial land, municipal buildings, power plants, Channel Islands harbor, hazardous waste, coastal access, and infrastructure. Strategies developed for the LCP will address adaptation for erosion, coastal storm waves, coastal flooding, tidal inundation, and other coastal threats to the environment and community.

Bicycle and Pedestrian Facilities Master Plan

The City developed the Bicycle and Pedestrian Facilities Master Plan (Master Plan) in 2011 to provide a vision for developing a safe, convenient, and effective citywide system that promotes bicycling and walking as viable

Del Norte Recycling Center

transportation and recreation opportunities. The policies, goals, and objectives described in the Master Plan support a safer, more enjoyable, and more accessible active transportation network for community members. Policies address barriers to bicycling and walking and provide opportunities through outreach and improvement projects to remove barriers to active transportation, improve community health, and reduce emissions related to the transportation sector.

2020 Urban Water Management Plan

The City's 2020 Urban Water Management Plan (UWMP), adopted in October 2021, discusses existing and forecasted water demand, supply, and reliability for the community. The City's water supply is provided by imported surface water sources through the State Water Project and the Colorado River, purchased local groundwater, and local groundwater from City wells. The UWMP also discusses the City's connection with the Calleguas Municipal Water District, their regional wholesale provider, as relevant to the scope of the UWMP. The UWMP plans for the sustainability and reliability of water sources, including the Oxnard Subbasin, to protect from seawater intrusion and ensure long-term service to the community.

Managing wastewater

City of Oxnard Public Works Integrated Master Plan

The City has jurisdictional authority to provide potable water, wastewater, recycled water, and stormwater services to its citizens and numerous commercial, industrial, and agricultural users. The Public Works Integrated Master Plan (Integrated Master Plan), developed in May 2016, provides long-term recommendations for policies, programs, and projects that successfully address these challenges and opportunities in a holistic and integrated way. The policies, goals, and objectives within the Integrated Master Plan emphasize energy efficiency, with recommendations to incorporate greening strategies for new facilities, integrate gray and green infrastructure, and mitigate and adapt to potential climate-related impacts.


2

chapter**two**

Understanding Oxnard's Greenhouse Gas Emissions

The City of Oxnard greenhouse gas (GHG) inventory quantifies the annual GHG emissions resulting from activities within the city by residents, businesses, and the City government. It provides an understanding of where GHG emissions are originating from and what can be done to reduce them.

The City's *community emissions inventory* is comprised of emissions from activities occurring within the city, including emissions that occur elsewhere because of those activities. A good example is solid waste, which is generated locally but disposed of at a landfill outside the city, where it decomposes and generates GHGs.

The City's *municipal emissions inventory* represents GHGs that occur due to City operations. Municipal emissions are not a separate inventory, but a small subset of the community emissions inventory; they represent sources over which the City has the most control. As such, the City is committed to taking a leadership role in reducing the City's emissions, by measuring emissions from its own facilities and operations and taking actions to reduce them.

Recycling drive

Community Emissions Inventory

The City has completed GHG emission inventories for the years 2010 and 2018 using internationally recognized protocols that are based in science and widely recognized by the State of California and cities and counties throughout the state.

In 2020, the City completed an inventory of emissions for the year 2010, representing the *earliest* year for which the necessary data was available, and for the year 2018, representing the *most recent* year for which data was available. **Table 2-1** summarizes the results of the 2010 and 2018 community inventory broken down by major sector (i.e., category of emissions that is defined by the end use that causes them, such as transportation), and showing the change from 2010 to 2018. **Figure 2-1** shows the percentage breakdown by sector for the two inventory years.

Global Warming Potentials and Carbon Dioxide Equivalents

GHGs vary in their potency when it comes to their warming effect on the atmosphere. Carbon dioxide (**CO_2**), methane (**CH_4**), and nitrous oxide (**N_2O**), the GHGs included in the City's inventories, each have different global warming potentials. For example, one ton of CH_4 traps about 25 times more warmth in the atmosphere over 100-year timespan than 1 ton of CO_2. N_2O is more than 200 times more powerful than CO_2. These warming potentials are used to represent the GHGs using a common unit of *metric tons of carbon dioxide equivalent* (**$MTCO_2e$**). For example, a typical passenger vehicle driven 12,000 miles per year with an average fuel efficiency of 22 mpg emits about 5 $MTCO_2e$ per year (USEPA 2021a).

TABLE 2-1 **City of Oxnard Community GHG Emissions, 2010 and 2018 ($MTCO_2e$)**

SECTOR	2010	2018	ABSOLUTE CHANGE	PERCENT CHANGE
On-Road Transportation	428,030	389,079	-38,951	-9%
Electricity	252,511	207,472	-45,039	-18%
Natural Gas	215,922	165,692	-50,230	-23%
Solid Waste	64,564	68,411	3,848	6%
Off-Road Equipment	28,394	37,310	8,916	31%
Wastewater	6,432	4,769	-1,663	-26%
Passenger Rail	2,353	2,137	-217	-9%
Water	1,583	1,271	-312	-10%
TOTAL	**999,788**	**876,140**	**-123,648**	**-12%**

Source: Appendix C, Greenhouse Gas Quantification Methods

Notes: $MTCO_2e$ represents metric tons of carbon dioxide equivalent. Totals may not add up due to rounding.

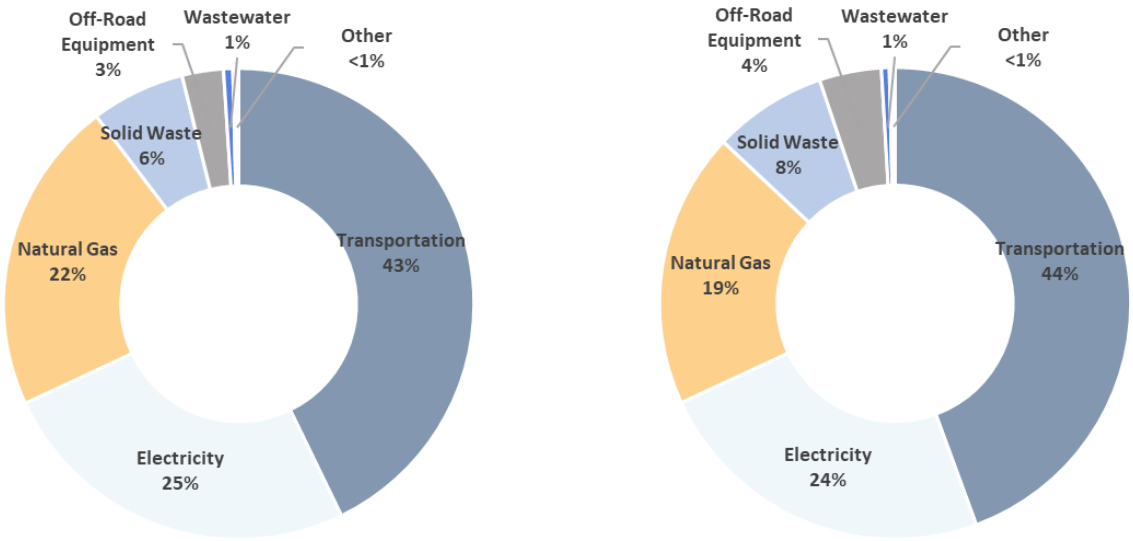


FIGURE 2-1 **City of Oxnard 2010 and 2018 GHG Emissions by Sector**

In both 2010 and 2018, on-road transportation contributed the most to the community inventory, followed by electricity, natural gas, and solid waste. Combined, these sectors represent approximately 96 percent of the 2010 inventory and 95 percent of the 2018 inventory. Emissions from off-road equipment (e.g., equipment used for construction and landscaping), wastewater, passenger rail, and water use make up the rest of the inventory. Overall, annual GHG emissions have dropped by over 100,000 $MTCO_2e$ from 2010 to 2018, a difference of approximately 12 percent. The biggest reductions are from the wastewater sector, which decreased by almost 26 percent. Natural gas emissions dropped 23 percent, and water emissions dropped nearly 20 percent. Electricity represents the fourth biggest reduction, falling by 18 percent. Emissions from on-road transportation and passenger rail each decreased by 9 percent. Off-road equipment emissions rose by approximately

Train station

31 percent, while emissions from solid waste rose by 6 percent. An explanation for the reductions in emissions from the various sectors is described below under GHG Emissions Trends.

Emissions from Municipal Operations

Table 2-2 summarizes the results for the 2010 and 2018 municipal operations inventories, listed by sector and showing the change from 2010 to 2018. Note that municipal operations represent a subset of community emissions, and they are included in the total emissions shown in Table 2-1. The municipal operations inventory provides a detailed look at the emission sources over which the City has the most control or influence. Overall, annual emissions have dropped by more than 21 percent from 2010 to 2018. The biggest reductions are from electricity use, wastewater treatment, and water treatment and delivery. Emissions from natural gas and solid waste actually increased, though their contributions to overall emissions remained very small.

TABLE 2-2 **City of Oxnard, GHG Emissions from Municipal Operations, 2010 and 2018 ($MTCO_2e$)**

SECTOR	2010	2018	ABSOLUTE CHANGE	PERCENT CHANGE
On-Road Fleet	6,338	5,491	-847	-13.4%
Electricity	11,409	7,586	-3,824	-33.5%
Natural Gas	901	1,224	323	35.9%
Solid Waste	1,937	2,052	115	6.0%
Off-Road Fleet	999	897	-101	-10.1%
Wastewater Treatment	6,363	4,734	-1,629	-25.6%
Water Treatment & Delivery	1,583	1,271	-312	-19.7%
Employee Commute	540	476	-64	-11.9%
TOTAL	**30,070**	**23,731**	**-6,339**	**-21.1%**

Source: Appendix C, Greenhouse Gas Quantification Methods

Notes: $MTCO_2e$ represents metric tons of carbon dioxide equivalent. Totals may not add up due to rounding.

GHG Emissions Trends

Several factors explain the reduction in community and municipal operations emissions since 2010. The state's renewables portfolio standard (RPS) has resulted in electricity that is cleaner and has a lower carbon footprint. Similarly, the state's standards for vehicle fuel efficiency have resulted in lower emissions from transportation. In addition, the City is using less energy per capita than it was in 2020, partly as a result of implementing its Energy Action Plan, which was adopted in 2013 and includes programs for increasing the energy efficiency of buildings and for encouraging the installation of rooftop solar photovoltaic systems in the community. Notably, the inventory results indicate that the primary objective of the City's 2013 Energy Action Plan—to achieve a 10 percent reduction in energy-related GHG emissions by 2020—has been met. Note also that the results in Tables 2-1 and 2-2 do not yet reflect the full effect of the community purchasing electricity from the Clean Power Alliance starting in 2019, a development that is discussed in detail in Chapter 3.

GHG Emissions Forecasts

Table 2-3 summarizes the growth in population, housing, and employment that is expected for Oxnard through the year 2050. These factors are used to develop a "business-as-usual" (BAU) emissions forecast out to the year 2050, which indicates how community emissions would increase in the absence of changing state regulations (e.g., more-stringent standards for renewable energy and vehicle fuel efficiency) and if no additional actions were taken by the City to reduce emissions. These socioeconomic growth forecasts are used by SCAG's 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and by the Ventura County Transportation Model (VCTM) to forecast future conditions.

TABLE 2-3 **City of Oxnard Socioeconomic Data**

DEMOGRAPHIC	SOCIOECONOMIC DATA			GROWTH RATES	
	2018	2030	2050	2018–2030	2018–2050
Population	204,142	221,364	250,066	8.4%	22.5%
Housing	52,429	58,920	69,740	12.4%	33.0%
Employment	57,712	89,333	142,035	54.8%	146.1%

Source: VCTM data collected by Fehr & Peers, 2021.

Note: 2018, 2030, and 2050 socioeconomic data are linearly interpolated and forecasted using the available data (for 2012 and 2040) from the Ventura County Transportation Model (VCTM).

The BAU forecast for Oxnard, as shown in **Table 2-4** and **Figure 2-2**, shows that by 2030, annual community GHG emissions would be approximately 948,847 $MTCO_2e$, an increase from the City's 2018 emissions, but representing a 5 percent reduction from 2010. By 2050, annual community GHG emissions are expected to increase to approximately 1,086,277 $MTCO_2e$ under BAU conditions, representing a 9 percent increase from 2010.

TABLE 2-4 **City of Oxnard Community GHG Emissions BAU Forecasts ($MTCO_2e$/Year)**

SECTOR	2010	2018	2030	2050
On-Road Transportation	428,030	389,079	421,902	476,608
Electricity	252,511	207,472	227,193	260,068
Natural Gas	215,922	165,692	183,175	220,400
Solid Waste	64,564	68,411	74,182	83,801
Off-Road Equipment	28,394	37,310	34,264	36,216
Wastewater	6,432	4,769	5,171	5,841
Passenger Rail	2,353	2,137	1,378	1,556
Water	1,583	1,271	1,581	1,786
TOTAL	**999,788**	**876,140**	**948,847**	**1,086,277**

Source: Appendix C, Greenhouse Gas Quantification Methods

Notes: $MTCO_2e$ represents metric tons of carbon dioxide equivalent. Totals may not add up due to rounding.

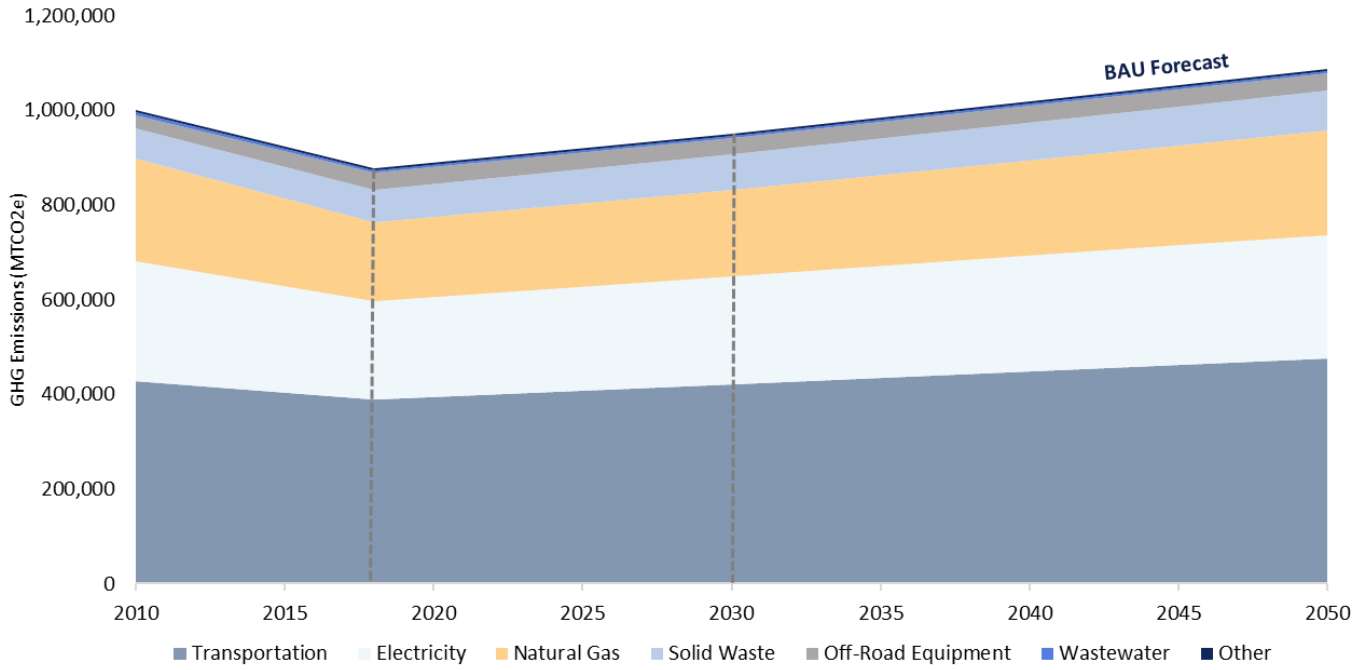


FIGURE 2-2 **BAU Forecasts of Community GHG Emissions, by Sector ($MTCO_2e$/Year)**

Adjusting for State Regulations and Standards

Significant reductions in community GHG emissions are anticipated as a result of existing state measures (regulations, standards and related programs) that are designed to reduce emissions from energy use, transportation, and solid waste disposal. These measures, which are described below, will reduce community emissions regardless of whether the City takes additional local actions to reduce emissions. For example, if the vehicle miles traveled within the city remain constant over time, the GHG emissions from transportation would decrease as newer vehicles replace older, less-efficient vehicles.

The effect of statewide standards and regulations on the City's 2030 and 2050 forecasts is summarized in **Table 2-5**; their collective effect through the year 2050 is shown in **Figure 2-3**, shown as *Adjusted* BAU emissions forecasts. By 2030, statewide standards and regulations are expected to reduce community emissions by approximately 236,000 $MTCO_2e$ per year, or an estimated 25 percent from the BAU forecast. By 2050, statewide measures are expected to reduce community emissions by approximately 495,000 $MTCO_2e$ per year, or an estimated 46 percent from the BAU forecast. As shown in Figure 2-3, with state-imposed regulations, the Adjusted BAU forecast shows emissions decreasing through the year 2050, compared to the BAU forecast that shows an increase over the same period.

TABLE 2-5 **Annual GHG Reductions from State Measures by 2030 and 2050 ($MTCO_2e$/Year)**

STATE MEASURE	2030	2050
S1: Renewables Portfolio Standard and SB 350	-98,576	-266,089
S2: Pavley Vehicle Standards and the Mobile Source Strategy	-124,341	-186,789
S3: CALGreen (Title 24 Building Energy Efficiency Standards)	-15,420	-48,303
S4: Waste Diversion Mandates	Not Quantified	Not Quantified
TOTAL REDUCTIONS	**-238,338**	**-501,181**
BAU FORECAST (from Table 2-4)	**948,847**	**1,086,277**
ADJUSTED BAU FORECAST	**710,510**	**585,095**

Source: Appendix C, Greenhouse Gas Quantification Methods

Notes: $MTCO_2e$ represents metric tons of carbon dioxide equivalent. Totals may not add up due to rounding.

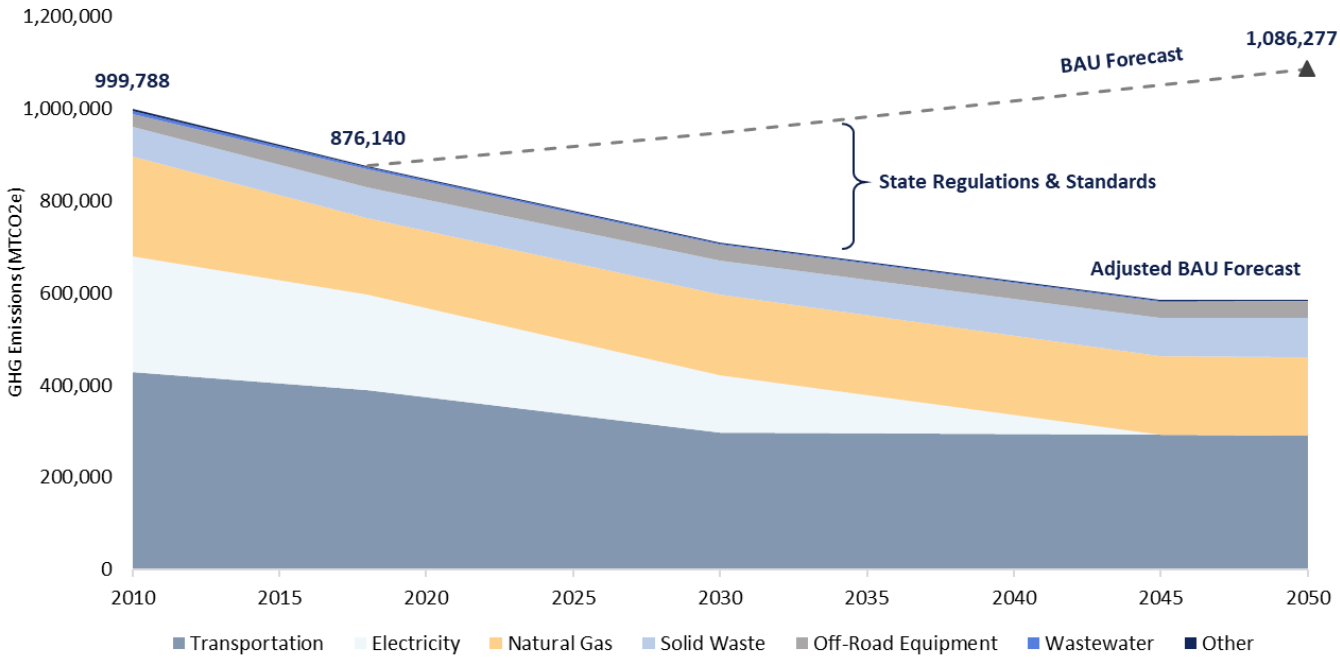


FIGURE 2-3 **Adjusted BAU Forecasts of Community GHG Emissions, by Sector ($MTC0_2e$/Year)**

S1: RENEWABLES PORTFOLIO STANDARD AND SENATE BILL 350

California's RPS was established in 2002, requiring the renewable energy portion of a utility's portfolio to be at least 20 percent by 2020. Over time, the standard has been increased through legislation, culminating in Senate Bill (SB) 100, passed in 2018, which increases the RPS requirement to 60 percent renewables by 2030 and 100 percent by 2045. The emissions reductions associated with these energy performance goals are reflected in the City's Adjusted BAU forecast.

S2: PAVLEY VEHICLE STANDARDS AND THE MOBILE SOURCE STRATEGY

Transportation measures in particular are designed to achieve consistent GHG emissions reductions across the state by increasing vehicle efficiency and reducing the carbon intensity of fuels used by the statewide vehicle fleet. These measures include the Pavley II/CAFÉ (Corporate Average Fuel Economy) Vehicle standards (known as the Advanced Clean Cars initiative in California), the Low-Carbon Fuel Standard, the Tire Pressure Program, the Tire Tread Standard, and the Heavy-Duty-Vehicle Emissions Reduction Program. Collectively, these measures are expected to reduce statewide transportation emissions in the city by 124,341 $MTCO_2e$ per year from the 2030 BAU forecast.

S3: CALGREEN (TITLE 24 BUILDING ENERGY EFFICIENCY STANDARDS)

Under California's green building standards (CALGreen), Title 24, Part 6 (Building Energy Efficiency Standards for Residential and Non-residential Buildings) establishes statewide building energy-efficiency standards to reduce California's energy consumption. The provisions include mandatory requirements for efficiency and design of energy systems, including space conditioning (cooling and heating), water heating, indoor and outdoor lighting systems and equipment, and appliances. California's Building Energy-Efficiency Standards are updated on an approximately 3-year cycle as technology and methods have evolved. The most recent Title 24 update, which becomes effective January 1, 2023, establishes electric-ready requirements for new homes,

expands solar photovoltaic and battery storage standards, and updates efficiency measures for lighting, building envelope, and HVAC systems, taking Title 24 another step closer to the state's zero-net-energy (ZNE) goals as spelled out in the California Energy-Efficiency Strategic Plan. The emissions reductions associated with 2022 Title 24 compliance are reflected in the City's Adjusted BAU forecast.

S4: WASTE DIVERSION MANDATES

Recycling or reusing materials rather than disposing of them in landfills reduces GHG emissions by reducing the need to harvest and transport new raw construction materials. Recycled materials can be locally repurposed and reused. Products that are repaired, reused, or designed to last longer avoid the emissions associated with the harvesting of virgin materials and manufacturing of new products. Composting organic waste keeps it from decomposing anaerobically in landfills to create CH_4, and composting helps build healthy soils and plants, which serve as reservoirs for carbon that would otherwise be released into the atmosphere. State regulations to reduce GHG emissions associated with solid waste include SB 1383, which sets a statewide goal of diverting at least 75 percent of organic waste from landfills by 2025, including the recovery of 20 percent of edible food waste for human consumption. AB 341 established a statewide goal of 75 percent recycling through source reduction, recycling, and composting by 2020, and requires commercial businesses, multifamily dwellings with 5 units or more, and public entities that generate 4 cubic yards or more per week of waste to have a recycling program in place. In addition, AB 1826 requires businesses and multifamily complexes that generate 2 cubic yards or more per week of solid waste, recycling, and organic waste combined to arrange for organics collection services. The emissions reductions associated with the state's solid waste mandates are not reflected in the City's Adjusted BAU forecast because they are accounted for in the City's local actions to comply with those mandates (see Strategy R1: Recycling and Organic Waste Diversion).

Sorting recycled materials at the Oxnard Materials Recovery Facility

Oxnard's GHG Reduction Target

The City of Oxnard has adopted a target to reduce community-wide GHG emissions 50 percent below 2010 levels by 2030 and has an aspirational goal to achieve carbon neutrality by 2045. The City's 2030 target is consistent with California's statewide GHG target mandated by SB 32 (reduce emissions 40 percent below 1990 levels by 2030), while the 2045 carbon neutrality goal aligns with the State's long-term goals and targets, including Governor's Order S-3-05 (reduce statewide emissions 80 percent below 1990 levels by 2050), and Assembly Bill 1227, passed in September 2022 (achieve carbon neutrality statewide by 2045).

For Oxnard, like most communities, accurately quantifying 1990 emissions for the basis of target setting is not possible due to the lack of historical data needed to estimate emissions from activities occurring back that far. The earliest year for which Oxnard has a complete emissions inventory is 2010. Following CARB guidance from its Scoping Plan, local governments with baseline inventories occurring around 2010 typically set their 2030 targets at approximately 50 percent below their 2010 baseline, which is equivalent to the State mandate of reducing emissions 40 percent below 1990 baseline levels. For the City of Oxnard, this equates to limiting community-wide emissions in 2030 to approximately 499,894 $MTCO_2e$ per year.

Compacted recycled materials

Figure 2-4 illustrates Oxnard's community emissions target for 2030 that is aligned with SB 32, equivalent to a reduction of 50 percent below the City's 2010 baseline. The figure indicates that the reductions expected from state standards and regulations are not enough to achieve the target, and additional local actions are needed. As indicated by the Adjusted BAU forecast, the sectors with the greatest need for additional emissions reduction are on-road transportation, natural gas, electricity, and solid waste. Combined, these sectors represent nearly 94 percent of the City's expected emissions in 2030.

The City's Climate Action and Adaptation Plan (CAAP) provides a road map for the City to achieve its 2030 target, while setting the stage for deeper reductions in future CAAP updates that will be necessary to remain consistent with state goals and targets. By demonstrating how the City can achieve a target that is consistent with SB 32, the CAAP is considered by the state to be a "qualified" GHG reduction plan, which means that it can be used to facilitate California Environmental Quality Act (CEQA) review of the City's future development projects with respect to GHG emissions. In essence, if a project can demonstrate consistency with the strategies and actions in the CAAP, it can be considered in compliance with the state's GHG emissions targets. Developing a qualified GHG reduction plan is proving to be the most effective and legally defensible way for local governments to plan for growth in a manner that does not create a significant impact with respect to GHG emissions. More information about CEQA and its relationship to the CAAP is provided in Chapter 5.

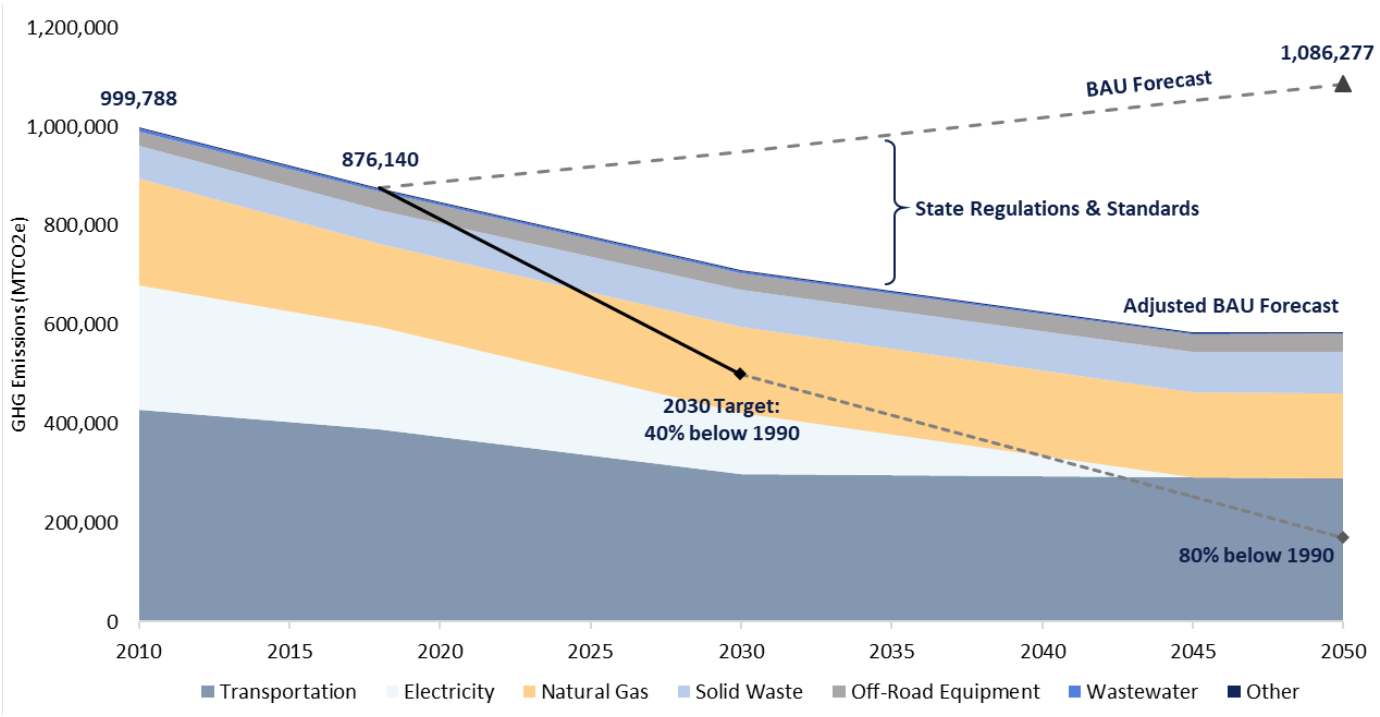


FIGURE 2-4 **Oxnard's 2030 Community GHG Emissions Target**

3

chapter**three**

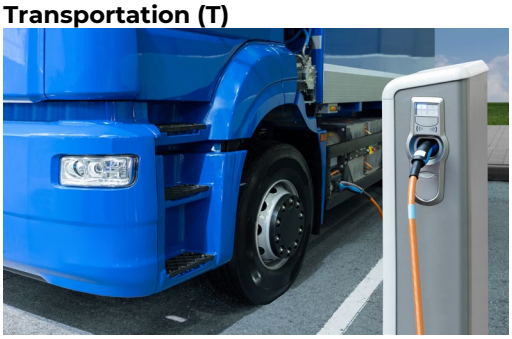
Reducing Greenhouse Gas Emissions

While state measures are critical to meet the City of Oxnard's (City's) emission reduction goals, local programs, and policies—and choices made by the City's residents and businesses—will determine the City's ability to achieve its emissions-reduction target for 2030. This chapter describes the actions that the City plans to take across a variety of strategies related to energy, transportation, solid waste, and natural resources. These include partnerships, outreach campaigns, incentives, zoning changes, ordinances, infrastructure investments, changes in local government operations, and other actions organized under the following groups of strategies:

- **Clean Energy (E)**

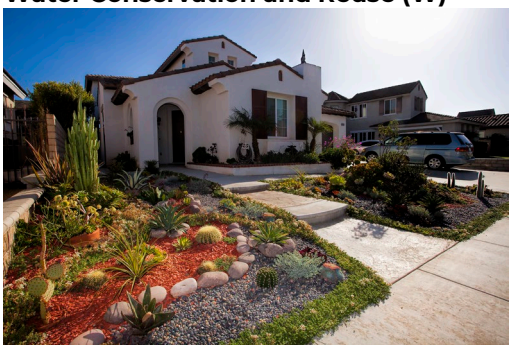
- **Green Buildings (B)**

- **Transportation (T)**



- **Land Use (L)**

- **Water Conservation and Reuse (W)**



- **Waste Reduction and Recycling (R)**

- **Nature-Based Solutions (N)**

While most of the actions in the Climate Action and Adaptation Plan (CAAP) are geared towards reducing community emissions, specific actions targeting municipal operations are included for many of the strategies, demonstrating the City's commitment to lead by example.

Community Co-Benefits

As introduced in Chapter 1, many actions that reduce emissions have important co-benefits to the community. Many greenhouse gas (GHG) reduction strategies result in improved cost savings to residents, businesses, and the City government. Below include many of the benefits that the community will see over time as the CAAP is implemented. These benefits were considered in developing the CAAP's actions and prioritizing them for implementation.

IMPROVED AIR QUALITY	Climate change is expected to result in worsening air quality. Many strategies and actions that reduce GHG emissions, especially those that reduce the use of fossil fuels, have the co-benefit of reducing air pollutants and improving air quality.
IMPROVED PUBLIC HEALTH	Strategies and actions that reduce GHG emissions often have multiple health and equity co-benefits to City residents, and help address the region's persistent inequities. For example, reducing vehicle miles traveled (VMT) by increasing safe and accessible walking and bicycling infrastructure can increase physical activity, reduce air pollution, and lower injury collisions. These health co-benefits can produce an array of cascading benefits, including reducing chronic disease, lowering obesity levels, reducing respiratory diseases, and improving mental health.
A MORE SUSTAINABLE ECONOMY	California's climate-related policies and regulations are generating significant economic change. New economic opportunities and "green jobs" are emerging as state and regional agencies direct investment, policy, and planning towards "decarbonizing" the economy. This transformation is happening with energy, transportation, agriculture, water, waste management, and land management.
COST SAVINGS	Many of the GHG reduction strategies described in this plan will result in cost savings to residents, businesses, and the City. These savings are achieved through participation in the multitude of programs that are aimed at increasing energy efficiency, water efficiency, use of public transportation, and utilization of renewable energy sources. Increased energy and water efficiency can reduce utility bills, while use of public transportation can reduce costs associated with gasoline use and vehicle maintenance costs. Renewable energy generation would also provide long-term cost savings to residents and business owners as these buildings would not need to purchase as much electricity from utility providers.
IMPROVED SOCIAL EQUITY	As outlined in Chapter 4, the impacts of climate change typically fall hardest on those who are historically over-burdened and under-resourced, including the elderly, infants and children, Black, Indigenous, and People of Color communities, and people living in poverty. GHG reduction measures can directly benefit disadvantaged communities with lower utility bills, improved local access to parks and green spaces, and improved mobility options. Prioritizing implementation of climate action programs to serve disadvantaged communities can help reduce social inequity.
INCREASED COMMUNITY RESILIENCE	Resilient communities anticipate and adapt to changing climate conditions and extreme weather events by implementing measures that ensure access to basic necessities, such as security, health care, and shelter; improve the reliability of systems and infrastructure; enhance quality of life; and safeguard economic prosperity for all residents. CAAP actions that conserve water and energy will help increase community resilience to changing climate conditions.

Local Strategies and Actions

As stated above, the strategies and actions that can be implemented locally to reduce GHG emissions are organized into the following seven major categories and described in more detail in the following sections.

Clean Energy (E)

Green Buildings (B)

Transportation (T)

Land Use (L)

Water Conservation and Reuse (W)

Waste Reduction and Recycling (R)

Nature-Based Solutions (N)

Through implementation of the strategies and actions in the CAAP, the City anticipates, at minimum, annual emissions reductions of 210,959 $MTCO_2e$ by the year 2030, as shown in **Table 3-1**.[3] Combined with state measures, local actions will enable the City to reduce its total community GHG emissions to approximately 499,311 $MTCO_2e$ in the year 2030, as indicated in **Table 3-2**.

As shown in Table 3-2, the reduction resulting from state and local measures (approximately 50 percent from 2010 levels) would enable the City to meet its 2030 target, and put the City on a path to achieving deeper reductions consistent with the state's long-term goals represented by Governor's Order S-3-05 in 2005 (80 percent below 1990 levels by 2050) and B-55-18 in 2018 (achieve statewide carbon neutrality by 2045). **Figure 3-1** depicts the City's GHG reduction pathway for meeting the 2030 target.

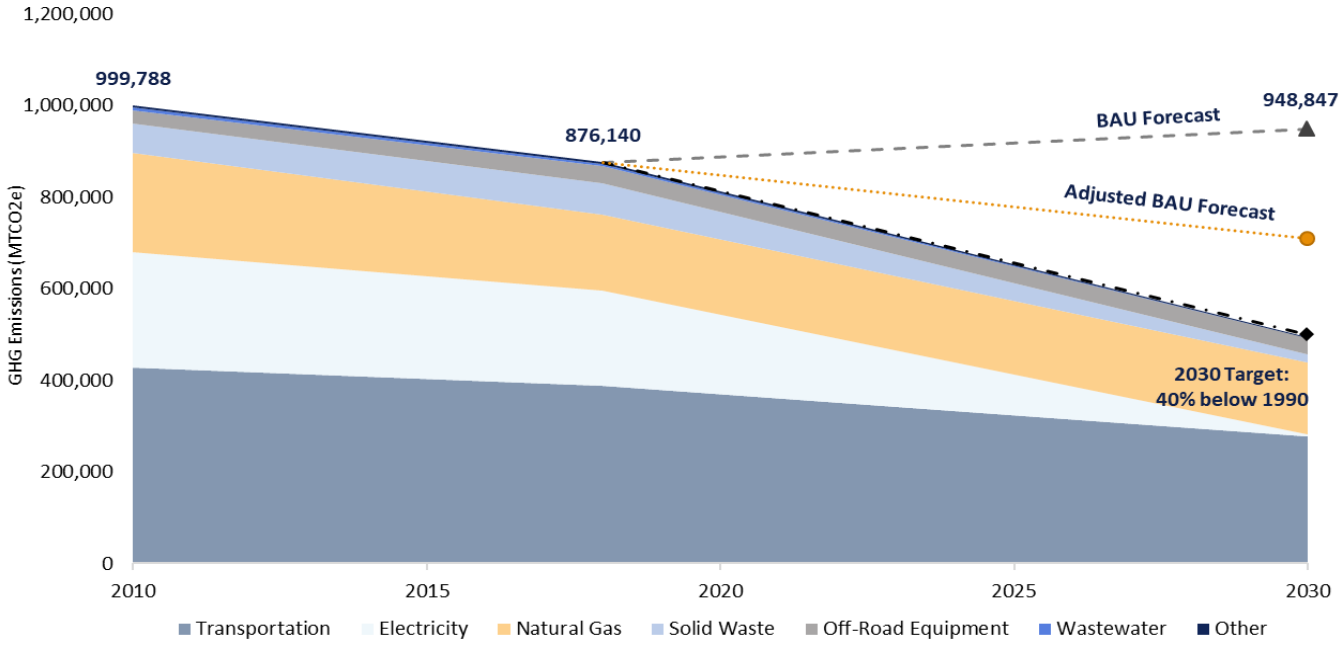


FIGURE 3-1 **Oxnard's GHG Reduction Pathway with CAAP Implementation**

[3] Several of the measures listed as supporting (not quantified) are also expected to reduce emissions.

TABLE 3-1 **Annual GHG Reductions from Local Strategies by 2030**

STRATEGY	KEY 2030 PERFORMANCE OBJECTIVE	2030 ANNUAL REDUCTIONS ($MTCO_2e$/YEAR)
Clean Energy (E)		
E1: Procure Zero-Carbon Electricity	95 percent participation (by community as a whole) in CPA's 100 Percent Green tier, or equivalent	109,983
E2: Increase Local Solar Energy Generation	Participation in a Community Solar program	Supporting (not quantified)
E3: Develop Energy Storage/Microgrids	Complete a microgrid project for a critical city facility	Supporting (not quantified)
Green Buildings (B)		
B1: Improve Efficiency of Existing Buildings	Reduce the total energy use of existing residential, commercial, and municipal buildings by 10 percent	28,518
B2: Electrify Buildings	Adhere to CALGreen (Title 24) requirements for electrification of new buildings	Supporting (not quantified)
Transportation (T)		
T1: Expand Zero Emission Vehicle (ZEV) Charging and Fueling Infrastructure	Increase the number of EV charging stations throughout the city to 1,500	8,389
T2: Transition City Fleet to Greener Alternatives	Replace all remaining diesel trucks in the City's Environmental Resource Division with alternative fuel vehicles	240
T3: Expand Infrastructure for Pedestrians, Bikes, and Micro-mobility Solutions	Increase bike lanes (Class I–Class III) and close gaps in the sidewalk network throughout the city	121
T4: Improve Transit Effectiveness and Accessibility	Increase local access to transit services to support mode shift and VMT reduction goals	Quantified under Strategy L1
T5: Expand Car and Bike Sharing	10 percent of all households in Oxnard are within walking distance of shared e-scooters, e-bikes, and/or neighborhood EVs	238
Land Use (L)		
L1: Support Transit-Oriented and Mixed-Use Development	Implement 2021 – 2029 Oxnard Housing Element	6,669
Water Conservation and Reuse (W)		
W1: Increase Water Conservation and Reuse	Reduce community and municipal per capita water use by 10 percent by the year 2030	1,404
Waste Reduction and Recycling (R)		
R1: Recycling and Organic Waste Diversion	75 percent diversion of total solid waste from landfills by 2025 75 percent diversion of organics from landfills by 2030	55,637
Nature-Based Solutions (N)		
N1: Increase Local Carbon Sequestration	Maintain the City's tree canopy cover through 2030 using native and drought-resistant species	Supporting (not quantified)
Total Reductions		**211,199**

Source: Appendix C, Greenhouse Gas Quantification Methods

Notes: $MTCO_2e$ represents metric tons of carbon dioxide equivalent. Totals may not add up due to rounding.

TABLE 3-2 **City of Oxnard 2030 GHG Reduction Summary**

DATA/METRIC	2030 ($MTCO_2e$)
BAU Forecast	948,847
Total Reductions from State Measures	238,338
Total Reductions from Local Measures	211,199
Resulting Community Emissions with CAAP Implementation	499,311
2030 Emissions Target	**499,894**
Target Met?	**Yes**

Notes: $MTCO_2e$ represents metric tons of carbon dioxide equivalent. Totals may not add up due to rounding.

The following sections provide in-depth discussion of each of the City's strategies for reducing GHG emissions, describing specific implementing actions, performance objectives, and the anticipated GHG reductions and community co-benefits. Selecting and prioritizing actions to reduce GHG emissions involves consideration of costs and available funding, community priorities, and synergy with state plans and policies. Chapter 5 provides details regarding implementation of each strategy, including steps that individuals, businesses, and organizations can take to partner with the City in reducing emissions and securing a more resilient future.

Oxnard's Advanced Water Purification Facility

Clean Energy (E)

Renewable energy resources such as solar, wind, biomass, hydropower, geothermal, and landfill gas reduce GHG emissions by replacing fossil fuels. Renewables also reduce emissions of conventional air pollutants, such as sulfur dioxide, that result from fossil fuel combustion. In addition, the renewable energy economy creates new jobs and business opportunities and represents a hedge against price fluctuations of fossil fuels.

In 2018, the City took a major stride towards a clean energy future by joining the Clean Power Alliance of Southern California (CPA), a nonprofit entity and a Community Choice Aggregation (CCA) provider of green power to its member agencies throughout Los Angeles and Ventura Counties. CPA serves approximately 3 million customers and 1 million customer accounts across 32 communities throughout Southern California. CPA offers a variety of programs and funding sources geared towards local renewable energy generation and storage as well as demand response management.

Community Choice Aggregation (CCA)

In 2002, California Assembly Bill 117 was signed into law, allowing cities and counties to participate in Community Choice Aggregation (CCA). CCA is a program that allows cities, counties, and Joint Power Authorities (JPAs) to procure electricity for individual customers within a defined jurisdiction. Customers not wishing to participate may opt out. Under CCA, the utility (which for Oxnard is Southern California Edison, or SCE) is still responsible for the transmission and distribution of the electricity.

Solar panel array

Clean Energy Comprises the Following Strategies

- E1: Procure Zero-Carbon Electricity
- E2: Increase Local Solar Energy Generation
- E3: Develop Energy Storage/Microgrids

Co-Benefits

Air Quality | Public Health | Local Economy | Cost Savings | Social Equity | Community Resilience

E1: Procure Zero-Carbon Electricity

GHG REDUCTIONS BY 2030

109,983 $MTCO_2e$ annually

GHG BENEFIT-COST RATIO

High

PERFORMANCE OBJECTIVES

Community

Maintain at least 95 percent participation in CPA's 100 Percent Green tier, or equivalent, through 2030

Municipal Operations

Aspire to have 100 percent of facilities operating on clean renewable electricity by 2030.

STRATEGY DESCRIPTION

Supplying the community's power needs with green (i.e., zero-carbon or low-carbon) electricity is one of the most effective strategies for meeting the City's GHG reduction targets. As the City's CCA, CPA offers a straightforward way for the entire community to procure 100 percent carbon-free electricity. In 2019, Oxnard's residents and businesses were automatically enrolled in CPA's "100 Percent Green" rate option. Customers at any time can elect to utilize a CPA offering with lower renewable content, or opt out of purchasing CPA power altogether. As of November 2021, approximately 96 percent of residents and 92 percent of businesses were still purchasing 100 Percent Green.

Aside from CPA, another option for Oxnard electricity customers is SCE's Green Rate program, which currently offers 50 percent and 100 percent renewable electricity options. Enrollment is entirely "opt in" and must be done by the individual customer account holders.

In 2018, the City's municipal electricity accounts were enrolled through the CPA under the 100 Percent Green option, followed by phased residential and nonresidential account enrollment throughout 2019. Within the past couple of years, as a cost-saving measure, all municipal accounts were opted down to lower-cost CPA rate options or were completely opted out of the CPA.

If the City of Oxnard were to decide that it no longer wants to be a member of CPA, or if CPA were to go out of business, all current electricity accounts in the City would be transferred back to SCE at their existing rate by default. This means that Oxnard's customers participating in CPA's 100% green option would automatically be enrolled in SCE's 100% green rate. After their return to SCE, all customers would have the same ability as they currently have with CPA to change to a different green rate option.

The City may also be purchasing renewable electricity derived from renewable gas or from biomass conversion to meet its obligation under SB 1383, under which the City must annually procure at least 16,350 tons of "recovered organic waste product" that can be in the form of electricity derived from anaerobic digestion of organic waste or from biomass conversion.

ALIGNMENT WITH STATE INITIATIVES

- California Renewables Portfolio Standard; 100 percent renewable electricity by 2045
- CA Governor's Executive Order B-55-18; statewide carbon neutrality by 2045

IMPLEMENTING ACTIONS

Community

- E1.1 – Invest City staff time and financial resources in maintaining a minimum 95 percent community participation rate in CPA's 100 Percent Green option, or equivalent, through the year 2030
- E1.2 – Work with the CPA to develop an educational campaign targeted to businesses and residents on the importance of subscribing to the CPA's 100 Percent Green level
- E1.3 – Partner with CPA to promote Power Share, which provides disadvantaged communities residents with a 20 percent discount and 100 percent renewable energy

Municipal Operations

- E1.4 – Request a rate analysis from CPA at least annually and compare to SCE rates, to determine the financial impact of returning all municipal accounts currently enrolled with CPA to 100 Percent Green option
- E1.5 – Chart and annually revise an implementation plan for returning municipal accounts to CPA's 100 Percent Green option or equivalent

E2: Increase Local Solar Energy Generation

GHG REDUCTIONS BY 2030

Supporting strategy; not quantified (to avoid double counting with E1)

GHG BENEFIT-COST RATIO

High

PERFORMANCE OBJECTIVES

Community

Participation in a Community Solar program administered by CPA or SCE

Municipal Operations

Sponsor a Community Solar program, and/or utilize a city building to be a site host for a project

STRATEGY DESCRIPTION

This strategy is to expand local solar power generation on rooftops and parking lots throughout the city and in municipal projects. Often called distributed or decentralized power generation, local installations of solar photovoltaic (PV) energy systems are a good community investment. They support high-quality jobs and present opportunities for local businesses. Local rooftop solar is generally a cost-effective investment for building owners and provides resilience to grid shutdowns when combined with battery storage. Distributed generation also enhances community resilience to grid failures or during a Public Safety Power Shutoff.

Some households and businesses in Oxnard do not have access to on-site solar PV systems because they rent, live in multi-tenant buildings, or have roofs that are unsuitable to host a solar PV system. Community Solar refers to local solar PV systems shared by multiple community subscribers. For those who cannot install solar directly on their property, Community Solar can be a good option for accessing the economic and environmental benefits of solar energy generation. Community Solar programs can bring economic development to underinvested communities and reduce the cost of green electricity to low-income customers. Customers enrolled in CPA's Community Solar program receive 100 percent renewable energy at a 20 percent discount on their total electric bill. Public or nonprofit sponsors of the Community Solar projects also receive a 20 percent bill discount.

One option for expanding solar at municipal facilities is a Power Purchase Agreement (PPA), which would allow the City to obtain clean onsite solar energy with no upfront capital investment costs. A PPA can reduce energy costs and hedge against annual energy price increases. Contractual terms of a PPA last 20-25 years and are relatively low risk.

ALIGNMENT WITH STATE INITIATIVES

- California Renewables Portfolio Standard; 100 percent renewable by 2045
- The current (effective January 1, 2020) Building Energy Efficiency Standards (Title 24, Part 6) include solar PV requirements for low-rise residential buildings, which generally require onsite solar systems for new residential buildings of 3 stories or less, but allow community-scale PV as an alternative renewable resource to onsite PV systems

IMPLEMENTING ACTIONS

Community

- E2.1 – Partner with interested developers to create Community Solar projects in the CPA program, or equivalent Community Renewables program offered by SCE
- E2.2 – Partner with CPA and community-based organizations to promote CPA customer awareness and enrollment in the Community Solar program, or equivalent Community Renewables program offered by SCE
- E2.3 – Partner with CPA and/or electric utility to develop and distribute information to residents interested in rooftop solar to take advantage of programs like CPA's Solar Marketplace, which provides access to quotes from multiple, pre-screened local installers
- E2.4 – Incentivize CPA customers with existing rooftop solar to register for CPA's Net Energy Metering (NEM) Program, which pays customers for net energy production on an annual basis
- E2.5 – Through meetings and coordination, facilitate partnerships and information sharing between local construction/roofing contractors and solar companies that increase consumer choice as well as business referrals
- E2.6 – Increase local participation in SCE's Community Renewables Program, which connects customers with solar developers so that they can purchase renewable electricity from certified community solar projects

Municipal Operations

- E2.7 – Identify existing municipal facilities, city-owned public spaces, and associated parking lots with potential for rooftop solar installation and/or solar canopies; identify potential solar PV projects with consideration to fiscal resources, and Capital Improvement Plan timeframes and feasibility
- E2.8 – Assess solar PV procurement financial models to reduce up-front capital costs and increase long-term savings (e.g., State and Federal Incentives, Power Purchase Agreement, Net Metering, etc.) and adopt financing plan
- E2.9 – Secure funding, cost and bid solar PV projects; Interconnect and install solar projects

E3: Develop Energy Storage/Microgrids

GHG REDUCTIONS BY 2030

Supporting strategy; not quantified

GHG BENEFIT-COST RATIO

NA

PERFORMANCE OBJECTIVE

Successfully complete a microgrid project for a critical city facility through CPA's Power Ready Program, by 2030

STRATEGY DESCRIPTION

Paired with local solar PV systems, battery storage systems and microgrids can be used to increase community resilience during utility grid outages. A microgrid is a localized energy grid powered by on-site energy sources that can disconnect from the traditional utility grid to operate autonomously. A microgrid can power a single facility like a critical City facility, or it can power a larger area such as a business district. Multiple microgrids can be networked together to essentially form networks of networks. During power outages, customers and critical facilities connected to a microgrid still receive power, increasing resilience and energy independence. A microgrid combined with energy storage can also enhance demand response capabilities, allowing customers to optimize electricity purchases based on cost, GHG emissions, or peak load management.

ALIGNMENT WITH STATE INITIATIVES

- California Renewables Portfolio Standard; 100 percent renewable by 2045
- Senate Bill No. 1339. which facilitates the commercialization of microgrids

IMPLEMENTING ACTIONS

Community

- E3.1 – Partner with CPA to develop their Power Response Program, which offers incentives to commercial and residential customers for the installation of energy storage to enable load-shifting during times of peak demand
- E3.2 – Promote enrollment in SCE's Smart Energy Program, Summer Discount Plan, and SCE-advertised third-party demand response programs
- E3.3 – Identify potential partnerships, funding, or financing sources for installing storage and microgrids in the community
- E3.4 – Develop a community energy map that identifies opportunities for deploying distributed energy resources and microgrids to improve energy security and resiliency in the community

Municipal Operations

- E3. 5 – Partner with CPA to perform feasibility assessment to determine the potential of microgrid projects on City buildings
- E3.6 – Partner with CPA and develop municipal facility microgrid project scoping to include goal of the project, background information, site selection, assessment of opportunities and risks,

community involvement and feedback, partnerships, project team development, performance requirements, and ownership

- E3.7 – Meet with Regional Energy Network (REN) to determine the availability of technical services and/or funding for municipal facility energy storage and microgrids
- E3.8 – Meet with CPA to determine the availability of incentives and/or funding for municipal facility energy storage and microgrid projects
- E3.9 – Perform conceptual design and cost estimates of municipal energy storage and microgrid projects
- E3.10 – Secure funding, cost and bid on municipal energy storage and microgrid projects; Build projects

Green Buildings (B)

Strategy Description

The State of California has the most aggressive building energy standards in the nation and they are updated every 3 years. Through its local building code, the City has adopted the mandatory provisions of the California Green Building Standards Code (CALGreen, also known as Title 24, Part 11), and the Building Energy Efficiency Standards (Title 24, Part 6). California Building Code requires all new buildings and major retrofits to meet stringent energy efficiency and sustainability requirements and is expected to require all new construction to be "net zero" consumers of energy by the year 2030.

With stringent energy efficiency standards in place for new buildings and major retrofits, the City's actions for addressing green buildings focus on improving energy efficiency and reducing the use of natural gas in existing buildings. Natural gas for many years has been considered a "bridge fuel" to help the transition to a clean-energy economy. For generating electricity or powering vehicles, natural gas is cleaner than other fossil fuels but still generates GHG emissions and fugitive emissions from its extraction and pipeline delivery. Most of the natural gas use in Oxnard is for space and water heating in buildings. For the City to achieve long-term GHG reductions consistent with the state's "net zero" goal, the energy needed for these purposes will have to be replaced with clean electricity or biogas. Making buildings more efficient will reduce the amount of energy needed from these alternatives.

The Southern California Gas Company is working to develop renewable natural gas (RNG) and has a goal to make 20 percent of its natural gas supply renewable by 2030. However, utility-provided RNG is not yet commercially available for use in homes and businesses. The best near-term options for reducing the use of natural gas are improving building energy efficiency and switching to clean electricity alternatives.

Green Buildings Comprises the Following Strategies

- B1: Improve Efficiency of Existing Buildings
- B2: Electrify Buildings

Co-Benefits

Air Quality | Public Health | Local Economy | Cost Savings | Social Equity | Community Resilience

B1: Improve Efficiency of Existing Buildings

GHG REDUCTIONS BY 2030

28,518 $MTCO_2e$ annually

GHG BENEFIT-COST RATIO

High

PERFORMANCE OBJECTIVE

By 2030, reduce the total energy use of existing residential, commercial, and municipal buildings by 10 percent, compared to 2018

STRATEGY DESCRIPTION

Increasing the energy efficiency of existing buildings reduces GHG emissions by decreasing the consumption of natural gas, electricity that is not 100 percent carbon-free, and other non-renewable energy sources. Energy-efficiency improvements can be achieved through a variety of methods, including periodic (e.g., every 5 years) energy audits, ongoing benchmarking, through ENERGY STAR® portfolio manager, appliance rebates, building retrofits, and education of consumers. In addition to GHG emission reduction, programs that promote energy-efficient building improvements can lower energy bills and create local green jobs. The City will improve energy efficiency of existing buildings through coordination with existing agencies and organizations, as well as through public outreach to inform building owners of the opportunities available to them.

With stringent standards already in place for new buildings and major retrofits through Title 24 (e.g., light-emitting diode [LED] lighting replacements, heating, air conditioning, and ventilation [HVAC] replacements), Strategy B1 focuses on existing community and municipal buildings, especially older buildings that are the least efficient and present the biggest opportunity for improvement.

Regional Energy Networks (RENs) help cities, counties, school districts, water agencies, and special districts identify and implement energy efficiency projects. The Tri-County Regional Energy Network (3C-REN) and the Southern California Regional Energy Network (SoCalREN) both offer programs and assistance in the City of Oxnard.

ALIGNMENT WITH STATE INITIATIVES

- California building energy efficiency standards (Title 24, Part 6)
- California Schools Healthy Air, Plumbing, and Efficiency Program (CalSHAPE) provides funding to upgrade HVAC systems in public schools and to replace non-compliant plumbing fixtures and appliances that fail to meet water efficiency standards

IMPLEMENTING ACTIONS

Community

- B1.1 – Partner with existing agencies such as CPA, 3C-REN, SoCalREN, and/or the Ventura County Regional Energy Alliance (VCREA) to promote and take advantage of local programs; meet with these agencies on a quarterly basis

- B1.2 – Launch educational campaign targeted at City residents and businesses to let them know what energy efficiency improvement offerings are available
- B1.3 – Launch educational campaign for multifamily building owners and managers on the programs and incentives offered by the RENs and the local utilities
- B1.4 – Engage local school districts to participate in the CalSHAPE (AB 841) program to improve plumbing and ventilation in schools; set up an introduction to a service provider to assist schools with program applications
- B1.5 – Engage local school districts to enroll in (if not already enrolled) and participate in SoCalREN; set up introductory meetings to a service provider to assist schools with program enrollment and technical services

Municipal Operations

- B1.6 – Perform periodic energy audits and feasibility studies (e.g., every 5 years) to assess facility performance and identification of potential energy efficient projects for municipal facilities; actively engage SoCalREN to support this effort
- B1.7 – When doing municipal facility renovations, assess potential for energy efficiency improvements and adding solar PV (e.g., when reroofing occurs, design support system to withstand rooftop solar PV loads)
- B1.8 – Implement energy efficiency projects for municipal facilities at selected locations to achieve energy reduction goals and support decreased electric load on the grid

B2: Electrify Buildings

GHG REDUCTIONS BY 2030

Not quantified – supporting strategy

GHG BENEFIT-COST RATIO

NA

PERFORMANCE OBJECTIVE

Adhere to Title 24 requirements for electrification of new buildings

STRATEGY DESCRIPTION

Natural gas is used by buildings for space heating, water heating, and cooking. The heating of buildings alone generates 20 to 30 percent of the GHG emissions in California, and the state's long-term goal for reducing emissions recognizes the need to greatly reduce the use of natural gas for this purpose. Reducing natural gas is challenging, as it requires more energy-efficient buildings and/or transitioning away from natural gas to all-electric buildings (known as building electrification), which in turn could make the City less resilient to electric grid outages unless sufficient energy storage infrastructure is in place to provide widespread and reliable back-up power.

Natural Gas and Resilience

While the City recognizes that building electrification is beneficial from a GHG reduction perspective, it also sees the need to retain natural gas as a reliable energy source for times when the electricity grid is disrupted, at least for the foreseeable future.

Most of the natural gas use in Oxnard is for space and water heating in buildings. For new construction and major renovations, California Building Code Title 24 is gradually requiring higher efficiencies and more electrification of new buildings; therefore, City action is not needed to supplement the state requirements in this area. However, to reduce natural gas from existing buildings requires more local action, such as partnering with existing programs that promote electrification of household appliances and heating systems through education and financial incentives.

ALIGNMENT WITH STATE INITIATIVES

- California building energy efficiency standards (Title 24, Part 6); The 2022 energy code update will require new home construction to be 'electric ready' effective January 1, 2023.

IMPLEMENTING ACTIONS

Community

- B2.1 – Partner with existing agencies such as CPA, 3C-REN, and/or VCREA to promote and take advantage of local programs, including rebates and financing options for building and appliance electrification; meet with these organizations on a quarterly basis

- B2.2 – Meet with SCE (and/or other providers) on a regular basis to strategize promoting electrification offerings to residents and businesses, while keeping energy resilience needs in mind
- B2.3 – Work with electric utility to create an educational campaign for building owners on the health, climate, and cost benefits of electric-powered kitchen equipment, and distribute information about available products and installation services

Municipal Operations

- B2.4 – As part of the CIP process, conduct a feasibility study to identify opportunities for electrification of city facilities and determine cost and financial impacts, utilizing the quarterly meetings with the RENs and utilities to identify offerings
- B2.5 – Secure funding, cost estimates, and bids for municipal electrification projects

Transportation (T)

Transportation strategies reduce emissions from motor vehicles and facilitate the shift to electric vehicles (EVs) and other zero-emissions vehicles (ZEVs).[4] Transportation strategies also focus on access and expansion of transit use and active forms of transportation such as walking and biking, rather than relying on personal vehicles for mobility.

The City strives for healthy and convenient modes of transportation that allow residents to access daily needs, including work, school, shopping, and recreation, without undue burdens of cost, time, or physical danger. The City is currently developing a Sustainable Transportation Plan (STP), due to be completed in 2023. The STP will address opportunities to increase pedestrian and bicycle infrastructure, encourage active transportation, and consider additional clean transportation options such as EVs, carshare, and bikeshare. The STP will also address first/last-mile needs to enhance connectivity to transit services.

Supporting the transition to EVs and other ZEVs is important to reaching the state's 2030 GHG reduction target and critical to achieving its longer-term climate stabilization goals. Since on-road transportation represents approximately 44 percent of the community GHG inventory, transitioning to EVs that run on green electricity represents one of the biggest opportunities for reducing community GHG emissions. A concerted citywide transition to EVs will yield benefits with respect to public health and climate resilience. Unlike their combustion-engine counterparts, EVs do not have any tailpipe emissions of harmful criteria air pollutants, which tend to disproportionately affect minority populations and low-income groups. In addition, as technology improves, newer EVs may come equipped with vehicle-to-grid (V2G) technology, enabling electricity to be drawn from plugged-in vehicles during times of increased demand or during outages.

Transportation Comprises the Following Strategies

- T1: Expand Zero-Emissions-Vehicle (ZEV) Charging and Fueling Infrastructure
- T2: Transition City Fleet to Greener Alternatives
- T3: Expand Infrastructure for Pedestrians, Bikes, and Micro-mobility Solutions
- T4: Improve Transit Effectiveness and Accessibility
- T5: Expand Car and Bike Sharing

Co-Benefits

[4] ZEVs include EVs that run on batteries, as well as hybrid fuel-electric vehicles and hydrogen fuel cell vehicles, which are powered by electricity stored in hydrogen.

T1: Expand Zero-Emissions-Vehicle (ZEV) Charging and Fueling Infrastructure

GHG REDUCTIONS BY 2030

8,389 $MTCO_2e$ annually

GHG BENEFIT-COST RATIO

Medium

PERFORMANCE OBJECTIVES

Increase the number of EV charging stations throughout the city to 1,500 by 2030

STRATEGY DESCRIPTION

Based on information from the Community Energy Commission (CEC), Oxnard has one of the lowest rates of EV ownership in California at approximately 1 percent, compared to 2 percent statewide (CEC 2021a). The current purchase price of EVs is high compared to conventional vehicles, and a lack of extensive EV charging infrastructure is a deterrent to many would-be buyers. However, total operation and maintenance costs with EVs tend to be lower,[5] and the City can support the EV transition by helping to expand the EV charging infrastructure for the public, especially in disadvantaged communities, for which funding is available through state programs.

The City will also look for opportunities to expand its hydrogen fueling infrastructure, in partnership with the Port of Hueneme and others, as the need for green alternatives to diesel-powered trucking increases.

As of 2022, the City of Oxnard has approximately 57 EV charging stations located throughout the community (PlugShare 2022). The goal of this strategy is for Oxnard to have 1,500 EV charging stations (both private and public) installed throughout the community by 2030. On a per-capita basis, this is approximately half of what the California Energy Commission says will be needed to meet the state's goal of having 5 million ZEVs on the road by 2030 (CEC 2021b).[6]

The overall outlook for EVs is strong, with rising consumer enthusiasm, improving technology, decreasing prices, and increasing choice in affordable vehicle models. Considering this general market momentum along with available funding and strong state and federal policy signals in support of EVs, it is expected that residents and workers will increasingly select an EV as their next vehicle, particularly if supportive local charging infrastructure is in place.

ALIGNMENT WITH STATE INITIATIVES

- Governor's Executive Order N-79-20 (September 2020) for the state to phase out gasoline-powered vehicle sales by 2035
- Assembly Bill 2127, calling for 5 million ZEVs statewide by 2030; a CEC study indicating that 700,000 public and shared charging stations will be needed to support this number (CEC 2021b)
- The California Electric Vehicle Infrastructure Project (CALeVIP) offers incentives for the purchase and installation of EV charging infrastructure at publicly accessible sites throughout California

[5] See AAA's study, *The Cost of Electric Vehicles*, available at: https://www.aaa.com/autorepair/articles/true-cost-of-evhe.
[6] Assembly Bill 2127 requires the CEC to assess the need for EV charging stations needed to meet the State's EV goals.

IMPLEMENTING ACTIONS

Community

- T1.1 – Develop a citywide ZEV Master Plan that evaluates near-term and long-term needs for EV charging and hydrogen-fueling infrastructure, including home EV charging needs and gaps in public accessibility (especially for disadvantaged communities); the plan should evaluate potential integration with solar PV and electrical storage systems, and identify all feasible EV charging locations, including California Building Code compliant placement measures (e.g., street light pole placement and right of way considerations)
- T1.2 – Meet with the Building and Engineering Services to develop possible code requirements to encourage or require preferential EV parking and EV charging stations, beyond what is required by Title 24
- T1.3 – Track and apply for CALeVIP funding for sites that have already been identified for EV charging before funding is exhausted; utilize SCE's Charge Ready program to build out infrastructure for public charging stations
- T1.4 – Meet with utilities and state agencies quarterly to track and coordinate the promotion of offerings to Oxnard residents and businesses; in City communications, promote EV charging incentive programs offered through CPA and SCE and though federal or state funding
- T1.5 – Coordinate with the Port of Hueneme, Gold Coast Transit District (GCTD), and other regional stakeholders on infrastructure planning for electric and hydrogen powered vehicles

Municipal Operations

- T1.6 – Based on public EV charging needs (as identified in citywide ZEV Master Plan or elsewhere), apply for CALeVIP funds through the South Central Coast Incentive Project, or equivalent
- T1.7– Secure funding, cost and bid installation of public charging locations
- T1.8– Install public charging locations as funding becomes available

T2: Transition City Fleet to Greener Alternatives

GHG REDUCTIONS BY 2030

240 $MTCO_2e$ annually

GHG BENEFIT-COST RATIO

NA

PERFORMANCE OBJECTIVES

By 2030, replace all remaining diesel trucks in the City's Environmental Resource Division to alternative fuel vehicles

STRATEGY DESCRIPTION

The City's vehicle fleet consists of a mix of passenger vehicles and Class 2–8 utility and medium- to heavy duty vehicles. As of 2021, the City had only one all-electric vehicle, for which there is no dedicated charging infrastructure. The City is moving away from a complete fleet ownership model, having recently entered into a leasing agreement with Enterprise. Given state requirements with respect to fleet vehicle emissions and transitioning to electric fleets, the City has an excellent opportunity to transition applicable vehicles to alternative fuel vehicles through its leasing arrangement with Enterprise, as it is more than likely that the supply of EVs will increase due to improving market conditions.

In recent years, the City has been replacing its ERD fleet from diesel to cleaner-burning compressed natural gas (CNG) vehicles and plans to complete the transition by 2025. The City plans to keep pace with evolving state mandates for greener fleets, including CARB's proposed Advanced Clean Fleets regulation as it becomes law (see below). Going forward, the City plans to develop a ZEV Master Plan (see Action T1.1) that not only addresses the installation of public charging stations but examines ways to maximize the city's use of ZEVs. These developments present the City with substantive opportunities for reducing emissions and increasing resilience. Forthcoming EV options will include V2G capacity, enabling grid users to use electricity drawn from EV batteries during times of increased demand or grid outages.

ALIGNMENT WITH STATE INITIATIVES

- Governor's Executive Order N-79-20 (September 2020) for the state to phase out gasoline-powered vehicle sales by 2035
- Assembly Bill 2127, calling for 5 million ZEVs statewide by 2030
- CARB's draft Advanced Clean Fleets (ACF) regulation, expected to become law, has a ZEV purchasing requirement for public fleets that would require the city to purchase 50 percent ZEVs beginning in 2024 and 100 percent ZEVs by 2027

IMPLEMENTING ACTIONS

Municipal Operations

- T2.1 –Develop a ZEV Master Plan for the City fleet that evaluates costs, budget needs and infrastructure needs for the short and long term, including optimal EV charging locations, funding opportunities, and opportunities for public-private partnerships.
- T2.2 – Pass a resolution that supports City fleet vehicle purchases (or at minimum, utility and truck purchases) to be ZEVs in alignment

with the CARB's proposed regulation to require public fleets to purchase 100 percent zero-emissions trucks by the year 2027

- T2.3 – Meet with CPA, SCE, and other administrators of incentive and rebate programs quarterly to determine what offerings can be utilized to build out fleet charging stations
- T2.4 – Secure funding and build out municipal fleet EV charging and/or hydrogen fueling infrastructure as needed to support ZEV Master Plan for city fleet.

T3: Expand Infrastructure for Pedestrians, Bikes, and Micro-Mobility Solutions

GHG REDUCTIONS BY 2030

121 $MTCO_2e$ annually

GHG BENEFIT-COST RATIO

Low

PERFORMANCE OBJECTIVES

Increase lane miles of bike facilities (Class I–Class IV) and close gaps in the sidewalk network throughout the city

Reduce fatal collisions involving pedestrians and bicyclists

Improve pedestrian crossing facilities on key pedestrian routes throughout the city

Close gaps in the sidewalk network throughout the city

Incorporate Living Streets and/or Complete Streets concepts into all public projects in the city

Walking and biking represent sustainable, affordable and emissions-free ways of getting around. Currently, the Oxnard only has a 1.3 percent share of people who walk to work, and less than 1 percent share of people who bike to work (U.S. Census Bureau 2019). Public engagement for the CAAP indicates strong support for projects that promote walking, and for infrastructure to support safer walking and biking. When fuel costs rise there is naturally more interest in biking and walking, but safety is a critical factor in getting people to shift to these active transportation modes. Designing "complete streets" and travel routes that consider safe travel for all modes can reduce the occurrence and severity of vehicular collisions with pedestrians and bicyclists.

The forthcoming Sustainable Transportation Plan (STP) will identify improvements to pedestrian and bicycle infrastructure and encourage active transportation by prioritizing corridors for active transportation improvements and positioning them to be competitive for grant funding. A key outcome of the STP will be a project list that identifies top projects that will improve connectivity and access for people on foot and on bike.

In addition, the City is developing a Local Road Safety Plan (LRSP), which will focus specifically on safety enhancements, including programmatic opportunities to improve infrastructure (e.g., signal timing changes, signing and striping changes, and crosswalk changes).

ALIGNMENT WITH STATE AND REGIONAL INITIATIVES

- Local Transportation Impact Analysis Guidelines for complying with SB 743 and reducing regional VMT
- Ventura County ATP; Santa Clara River Trail Master Plan

IMPLEMENTING ACTIONS

Community

- T3.1 – Adopt the forthcoming STP, which will include projects that expand the reach of the pedestrian and bicycle network throughout the city and provide comfortable opportunities to use active transportation
- T3.2 – Through the implementation of the forthcoming STP, potentially introduce an e-scooter program that incentivizes third-party providers to locate in Oxnard
- T3.3 – Where feasible in new roadway designs, accommodate micro-mobility solutions like electric bikes, scooters, and neighborhood EVs
- T3.4 – In new roadway designs, provide safe and convenient pathways and infrastructure for electric bikes and scooters, including publicly accessible charging locations

T4: Improve Transit Effectiveness and Accessibility

GHG REDUCTIONS

Quantified under Strategy L1

GHG BENEFIT-COST RATIO

NA

PERFORMANCE OBJECTIVES

Increase local access to transit services to support mode shift and VMT reduction goals

Provide pedestrian and bicycle network connections to corridors that provide transit services

Provide transit stop amenities (trash cans, benches, and shelters) at bus stop locations where needed

STRATEGY DESCRIPTION

Public transit service can reduce VMT—and, therefore, GHG emissions—by providing a more-efficient option to complete trips. Funding constraints currently limit opportunities to expand transit service in Oxnard both in service hours, frequency, and geography. Currently, just 1 percent of people in Oxnard take transit to work (U.S. Census Bureau 2019).

Transit services in Oxnard connect many of the key destinations within and just outside the city. Local transit service is provided primarily by GCTD with some additional service provided by the Ventura County Transportation Commission (VCTC). During the AM peak period, most routes have headways between 20 and 45 minutes, with some as long as 60 minutes (GCTD 2022). Evidence shows that headways of 15 minutes or less provide the type of service that will be most usable for people trying to rely on transit for regular travel, including commute trips and other types of trips (TransitCenter 2018). In order to meaningfully increase the transit mode share, service expansion would be required in the form of additional hours of service, additional frequency, and additional routes. Without a dedicated funding stream, these service expansions are limited to grant-funded opportunities or service modifications that aim to increase cost efficiency (serving more riders with the same funding).

Two programs currently underway that may improve transit access and effectiveness include GCTD's on-demand Late-Night Safe Rides Pilot, and the City's STP. The Late-Night Safe Rides Pilot will provide additional service to transit riders in a more flexible, on-demand format, providing information about cost effectiveness of providing rides through a different service class option. The STP will address first/last-mile concerns that aim to improve walking and biking connections to the existing transit system, including elements like sidewalks, bike lanes, and bus stop amenities, thereby expanding the transit system's reach and distance that someone can travel without a car.

ALIGNMENT WITH REGIONAL INITIATIVES

- Metrolink and Amtrak are important providers of regional rail transit, which can be particularly effective when paired with bike and car-sharing
- Southern California Association of Governments' Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), *Connect SoCal 2024*

KEY IMPLEMENTING ACTIONS

Community

- T4.1 – Partner with GCTD and VCTC to assess current transit routes and identify opportunities for improvement geared towards Oxnard residents
- T4.2 – Partner with GCTD and VCTC to upgrade transit stops with weather protection, security measures, increased comfort and accessibility, and access to accurate information on transit routes, schedules, fares, connections, and destinations
- T4.3 – Support GCTD's Late-Night Safe Rides Pilot, including continued partnership to evaluate whether there is opportunity to expand the program to cover additional service hours and zones
- T4.4 – Partner with GCTD and VCTC to improve access to real-time transit vehicle arrival information in multiple languages
- T4.5 – Partner with GCTD and VCTC to enhance multi-modal connections to transit facilities by implementing pedestrian and bicycle improvements near transit stops and mobility hubs, as identified in the STP
- T4.6 – For the City's Dial-a-Ride (paratransit) program, create a subsidized fare program for the elderly, or those with qualifying low income
- T4.7 – Support Dial-a-Ride or other paratransit systems for the senior and disabled members of the community

T5: Expand Car and Bike Sharing

GHG REDUCTIONS

238 $MTCO_2e$ annually

GHG BENEFIT-COST RATIO

Low

PERFORMANCE OBJECTIVES

Ensure 10 percent of all households in Oxnard are within walking distance of shared e-scooters, e-bikes, and/or neighborhood EVs

STRATEGY DESCRIPTION

Carshare and bikeshare programs provide a low-emissions mode of transportation for those who prefer not to use their own car or bike and can enable multi-modal trips where only some legs of the trip require a car or bike. Both programs can utilize an EV fleet, further reducing the emissions of vehicle trips and increasing the ease and range of bike trips.

The presence of a carshare system can encourage people to become less reliant on their own vehicles while still having the flexibility and reliability of a vehicle when they need one. Similarly, a bikeshare system can allow people to try out riding a bike to complete their trips without requiring the commitment to purchase one, which can help familiarize and normalize using a bike to travel. Both systems can be further supported by parking reduction strategies that encourage people to own fewer vehicles and Transportation Demand Management (TDM) strategies that may include membership subsidies through an employer or building manager, integration with transit fare passes, and incentive-based programs such as free trips on certain holidays.

In addition to the implementation of an e-bike or e-scooter share program, the City can adopt policies that guide the safe operation of these vehicles in the public right-of-way. These may include dismount requirements in areas with heavy pedestrian traffic or policies to allow neighborhood EVs to use streets with low posted speeds.

ALIGNMENT WITH REGIONAL INITIATIVES

- Southern California Association of Governments' Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), *Connect SoCal 2024*

IMPLEMENTING ACTIONS

Community

- T5.1 – Consider updates to the TDM Ordinance to require the development of TDM plans for all major developments or facility expansions to encourage ridesharing and other shared mobility improvements, thereby reducing vehicle trips
- T5.2 – Through the implementation of the forthcoming STP, potentially introduce an e-bikeshare, and/or EV carshare program that incentivizes third-party providers to locate in Oxnard; offer reduced parking requirements for new development projects that provide dedicated carshare facilities
- T5.3 – Through implementation of the STP, identify support for and/or ways to expand access to e-bikeshare and neighborhood EVs, to ultimately enable their use in the public right-of-way

Land Use (L)

Downtown farmer's market

The City's land use decisions affect GHG emissions by influencing transportation patterns and personal decisions regarding mobility. An effective way to directly reduce the need to drive (and thus reduce the GHG emissions associated with transportation) is to concentrate development into denser and more-diverse land use mixes; to locate development within close walking distance of transit services, particularly higher-density housing developments and regional employment centers; and to bring amenities and everyday services within close walking distance of existing residential neighborhoods and job centers. Sometimes referred to as "smart growth," co-locating housing, household-serving commercial uses and employment can help move the needle on walking, biking and transit mode share for all types of trips. Creating a mix of uses co-located or within a short walk enables people to live close to the places that they travel to most often, completing trips on foot or bike rather than relying on a car. These trips include commute trips, which comprise approximately 20 percent of household trips, as well as other household-serving trips such as grocery shopping, laundry/dry-cleaning, daycare and medical trips. Concentrating denser development around transit services allows people to have easy access to transit, expands their travel reach without a car, and creates opportunity to increase transit cost efficiency, serving more riders with the same funding.

Land Use Comprises the Following Strategies

- L1: Support Transit-Oriented and Mixed-Use Development

Co-Benefits

Air Quality | Public Health | Local Economy | Cost Savings | Social Equity | Community Resilience

L1: Support Transit-Oriented and Mixed-Use Development

GHG REDUCTIONS BY 2030

6,669 $MTCO_2e$ annually

GHG BENEFIT-COST RATIO

Medium

PERFORMANCE OBJECTIVES

Implement the 2021–2029 Oxnard Housing Element

Adopt mixed-use development standards into the City's Municipal Code

Adopt zoning standards permitting increased density and diversity of land uses adjacent to transit

STRATEGY DESCRIPTION

The City acknowledges the link that land use policies have on reducing vehicles miles traveled (VMT) and GHG emissions. The need to drive can be reduced through policies that facilitate mixed-use development, encourage transit-oriented development, and provide greater access by transit, bike and walking to job centers, activity centers and everyday needs. The City has already begun to develop policies in response to the need for more transit-oriented development, through the 2021-2029 Housing Element update that was adopted in 2021 and through the development of VMT metrics and thresholds related to compliance with SB 743. Use of VMT-based metrics (as opposed to Level of Service metrics, which were the standard until the passage of SB 743) will encourage development to occur in places that have lower VMT patterns, and mitigation measures that address VMT impacts will further encourage reduction of VMT at the project site.

The 2021-2029 Housing Element update includes the following Transit-Oriented and Mixed-Use Development Programs:

- Program 4 which designates seven urban villages envisioned as mixed-use areas designed to encourage persons to live near their place of employment, support services and access to transit. The mix of uses is intended to promote pedestrian orientation and reduce vehicle miles traveled in order to reduce GHG emissions.
- Program 19 includes Affirmative Furthering Fair Housing (AFFH) action item to complete the Oxnard Sustainable Transportations Plan to provide complete streets design, safe routes to school, vision zero, sidewalk and bike lane improvements and first/last mile planning in tandem with land use opportunities in lower resourced areas.
- Program 27 will review parking standards to accommodate higher densities on multifamily and mixed-use sites.
- Program 33 for the High-Quality Transit Corridor (HQTC) Sites Selection and Analysis which will identify needed complete street transit-enabled improvements and result in an adopted corridor specific plan or inclusionary zoning overlay for higher density on select sites along the HQTC.
- Program 35 which will utilize the HQTC recommendations for modifications to the Business Research Park (BRP) standards to allow mixed-use housing in the BRP zone.

Density and land use diversity can also be encouraged through the use of the State Density Bonus, which reduces or waives parking requirements for affordable housing development within a half-mile of a major transit stop, the application of mobility fees that have a nexus tied to VMT

reduction (thereby encouraging development in the most-VMT-efficient places), and through parking strategies (discussed further in L1.3, below). For example, the City's 2019 Downtown Code update allows development to meet parking off-site in a common City-owned garage. Oxnard also incorporates many of these policies and programs in its Municipal Code (OCC), but the OCC could be updated further to strengthen the connection to VMT reduction and incentivize denser, more-diverse land use development in the most-VMT-efficient places.

In addition, new developments, employers, and building managers can encourage people to take trips using modes other than a personal vehicle by implementing TDM strategies. The City has a policy to encourage reduced vehicle travel that could be updated to expand the application to more uses, expand the program requirements, and incorporate reporting and monitoring to ensure the strategies are having the intended effect in reducing VMT.

ALIGNMENT WITH REGIONAL INITIATIVES

- Southern California Association of Governments' RTP/SCS, *Connect SoCal 2024*

IMPLEMENTING ACTIONS

Community

- L1.1 – Through the forthcoming General Plan update, identify areas within the city where development should be focused to increase density and diversity of land use to achieve reductions in VMT
- L1.2 – Incentivize mixed-use development projects to include land uses representing common destinations, such as grocery stores, pharmacies, and restaurants
- L1.3 – Encourage mixed-use development by reducing parking requirements where justified by shared parking when uses with different peaking characteristics (such as offices and apartments) are combined
- L1.4 – Research and adopt other appropriate "smart growth" policies in addition to those identified above to incentivize density and diversity of land use
- L1.5 – Continue to implement the City's Traffic Impact Fee and the Mobility Fee to better align with and encourage VMT reduction (Municipal Code Ordinance Nos. 2258, 2979).

Water Conservation and Reuse (W)

Low-water landscaping

The energy needed to treat water and wastewater for the city and to deliver water to end uses represents less than 1 percent of the Community GHG inventory, but accounts for approximately 20 percent of the Municipal Operations inventory. In addition to saving energy, water conservation has important co-benefits. Conservation programs and water infrastructure improvements help to maintain the quality, safety, and reliability of tap water and minimize the need to purchase bottled water. Longer and more-extreme droughts expected with climate change increase the risks to the city's water supply, making supply management and effective conservation programs a top priority.

Water Conservation and Reuse Comprises the Following Strategies

- W1: Increase Water Conservation and Reuse

Co-Benefits

Public Health

Cost Savings

Social Equity

Community Resilience

W1: Increase Water Conservation and Reuse

GHG REDUCTIONS BY 2030

1,404 $MTCO_2e$ annually

GHG BENEFIT-COST RATIO

Low

PERFORMANCE OBJECTIVES

Reduce community and municipal per capita water use by 10 percent by the year 2030

Strive to utilize the full design capacity of the Advanced Water Purification Facility (AWPF) by 2030

STRATEGY DESCRIPTION

The City restricts water waste through its municipal code, utilizing water restriction measures established through drought condition stages. The City, in collaboration with Calleguas Municipal Water District and Metropolitan Water District of Southern California, offers water saving rebates and programs for qualifying outdoor and indoor water-saving devices for Oxnard residential and commercial water customers. This includes rebates for water efficient appliances, plumbing fixtures, toilets and landscape irrigation systems, as well as a turf replacement program. The City also engages in public education and outreach to promote water conservation by residential and commercial customers. Full details are available on the City of Oxnard web site.

In the coming years, the City expects recycled water to be increasingly important to its water supply portfolio as the risk of extended drought increases due to climate change. The City is piloting an innovative indirect potable water reuse project (Aquifer Storage & Recovery, or ASR) to determine its viability in utilizing ultra-pure treated water from the City's Advanced Water Purification Facility (AWPF). This process recycles water by injecting ultra-pure treated water into the groundwater basin for retention and eventual reuse.

This strategy supports improving and expanding the water supply with recycled water and water reuse infrastructure. The City will support efforts to expand ultra-pure recycled water use to serve its customers and support the use of greywater and rainwater catchment systems by local residents and businesses. The City will also support efforts to maintain and upgrade water infrastructure and conveyance systems to minimize leaks and prevent waste. Another way to reduce GHG reductions from this sector is by increased use of renewable electricity to power the City's water, wastewater, and recycled water systems. See the Clean Energy (E) strategies for more information.

ALIGNMENT WITH STATE INITIATIVES

AB 1668 Targets

- 55 gallons per capita per day (gpcd) as the standard for indoor residential water use until January 1, 2025
- 52.5 gpcd standard beginning January 1, 2025
- 50 gpcd standard beginning January 1, 2030

IMPLEMENTING ACTIONS

Community

- W1.1 – Maximize the use of recycled water or graywater for agricultural and for irrigation at all large new developments
- W1.2 – Where feasible, install additional recycled water pipeline infrastructure; update the existing landscape ordinance to facilitate implementation of AB 1668
- W1.3 – Encourage the installation of rainwater catchment and graywater reuse systems as a means of reducing water consumption

Municipal Operations

- W1.4 – Create the necessary infrastructure to utilize 100 percent of AWPF output
- W1.5 – Evaluate the feasibility of developing a municipal landscaping policy that limits the use of potable water for municipal irrigation
- W1.6 – Update the existing City Landscaping Standards to list a selection of pre-approved native, drought-tolerant, and California-friendly plant species and trees to be used for City landscaping projects
- W1.7 – Replace flush and flow fixtures in municipal facilities to improve water efficiency

Waste Reduction and Recycling (R)

Solid waste that decomposes in landfills generates methane gas (CH_4), a GHG that is approximately 25 times more potent than carbon dioxide (CO_2) over a 100-year timeframe, and even more potent over shorter time spans. In addition, the collection, transportation, and handling of waste cause emissions from trucks and facility operations. Waste reduction and diversion programs prevent materials from ending up in landfills, and recycling reduces GHG emissions associated with the energy embodied in material goods and their packaging.

Teaching children about waste reduction and recycling

Solid waste sent to landfills represents approximately 8 percent of the city's community-wide GHG inventory. The City is not currently maintaining compliance with state mandates for organics diversion and commercial recycling, and an accurate accounting of waste streams and diversion rates is hindered by several logistical and technical challenges. Currently, the Environmental Resources Division (ERD) cannot accurately track the volumes of waste and recyclables coming from the Oxnard community vis-à-vis neighboring communities.

Waste Reduction and Recycling Comprises the Following Strategies

- R1: Recycling and Organic Waste Diversion

Co-Benefits

Public Health

Local Economy

Cost Savings

Social Equity

R1: Recycling and Organic Waste Diversion

GHG REDUCTIONS BY 2030

55,637 $MTCO_2e$ annually

GHG BENEFIT-COST RATIO

High

PERFORMANCE OBJECTIVES

Community

Achieve 75 percent diversion of total solid waste from landfills by 2025

Achieve 75 percent diversion of organics from landfills by 2030

STRATEGY DESCRIPTION

Promote and provide services for diverting yard waste, food scraps, and compostable paper from landfills to beneficial use, including compost and energy production. Increase diversion of recyclable materials from landfills through ordinances, service improvements, education and outreach, and promoting product stewardship and markets for material reuse.

In addition to the actions required by regulation (see below), the City's ERD is currently improving its facilities and operations with the goals of meeting or exceeding state waste diversion mandates, lowering disposal costs, and generating additional recyclable and organic (green waste and food waste) material recovery for marketing, sale, and cost recovery. Through this process, the City is examining ways to upgrade its waste sorting equipment and is in the preliminary planning phase of adding a new organics processing facility located next to the City's material recovery facility.

ALIGNMENT WITH STATE INITIATIVES

State of California Mandates

- Senate Bill 1383: Reduce organic waste disposal by 75 percent from 2014 levels by 2025. All sectors (residential, commercial, and industrial) are required to subscribe to mandatory organics collection or submit a waiver for special conditions exempting them from the requirements. SB 1383 requires that the City, beginning January 1, 2022, provide organics collection service to all residents and businesses, develop an edible food recovery program, and conduct education and outreach to the community regarding the requirements of the law. Under SB 1383, the City also has the obligation to annually procure at least 16,350 tons of recovered organic waste product, which can be fulfilled through any combination of compost, mulch, renewable energy from anaerobic digestion, or electricity from biomass conversion.
- Assembly Bill 1826: Mandatory organic waste collection for businesses that generate more than 2 cubic yards of solid waste per week.
- Assembly Bill 341: Mandatory commercial recycling collection for businesses generating more than 4 cubic yards of solid waste per week.
- Assembly Bill 939: Established initial waste diversion mandates along with an integrated framework for statewide waste disposal reporting, solid waste planning, and solid waste facility and landfill compliance.

IMPLEMENTING ACTIONS

Community

- R1.1 – Participate in regional efforts to increase or establish local organics processing and capacity
- R1.2 – Establish a system to track waste disposal and diversion activities, ideally categorized by both land use (residential, commercial, municipal) and management type (landfilled, recycled, anaerobically digested, composted)
- R1.3 – Adopt a Polystyrene Ordinance to regulate the production and use of the material within city limits, to encourage the use of more recyclable or compostable materials in its place.

Municipal Operations

- R1.4 – Maximize placement of recycling and organic waste receptacles in municipal facilities and in public spaces
- R1.5 – Adopt a Green Purchasing Plan with a goal of conserving natural resources by purchasing products that are environmentally friendly whenever feasible

Nature-Based Solutions (N)

Urban green spaces, including parks and urban trees, green roofs, and bioswales, enhance carbon sequestration and conserve biodiversity. These components of the City's *green infrastructure* improve stormwater management, reduce urban heat islands, support biodiversity, reduce air pollution, and increase access to natural spaces. The City will seek opportunities to utilize these nature-based approaches to sequestering carbon dioxide and providing social, environmental, and economic benefits to the community.

Low-water landscaping

Nature-Based Solutions Comprises the Following Strategies

- N1: Increase Local Carbon Sequestration

Co-Benefits

Air Quality

Public Health

Social Equity

Community Resilience

N1: Increase Local Carbon Sequestration

GHG REDUCTIONS

Not quantified

GHG BENEFIT-COST RATIO

NA

Performance Objectives

Maintain the City's tree canopy cover through 2030 using native and drought-resistant species

STRATEGY DESCRIPTION

Urban trees beautify the landscape, reduce heat stress, improve stormwater infiltration, increase property values, and provide habitat, among other benefits. Similarly, transitioning from gray to green infrastructure brings numerous benefits.

The City of Oxnard Public Works Department received grant funding from the California Greenhouse Gas Reduction Fund, through the California Department of Forestry and Fire Protection to plant 1,000 trees, including planting fruit trees at residents' homes. Although open to all residents, priority was given to those disproportionately affected by pollution, based on CalEnviroScreen scores. The project was completed in 2021. Additionally, the City received grant funding through the Strategic Growth Council's Urban Greening Grant Program to develop the Oxnard Green Alleys Plan, which examined 86 miles of underutilized alleys and identified potential projects within Oxnard's most underserved alley neighborhoods. The plan was completed in 2015. In 2017, the City was awarded grant funding from the California Natural Resources Agency to implement the La Colonia Green Alleys Project, a component of the 2015 plan. The project serves as a pilot for revitalizing one Oxnard alleyway into an attractive public space with trees, permeable surfaces, and environmentally friendly landscapes that support carbon sequestration.

A recent study found that the City-managed tree inventory is not prepared for climate change, and that the City has the potential to lose approximately one-third of its tree species over the next 30 to 100 years (Dudek 2021). Over the next few years, the City will be faced with challenges just to maintain the existing canopy, as many trees need to be removed or pruned as a result of long-term deferred maintenance, particularly if current drought conditions persist.

ALIGNMENT WITH STATE INITIATIVES

California 2030 Natural and Working Lands Climate Change Implementation Plan

IMPLEMENTING ACTIONS

Community

- N1.1 – Maintain and expand the urban tree canopy using available grant programs
- N1.2 – Specify options for future tree planting with drought-resistant tree species that can survive changes to the local climate, and consider long term maintenance to improve the canopy.

- N1.3 – Give higher priority to investment in neighborhoods with limited green space and elevated air pollution, and in areas where green infrastructure, including trees and other types of vegetated buffers, can effectively address stormwater management issues
- N1.4 – Coordinate with the County of Ventura on their Tree Planting program, which aims to plant two million trees throughout the county by 2040

Municipal Operations

- N1.5 – Seek funding to implement a green infrastructure program for the City's parks, streets, and public spaces to improve stormwater management, support biodiversity, reduce air pollution exposure, and increase access to natural spaces, including trees
- N1.6 – Continue implementation of the Oxnard Green Alleys Plan to transform existing alleyways within disadvantaged neighborhoods into multifunctional green spaces with tree canopy, green infrastructure elements, and active transportation access.

4

chapter**four**

Community Vulnerability and Adaptation

Oxnard has enviable weather most of the year except for relatively short periods of high heat, intense rain, and high winds. However, science indicates that the weather patterns of the past are not what we should expect in the future. Due to a changing climate, Oxnard is already experiencing more extreme heat events, worsening air quality due to smoke events, sea level rise, and severe droughts that are straining water supplies. These hazards will worsen over time and can trigger secondary impacts to Oxnard's economy, infrastructure, ecosystems, food supply, and livelihoods. The resulting consequences depend on the vulnerability of populations and infrastructure to climate change impacts and the extent to which a community is resilient and has resources to adapt.

As outlined in Chapter 3, the City intends to reduce its greenhouse gas emissions and do its part to help mitigate the worst effects of climate change, but local adaptation measures contained in this chapter are also needed for Oxnard to be a more resilient community in the face of these hazards. This chapter identifies the impacts and vulnerabilities faced by the community, as well as adaptation strategies that will help Oxnard's neighborhoods, natural systems, and infrastructure withstand the effects of climate change.

Vulnerable Communities

As described in Chapter 1, vulnerable communities experience heightened risk and increased sensitivity to climate change and have less capacity and fewer resources to cope with climate impacts. The text box located to the right lists the populations that were identified as particularly vulnerable through stakeholder engagement and community outreach, and **Figure 4-1** provides statistics for some of Oxnard's vulnerable populations.

Identifying vulnerable populations in the community facilitates equitable planning and distribution of resources. **Figure 4-2** shows relative socioeconomic vulnerability in Oxnard,[7] indicating which residents and workers within the City of Oxnard are the most vulnerable to the impacts of climate change considering multiple social, economic, and demographic indicators of vulnerability such as existing health burdens, poverty, and working conditions.

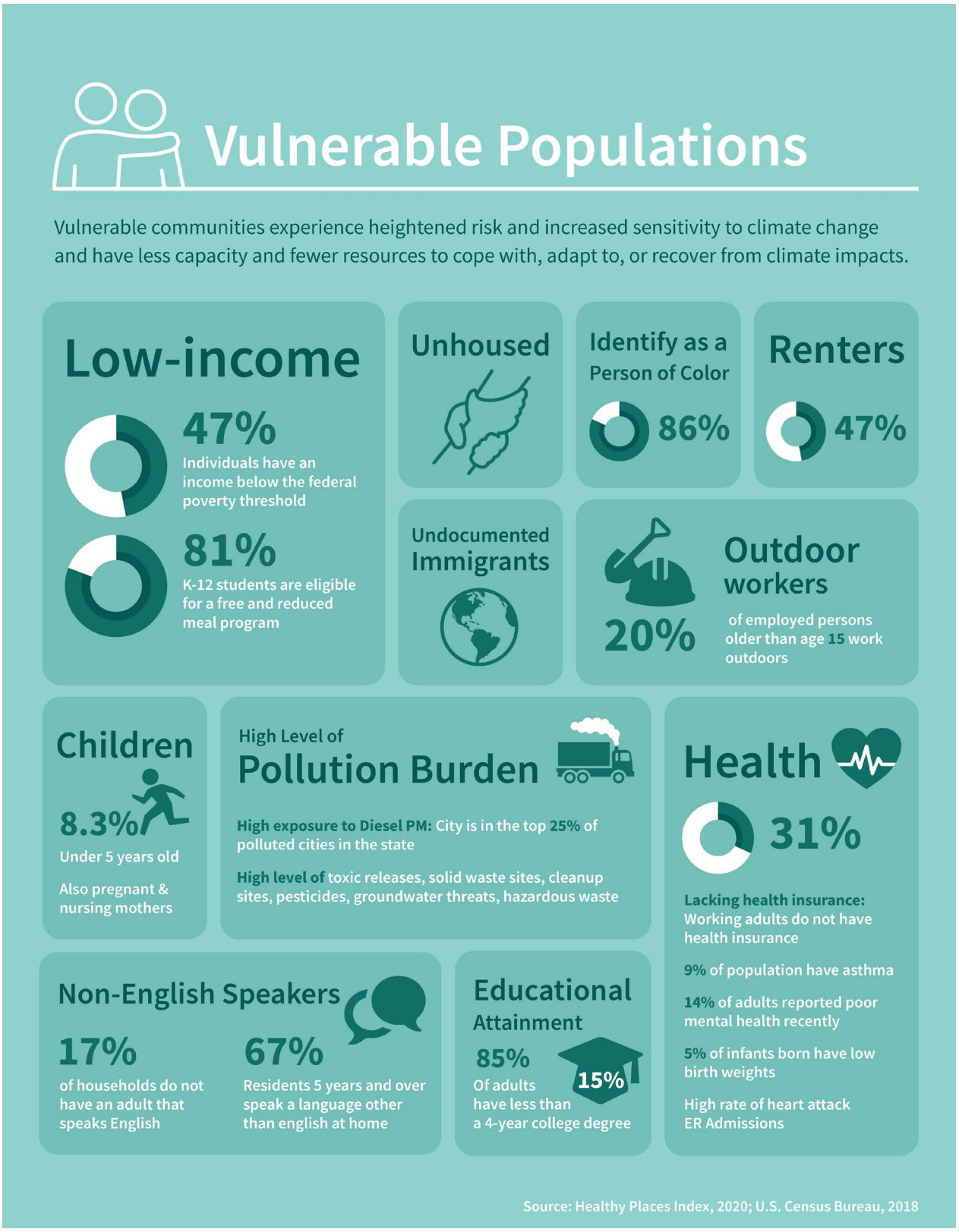
Multicultural festival

Vulnerable Populations in Oxnard

Vulnerable populations in Oxnard include:

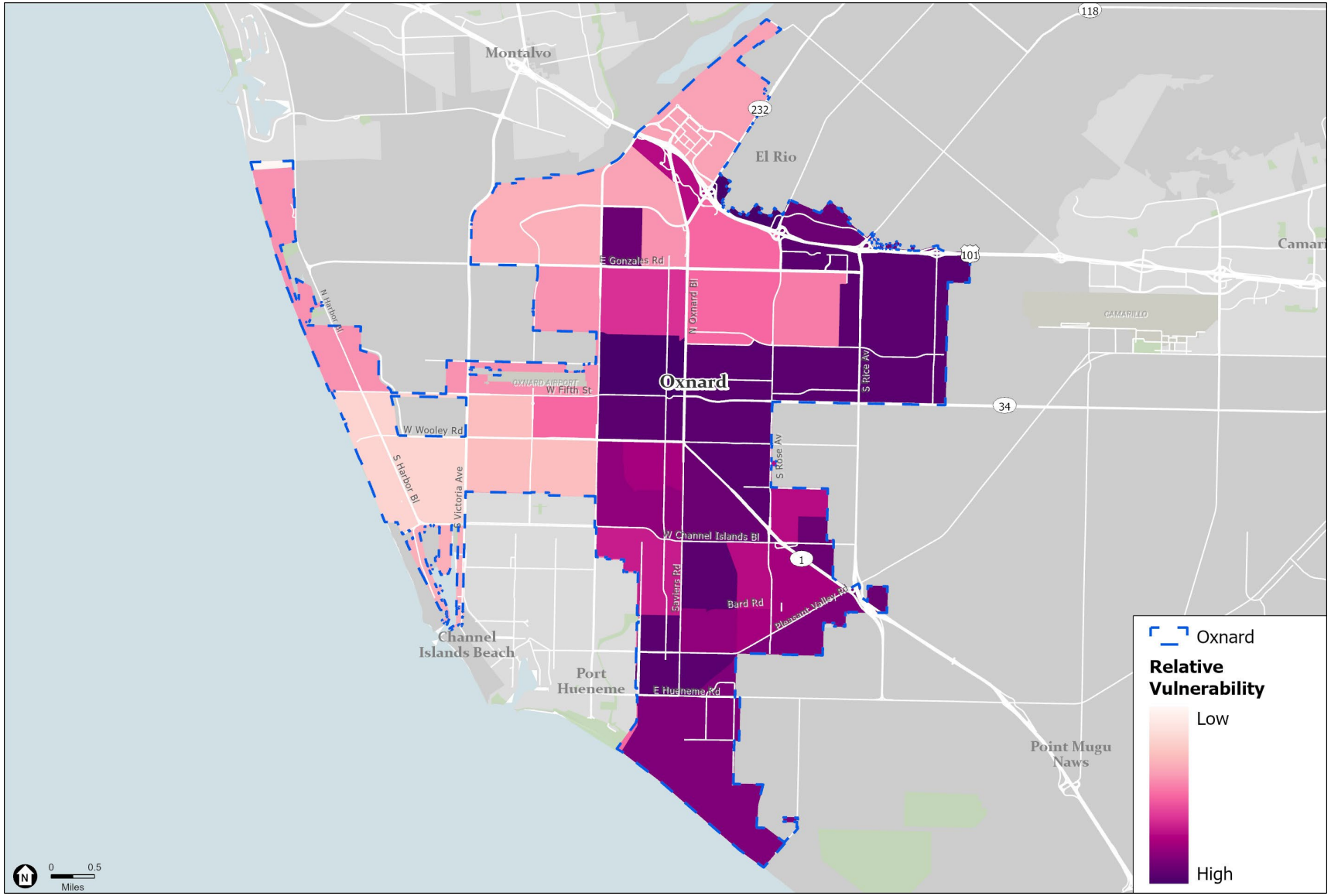
- Children
- Elderly
- Farmworkers and outdoor workers
- Indoor workers (warehouse and manufacturing)
- Individuals with physical or mental disabilities
- Individuals without access to air conditioning
- Low-income
- Unemployed/underemployed
- Uneducated/undereducated
- Unsheltered/homeless individuals
- Housing cost burdened
- Renters
- Coastal residents
- Undocumented individuals
- Uninsured individuals
- Indigenous communities
- Linguistically isolated
- Individuals without access to a car
- Neighborhoods with low tree canopy, parks and open spaces
- Communities disproportionately impacted by the novel coronavirus (COVID-19) virus

[7] *Relative social vulnerability* is determined using an index that measures a local population's level of exposure to hazards, based on various conditions that threaten environmental, social, and public health and prosperity. For more details regarding the methodology used to develop this index, refer to Appendix D.



Source: CalAdapt 2022

FIGURE 4-1 **Oxnard's Community Vulnerability to Climate Change Impacts**



Sources: City of Oxnard, OEHHA, PHASoCal, ESRI, ESA

FIGURE 4-2 **Relative Socioeconomic Vulnerability in Oxnard**

Oxnard Public Library

Census tracts in the City with the most overlapping vulnerabilities are shown in a darker magenta color. As shown in Figure 4-2, the eastern, southern, and central areas of the City have a higher concentration of populations considered more vulnerable to the impacts of climate change. These communities are more likely to experience greater burden, and have less capacity to recover, from climate impacts. It is important to note that certain indicators of vulnerability are not easily identified on a map. For example, unsheltered individuals are particularly vulnerable to climate change impacts; however, it is difficult to identify where these individuals are located. Therefore, certain indicators of vulnerability that are not easily mapped are not reflected on Figure 4-2, including unsheltered individuals as well as people with undocumented citizenship status and people who work in the coastal zone (For more details regarding the methodology used to develop Figure 4-2, refer to Appendix D).

Critical Facilities and Infrastructure

The systems, buildings, infrastructure that support a community may also be vulnerable to climate change impacts. Critical facilities are those that are essential to the functioning of the city and include critical infrastructure and public buildings that are used to coordinate human resources and equipment during hazard response and recovery. Emergency response facilities and services may also be at risk from climate hazards especially if they are not built to withstand future climate events. Some facilities can serve more than one function in a community, making them multi-use. For example, in Oxnard, libraries and many senior centers serve as cooling centers and emergency shelters for the wider community, while schools can be used as evacuation and mass care shelters. Oxnard's public infrastructure was designed and built over the previous 125 years for specific capacities and natural events such as the 100-year flood or a specific magnitude earthquake. As natural events become more extreme with climate change, infrastructure standards must change to continue to protect life and property. The challenge is deciding what the new standards should be, prioritizing where and what improvements are needed, and funding and building them.

Key facilities and critical infrastructure and other important physical assets in Oxnard are listed in the box to the right. Where relevant, the potential exposure of these assets to climate change hazards is discussed under each hazard, below.

South Oxnard Library

Critical Facilities and Infrastructure in Oxnard

The following critical infrastructure and built assets in Oxnard are considered potentially vulnerable.

- Beaches and beach facilities
- Businesses
- City buildings and facilities
- Communication networks (radio, TV, internet)
- Cooling centers
- Emergency shelters
- Evacuation routes
- Energy infrastructure
- Fire and police stations
- Hospitals
- Libraries
- Parks
- Schools
- Senior centers
- Solid waste facilities
- Trees
- Wastewater treatment facilities and sewer lines
- Water infrastructure (e.g., reservoirs, groundwater wells, etc.)

Community Preparedness (CP)

Responding to the challenges of climate change will require increased coordination between the City government and citizens to leverage the resources and local knowledge of the community. Preparing the community for climate change requires a strong system of community preparedness infrastructure (cooling centers, emergency response facilities, community gathering spaces, and emergency evacuation routes) as well as a strong communication network regarding climate emergencies, impacts and response. During the public outreach process, community feedback also indicated a need for public education regarding climate change impacts. An engaged and informed community is at the heart of increasing community resilience and adapting to climate change, which is why Community Preparedness lists its first strategy.

Community Preparedness strategies address multiple hazards or are intended to build community resilience broadly. Strengthening the City's ability to respond to climate-related events will create a safer and more cohesive community. Additionally, a key component of building community preparedness is applying lessons learned following a damaging climate event to enable the community to build back stronger. Existing community preparedness infrastructure in the community of Oxnard is shown in **Figure 4-3**.

The Oxnard Fire Department has an Emergency Manager who maintains and updates the City's Emergency Operations Plan, coordinates local response and relief activities within the City's Emergency Operation Center (EOC), and works closely with County, state, and federal partners to support planning and training and to provide information and coordinate assistance. This includes coordinating assistance offered by citizens and community organizations during a disaster response, to ensure that resources are deployed effectively and efficiently from the EOC during a disaster.

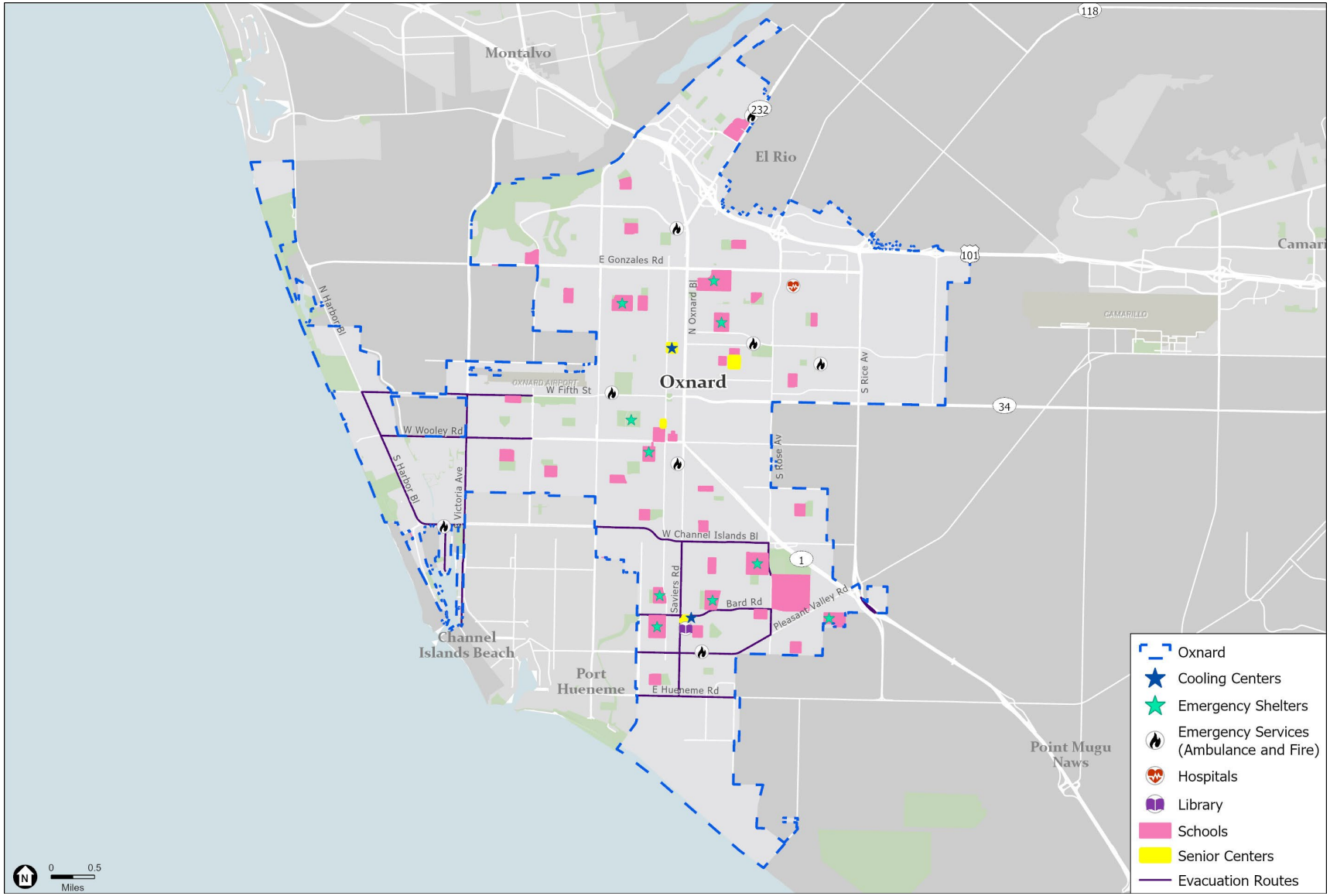
CURRENT ADAPTIVE CAPACITY

Positive Factors

- Two designated cooling centers are located at senior centers, along Oxnard Blvd to the north and Saviers Rd to the south.
- Ten designated emergency shelters are located in Oxnard at schools and community centers near major corridors (Oxnard Blvd, Wooley Rd, Ventura Rd, Saviers Rd, and Pleasant Valley Rd).
- The VCAPCD has a farmworker wildfire smoke alert system.
- Designated evacuation routes are located in the western and southern portions of the city.

Negative Factors

- No designated resilience hubs are located in the community.
- There is a lack of designated emergency shelters near residential neighborhoods in northern, western, and northeastern areas of the city.
- There is a lack of designated evacuation routes in the northern, eastern, and central areas of the city (see Figure 4-9 for the location of evacuation routes).



Sources: City of Oxnard, HIFLD, ESRI, ESA

FIGURE 4-3 **Community Preparedness Infrastructure in Oxnard**

POTENTIAL STRATEGIES FOR INCREASING COMMUNITY PREPAREDNESS (CP)

This section responds to the community's interest in expanding climate change education and becoming more integrated into the climate adaptation process. The strategies and actions outlined below prioritize collaborations, information-sharing, and accessibility for Oxnard members, and can better position the City to access state funding earmarked for climate adaptation and resilience projects.

CP1: Develop a public education campaign to inform community of climate hazards and impacts

This strategy involves collaborating with local and regional agencies, including farmworkers associations, senior organizations, schools, transportation agencies, and other community groups, to increase community education and awareness of climate hazards, vulnerabilities, and adaptation strategies. The City will support efforts to provide educational and informational support to residents and businesses, as well as participate in emergency preparedness fairs and networking events that can help with community preparedness. Informational materials will be provided through various platforms and in a multilingual capacity. Materials may also be used in schools and by community organizations to reach more groups in Oxnard.

CP2: Ensure early warning systems are adequate for extreme events related to climate change

Early warning systems can provide timely information and resources for local hazards, including events related to extreme heat, flooding, extreme winds, poor air quality, and wildfire smoke. The City currently coordinates emergency responses with the County of Ventura and other regional actors through the varied channels of EOC networks. For maximum reach, early warning systems should be issued in both English and Spanish, employ various modes of communication (webpage, cellular alerts, social media blasts, radio, emails, automated community signage, bus stop signs, etc.), and convey the appropriate safety response for community members. The community should receive education and awareness of hazards that would warrant notification through the early warning system, and how future hazards are likely to be very different from what the community has historically known and experienced.

CP3: Invest in backup power systems and energy storage at emergency centers and cooling centers

This strategy involves building local community resilience through energy systems. The City can explore options to invest in sustainable backup power sources and energy storage to provide redundancy and continued services for critical facilities during emergencies, especially cooling centers and emergency shelters. This will help provide reliable support in the case of power outages and during periods of high electricity demand. The City should develop a list of critical facilities that currently do not have backup power systems in order to prioritize future projects. The City should also investigate whether a standard duration of backup power should be developed.

CP4: Expand community resilience services and infrastructure

Existing emergency response centers, evacuation routes, and cooling centers should be assessed to ensure they are effective, safe, and accessible in the case of a climate hazard event and be able to serve the needs of vulnerable populations. The City should further ensure that these facilities and infrastructure are resilient to various climate impacts. New emergency response facilities, such as resilience hubs, can be developed in collaboration with local and regional agencies to provide relief from multiple hazards and provide services (e.g., hydration, cooling, masks and filters, and hazard notifications). The City should ensure that resilience hubs are placed strategically throughout the city with an emphasis on disadvantaged and vulnerable communities, and with effective signage and messaging to ensure community awareness about their existence. Where electricity storage is not available or feasible, natural gas should be considered as a back-up energy source for heating water and cooking food during power outages.

CP5: Periodically review public infrastructure standards

The City's public infrastructure standards should be reviewed periodically to make sure it is built to withstand future impacts from climate change hazards including flooding, sea level rise and extreme heat events.

Climate Change Impacts and Adaptations

The strategies that can be implemented locally to increase community resilience to climate change impacts are organized into the following five major categories and described in more detail in the following sections.


Extreme Heat (EH)


Extreme Drought (ED)


Smoke and Air Pollution (AP)


Sea Level Rise (SR)


Extreme Storms and Stormwater Flooding (SF)

Preceding the adaptation and resilience strategies, each hazard discussion below contains background information that was used to inform the strategies, including a summary of the anticipated impacts, timeframe for when the impacts are expected to occur, secondary impacts (i.e., impacts that occur as a result of, or are exacerbated by, a primary impact), and vulnerable populations, facilities, and infrastructure. Some climate change impacts, such as extreme heat, are already part of the lived experience in Oxnard. Other impacts such as rising sea levels are occurring more slowly, and the consequences may not be experienced for a number of years. Many impacts do not happen in isolation and include secondary impacts. For example, extreme heat days often occur concurrently with poor air quality and high fire risk. The certainty that scientists have about the intensity and timing of climate change impacts varies depending on the hazard. The **vulnerability** of the population, facilities, and infrastructure also depends on a variety of factors, including their level of **exposure** to climate change hazards, their **sensitivity** to those hazards, and their ability to withstand the **impacts** (i.e., **adaptive capacity**).

The strategies were developed in collaboration with the community during the public outreach process. When asked about potential climate change hazards of most concern, the topics of greatest concern to the community included drought, extreme heat, and smoke from wildfires. Residents are interested in strategies and solutions that are equitable with the benefits distributed fairly and in a manner that does not put vulnerable communities at further risk. As such, considering equity in the implementation of these strategies is a priority that is discussed up front in Chapter 1 of this CAAP.

Components of Climate Change Vulnerability

EXPOSURE

Exposure is the presence of people, infrastructure, natural systems, and economic, cultural, and social resources in areas that are subject to harm. The duration and areal extent of exposure are often important determinants of vulnerability.

SENSITIVITY AND IMPACTS

Sensitivity describes the degree to which an asset such as a community, a physical asset or a natural system would be affected by changing climate conditions. Impacts refer to the specific negative results of a climate change effect.

ADAPTIVE CAPACITY

Adaptive capacity refers to the ability of community populations and physical assets to adjust to climate change impacts and cope with the consequences. Adaptive capacity can be provided through physical design (e.g., back-up generator), or it can take the form of policies, plans, programs, governance, or institutions.

Extreme Heat (EH)

FORECAST

On October 23, 2017, the temperature in the City of Oxnard reached 104 degrees Fahrenheit, the highest temperature ever recorded locally (Extreme Weather Watch 2022). According to science, extreme heat events like this will be become more common in the future. Average maximum temperatures in Oxnard are expected to increase 5 to 8 degrees Fahrenheit by the end of the century (CalAdapt 2021). Historically, Oxnard has experienced approximately 4 days of extreme heat per year (for Oxnard, this is defined as days when the maximum temperature rises above 89.7 degrees). This is expected to increase to between 16 and 30 extreme heat days annually by the end of the century (CalAdapt 2021). Across the region, heat waves are expected to occur more frequently, and be more intense and longer-lasting due to climate change (Cayan et al. 2009). While extreme heat days are more common in the summer months, days of high temperatures can also occur during the fall, winter, and spring (Schwarz et al. 2020).

Risk and Secondary Impacts

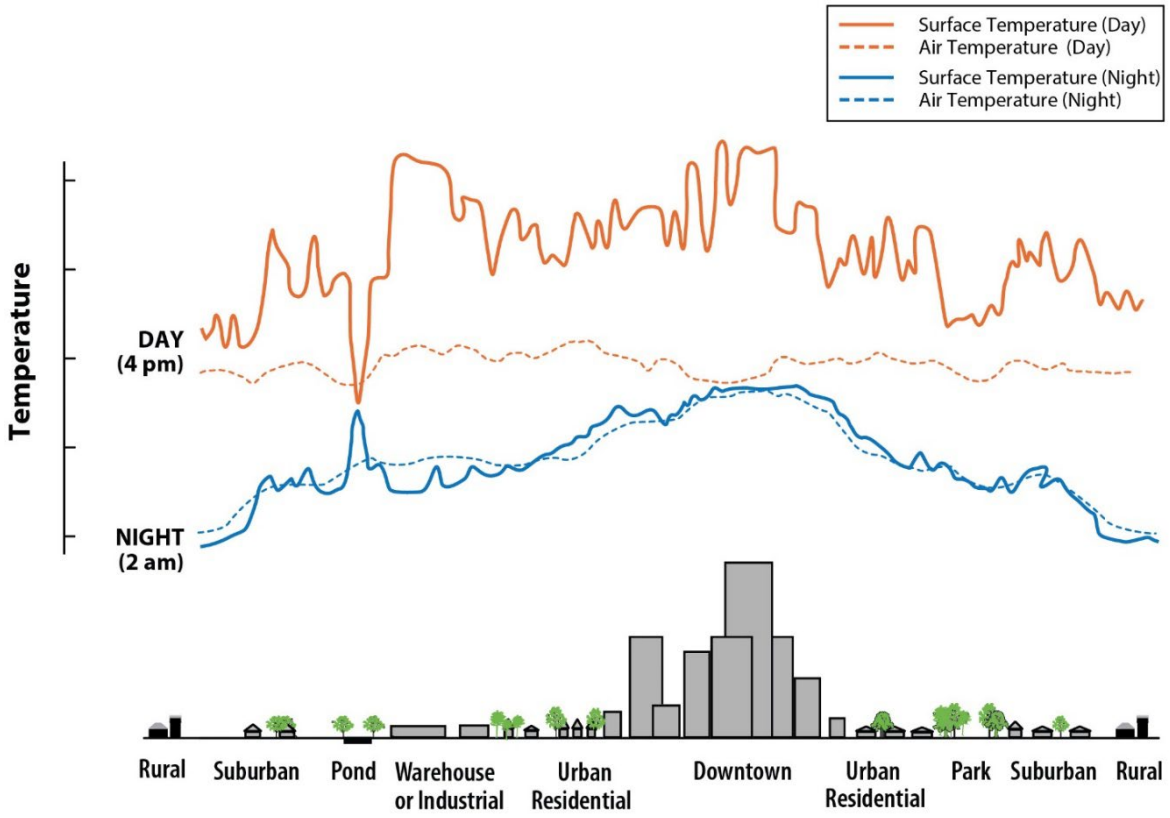
Global temperature increases have already had observable effects on the environment. Seven of the warmest years on record have occurred since 2014 (Lindsey and Dahlman 2021). Scientists have a high level of confidence that temperatures will continue to rise for decades and that extreme heat days and heat waves will occur more frequently. Extreme heat can worsen drought conditions and can create extreme wildfire conditions:

- **Certainty:** High
- **Secondary impacts:** Air pollution, wildfires, drought

Figure 4-4 illustrates the "urban heat island" effect, where buildings, roads, and urban infrastructure absorb and re-emit the sun's heat with more intensity than the natural landscape does (USEPA 2021b). In urban areas where greenery is limited, this effect becomes exaggerated and results in higher daytime and nighttime temperatures relative to outlying areas. Warming and extreme heat in Oxnard may be exacerbated by the urban heat island effect and result in higher cooling demands.

ANTICIPATED IMPACTS AND VULNERABILITIES

Increases in the number and intensity of extreme heat events are likely to result in public health impacts including heat-related illnesses and death and worsening of cardiovascular and respiratory conditions. Additionally, extreme heat can impact mental health by causing stress, aggression, and fatigue and by worsening existing mental health conditions. A California heat wave in 2006 killed over 600 people and resulted in 1,200 hospitalizations and 16,000 emergency department visits (CNAP 2015). Extreme heat days also result in missed school and workdays due to heat-related illnesses. Residents in coastal communities are not as acclimated to warmer temperatures and most housing in Oxnard does not have air conditioning due to the historically mild climate. As such, many residents in Oxnard are vulnerable to the impacts of extreme heat.



Source: USEPA

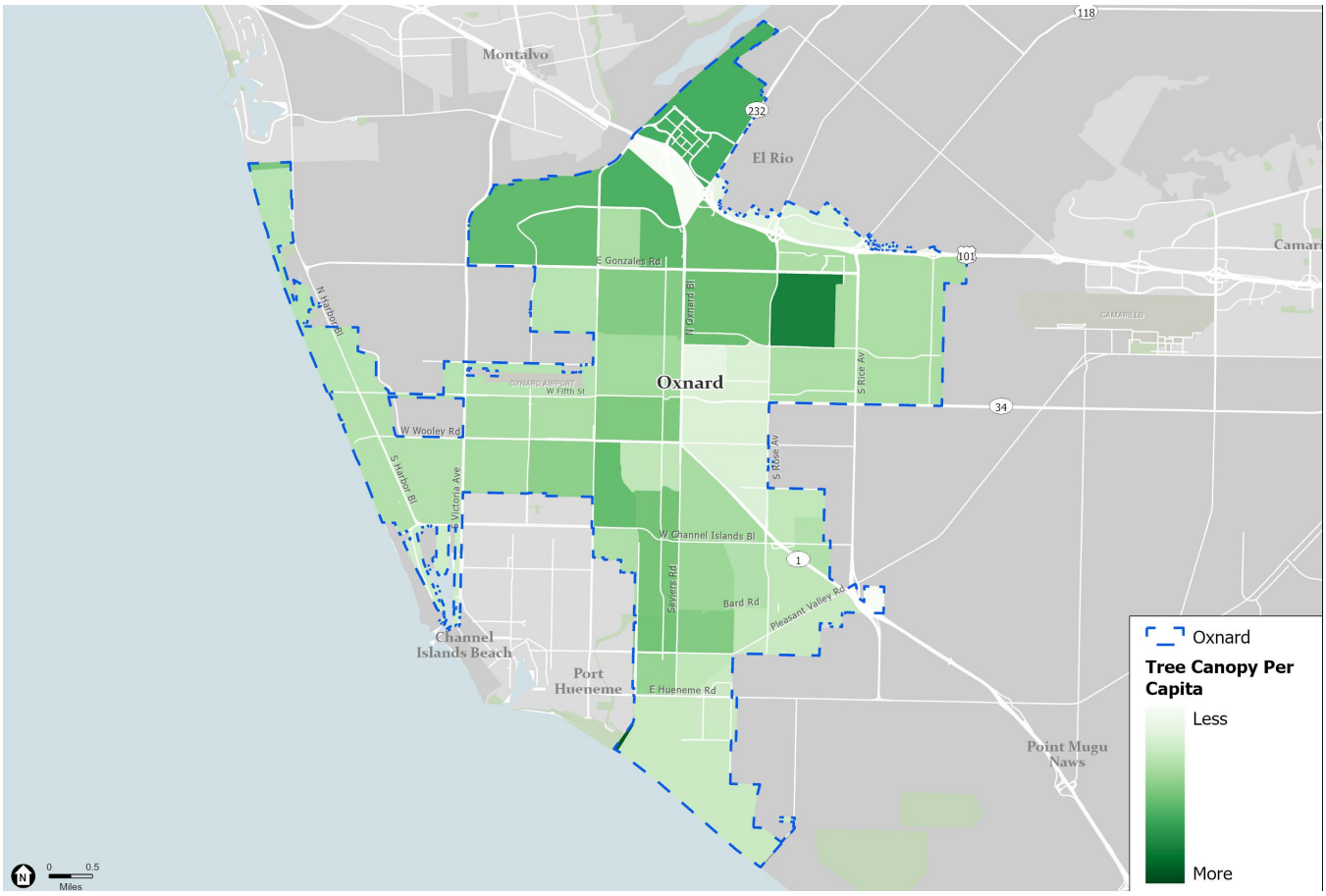
FIGURE 4-4 **Urban Heat Island Effects**

Extreme heat can impact health when there are power outages caused by stress on the electrical grid and increased electricity demand for air conditioning. Power outages put vulnerable populations such as the elderly and individuals with existing health conditions at further risk as they must go without medical devices, air conditioning, and refrigeration. Power outages can also result in traffic disruptions and resulting delays in emergency response.

Increases in average temperatures and extreme heat days may also result in higher energy costs to cool homes and, over long periods, may result in tree die-off. As average temperatures increase and the number of extreme heat days rise, the risk of wildfires is expected to worsen and extend wildfire season. Higher temperatures may also impact the region's agriculture as temperature increases will result in greater water demand and may impact agricultural yield and quality, especially for crops such as berries and vegetables (CNRA 2018). Higher temperatures also can make crops more vulnerable to pests and crop diseases.

Populations that are particularly vulnerable to extreme heat include individuals with chronic illnesses, children, elderly, unsheltered individuals, uninsured individuals, people with reduced mobility, outdoor workers, linguistically isolated households, and low-income households. Households that rely on income from the agricultural industry are also vulnerable. Low-income households, immigrant communities, and seasonal workers are likely to be disproportionately impacted.

Neighborhoods in the city with fewer trees or heat-sensitive trees are more likely to experience the urban heat island effect. The city owns and maintains almost 49,000 trees, of which up to 34 percent are species that are likely to be sensitive to extreme heat impacts (City of Oxnard 2021c). Trees account for approximately 3 percent of the city's land cover. **Figure 4-5** shows the percent of land with tree canopy weighted by the number of residents per acre. As shown in Figure 4-5, the central and southern areas of the city, which have fewer trees relative to the population living in that area, may have increased vulnerability to the impacts of extreme heat, particularly in areas of dense development that are susceptible to the heat island effect. The City is in the 17th percentile statewide for tree canopy, which refers to the percentage of land with tree canopy weighted by the number of people per acre. This means that tree canopy within Oxnard neighborhoods is lower than 83 percent of other neighborhoods statewide (PHASoCal 2018).



Sources: City of Oxnard, PHASoCal, ESRI, ESA

Note: This figure shows the percentage of land with tree canopy, weighted by the number of people per acre, across census tracts within the City.

FIGURE 4-5 **Tree Canopy in Oxnard Weighted by Population per Acre**

During extreme heat events, electricity demand goes up, which can put stresses on the regional energy grid and result in power outages. Critical infrastructure such as emergency response facilities, healthcare facilities, cooling centers, and community centers may be vulnerable to extreme heat, especially if they do not have backup sources of power. Roads can also be damaged by extreme heat due to softening and melting of asphalt, especially in areas with high traffic volumes. Emergency response facilities are unable to maintain

operations if the connections to power or to transportation routes between facilities and areas served are damaged or disrupted. Higher average temperatures and long heat waves can also impact regional water sources by increasing demand for water and increasing evaporation losses.

CURRENT ADAPTIVE CAPACITY

Positive Factors	Negative Factors
• Most of the city (91 percent) lives within a 0.5-mile walking distance of a park, beach, or open space, which can provide relief during extreme heat events (PHASoCal 2018). • City of Oxnard energy conservation programs will help the city be more resilient to power outages. • The City owns and manages approximately 48,806 trees, consisting of 261 species (City of Oxnard 2021c). The City is in the process of updating its Citywide Tree Program with drought-resistant species that can aid with localized cooling efforts. • The City has backup generators at the Public Safety Facility, Fire Station Two, and City Hall. • The City has a 5-year plan for public facility retrofits that includes windows, roof, and heater replacements. • The City has two designated cooling centers located at senior centers, along Oxnard Blvd to the north and Saviers Rd to the south.	• 42 percent of households in Oxnard lack air conditioning.[8] • The backup generators at various public facilities are in varying states of repair, with some having significantly less capacity to support needs. • Only 3 percent of land in the city has tree canopy, which is lower than 83 percent of other cities in the state (PHASoCal 2018). • Approximately 520 public housing units lack air conditioning and backup generators, which can impact elderly, disabled, and mobility-impaired tenants.

POTENTIAL STRATEGIES FOR ADAPTING TO EXTREME HEAT (EH)

Rising temperatures will make extreme heat events and heat waves more common and occur with greater intensity and frequency, and for longer durations. Strategies and actions for adapting to extreme heat are focused on improving community accessibility to cooling facilities and amenities, providing cooling for households and public facilities, improving community infrastructure to combat heat, and providing support for vulnerable populations to stay safe from extreme heat hazards.

EH1: Ensure access to cooling centers, parks, and shoreline

The City has designated cooling centers, as well as parks and beaches, which also serve as a refuge from extreme heat. The City can expand accessibility to these locations, particularly for the most vulnerable groups (e.g., outdoor workers and low-income communities) with active transportation pathways, including bike paths and pedestrian routes. The City can also enhance community awareness of accessible cooling centers and the benefits provided by natural cooling amenities in Oxnard and ensure that access routes are well-maintained and clearly marked. Having access to these centers, including public transportation options, can be critical during extreme heat events and power outages, particularly for lower-income households that lack cooling and

[8] Public Health Alliance of Southern California (PHASoCal). Healthy Places Index, 2021.

for individuals lacking access to a private vehicle. The City should coordinate with cooling facilities and transportation providers to ensure that these facilities continue to operate during power outages.

EH2: Seek funding for energy improvements for low-income households

Various households in Oxnard lack working heat pumps, adequate insulation, air conditioning, and HVAC systems. This strategy is focused on accessing funding for low-income households to install heat pumps and make other necessary retrofits that will help address extreme heat in their homes.

EH3: Promote enforcement of Cal/OSHA standards that protect against extreme heat

Existing local and state policies and standards protect individuals from heat-related impacts. Ensuring enforcement of Cal/OSHA standards for City workers and encouraging local businesses to do the same, along with distributing training informational materials to local workers, can prevent health-related heat impacts, such as heat cramps, heat stress, heat exhaustion, and heat stroke. Increasing awareness of heat-related illnesses to community members, especially outdoor workers, can further protect against serious impacts to health.

Heritage Square

EH4: Give higher priority to urban greening and shading along active transportation routes and commuting services

Urban greening can provide natural cooling benefits and help reduce the urban heat island effect. This strategy involves identifying active transportation routes, bus stops, and walking paths where urban greening and shading can be added and increased to benefit users. Priority locations should include places that serve outdoor workers and schools, bus stops, and bike and pedestrian paths.

EH5: Support and expand the citywide tree program, report, and plan

Tree canopy provides shading and natural cooling from extreme heat, adds beautification, and supports mental health. The City can continue to expand its Tree Program to include an updated tree inventory, identify vulnerable and heat-sensitive species, strengthen tree protection policies, prioritize tree canopy projects for vulnerable groups and in areas with high population density and low levels of tree canopy, and pursue funding for tree planting projects. This strategy provides the framework for a comprehensive urban forest management plan that guides sustainable management for a resilient urban forest.

EH6: Give higher priority to urban greening in communities that are most vulnerable

Oxnard's outdoor workers, elderly, youth, and active transportation users are among those at higher risk from extreme heat impacts. Urban greening and tree plantings should be prioritized to benefit these groups, at their workplaces, in residential areas (especially residentially areas with high population density and low levels of existing tree canopy of greenery), and along active transportation routes. To increase the success of these projects, the City can collaborate with the County of Ventura on the countywide Tree Planting Program and target disadvantaged community areas.

EH7: Increase the albedo (surface reflectivity) of roofs and pavements

Painting surfaces such as roofs and pavements white or otherwise adding a reflective coating can be an effective way to increase the albedo (surface reflectivity) of urban areas and reduce local absorption of solar radiation.

Extreme Drought (ED)

FORECAST

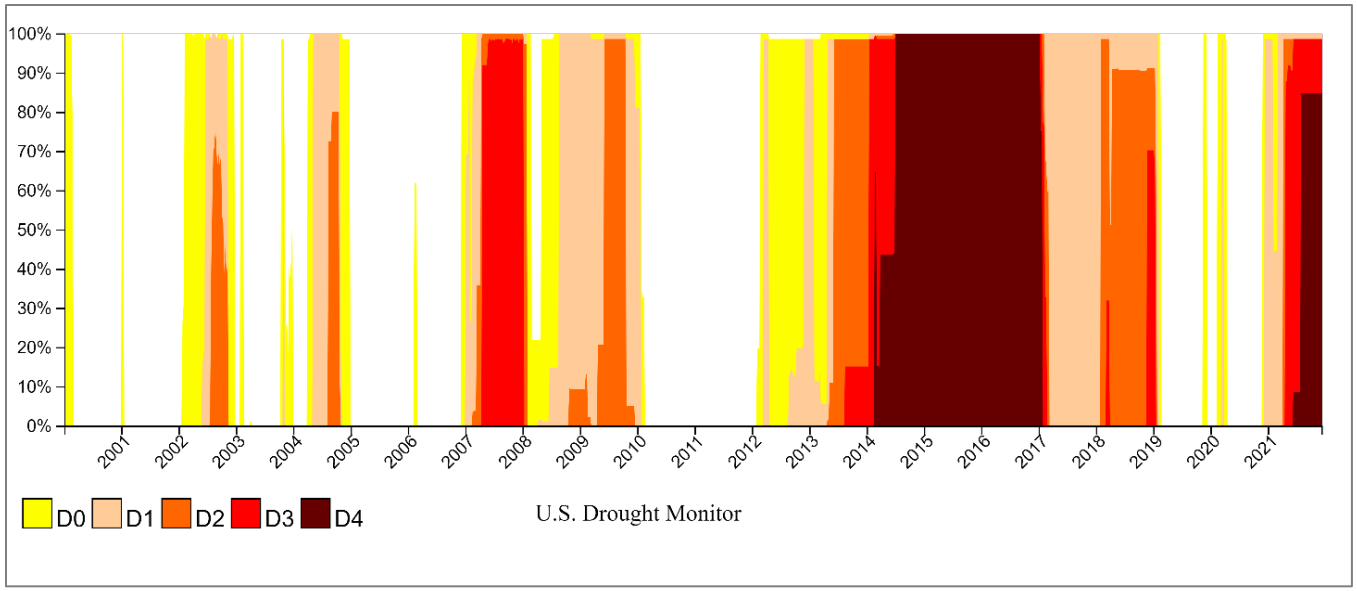
Southern California has experienced periods of extremely dry conditions in recent years. **Figure 4-6** depicts drought conditions in Ventura County over time from 2000 to 2021. The darkest red color (labeled D4) represents "exceptional drought" conditions, whereas the yellow color reflects periods considered to be "abnormally dry." Drought is affected by the quantity and distribution of precipitation as well as temperature. When total annual precipitation comes in fewer, more-concentrated events, reservoirs and groundwater aquifers become saturated and are unable to store additional water. Water is then lost to stormwater runoff and is not retained in the watershed in the way it would be with more evenly distributed precipitation. Warmer temperatures also increase snow melt, soil evaporation, and evapotranspiration and lead to drier soils and vegetation and overall drier seasonal conditions (CNRA 2018). The Santa Clara River Valley Basin and the Pleasant Valley Basin are considered critically overdrafted by the Sustainable Groundwater Management Act. Overdraft in aquifers can put additional pressure on the water supply and lead to water quality issues (Moran, Choy, and Sanchez 2014).

Risk and Secondary Impacts

In recent years, Southern California has experienced prolonged, severe droughts that have triggered water restrictions. These periods of drought are expected to increase in frequency and severity. Drought can exacerbate wildfire conditions which can worsen air quality. Additionally, drought can result in economic impacts to agriculture and result in higher food and water prices:

- **Certainty:** Medium to high
- **Secondary impacts:** Wildfire and air pollution; economic impacts with water-intensive agriculture

California has a variable climate setting with significant variation year to year in precipitation levels. In the future, more precipitation is expected to come through extreme "atmospheric river" events, which will reduce the amount of water stored in the watershed and reduce groundwater recharge. Additionally, warmer temperatures are expected to increase seasonal dryness. Overall, climate change is expected to increase the intensity and duration of future droughts and impact both surface water and groundwater sources (CNRA 2018). More-severe and prolonged droughts within Southern California could have significant impacts on regional water supply. In particular, climate change is expected to reduce snowpack in the Sierra Nevada and water supply in the Colorado River Basin, which supply a significant amount of water to Southern California, placing pressure on groundwater resources as well as imported water supply.



Source: USDM

Notes: Drought designations are D0 (Abnormally Dry); D1 (Moderate Drought); D2 (Severe Drought); D3 (Extreme Drought); and D4 (Exceptional Drought)

FIGURE 4-6 **Drought Conditions in Ventura County, 2000–2021**

IMPACTS

As a part of the Calleguas Municipal Water District (CMWD), the City of Oxnard relies on imported water from CMWD and groundwater from United groundwater and City-owned wells (CMWD 2021). The recent 2011 to 2015 drought led the Metropolitan Water District of Southern California to enter into shortage conditions and enact the Water Supply Allocation Plan. Intensification of future droughts could result in more water restrictions and water price increases, as well as water quality impacts. Stresses on water supply could be compounded by rising sea levels impacting groundwater resources.

The recent droughts resulted in reduced water supplies to groundwater users in Ventura County. Reduced water supplies may stress existing crops and result in higher water costs, which could result in economic impacts in Oxnard. Changes in precipitation and groundwater withdrawal can also result in impacts to soil quality and resulting impacts to agriculture (CNRA 2018). Impacts to agriculture are likely to disproportionately impact low-income communities of color who are employed in the agricultural industry and often face other intersecting vulnerabilities such as low levels of education, linguistic isolation, and lack of traditional citizenship status. Regionally, impacts to agriculture could result in higher food prices. Crops and agricultural fields that are already stressed by drought conditions are also more vulnerable to agricultural pests. Climate change is expected to increase the impacts of agricultural pests and introduce new pests to the Oxnard region.

Increases in the frequency and severity of drought is likely to impact open spaces and parks, resulting in dry soils and vegetation and loss of some species that are not drought tolerant. Drought could result in loss of the urban tree canopy and overall damage to local parks. Impacts on vegetation in parks and open spaces may also result in indirect impacts to wildlife. Increases in the severity and length of seasonal dryness and periods of drought are likely to increase the severity of regional wildfires, which can result in poor air quality locally.

VULNERABLE ASSETS

Vulnerable populations include low-income households that will be disproportionately affected by increases in water prices. Additionally, individuals who are sensitive to air pollution including outdoor workers and those with chronic illnesses, are indirectly impacted by drought when it contributes to an increase in the frequency and severity of regional wildfires, causing more smoke and bad air quality days. Individuals and families that depend on income from the agricultural sector will be disproportionately impacted by impacts to agriculture due to stress on water supply, especially vulnerable populations including low-income households, immigrant communities, and seasonal workers.

Physical assets in the City that are vulnerable to drought include agriculture, parks and urban trees, and water supply infrastructure.

CURRENT ADAPTIVE CAPACITY

Positive Factors	Negative Factors
• The City considers the impacts of climate change in its Urban Water Management Plan. • The City's wholesale water supplier, Calleguas Municipal Water District, has considered the impacts of drought and climate change in its most recent Urban Water Management Plan (CMWD 2021). • The City's mandatory water conservation actions position the City to be more prepared for future water restrictions and supply impacts. • The Fox Canyon Groundwater Management Agency was created to address overdraft and seawater intrusion into the Oxnard Plain Pressure Basin and is in the process of developing a Groundwater Sustainability Plan with monitoring components and pilot groundwater market project. • The City of Oxnard is developing the Groundwater Recovery Enhancement and Treatment Program (GREAT) to increase the reliability of water supply and reduce the cost of water. The GREAT Program will incorporate water recycling, groundwater injection, storage, and recovery to increase the resilience of water supply in the future.	• The City's agricultural sector and economy are vulnerable to increasing drought conditions, limited water allocations, existing and new pests, pest resistance, and pesticides. • The City has very little tree canopy and plant cover to provide natural precipitation capture and runoff benefits.

POTENTIAL STRATEGIES FOR ADAPTING TO EXTREME DROUGHT (ED)

Providing access to a clean and plentiful water supply is an essential public service. The ability of the City to do this is threatened by drought. Effective strategies and actions for adapting to drought focus on expanding community outreach for education and awareness of water conservation and water reuse practices, increasing the city's use of reclaimed water across various facilities and services, and collaborating with local organizations to build capacity for vulnerable groups to respond to drought conditions.

ED1: Expand and protect the city's diversity of water supply

The City should continue to work collaboratively with regional partners and water suppliers to participate in regional water supply planning and identify ways to increase the resiliency of the City's water supply in the future. The City conducts promotional activities through the existing Groundwater Recovery Enhancement and Treatment (GREAT) program. These efforts can be expanded to further educate and encourage residents to adopt water saving techniques in their homes and gardens, including rainwater harvesting and graywater reuse. Outreach activities should utilize a variety of formats, including educational videos and materials, community presentations, public tours, and special events.

ED2: Continue to expand community water recycling programs

The City continues to maintain the existing GREAT program for improved water recycling, reuse, storage, and recovery. The City can further support expansion of recycled water infrastructure to serve existing municipal parks and facilities, as well as multifamily, commercial, and industrial development and redevelopment projects. Distribution of informational materials to encourage the use of graywater and rainwater catchment systems for businesses and residents can also enhance the effectiveness of community water recycling programs.

ED3: Use drought-tolerant, native plants, and alternative irrigation

The City should continue to encourage the planting of drought-tolerant and California native plants and expand the use of alternative irrigation techniques and the use of rainwater harvesting and graywater reuse systems to reduce water consumption. This can be implemented in public facilities, residences and businesses, and maintain community aesthetics while reducing water use. The City should discourage the use of artificial turf, which can radiate heat and contribute to urban heat islands and creates waste disposal issues at the end of its useful life.

Water Calendar April 2017

ED4: Partner with the County to provide information on climate resilient crops

Although there is little to no agriculture within Oxnard city limits, the region's agricultural sector is a significant part of the local and state economy and employs many local residents. A reliable water supply is critical for maintaining the region's agriculture. With worsening drought conditions and decreasing water allocations, Oxnard can partner with local and regional agencies, such as the County of Ventura and agricultural associations, to provide information and resources for growers considering a shift to other, less-water-intensive crops. This can provide support to farmers and organizations in learning about water use and impacts related to crop species, and economic feasibility of shifting to different crops. As a part of this effort, the City should work with regional partners to identify potential new agricultural pests and identify potential adaptation strategies for regional agricultural operations.

ED5: Create and/or participate in programs to address food insecurity

Drought conditions can increase costs for water and food, and disproportionately impact lower-income households, unemployed individuals, and larger-family households. To address food insecurities, the City can collaborate with schools and local organizations to develop new farm-to-community programs and expand existing public programs for vulnerable populations. The City operates the senior meal program and three community gardens (Camino del Sol Community Garden, Wilson Senior Center community garden, and Pleasant Valley Road/Fire Station 2 community garden) that play important roles in combating local food insecurity. These can be expanded to maximize access and output to community members.

ED6: Consider expanding Project Assist

Evaluate the potential to expand Project Assist which provides a month credit on utility bills for qualifying individuals and families. Evaluate whether program outreach and advertisement should be expanded and targeted toward vulnerable groups. This strategy is focused on providing relief for households in the event that water and food prices rise due to increasing drought.

Low-water landscaping

Smoke and Air Pollution (AP)

FORECAST

Regional wildfires are expected to increase in frequency and severity in the coming decades (CNRA 2018). While wildfires that occur in Southern California are generally not a direct threat to Oxnard, the City's air quality will also be worsened by their far-ranging smoke impacts (CNRA 2018). Additionally, changes in precipitation and temperatures are expected to increase pollen and airborne allergens, which may increase allergic reactions and asthma attacks.

Climate change is also expected to increase concentrations of ground-level ozone and particulate matter, which will exacerbate existing air pollution in the city (CNRA 2018; Park et al. 2020). Major sources of pollution in the city include emissions from vehicles, industrial land uses, agriculture, and wildfires, due to historic industrial land uses and proximity to agricultural fields with heavy equipment use and pesticide use. The city is in the top 25 percent of polluted cities with respect to diesel particulate matter and in the top 40 percent of polluted cities with respect to $PM_{2.5}$ pollution (very fine particulate matter pollution) (PHASoCal 2018). Certain census tracts within the city are exposed to high levels of hazardous and volatile pesticides (OEHHA 2021).

Risk and Secondary Impacts

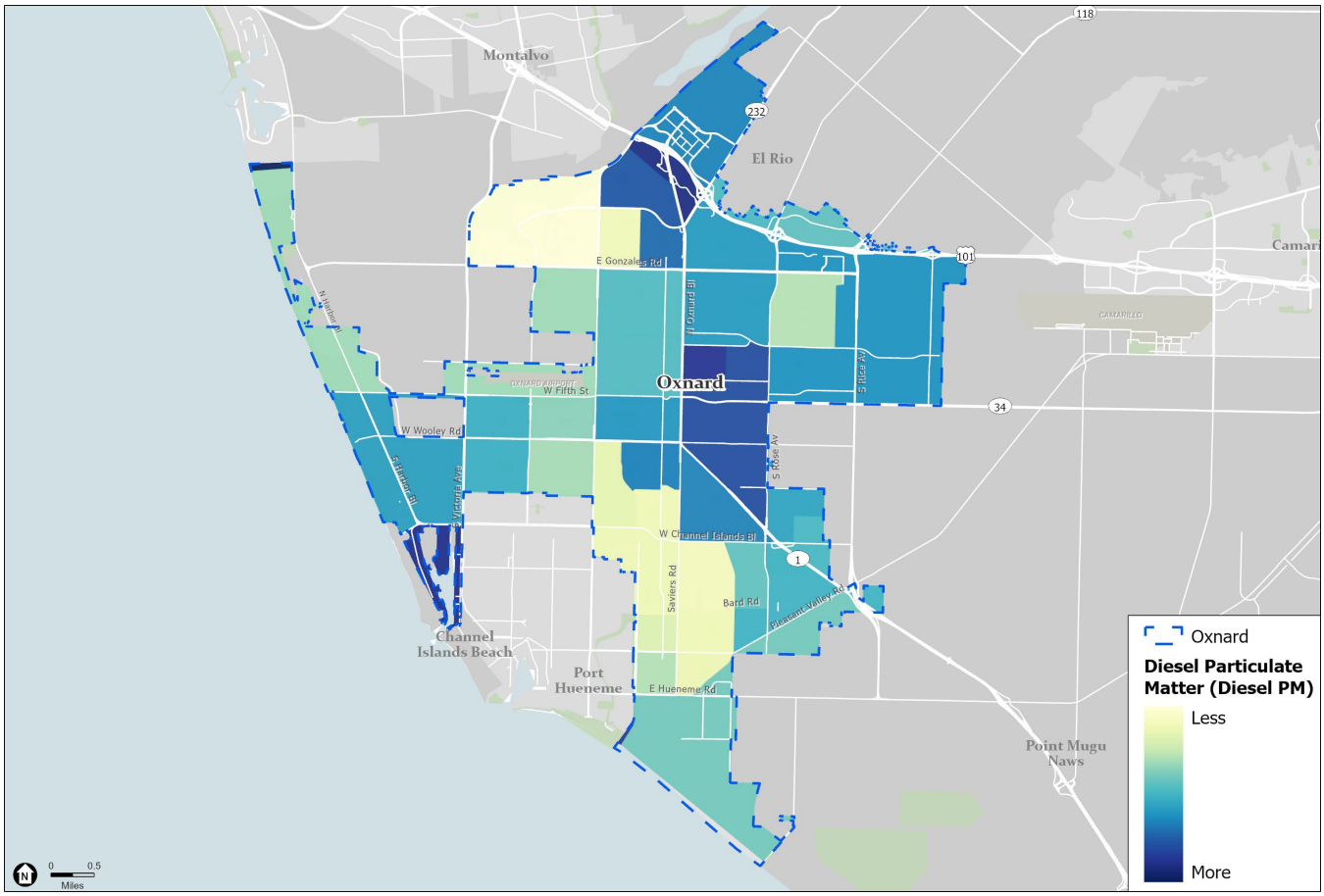
Wildfires in California have led to extended periods of poor air quality in recent years. The extent of future air pollution will depend heavily on whether local and regional emissions remain high in the future as well as other factors such a temperature, wind, and the extent of wildfires. Poor air quality and wildfire smoke can have significant human health impacts:

- **Certainty:** Low, dependent on local air quality
- **Secondary impacts:** Human health impacts

ANTICIPATED IMPACTS AND VULNERABILITIES

Some areas of Oxnard already experience high levels of air pollution, which will be worsened by climate change. Wildfire smoke and other forms of air pollution can result in immediate illnesses and can also contribute to long-term health problems such as asthma, cardiovascular disease, and cancer. Poor air quality impacts the health of outdoor workers and others who spend lots of time outside. When wildfires are extreme, as occurred in fall 2020, poor air quality may require individuals to "shelter in place" in their homes, which can negatively impact physical and mental health and can cause missed days of work and school.

Communities and individuals who live in census tracts with poor air quality are particularly sensitive to climate change effects. As shown in **Figure 4-7**, census tracts in the eastern and northern areas of the city already experience relatively high levels of DPM pollution, which makes them more vulnerable. Populations that are particularly vulnerable to the impacts of poor air quality include children, elderly, outdoor workers, individuals with existing health conditions such as asthma, individuals without access to healthcare, and communities with low birth weights.



Source: City of Oxnard, OEHHA, ESRI, ESA

FIGURE 4-7 **Relative Diesel Particulate Matter Pollution in Oxnard**

Trees reduce air pollution by absorbing airborne particles through their leaves. As shown in Figure 4-5, the central and southern areas of the city have less tree canopy, and individuals living in these areas or in park-poor neighborhoods may be more vulnerable to the impacts of poor air quality as they do not experience the air quality benefits that trees, greenery, and open space can provide.

Secondary Impacts: Covid-19 and Wildfires in Fall 2020

Fall 2020 presented numerous challenges for communities in California due to the simultaneous occurrence of the Covid-19 pandemic and the unprecedented wildfire season. These combined events illustrate the interconnected social, economic, and public health impacts of climate change and the potential for climate change to exacerbate existing inequalities and impacts. Months into the pandemic, the impacts of the respiratory disease and economic and societal shifts were felt disproportionately by individuals with underlying health conditions, the elderly, children, outdoor workers, housing burdened and low-income families, and small business owners.

During fall 2020, heat waves overlapped with an unprecedented wildfire season in California, which led to record-breaking temperatures and unhealthy air quality. The Covid-19 pandemic had caused financial hardship for many families and forced many people to spend the majority of time within their own home, resulting in social isolation. The combination of these events forced individuals to "shelter in place" due to poor air quality. As businesses, schools, and workplaces were closed, people's access to locations with air conditioning and clean air was reduced, exposing residents to greater exposure to illness from extreme heat and poor air quality. Smoke from the wildfires significantly reduced the amount of time people could spend outside, worsening the social isolation and associated mental health impacts created by the pandemic.

CURRENT ADAPTIVE CAPACITY

Positive Factors	Negative Factors
• The City's Tree Program Review identifies the carbon storage and other environmental benefits provided by the city's 48,806 trees located within the public rights of way. • The VCAPCD has a farmworker wildfire smoke alert system in English and Spanish	• Only 3 percent of land in the city has tree canopy, which is lower than 83 percent of other cities in the state (PHASoCal 2018). • Only 57 percent of households in the Oxnard have air conditioning (PHASoCal 2018). • Oxnard does not have any resilience hubs and has a limited number of shelters with access to purified air. • The City does not have emergency transportation for residents to reach shelter in the event of poor air quality.

POTENTIAL STRATEGIES FOR ADAPTING TO WORSENING AIR POLLUTION (SA)

Strategies to adapt to poor air quality focus on improving local air quality by reducing mobile pollution sources, increasing access to air filtration, improving indoor air quality, and making hazard alert systems and worker protections more effective for those who are most vulnerable to poor air quality.

AP1: Promote existing hazard alert and warning system for workers

In Oxnard, outdoor workers are among those at highest risk from worsening air pollution. The City should increase awareness of the alert and warning systems by targeting outdoor workers, farmers, and farmworkers associations and working with those stakeholders to improve alert systems, including issuing warnings in Spanish. The City may also consider ways to improve the effectiveness of alert systems by using text messages or by using delivery methods that are accessible for people without access to cell service. The City may collaborate with local and regional organizations, including the Ventura County Public Health, to expand the reach and capacity of the hazard alert and warning system.

AP2: Ensure Cal/OSHA rules are known and enforced

The City should work with local agricultural business partners to improve business and worker awareness of Cal/OSHA standards related to heat stress and to improve the enforcement of standards. Improving the enforcement of these standards may prevent short- and long-term illnesses due to extended exposure to poor air quality.

AP3: Improve access to air filters, shelters with filtered air, or air masks

Shelters should be publicly accessible to all community members and provide relief from poor air quality with air filters, filtered air locations, or air masks. The City can work with existing shelters to disseminate information and ensure that vulnerable populations are aware of their locations and are able to access them with ease. The City can also identify and provide new shelter locations near vulnerable communities such as outdoor workers, and/or disseminate air masks to outdoor workers.

AP4: Develop programs to promote EVS and reduce vehicle-miles traveled (VMT)

Local agencies can contribute to emissions reductions from vehicles by promoting and implementing programs that allow for flexible work, expanding access to transit, and encouraging the transition to electric vehicles. These include work-from-home policies, flexible and alternate schedules, telework and telemedicine, and local work hubs. This strategy is supported by greenhouse gas reduction strategies identified in Chapter 3 (Strategies T1 through T5).

AP5: Support retrofits to public facilities and housing to improve indoor air quality

Older buildings and households may be in need of new or replacement equipment to protect against smoke and air pollution. The City can identify housing and facilities that are in need of retrofits or replacements, promote programs that provide AC units, air filters, and HVAC systems, and encourage a shift from indoor gas appliances. Retrofits can be prioritized for lower-income households, older buildings, families with health conditions exacerbated by air pollution, and households with children.

Sea Level Rise (SR)

This section is informed by the reports and findings of the City of Oxnard's Local Coastal Program (LCP) Update project, which is a collaborative planning and outreach process for revising the City's existing LCP to bring it into conformance with the California Coastal Commission policy directives and approaches to address sea level rise.

FORECAST

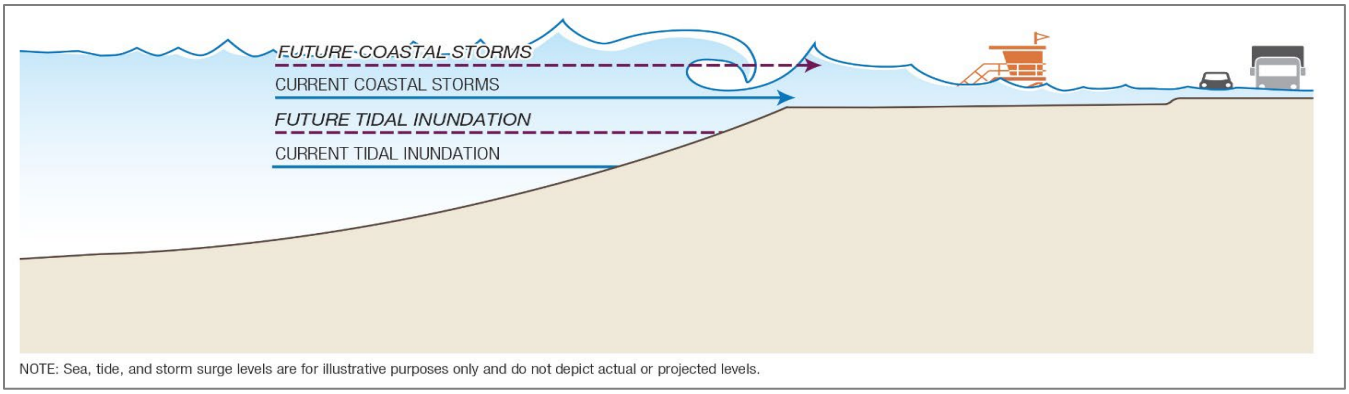
As discussed in the City of Oxnard LCP Update Sea Level Rise Vulnerability Assessment (SLR VA), sea levels are increasing globally at a rate of about 3.2 mm/year, a rate that is expected to increase over the coming decades. Due to land subsidence from groundwater extraction in Oxnard, sea level rise may be greater in Oxnard than the global average (City of Oxnard 2019a). According to the SLR VA, depending on future conditions such as future global emissions reductions, Oxnard will see between 7.4 and 25.3 inches of sea level rise by 2060 and will experience between 17.1 and 58.1 inches by 2100 (City of Oxnard 2019a). Sea level rise not only increases typical tidal water levels but also stormwater levels and erosion. The frequency and intensity of coastal storms is expected to increase in the future with climate change (City of Oxnard 2019a).[9] **Figure 4-8** shows conceptually how sea level rise will affect daily tidal inundation as well as the severity of flooding from future coastal storms. **Figure 4-9** depicts the four planning areas used in the City of Oxnard LCP Update SLR VA. **Figure 4-10** shows how the combined impact of rising sea levels and coastal storms may impact the Oxnard Shores planning area using three different sea level rise projections (low, moderate, high) and three modeling scenarios (2030, 2060, and 2100) (City of Oxnard 2016).

Risk and Secondary Impacts

Sea levels have been rising at an accelerated rate in recent years. Average sea level could rise by approximately 7.4 inches by 2030, 25.3 inches by 2060, and 58.1 inches by 2100. Sea Level rise can also result in worsened inland flooding and impacts to groundwater quality (City of Oxnard 2019a):

- **Certainty:** High
- **Secondary impacts:** exacerbation of inland flooding, rising water table leading to increased mobility of soil and ground-water contaminants

[9] *Coastal storm events* impact the shoreline through higher water levels due to storm surge, large waves, and/or elevated river flows, all of which are commonly associated with low-pressure weather systems. Planning and analysis often occur for the "100-year storm," which is the storm estimated to have a 1 percent chance of occurring in any given year.

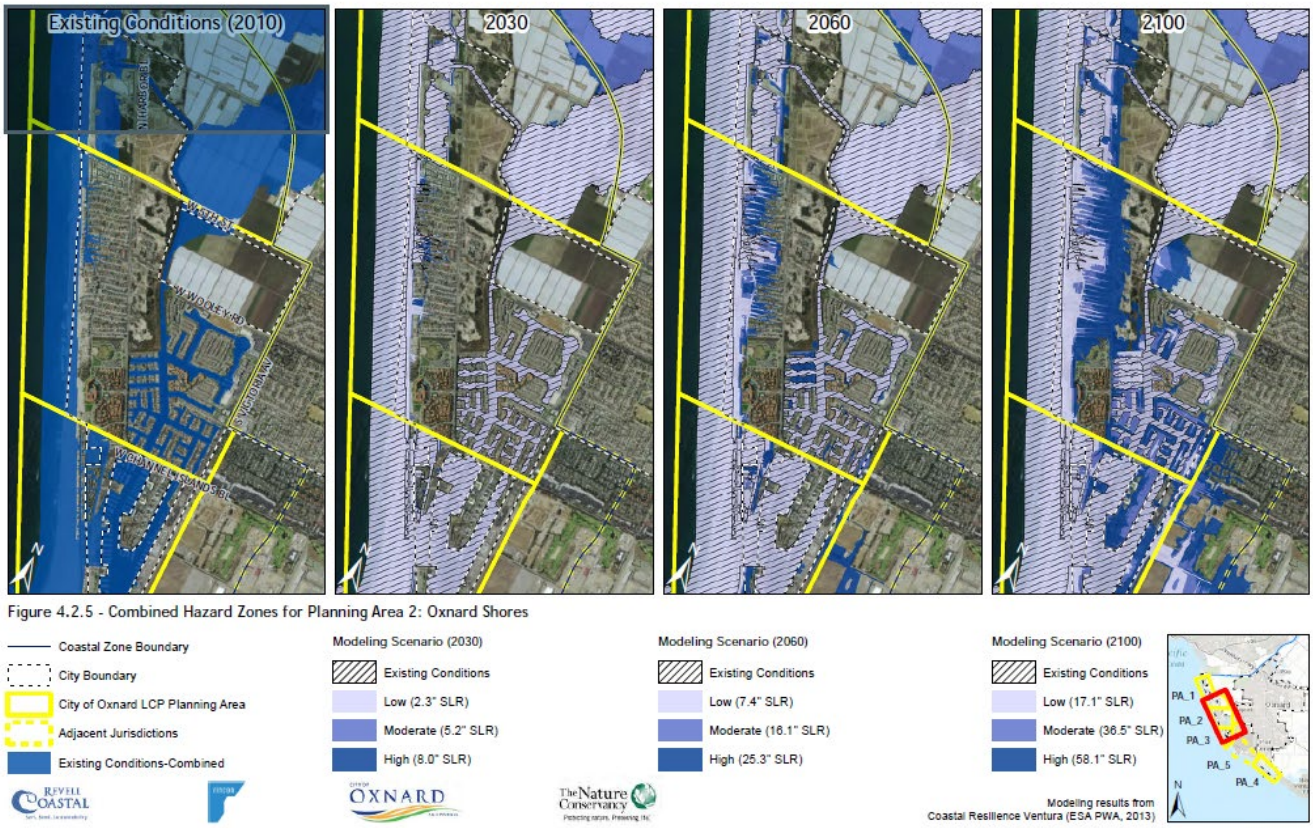


Source: Manhattan Beach 2021

FIGURE 4-8 **Conceptual Shoreline Cross-Section Showing Tidal Inundation and Coastal Storm Flood Hazards**

Source: City of Oxnard 2016

FIGURE 4-9 **Oxnard's Coastal Zone Planning Areas**



Source: City of Oxnard 2016

FIGURE 4-10 **Combined Coastal Hazards in Planning Area 2: Oxnard Shores**

ANTICIPATED IMPACTS AND VULNERABILITIES

Sea level rise is expected to create a permanent increase in ocean water levels that will shift the water's edge landward. This will result in a narrower beach and an increase in beach erosion. Additionally, the combination of sea level rise and coastal storms will result in more-frequent and intense coastal flooding. All storm drain outfalls are projected to be impacted by 2030 due to coastal storm flooding, which could result in damage and impacts to the sewer system outside of the coastal zone (City of Oxnard 2019a).

Rising sea levels are also expected to worsen coastal erosion. Rising sea levels can impact coastal groundwater both by increasing groundwater levels and by the intrusion of salt water into coastal aquifers. The inland intrusion of denser salt water can cause the water table to rise above the ground surface, flooding low-lying areas, or it can infiltrate and damage subsurface infrastructure, such as basements, building foundations, and gas lines. Due to overdraft, the Oxnard Subbasin is particularly vulnerable to seawater intrusion, which can impact water quality and, as a result, agriculture operations near the coast. The vulnerability of infrastructure, coastal resources, farmland, and residential and commercial properties is described in more detail in the Vulnerability Assessment (City of Oxnard 2019a).

There are a number of hazardous facilities (hazardous waste businesses, sites with leaking underground storage tanks, and the Halaco superfund site) concentrated near South Oxnard that have the potential to result

in the release of toxic pollutants to nearby communities if inundated. These facilities also are concentrated near communities with low-income communities of color (Toxic Tides 2021).

Populations that are vulnerable to coastal hazards include individuals or families who live or work in the coastal zone or in areas that will be inundated by sea level rise. In particular, Census Tracts 29.05 (this area includes incorporated and unincorporated areas along the southern bank of the Santa Clara River) and 47.15 (this area includes incorporated and unincorporated areas near Ormond Beach) are considered Disadvantaged Communities due to their pollution and demographic scores in CalEnviroScreen and are located in the coastal zone. Older individuals and individuals with reduced mobility are also vulnerable as they may be less able to evacuate in the event of flooding. Visitors and seasonal residents are less likely to receive information regarding potential climate impacts and ways to escape harm, such as evacuation routes. Low-income households, people living in mobile homes or poor housing stock, renters, rent-burdened households, and single heads of household are less likely to have access to financial resources and forms of reliable transportation, which are critical when evacuating from flood hazards or rebuilding following a flood event. Unhoused neighbors are particularly exposed to flood events and may have difficulty evacuating or relocating in the event of a flood. Linguistically isolated households may also be vulnerable in a flood event as they may face more difficulty accessing timely information about evacuation (VCRMA 2018).

CURRENT ADAPTIVE CAPACITY

Positive Factors	Negative Factors
• The City has developed a Sea Level Rise Vulnerability Assessment. • The City is participating in planning necessary to complete the Ormond Beach Wetlands Restoration. The City intends to adopt an LCP that would permit issuance of a CDP for the wetlands restoration. • California Department of Parks and Recreation is developing a managed retreat strategy to relocate facilities at McGrath State Beach to higher ground. • The City is in the process of evaluating options to protect or relocate the water and wastewater treatment plant at 6001 Perkins Road. • The Fox Canyon Groundwater Management Agency was created to address overdraft and seawater intrusion into the Oxnard Plain Pressure Basin and is in the process of developing a Groundwater Sustainability Plan with monitoring components and pilot groundwater market project. • The South Oxnard Flood Protection and Community Enhancement Project is reinforcing existing channels to improve flood management, increase beach and wetlands protection, and protect water quality.	• The City faces a higher amount of sea level rise compared to other jurisdictions due to the effects of land subsidence from groundwater extraction.

POTENTIAL STRATEGIES FOR ADAPTING TO SEA LEVEL RISE (SR)

Through its LCP Update process, the City has been evaluating adaptation strategies to respond to the vulnerabilities identified above. In the recently completed Sea Level Rise Adaptation Strategy Report (City of Oxnard 2018; City of Oxnard 2019b), the following strategies were evaluated for the four planning areas: Accommodation, Managed Retreat, Green Protect, and Hard Protect. The City is in the process of determining how to best apply these strategies to each planning area and how they will inform the development of policies for the LCP Update while remaining consistent with neighboring jurisdictions' approaches and the Oxnard General Plan. The City plans to continue its participation in regional sea level rise monitoring and resilience planning efforts by the County of Ventura and others.

- **Accommodation** strategies refer to those strategies that modify existing development or design new development to decrease hazard risk and may include elevating structures, retrofits, and using materials to increase the strength of buildings.
- **Managed Retreat** strategies include the relocation or removal of development out of hazard areas.
- **Green Protect** strategies rely on "natural infrastructure" such as stable sand dunes and coastal wetlands to protect coastal development from high water levels and damaging waves. Sand dunes absorb and deflect wave energy. Wetlands slow wave velocity and, to some extent, a storm surge.
- **Hard Protect** strategies are the most common globally and include seawalls, dikes, flood gates, groins, revetments, riprap, etc. They are generally easy to engineer and finance but can deteriorate over time and can unintentionally increase risk in unprotected areas. These strategies can also impact beaches and ecological function.

Seabridge development

Extreme Storms and Stormwater Flooding (SF)

FORECAST

As shown in **Figure 4-11**, about half of the City of Oxnard is within a designated "Area of Minimal Flood Hazard," which is outside of hazardous flood areas and outside of the 500-year floodplain, meaning there is low risk of inundation from severe storms and stormwater flooding (FEMA 2020). Ponding, shallow flooding, and local drainage concerns may pose a low risk, though the majority of the city is unlikely to experience flooding with depths over 1 foot (FEMA 2021). Oxnard faces riverine flooding risks from the Santa Clara River and urban flooding from extreme precipitation. Climate change is expected to increase the frequency, intensity, and duration of extreme precipitation events, which is likely to increase urban flooding as well as riverine flooding (Hall et al. 2018). By the late 21st century, total rainfall on the wettest day of the year may increase by as much as 25 to 30 percent (CNRA 2018). The frequency and severity of atmospheric river events (narrow bands of concentrated moisture that deliver intense precipitation over several days) are projected to increase in Oxnard. Additionally, the impacts of stormwater flooding will be compounded by rising sea levels. With higher coastal water levels, extreme rainfall events will likely result in water backing up into the stormwater system and flooding through maintenance holes as the stormwater system cannot move water into the ocean quickly enough. The northern areas of Oxnard have a reduced risk of flooding due to the Santa Clara River Levee, providing protection from 100-year flooding hazards that may cause inundation with average depths ranging from 1 to 3 feet (FEMA 2021). The Santa Clara Levee is currently unable to be certified as part of the Levee Certification Program, but it is in the process of being rehabilitated through a number of City and County projects including the SCR-1, and SCR-3 levee improvement projects as well as flood protection improvements to the levee system that are expected to occur as part of the Wagon Wheel Project (VCPW 2017; Wenner 2015). Currently 1,411 structures are protected by the Santa Clara Levee (VCPW 2017).

Risk and Secondary Impacts

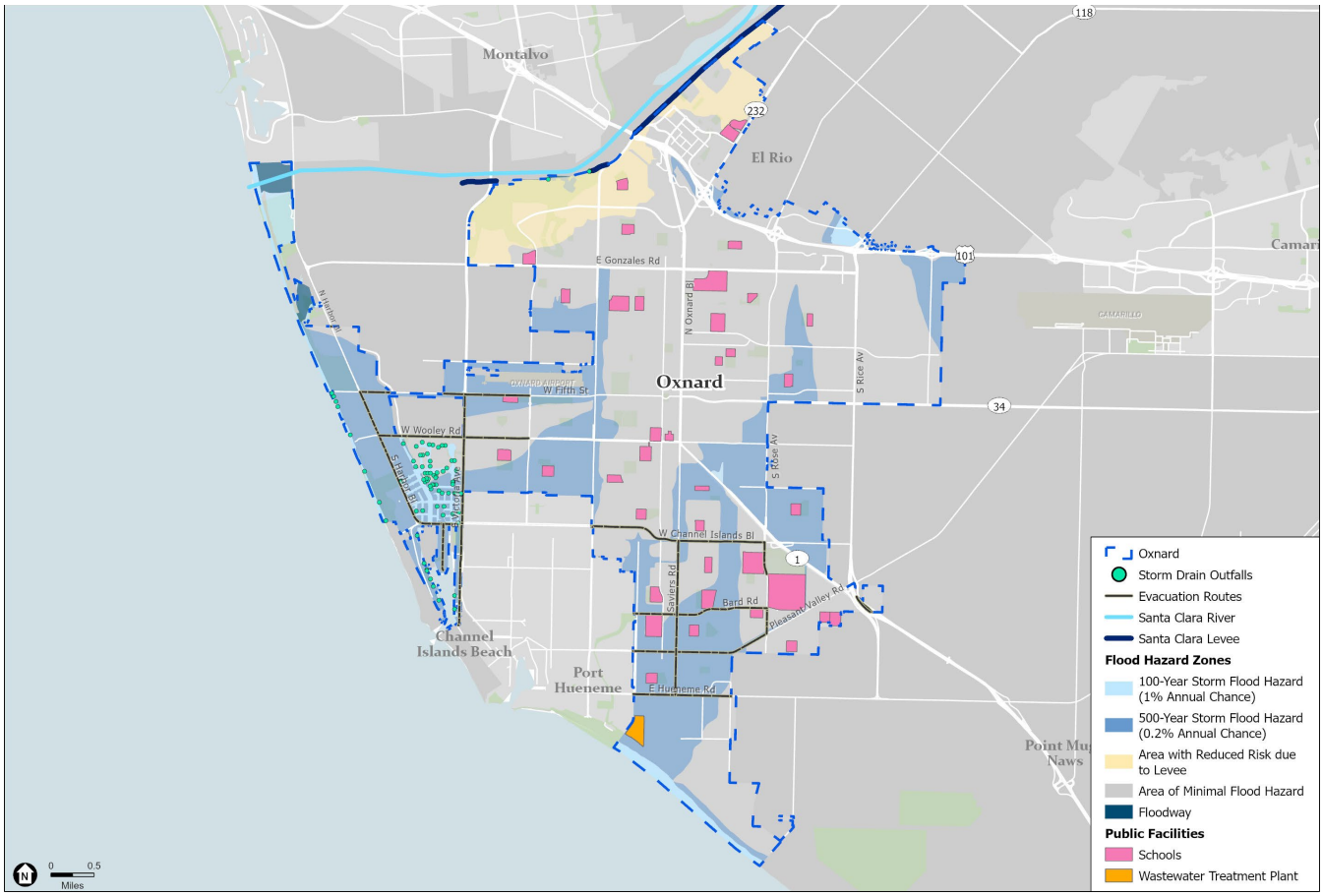
Oxnard is already experiencing the effects of extreme precipitation in the form of atmospheric rivers, which are narrow bands of concentrated moisture that deliver intense precipitation over several days. These are expected to increase in frequency and severity in the future:

- **Certainty:** High
- **Secondary impacts:** Inland flooding exacerbated by sea level rise and extreme high tide events

IMPACTS

An increase in extreme storms and precipitation can result in flooding of streets, roads, and low-lying areas of the city due to diminished function of the stormwater drainage system. Flooding can impact important roadways and evacuation routes, which in turn can impact emergency evacuation routes and emergency response times. Flooding of transportation routes may result in neighborhoods or households becoming

stranded, unable to evacuate or access critical resources, or reached by emergency response. Additional surface water on roads can also lead to hazardous driving conditions. More-frequent and severe flooding could result in



Sources: City of Oxnard, FEMA, ESRI, ESA

FIGURE 4-11 **Flood Zones in Oxnard**

residential and commercial property damage, population displacement, and injuries. Frequent and intense flooding can also result in damage and impacts to agriculture resulting in crop loss and resulting economic impacts. Additionally, flooding can result in a long-term impact of increased mold, which can result in respiratory health issues. Climate change is also expected to increase the spread of vector-borne diseases. The spread of West Nile virus and other mosquito-borne diseases can be facilitated by the presence of stagnant water, which can serve as breeding areas.

If critical facilities such as emergency shelters, emergency response centers, or healthcare facilities are located below grade or have infrastructure located below grade, they could be impacted by severe storms and flooding. Extreme storms and flooding also have the potential to impact power supplies, which are needed to deliver water, power, and other critical needs to residences and critical infrastructure such as hospitals and emergency response centers.

VULNERABILITIES

Vulnerable populations include individuals without automobile or transit access, linguistically isolated individuals, young children, and older adults as they may be less able to evacuate in the event of a flood. Additionally, low-income households, renters, rent-burdened households, and single-heads of household are less likely to have access to financial resources and forms of reliable transportation, which are critical when evacuating from flood hazards or rebuilding following a flood event. Unhoused neighbors are particularly exposed to flood events and may have difficulty evacuating or relocating in the event of a flood. Linguistically isolated households may also be particularly vulnerable in a flood event as they may encounter more difficulty accessing information about evacuation.

Oxnard's storm drain infrastructure is vulnerable to increases in precipitation that will be compounded by sea level rise, as mentioned above. In Oxnard, census tracts in the northern and eastern areas of the city have particularly high levels of impervious surface cover and will be more vulnerable to stormwater flooding. Additionally, the city's wastewater treatment plant is located in the coastal zone and is vulnerable both to flooding from extreme precipitation and to coastal flooding.

Transportation and evacuation routes such as South Harbor Blvd, East Hueneme Rd, and Pleasant Valley Rd are located in areas that are vulnerable to stormwater flooding. Residences and businesses located in low-lying areas are also vulnerable to stormwater flooding. Robinson Elementary School and Grandview Elementary School, which are used as emergency shelters, are also vulnerable to stormwater flooding.

CURRENT ADAPTIVE CAPACITY

Positive Factors	Negative Factors
• The Ventura County Public Works Watershed Protection District (VCWPD) is conducting levee rehabilitation projects with financial support from the State Local Levee Assistance Program • Oxnard Public Works is currently reviewing options to reduce the vulnerability of the wastewater treatment facility. • Gold Coast Transit District has a Memorandum of Understanding with all Southern California transit operators for mutual aid in case of emergency or evacuation or other major event. • Ventura County Transportation Commission has been preparing a Regional Transportation Emergency Preparedness Plan with scenarios and strategies, with focus on the U.S. 101 corridor.	• As identified in the Sea Level Rise Vulnerability Assessment, the City's stormwater system is vulnerable to the compounding risk of sea level rise and extreme precipitation. • The amount of impervious surface in the city is 59 percent, which places the city in the top 10 percent of impervious cities in the state (PHASoCal 2018). Depending on the drainage systems or engineering designs to convey stormwater near areas with high levels of impervious surfaces, this could increase the potential for stormwater flooding.

POTENTIAL STRATEGIES FOR ADAPTING TO EXTREME STORMS AND STORMWATER FLOODING (SL)

SF1: Give higher priority to low-impact development (LID) stormwater practices in new development projects

Low-impact development (LID) utilizes natural processes for stormwater management. The City should evaluate where LID practices are feasible and appropriate in the City of Oxnard. The City can encourage and prioritize LID practices to help with stormwater runoff, water infiltration, and water capture and reuse. These may include bioswales, green roofs, rain gardens, pervious surfaces, and more.

SF2: Elevate, relocate, or renovate buildings or critical infrastructure

Evaluate the City stormwater drainage system in order to identify portions of the city stormwater drainage system that are insufficient or that require updates or retrofitting to meet existing or future capacity. Consider prioritizing updates to the existing stormwater drainage in areas that experience the most severe flooding or in areas near vulnerable populations. Critical infrastructure located within areas of flood risk may benefit from being elevated, relocated, or renovated to reduce the risks from impacts, especially if they are older in construction or design. The City should consider identifying and prioritizing threatened facilities for a long-term solution to protect against flooding impacts.

SF3: Create a flood impacts monitoring program

A Flood Impacts Monitoring Program can help monitor conditions and future risk of flooding events. Creation of this program should focus on monitoring rainfall and water/flooding levels, points or areas flooded and the areas prone to consistent flooding, and hazardous conditions as a result of flooding. This program would be helpful in facilitating future adaptation against flooding hazards.

SF4: Encourage advanced coordination among transit operators to facilitate evacuations during inland flooding events

This strategy is focused on communication for ensuring safe evacuations during flood events. The City should consider coordinating with local and regional transit providers to ensure that transit remains operational during flood events and can quickly and safely conduct evacuations. Other agencies to coordinate with include the County of Ventura, emergency response facilities, school districts, and outdoor workers/farmworkers associations. The City may also develop public education materials to inform the public about sheltering options during flood events and how to respond to emergency evacuations. Other agencies to coordinate with include the County of Ventura, emergency response facilities, school districts, and outdoor workers/farmworkers associations.

SF5: Consider Implementing green infrastructure in areas that are most vulnerable to stormwater flooding

Green infrastructure practices include tree plantings, green roofs, rain gardens, green alleys, and wetland restorations. Green infrastructure elements can be incorporated into community areas to help with water efficiency and water resources management. The City should study the feasibility of implementing green infrastructure projects in areas that are vulnerable to stormwater flooding. In Oxnard, green infrastructure can be prioritized in the southern, western, and eastern areas of the city where there is higher risk from stormwater flooding. Consider finding implementation partners to facilitate the construction and maintenance of green infrastructure projects.

SF6: Remedy areas with stagnant water prone to mosquito breeding

Areas of stagnant water that could increase the spread of vector-borne diseases should be identified and remedied. Public education materials about vector-borne diseases should be created and disseminated as a part of this strategy to inform the public about the risks of vector-borne diseases and how to identify and remedy areas of stagnant water that may occur within gardens etc.

SF7: Initiate flood study based on 2030 SLR high tide and 3-day atmospheric river event

Initiate a flood study which evaluates potential flooding from 2030 sea level rise, high tide scenarios as well as a 3-day atmospheric event of extreme precipitation. This study should include modeling that takes into account the potential for City and County flood control channels being unable to drain into Channel Islands Harbor or the ocean at high tide with storm surge and the resulting storm drain backup throughout the City.

Activated sludge tanks


5

chapter**five**

Implementation and Monitoring

This chapter focuses on how the City, in collaboration with the community and partnering organizations, plans to implement the strategies and actions laid out in Chapter 3 (for reducing GHG emissions) and Chapter 4 (for increasing community resilience to climate change), and track progress toward its 2030 GHG reduction target.

The extent to which the strategies and actions of this Climate Action and Adaptation Plan (CAAP) will be effective depends on a commitment of staff time and resources, strategic partnerships, funding, public participation, effective systems for tracking and monitoring, and regular Plan updates. Coordination between City departments and collaboration with residents, businesses, regional organizations, and other government agencies is needed to ensure that programs are well-managed and cost-effective. Actions that require active City promotion may require updates to the City website, distribution of promotional materials, and other City outreach activities. The City will develop programs to reach the public, including public forums, workshops, and meetings; these programs will be administered with the intent to foster an open public input and commenting process.

This CAAP is a living document, and it is expected that, over time, community priorities may shift, new legislation will be introduced, and environmental conditions will change. Funding sources, regulations, and City staff and partnering organizations will also evolve. Importantly, actions will be completed and progress will be made in achieving the City's objectives. As such, an update of the City's greenhouse gas (GHG) inventory and comprehensive revision of the CAAP should occur at least every 5 years to monitor progress of GHG reductions and in building community resilience. It's important to acknowledge that the City is still in the early stages of adaptation planning for many of the climate impacts, such as sea level rise, and adaptation strategies will require further refinement. With respect to funding, it is beyond the scope of this plan to develop a full cost-benefit analysis of every action. Actions using the City's general fund will go through the standard City Council approval process, including a financial impact analysis and inclusion in the City budget and Capital Improvement Plan (CIP). As a part of its annual budget process, the City may appropriate funding from its general fund or make changes in its fee schedules, utility rates, and other sources as needed to support funding the implementation of the GHG reduction measures. With an adopted CAAP, the City's ability to seek federal and state grants will be enhanced.

What the Community Can Do to Help

It is important to acknowledge the critical role of behavior change in reducing community GHG reductions. Community involvement has been important to the development of the CAAP and will continue to be an essential component of the implementation process, as many strategies depend on active participation by residents and businesses. Residents, workers, and business owners in Oxnard all have a role to play in helping the City attain its GHG reduction and climate resiliency goals. **Table 5-1** lists strategies that community members can take to help reduce GHG emissions in their own homes, businesses, and everyday actions, helping the City to achieve its 2030 GHG reduction target. Strategies are grouped to match how they were organized in Chapter 3.

Arbor Day event

TABLE 5-1 **Reducing GHG Emissions – What the Community Can Do to Help**

STRATEGIES AND ACTIONS	ESTIMATED ANNUAL SAVINGS ($)[a]	ESTIMATED ANNUAL SAVINGS (LBS CO_2)[a]
Clean Energy (E)		
Replace 5 incandescent light fixtures or lightbulbs with ENERGY STAR lights	$20	101 lbs of CO_2
Wash 3 loads of laundry in cold water	$18	92 lbs of CO_2
Use a clothesline or drying rack for half of your loads of laundry	$46	236 lbs of CO_2
Enable power management features on your computer	$13	66 lbs CO_2
If replacing or purchasing a new refrigerator, opt for an ENERGY STAR model	$38	197 lbs of CO_2
Replace your windows with ENERGY STAR models	$150	2,947 lbs of CO_2
Green Buildings (B)		
Install solar photovoltaic panels	$1,230	5,400 lbs of CO_2
Transportation (T)		
Reduce one 10-mile trip per week	$102	413 lbs of CO_2
Replace a vehicle with one that gets at least 25 miles-per-gallon	$191	1,029 lbs of CO_2
Perform regular maintenance on your vehicles	$185	1,000 lbs of CO_2
Land Use (L)		
Take public transportation	$165	800 lbs of CO_2
Ride your bike	$165	1,000 lbs of CO_2
Water Conservation and Reuse (W)		
Replace, or install, 2 low-flow showerheads	$408	3,527 lbs of CO_2
Replace, or install, 2 older toilets with low-flow models	$35	220 lbs of CO_2
Waste Reduction and Recycling (R)		
Recycle plastic materials	—	142 lbs of CO_2
Recycle aluminum and steel cans	—	358 lbs of CO_2
Recycle glass	—	102 lbs of CO_2
Recycle newspaper materials	—	453 lbs of CO_2
Nature-Based Solutions (N)		
Plant 5 shade-producing and drought-tolerant trees	$50	220 lbs of CO_2
Replace grass yards with water-efficient plants and landscaping	$374	881 lbs of CO_2

Sources: USEPA, CoolClimate Network

Notes:

[a] *Estimated savings are based on an average Oxnard household size of four and default assumptions set by the EPA Carbon Footprint Calculator and CoolClimate Network Household Calculator. Clean energy actions result in savings from the use of more efficient appliances, improved insulation, and reduced heating and cooling. Green building actions result in savings from reduced electric and gas bills. Transportation and land use actions result in savings from reduced gas and maintenance uses. Water conservation and reuse actions result in savings associated with reduced water use. Nature-based solution actions result in savings from reduced cooling and water uses.*

These actions can be taken by individuals, households and businesses to make an impact on GHG emissions while resulting in monetary savings. If all the actions listed in Table 5-1 were taken, the typical Oxnard household would save approximately $3,190 and 19,250 pounds (9 metric tons) of CO_2 per year, according to the carbon footprint calculators used in the analysis (i.e., the U.S. EPA Carbon Footprint Calculator and the CoolClimate Network Calculator Household Calculator). Some strategies and actions require little investment yet still yielding significant reductions in CO_2 emissions. Implementing the actions listed for Clean Energy, Transportation and Waste Reduction and Recycling alone can save approximately $763 per year and 7,136 pounds of CO_2, which is the equivalent to planting eighty-two trees, saving 364 gallons of gas, or recycling 2,301 tons of waste.

Beach clean-up event

In addition to the actions listed in Table 5-1, choices that we make as individuals regarding material consumption can have a big impact on global GHG emissions. Almost every product we consume represents upstream "lifecycle" emissions that occur prior to its purchase and use as well as downstream emissions associated with the product's ultimate disposal. Raw materials are harvested, parts are manufactured, products are packaged and shipped, and waste is hauled away to a recycling or disposal site; typically, these processes are powered by fossil fuels. Buying products that are grown or created locally supports local businesses and workers and helps reduce transportation and other supply chain emissions. Cutting back on packaging and other waste keeps materials out of landfills, where organic materials decompose into methane, a powerful greenhouse gas. Many of the lifecycle emissions associated with consumption are not captured in the City's GHG inventory (they occur outside of the City's geographic boundary or jurisdictional control), but they can be surprisingly high. For example, a recent study comparing the lifecycle GHG emissions of a synthetic beef hamburger with a typical American beef patty found that the meatless version "generates 90% less greenhouse gas emissions, requires 46% less energy, has greater than 99% less impact on water scarcity and 93% less impact on land use than a ¼ pound of U.S. beef" (Heller 2018).

Implementation Framework

The tables below summarize the strategies and actions from Chapter 3 (GHG Reduction) and Chapter 4 (Community Resilience and Adaptation). To facilitate successful implementation, each strategy includes a performance metric to assist the City in tracking and monitoring progress on a periodic basis. Each GHG reduction action and adaptation strategy is accompanied by a suggested timeframe for implementation, a responsible lead City department, targeted implementation partners, and potential funding sources, as described below.

- **Timeframe:** Identifies the target timeframe for the action to be implemented. For GHG reduction actions, these are designated as Near Term (2022–2026), Mid Term (2026–2030), and Long Term (after 2030); for adaptation and resilience strategies, implementation timeframes are Near Term (2022–2026), Mid Term (2026–2035), and Long Term (after 2035). Funding availability may dictate when actions are actually completed.
- **Lead Department(s):** Identifies the City department(s) responsible for implementing the action. In some cases, there may be joint implementation responsibility across departments.
- **Potential Partners:** Identifies the businesses, community-based organizations, climate stewards, local, state, and federal partners that could potentially work with the City Lead Department to implement the strategies and actions. A list of partnering organizations, complete with contact information, including those who have participated in the stakeholder outreach and engagement activities described in Chapter 1, is provided in **Appendix E**.
- **Known Funding Source(s):** Identifies potential source(s) of funding for actions that are likely to require external funding. Where known, specific funding sources are identified. In some cases, there may not be obvious funding sources, or the source may be in development, as with the billions of dollars expected to be available through the recently passed Federal Infrastructure Investment and Jobs Act (IIJA) of 2021. Potential funding sources, including those referenced in the tables below, are listed and described in **Appendix F**.

Implementation Steps

Within the timeframes indicated in the tables below, it is expected that the City will complete the following steps, as needed, to implement each strategy or action. To manage CAAP implementation, the City plans to support CAAP implementation through development of a “Green Team” staffed by City department and management personnel (see below for more on community outreach).

The City is in its early stages of planning to increase community resilience to climate change. For many of the adaptation and resilience strategies listed in Table 5-3, additional steps may be needed to refine vulnerability assessments, create detailed action items, identify triggers to signal when certain actions should go into effect, and assess the cost and financial implications of taking action versus the risk and potential cost of not taking action.

- **Develop partnerships:** For many actions, partnerships and collaborations will be critical to successful implementation. Program coordination with local agencies that that are making similar commitments

to climate action, such as the County of Ventura and the Port of Hueneme, will be particularly important where there are common objectives.

- **Secure funding:** For some actions, successful implementation will require outside funding sources in addition to a commitment of City resources. The City will consider the CAAP in yearly departmental budgeting and CIP activities and seek out federal and state funding opportunities where funding aligns with Council priorities and the CAAP programs. As outlined in Appendix E, a variety of federal, state, and regional agencies and organizations provide grants and loans, as well as planning assistance, for investments in a variety of climate-related projects. Grants and loans can provide short-term funding for program development and program testing and could help pay for the staff time required to develop programs, and then establish an alternative financial framework for the program's continued operation after the grant expires. **Table 5-2** and **Table 5-3** identify funding sources for each action, if known.
- **Develop and refine cost estimates:** The GHG reduction strategies and actions in this document were formulated with an understanding that the City has limited staff time and financial resources to implement them. The cost-benefit ratios presented in Chapter 3 are based on the anticipated impact to the city budget, including any upfront capital investment needed to implement a strategy, ongoing annual costs, and City staff time required. As noted above, actions using the City's general fund will go through the standard City Council approval process, including a financial impact analysis and inclusion in the City budget and CIP. For many of the actions, detailed cost estimates will be needed to inform and guide the implementation process and be refined over time with more-precise implementation-level data. The City's costs for implementation may include the creation or promotion of voluntary programs, continuing administration of those programs, coordination and outreach with other government agencies and businesses, hiring staff to lead the actions and/or track and prepare grant applications, and—in some cases—exploration or study of potential regulatory mechanisms not yet codified. Some strategies require up-front capital expenditures by the City.
- **Adopt or update ordinances, codes, and/or regulations (if needed):** Some actions may represent a continuation of a recently enacted ordinance, while others would require a new ordinance. Codes and ordinances often incorporate state regulations that may be updated without requiring City Council approval.
- **Identify economic and health indicators to expand potential future funding options:** Identification and monitoring of economic, health and resilience indicators and trends, such as home prices, energy prices, cost per kWh on solar installations, unemployment rates, or real wage increases, can guide the potential for funding local reduction and adaptation measures through different financing mechanisms. Sources that provide tracking indicators relevant to the CAAP include, but are not limited to, Cal-Adapt, the California Heat Assessment Tool (CHAT), Healthy Places Index (HPI), CalEnviroScreen, the Census, and regional organizations such as Ventura County and the Southern California Association of Governments (SCAG). Such indicators tracked overtime could be used to identify health and economic co-benefits of the CAAP, establish priorities, develop target resources, create benchmarks, and track progress towards community objectives.

Community Outreach

The success of CAP implementation can be furthered by local actions and programs that increase awareness of climate change, promote sustainable actions, and provide a framework for change. The City will make a concerted effort to develop and strengthen community education and awareness about the CAAP through various promotional efforts to communicate program development and gauge the success of CAAP implementation. The City's Green Team will help guide a new community outreach program that promotes community measures and leads to local contributions for emissions reductions. The new program could incorporate a voluntary local climate challenge that recommends actions for residents, businesses, and other members of the community to take, with the goal of creating a more climate-conscious and climate-friendly city, and healthier environment. Recommended actions should prioritize community goals of energy efficiency, waste reduction, water savings, clean transportation, and increasing climate change awareness. Platforms like BrightAction can support a community outreach program by enabling households to take sustainable actions, track progress and contribute to citywide climate action targets. Partnering with schools can also be an effective way to engage the community, particularly for young people whose future livelihoods may be most impacted by climate change. Climate Action Pathways for Schools (CAPS) is a non-profit operating in California that partners with schools to provide inspiring climate education programs and implement projects to reduce GHG emissions while saving money for the school district.

Green Alley Way event

Implementation of GHG Reduction Strategies

TABLE 5-2 **GHG Reduction Strategies and Actions – Implementation Details**

STRATEGY/ACTION	TIMEFRAME	LEAD DEPARTMENT	POTENTIAL PARTNERS	FISCAL IMPACT	FUNDING SOURCE(S)
Clean Energy E1: Procure Zero-Carbon Electricity *Performance metric: Maintain 95 percent participation (by community as a whole) in CPA's 100 Percent Green tier, or equivalent, through 2030.*					
Community					
E1.1 – Invest City staff time and financial resources in maintaining a minimum 95% community participation rate in CPA's 100 Percent Green Power (or equivalent) through the year 2030	Near term (2022–2026)	• Community Development	• CPA	• General Fund	Not needed
E1.2 – Work with the CPA to develop an educational campaign targeted to businesses and residents on the importance of subscribing to the CPA's 100 Percent Green level	Near term (2022–2026)	• Community Development	• CPA	• General Fund	Not needed
E1.3 – Partner with CPA to promote Power Share, which provides DAC residents with a 20% discount and 100 percent renewable energy	Near term (2022–2026)	• Community Development	• CPA • Community Orgs	• General Fund	CPA
Municipal					
E1.4 – Request a rate analysis from CPA at least annually and compare to SCE to determine the financial impact of returning all municipal accounts currently enrolled with CPA to 100 Percent Green Power	Near term (2022–2026)	• Public Works	• CPA	• General Fund	Not needed
E1.5 – Chart and annually revise an implementation plan for returning municipal accounts to CPA's 100 Percent Green option or equivalent	Near term (2022–2026)	• Public Works	• CPA	• General Fund	Not needed
Clean Energy E2: Increase Local Solar Energy Generation *Performance metric: Participation in a Community Solar program administered by CPA or SCE, by 2030*					
Community					
E2.1 – Partner with interested developers to create Community Solar projects in the CPA program, or equivalent Community Renewables program offered by SCE	Near term (2022–2026) (estimated next RFP)	• Community Development	• CPA • SoCalREN • 3C-REN • VCREA • Developers • Community Orgs	• General Fund	CPA SCE

STRATEGY/ACTION	TIMEFRAME	LEAD DEPARTMENT	POTENTIAL PARTNERS	FISCAL IMPACT	FUNDING SOURCE(S)
E2.2 – Partner with CPA and/or electric utility and community-based organizations to promote CPA customer awareness and enrollment in the Community Solar program, or equivalent Community Renewables program offered by SCE	Near term (2022–2026)	• Community Development	• CPA • SCE • Community Orgs	• General Fund	CPA SCE
E2.3 – Partner with CPA and/or electric utility to develop and distribute information to residents interested in rooftop solar to take advantage of programs like CPA's Solar Marketplace, which provides access to quotes from multiple, pre-screened local installers	Near term (2022–2026)	• Community Development	• CPA	• General Fund	Not needed
E2.4 – Incentivize CPA customers with existing rooftop solar to register for CPA's Net Energy Metering (NEM) Program, which pays customers for net energy production on an annual basis	Near term (2022–2026)	• Community Development	• CPA	• General Fund	Not needed
E2.5 – Through meetings and coordination, facilitate partnerships and information sharing between local construction/ roofing contractors and solar companies that increase consumer choice as well as business referrals	Near term (2022–2026)	• Community Development	• Contractors • SoCalREN • 3C-REN • VCREA	• General Fund	Not needed
E2.6 – Increase local participation in SCE's Community Renewables Program, which connects customers with solar developers so that they can purchase renewable electricity from certified community solar projects	Mid term (2026-2030)	• Community Development	• SCE • Solar PV Developers	• General Fund	Not needed
Municipal					
E2.7 – Identify existing municipal facilities, city-owned public spaces, and associated parking lots with potential for rooftop solar installation and/or solar canopies; identify potential solar PV projects with consideration to fiscal resources, and Capital Improvement Plan (CIP) timeframes and feasibility	Ongoing	• Public Works	• Solar PV Developers • SoCalREN • 3C-REN • VCREA	• General Fund	Not needed
E2.8 – Assess Solar PV procurement financial models to reduce up-front capital costs and increase long term savings (e.g., State and Federal Incentives, Power Purchase Agreement, Net Metering, etc.) and adopt financing plan	Near term (2022–2026)	• Public Works	• Solar PV Developers • SoCalREN • 3C-REN • VCREA	• General Fund	Not needed
E2.9 – Secure funding and bids for solar PV projects; Interconnect and install solar projects	Mid term (2026-2030)	• Public Works	• Solar PV Developers/ Installers	• CIP	Incentives from utilities, federal and state govt

STRATEGY/ACTION	TIMEFRAME	LEAD DEPARTMENT	POTENTIAL PARTNERS	FISCAL IMPACT	FUNDING SOURCE(S)
Clean Energy E3: Develop Energy Storage/Microgrids *Performance metric: Successfully complete a microgrid project for a critical city facility by 2030 through CPA's Power Ready Program*					
Community					
E3.1 – Partner with CPA to develop their Power Response Program, which offers incentives to commercial and residential customers for the installation of energy storage to enable load-shifting during times of peak demand	Near term (2022–2026)	• Community Development	• CPA	• General Fund	Not needed
E3.2 – Promote enrollment in SCE's Smart Energy Program, Summer Discount Plan, and SCE-advertised third-party demand response programs	Near term (2022–2026)	• Community Development	• SCE	• General Fund	Not needed
E3.3 – Identify potential partnerships, funding, or financing sources for installing storage and microgrids in the community	Near term (2022–2026)	• Community Development • Public Works	• Contractors • SoCalREN • 3C-REN • VCREA	• General Fund	CPA CEC Incentives from Utilities, federal and state govt
E3.4 – Develop a community energy map that identifies opportunities for deploying distributed energy resources and microgrids to improve energy security and resiliency in the community	Near term (2022–2026)	• Community Development	• Contractors	• General Fund	Not needed
Municipal					
E3.5 – Partner with CPA to perform feasibility assessment to determine the potential of microgrid projects on City buildings	Near term (2022–2026)	• Public Works	• Third-Party Consultant	• General Fund	Not needed
E3.6 – Partner with CPA and develop municipal facility microgrid project scoping to include goal of the project, background information, site selection, assessment of opportunities and risks, community involvement and feedback, partnerships, project team development, performance requirements and ownership	Near term (2022–2026)	• Public Works	• CPA	• General Fund	Not needed
E3.7– Meet with Regional Energy Network (REN) to determine the availability of technical services and/or funding for municipal facility energy storage and microgrids	Near term (2022–2026)	• Public Works • Community Development	• 3C-REN • SoCalREN	• General Fund	3C-REN SoCalREN
E3.8 – Meet with CPA to determine the availability of incentives and/or funding for municipal facility energy storage and microgrid projects	Near term (2022–2026)	• Public Works	• CPA	• General Fund	CPA
E3.9 – Perform conceptual design and costs estimates of municipal energy storage and microgrid projects	Mid term (2026-2030)	• Public Works	• Third-Party Consultant	• General Fund • CIP	CPA

STRATEGY/ACTION	TIMEFRAME	LEAD DEPARTMENT	POTENTIAL PARTNERS	FISCAL IMPACT	FUNDING SOURCE(S)
E3.10 – Secure funding and bids on municipal energy storage and microgrid projects; Build projects	Mid term (2026-2030)	• Public Works	• Microgrid Developers	• CIP	Incentives from Utilities, federal and state govt
Green Buildings B1: Improve Efficiency of Existing Buildings *Performance metric: By 2030, reduce the total energy use of existing residential, commercial, and municipal buildings by 10%, compared to 2018*					
Community					
B1.1 – Partner with existing agencies such as CPA, Tri-County Regional Energy Network (3C-REN), SoCalREN, and/or the Ventura County Regional Energy Alliance (VCREA) to promote and take advantage of local programs. Meet with these agencies on a quarterly basis	Near term (2022–2026)	• Community Development	• CPA • 3C-REN • VCREA • SoCalREN	• General Fund	Not needed
B1.2 – Launch educational campaign targeted at City residents and businesses, to let them know what energy efficiency improvement offerings are available	Near term (2022–2026)	• Community Development	• SCE	• General Fund	SCE
B1.3 – Launch educational campaign for multifamily building owners and managers on the programs and incentives offered by the Regional Energy Networks and the local utilities	Near term (2022–2026)	• Community Development	• SCE • 3C-REN • VCREA • SoCalREN	• General Fund	SCE
B1.4 – Engage local school districts to participate in the CalSHAPE (AB 841) program to improve plumbing and ventilation in schools. Set up an introduction to a service provider to assist schools with program applications	Near term (2022–2026)	• Community Development	• Local School Districts • Third-Party Consultant	• General Fund	CEC (funds plumbing and ventilation improvements
B1.5 – Engage local school districts to enroll in (if not already enrolled) and participate in the SoCalREN; set up introductory meetings to a service provider to assist schools with program enrollment and technical services	Near term (2022–2026)	• Community Development	• SoCalREN	• General Fund	SoCalREN
Municipal					
B1.6 – Perform periodic energy audits or feasibility studies (e.g., every 5 years) to assess facility performance and identification of potential energy efficient projects for municipal facilities; actively engage SoCalREN to support this effort	Near term (2022–2026)	• Public Works	• Third-Party Consultant • SoCalREN	• General Fund	SoCalREN
B1.7 – When doing municipal facility renovations, assess potential for energy efficiency improvements and adding solar PV (e.g., when reroofing occurs, design support system to withstand rooftop solar PV loads)	Ongoing	• Public Works	• SoCalREN	• General Fund	SoCalREN
B1.8 – Implement energy efficiency projects for municipal facilities at selected locations to achieve energy reduction goals and support to decreased electric load on the grid	Mid term (2026-2030)	• Public Works	• Third-Party Consultant	• CIP	Incentives from utilities and state government

STRATEGY/ACTION	TIMEFRAME	LEAD DEPARTMENT	POTENTIAL PARTNERS	FISCAL IMPACT	FUNDING SOURCE(S)
Green Buildings B2: Electrify Buildings *Performance metric: Adhere to CALGreen (Title 24) requirements for electrification of new buildings*					
Community					
B2.1 – Partner with existing agencies such as CPA, Tri-County Regional Energy Network (3C-REN), and/or the Ventura County Regional Energy Alliance (VCREA) to promote and take advantage of local programs, including rebates and financing options for building and appliance electrification; meet with these organizations on a quarterly basis	Near term (2022–2026)	• Community Development	• CPA • 3C-REN • VCREA • SoCalREN	• General Fund	Incentives from utilities and state government
B2.2 – Meet with SCE (and/or other providers) on a regular basis to strategize promoting electrification offerings to residents and businesses, while keeping energy resilience needs in mind	Near term (2022–2026)	• Public Works • Community Development	• SCE • CPA	• General Fund	Not needed
B2.3 – Work with electric utility and/or CPA to create an educational campaign for building owners on the health, climate and cost benefits of electric-powered kitchen equipment and distribute information about available products and installation services	Near term (2022–2026)	• Community Development	• SCE • CPA	• General Fund	Not needed
Municipal Operations					
B2.4 – As part of the CIP process, conduct a feasibility study to identify opportunities for electrification of city facilities and determine cost and financial impacts, utilizing the quarterly meetings with the RENs and utilities to identify offerings	Near term (2022–2026)	• Public Works	• SCE • CPA • VCREA • SoCalREN	• General Fund	SoCalREN
B2.5 – Secure funding, cost estimates, and bids for municipal electrification projects	Mid term (2026-2030)	• Public Works	• SCE • CPA • VCREA • SoCalREN	• CIP • General Fund	Incentives from utilities and state government
Transportation T1: Expand EV Charging Infrastructure *Performance metric: Increase the number of EV charging station throughout the city to 1,500*					
Community					
T1.1 – Develop a citywide ZEV Master Plan that evaluates near-term and long-term needs for EV charging and hydrogen-fueling infrastructure, including home EV charging needs and gaps in public accessibility (especially for disadvantaged communities); the plan should evaluate potential integration with solar PV and electrical storage systems, and identify all feasible EV charging locations, including California Building Code compliant placement measures (e.g., street light pole placement and right of way considerations)	Near term (2022–2026)	• Community Development • Public Works	• Port of Hueneme • Gold Coast Transit District • VCTC • Ventura County	• General Fund	Not needed

STRATEGY/ACTION	TIMEFRAME	LEAD DEPARTMENT	POTENTIAL PARTNERS	FISCAL IMPACT	FUNDING SOURCE(S)
T1.2 – Meet with Building and Engineering Services to develop possible code requirements to encourage or require preferential EV parking and EV charging stations, beyond what is required by Title 24	Near term (2022–2026)	• Community Development • Public Works	•	• General Fund	Not needed
T1.3 – Track and apply for funding for sites that have already been identified for EV Charging before funding is exhausted; utilize funding and available programs to build out infrastructure for public charging stations	Near term (2022–2026)	• Community Development • Public Works	• CPA • SCE	• General Fund	CALeVIP SCE's Charge Ready program
T1.4 – Meet with utilities and state agencies quarterly to track and coordinate the promotion of offerings to Oxnard residents and businesses; in City communications, promote EV Charging incentive programs offered through CPA and SCE, and though federal or state funding	Near term (2022–2026)	• Community Development • Public Works	• SCE • CPA • CARB • VCAPCD • CalCAP	• General Fund	Not needed
T1.5 – Coordinate with the Port of Hueneme, Gold Coast Transit District (GCTD), and other regional stakeholders on infrastructure planning for electric and hydrogen powered vehicles	Mid term (2026-2030)	• Public Works • Community Development	• Port of Hueneme • GCTD • VCTC	• General Fund • CIP	CALeVIP SCE Charge Ready
Municipal Operations					
T1.6 – Based on public EV charging needs (as identified in citywide ZEV Master Plan or elsewhere), apply for funding through the South Central Coast Incentive Project, or equivalent	Near term (2022–2026)	• Public Works • Community Development	• CPA • Center for Sustainable Energy	• General Fund	CALeVIP SCE Charge Ready
T1.7 – Secure funding, cost and bid installation of public charging locations	Mid term (2026-2030)	• Public Works	• CALeVIP • Port of Hueneme	• CIP • General Fund	CALeVIP SCE Charge Ready
T1.8 – Install public charging locations as funding becomes available	Mid term (2026-2030)	• Public Works	• SCE (Interconnection)	• CIP • General Fund	LCFS credits, incentives from utilities, state programs, and other government funding
Transportation T2: Transition City Fleet to Greener Alternatives *Performance metric: Replace all remaining diesel trucks in the City's Environmental Resource Division with alternative fuel vehicles by 2030*					
Municipal Operations					
T2.1 – Develop a ZEV Master Plan for the City fleet that evaluates costs, budget needs, and infrastructure needs for the short and long term, including optimal EV charging locations, funding opportunities, and opportunities for public-private partnerships.	Near term (2022–2026)	• Public Works	• EV Vendors/ Sellers	• General Fund	State and federal rebates

STRATEGY/ACTION	TIMEFRAME	LEAD DEPARTMENT	POTENTIAL PARTNERS	FISCAL IMPACT	FUNDING SOURCE(S)
T2.2 – Pass a resolution that supports new City fleet vehicle purchases (or at minimum, utility and truck purchases) to be zero emission vehicles (ZEVs) in alignment with the CARB's proposed regulation to require public fleets to purchase 100 percent zero-emissions trucks by the year 2027	Near term (2022–2026)	• Public Works	• EV Vendors/ Sellers	• General Fund	State and federal rebates
T2.3 – Meet with CPA, SCE, and other administrators of incentive and rebate programs quarterly to determine what offerings can be utilized to build out fleet EV charging stations	Ongoing	• Public Works	• CPA • SCE • Others	• General Fund	LCFS credits, incentives from utilities, state programs, and other government funding
T2.4 – Secure funding and build out municipal fleet EV charging and/or hydrogen fueling infrastructure as needed to support ZEV Master Plan for city fleet.	Mid term (2026-2030)	• Public Works	• CPA • SCE • Others	• CIP • General Fund	LCFS credits, incentives from utilities, state programs, and other government funding
Transportation T3: Expand Infrastructure for Pedestrians, Bikes, and Micro-mobility Solutions *Performance metric: Increase bike lanes (Class I–Class IV) and close gaps in the sidewalk network throughout the city*					
Community					
T3.1 – Adopt the forthcoming STP, which will include projects and guidelines that expand the reach of the pedestrian and bicycle network throughout the city and make it easier and more comfortable to use active transportation	Near term (2022–2026)	• Public Works	• Ventura County Public Works • Friends of the Santa Clara River	• General Fund	None needed
T3.2 – Through the implementation of the forthcoming STP, potentially introduce an e-scooter program that incentivize third-party providers to locate in Oxnard	Mid term (2026-2030)	• Community Development • Public Works	• Third-party providers	• General Fund	Caltrans CARB
T3.3 – Where feasible in new roadway designs, accommodate micro-mobility solutions such as shared electric bikes, scooters, and neighborhood EVs	Mid term (2026-2030)	• Community Development • Public Works	• Third-party providers	• CIP • General Fund	Caltrans CARB
T3.4 – In new roadway designs, provide safe and convenient pathways and infrastructure for electric bikes and scooters, including publicly accessible charging locations	Mid term (2026-2030)	• Community Development • Public Works	• Port of Hueneme • GCTD • VCTC	• CIP • General Fund	Caltrans Federal IIJA

STRATEGY/ACTION	TIMEFRAME	LEAD DEPARTMENT	POTENTIAL PARTNERS	FISCAL IMPACT	FUNDING SOURCE(S)
Transportation T4: Improve Transit Effectiveness and Accessibility *Performance metrics: Increase local access to transit services to support mode shift and VMT reduction goals; Provide pedestrian and bicycle network connections to corridors that provide transit services*					
Community					
T4.1 – Partner with GCTD and VCTC to assess current transit routes and identify opportunities for improvement and incentives geared towards Oxnard residents	Near term (2022–2026)	• Community Development • Public Works	• GCTD • VCTC	• General Fund	None needed
T4.2 – Partner with GCTD and VCTC to upgrade transit stops with weather protection, security measures, increased comfort and accessibility, and access to accurate information on transit routes, schedules, fares, connections, and destinations	Near term (2022–2026)	• Community Development • Public Works	• GCTD • VCTC	• CIP • General Fund	Federal IIJA
T4.3 – Support GCTD's Late-Night Safe Rides Pilot, including continued partnership to evaluate whether there is opportunity to expand the program to cover additional service hours and zones	Near term (2022–2026)	• Community Development • Public Works	• GCTD	• General Fund	None needed
T4.4 – Partner with GCTD and VCTC to improve access to real-time transit vehicle arrival information in multiple languages	Near term (2022–2026)	• Community Development • Public Works	• GCTD • VCTC	• General Fund	None needed
T4.5 – Partner with GCTD and VCTC to enhance multi-modal connections to transit facilities by implementing pedestrian and bicycle improvements near transit stops and mobility hubs, as identified in the STP	Near term (2022–2026)	• Community Development • Public Works	• GCTD • VCTC	• General Fund	None needed
T4.6 – For the City's Dial-a-Ride (paratransit) program, create a subsidized fare program for the elderly, or those with qualifying low income	Mid term (2026-2030)	• Public Works	• Paratransit provider	• CIP • General Fund	None identified
T4.7 – Support Dial-a-Ride or other paratransit systems for the senior and disabled members of the community	Near term (2022–2026)	• Community Development	• Paratransit provider	• General Fund	None needed
Transportation T5: Expand Car/Bike Sharing *Performance metric: Ensure 10 percent of all households in Oxnard are within walking distance of shared e-scooters, e-bikes, and/or neighborhood EVs*					
Community					
T5.1 – Consider updates to the TDM Ordinance to require the development of TDM plans for all major developments or facility expansions to encourage ridesharing and other shared mobility improvements, thereby reducing vehicle trips	Near term (2022–2026)	• Public Works • Community Development	• None needed	• General Fund	None needed

STRATEGY/ACTION	TIMEFRAME	LEAD DEPARTMENT	POTENTIAL PARTNERS	FISCAL IMPACT	FUNDING SOURCE(S)
T5.2 – Through the implementation of the forthcoming STP, potentially introduce an e-bikeshare and/or EV carshare program that incentivizes third-party providers to locate in Oxnard; offer reduced parking requirements for new development projects that provide dedicated carshare facilities	Mid term (2026-2030)	• Public Works • Community Development	• Third-party providers	• General Fund	TCC grant
T5.3 – Through implementation of the STP, identify support for and/or ways to expand access to e-bikeshare and neighborhood EVs to ultimately enable their use in the public right-of-way	Mid term (2026-2030)	• Public Works	• Third-party providers	• General Fund	Caltrans CARB
Land Use L1: Support Transit-Oriented and Mixed-Use Development *Performance metrics: Adopt mixed-use development standards into the City's Municipal Code; Implement the Oxnard Housing Element (2021); Adopt zoning standards permitting increased density and diversity of land uses adjacent to transit*					
Community					
L1.1 – Through the forthcoming General Plan update, identify areas within the city where development should be focused to increase density and diversity of land use to achieve reductions in VMT	Near term (2022–2026)	• Community Development	• None needed	• General Fund	None needed
L1.2 – Incentivize mixed-use development projects to include land uses representing common destinations such as grocery stores, pharmacies, and restaurants	Mid term (2026-2030)	• Community Development	• None needed	• General Fund	None needed
L1.3 – Encourage mixed-use development by reducing parking requirements where justified by shared parking when uses with different peaking characteristics (such as offices and apartments) are combined	Mid term (2026-2030)	• Community Development	• None needed	• General Fund	None needed
L1.4 – Research and adopt other appropriate "smart growth" policies in addition to those identified above to incentivize density and diversity of land use	Near term (2022–2026)	• Community Development	• None needed	• General Fund	None needed
L1.5 – Continue to implement the City's Traffic Impact Fee and the Mobility Fee to better align with and encourage VMT reduction (Oxnard Municipal Code Sections 15-219 and 15-243)	Near term (2022–2026)	• Community Development	• None needed	• General Fund	None needed
Water Conservation and Reuse W1: Increase Water Conservation and Reuse *Performance metric: Reduce community and municipal per capita water use by 10 percent by the year 2030; Strive to utilize the full design capacity of the Advanced Water Purification Facility (AWPF) by 2030*					
Community					
W1.1 – Maximize the use of recycled water or greywater for agricultural and for irrigation at all large new developments	Near term (2022–2026)	• Community Development • Public Works	• None needed	• Enterprise Fund • General Fund	CA DWR

STRATEGY/ACTION	TIMEFRAME	LEAD DEPARTMENT	POTENTIAL PARTNERS	FISCAL IMPACT	FUNDING SOURCE(S)
W1.2 – Where feasible, install additional recycled water pipeline infrastructure	Near term (2022–2026)	• Public Works	• None identified	• Enterprise Fund • General Fund	CA DWR Federal IIJA
W1.3 – Encourage the installation of rainwater catchment and graywater reuse systems as a means of reducing water consumption	Near term (2022–2026)	• Public Works	• None identified	• General Fund	CA DWR
Municipal Operations					
W1.4 – Create the necessary infrastructure to utilize 100 percent of AWPF output	Mid term (2026-2030)	• Public Works	• Port Hueneme • Fox Canyon GMA • Regional water wholesalers	• Enterprise Fund • General Fund	Federal IIJA
W1.5 – Evaluate the feasibility of developing a municipal landscaping policy that prohibits the use of potable water for municipal irrigation	Near term (2022–2026)	• Public Works	• None needed	• General Fund	None needed
W1.6 – Update the existing City Landscaping Standards to list a selection of pre-approved native, drought-tolerant, and California-friendly plant species and trees to be used for City landscaping projects	Near term (2022–2026)	• Public Works • Community Development	• None needed	• General Fund	None needed
W1.7 – Replace flush and flow fixtures in municipal facilities to improve water efficiency	Mid term (2026-2030)	• Public Works	• Calleguas MWD • MWD of Southern CA	• CIP • General Fund	Calleguas MWD MWD of Southern CA
Waste Reduction and Recycling R1: Recycling and Organic Waste Diversion *Performance metric: Achieve 75% diversion of community solid waste and 75% diversion of organics from landfills by 2030*					
Community					
R1.1 – Participate in regional efforts to increase or establish local organics processing and capacity	Mid term (2026-2030)	• Public Works	• None identified	• CIP • General Fund	CalRecycle
R1.2 – Establish a system to track disposal and diversion activities, ideally categorized by both land use (residential, commercial, municipal) and management type (landfilled, recycled, anaerobically digested, composted)	Mid term (2026-2030)	• Public Works	• None identified	• CIP • General Fund	CalRecycle
R1.3 – Adopt a Polystyrene Ordinance to regulate the production and use of the material within city limits, to encourage the use of more recyclable or compostable materials in its place.	Near term (2022–2026)	• Community Development	• None needed	• General Fund	None needed

STRATEGY/ACTION	TIMEFRAME	LEAD DEPARTMENT	POTENTIAL PARTNERS	FISCAL IMPACT	FUNDING SOURCE(S)
Municipal Operations					
R1.4 – Maximize placement of recycling and organic waste receptacles in municipal facilities and in public spaces	Mid term (2026-2030)	• Public Works	• None identified	• CIP • General Fund	CalRecycle
R1.5 – Adopt a Green Purchasing Plan with a goal of conserving natural resources by purchasing products that are environmentally friendly whenever feasible	Near term (2022–2026)	• Public Works	• None needed	• General Fund	None needed
Nature-Based Solutions N1: Increase Local Carbon Sequestration Through Tree Planting and Urban Greening *Performance metric: Maintain the City's tree canopy cover through 2030 using native and drought-resistant species*					
Community					
N1.1 – Maintain and expand the urban tree canopy using available grant programs	Underway	• Parks & Recreation • Public Works	• Friends of Santa Clara River • Ventura County	• General Fund	CAL FIRE CNRA
N1.2 – Specify options for future tree planting with drought-resistant tree species that can survive changes to the local climate, and consider long term maintenance to improve the canopy	Near term (2022–2026)	• Parks & Recreation • Public Works	• Ventura County	• General Fund	CNRA
N1.3 – Give higher priority to investment in neighborhoods with limited green space and elevated air pollution, and in areas where green infrastructure, including trees and other types of vegetated buffers, can effectively address stormwater management issues	Mid term (2026-2030)	• Community Development • Public Works	• CAUSE	• CIP • General Fund	CNRA
N1.4 – Coordinate with the County of Ventura on their Tree Planting program, which aims to plant two million trees throughout the county by 2040	Near term (2022–2026)	• Public Works	• Ventura County	• General Fund	CALFIRE CNRA
Municipal Operations					
N1.5 – Seek funding to implement a green infrastructure program for the City's parks, streets, and public spaces, to improve stormwater management, support biodiversity, reduce air pollution exposure, and increase access to natural spaces, including trees	Near term (2022–2026)	• Public Works	• CNRA	• General Fund	CNRA Federal IIJA
N1.6 – Continue implementation of the Oxnard Green Alleys Plan to transform existing alleyways within disadvantaged neighborhoods into multifunctional green spaces with tree canopy, green infrastructure elements, and active transportation access	Near term (2022–2026)	• Public Works	• CNRA, Ventura County, school district	• General Fund	CNRA CAL FIRE California ReLeaf

Implementation of Resilience and Adaptation Strategies

Table 5-3 provides implementation details regarding the potential resilience and adaptation strategies identified in Chapter 4. Due to the inherent uncertainty of how future climate hazards will develop and the range of timeframes in which the community will experience impacts, the timeframes indicated for resilience and adaptation strategies, as indicated above, differ from those used for the GHG reduction actions in Table 5-2: near term (2022–2026); mid term (2026–2035); and long term (after 2035). Many near-term strategies adhere to the "no regrets" principle, providing inherent value to the community independent of future climate conditions.

TABLE 5-3 **Potential Climate Change Resilience and Adaptation Strategies – Implementation Details**

STRATEGY	TIMEFRAME	LEAD DEPARTMENT	POTENTIAL PARTNERS	FISCAL IMPACT	KNOWN FUNDING SOURCES
Community Preparedness (CP)					
CP1: Develop a public education campaign to inform community of climate hazards and impacts	Near term (2022–2026)	• Community Development	• Community Orgs • Ventura County	• General Fund	• None identified
CP2: Ensure early warning systems are adequate for extreme events related to climate change	Mid term (2022–2035)	• Community Development • Public Works • Emergency Services	• VCAPCD • GCTD • Port of Hueneme • Ventura County	• CIP • General Fund	• CAL OES grants
CP3: Invest in backup power systems and energy storage at emergency centers and cooling centers	Mid term (2022–2035)	• Public Works	• SCE • CPA • 3C-REN • VCREA • SoCalREN • CEC	• CIP • General Fund	• SCE • CPA • 3C-REN • SoCalREN
CP4: Expand community resilience services and infrastructure	Long term (after 2035)	• Community Development • Public Works • Emergency Services	• SCE • CPA • 3C-REN • VCREA • SoCalREN • CEC • Ventura County • Community Orgs	• CIP • General Fund	• FEMA • TCC • IIJA
CP5: Periodically review public infrastructure standards	Near term (2022–2026)	• Public Works • Emergency Services	• PG&E • GCTD • VCTC	• General Fund	• FEMA • TCC • IIJA

STRATEGY	TIMEFRAME	LEAD DEPARTMENT	POTENTIAL PARTNERS	FISCAL IMPACT	KNOWN FUNDING SOURCES
Extreme Heat (EH)					
EH1: Ensure access to cooling centers, parks and shoreline	Mid term (2022–2035)	• Community Development • Public Works • Parks and Recreation • Emergency Services	• Community Orgs • Ventura County • GCTD • VCTC	• General Fund • CIP	• TCC • CNRA urban greening program • State Coastal Conservancy grants • CAL OES grants
EH2: Seek funding for energy improvements for low-income households	Near term (2022–2026)	• Community Development • Public Works	• SCE • CPA • 3C-REN • VCREA • SoCalREN	• General Fund	• Low-Income Weatherization Program • SCE
EH3: Promote enforcement of Cal/OSHA standards that protect against extreme heat	Near term (2022–2026)	• Community Development	• Ventura County • Ag Businesses • VCAPCD	• General Fund	• None identified
EH4: Give higher priority to urban greening and shading along active transportation routes and commuting services	Near term (2022–2026)	• Parks and Recreation • Public Works	• GCTD • Ventura County	• CIP • General Fund	• TCC • CNRA urban greening program • CALFIRE
EH5: Support and expand the citywide tree program, report, and plan	Near term (2022–2026)	• Parks and Recreation • Public Works	• Ventura County	• CIP • General Fund	• TCC • CNRA urban greening program • CALFIRE
EH6: Give higher priority to urban greening in communities that are most vulnerable	Near term (2022–2026)	• Parks and Recreation • Public Works	• CAUSE • Community Orgs • Ventura County	• CIP • General Fund	• TCC • CNRA urban greening program • CALFIRE
EH7: Increase the albedo (surface reflectivity) of roofs and pavements	Near term (2022–2026)	• Parks and Recreation • Public Works	• CAUSE • Community Orgs • Ventura County	• CIP • General Fund	• None identified
Extreme Drought (ED)					
ED1: Expand and protect the City's diversity of water supply	Long term (after 2035)	• Public Works	• United Water Conservation District • Agricultural partners	• Enterprise Fund	• CDFA State Water Efficiency and Enhancement program • IIJA • DWR grants
ED2: Continue to expand community water recycling programs	Mid term (2022–2035)	• Public Works	• Agricultural partners	• Enterprise Fund	• DWR grants • IIJA

STRATEGY	TIMEFRAME	LEAD DEPARTMENT	POTENTIAL PARTNERS	FISCAL IMPACT	KNOWN FUNDING SOURCES
ED3: Use drought-tolerant, native plants and alternative irrigation at City facilities	Near term (2022–2026)	• Public Works • Parks and Recreation		• Enterprise Fund	• None identified
ED4: Partner with the County to provide information on climate resilient crops	Near term (2022–2026)	• Community Development	• Ventura County • UC Cooperative Extension • Ventura County RCD	• General Fund	• Sustainable Agricultural Lands Conservation (SALC) program • CDFA State Water Efficiency and Enhancement program
ED5: Create and/or participate in programs to address food insecurity	Long term (after 2035)	• Community Development	• Ventura County Public Health	• General Fund	• CalRecycle grants
ED6: Consider Expanding Project Assist	Near term (2022–2026)	• Public Works	• Community Orgs	• General Fund	• None identified
Wildfire Smoke and Air Pollution (AP)					
AP 1: Promote existing hazard alert and warning system for workers	Near term (2022–2026)	• Community Development • Public Works • Emergency Services	• VCAPCD • Ventura County Public Health • Gold Coast Transit District • CAUSE • Ventura County	• General Fund	• CAL OES grants
AP2: Ensure Cal OSHA rules are known and enforced	Near term (2022–2026)	• Emergency Services	• Ventura County • VCAPCD • CAUSE • Agricultural business partners	• General Fund	• None identified
AP3: Improve access to air filters, shelters with filtered air, or air masks	Near term (2022–2026)	• Community Development • Public Works • Emergency Services	• CAUSE • Agricultural business partners • Ventura County • VCAPCD	• General Fund	• Cal OES grants • CARB • VCAPCD
AP4: Develop programs to promote EVs and reduce vehicle-miles traveled (VMT)	Mid term (2022–2035)	• Community Development • Public Works	• GCTD • Ventura County	• General Fund	• CalVans Program through CARB • IIJA

STRATEGY	TIMEFRAME	LEAD DEPARTMENT	POTENTIAL PARTNERS	FISCAL IMPACT	KNOWN FUNDING SOURCES
AP5: Support retrofits to public facilities and housing to improve indoor air quality	Mid term (2022–2035)	• Oxnard Housing Authority • Public Works • Community Development	• VCAPCD • Ventura County	• CIP • General Fund	• CCI grants • Strategic Growth Council AHSC program • Low-Income Weatherization Program
Sea Level Rise (SLR)					
See City of Oxnard Sea Level Rise Adaptation Strategy Report (City of Oxnard 2019b)					
Extreme Storms and Stormwater Flooding (SF)					
SF1: Give higher priority to low-impact development (LID) stormwater practices in new development projects	Near term (2022–2026)	• Public Works	• Non identified	• General Fund	• FEMA • IIJA
SF2: Elevate, relocate, or renovate buildings or critical infrastructure	Long term (after 2035)	• Public Works	• Non identified	• General Fund	• FEMA • IIJA
SF3: Create a flood impacts monitoring program	Mid term (2022–2035)	• Public Works	• Ventura County	• General Fund	• FEMA
SL4: Encourage advanced coordination between transit operators to facilitate evacuations during inland flooding events	Near term (2022–2026)	• Community Development • Public Works • Emergency Services	• GCTD • Ventura County	• General Fund	• FEMA
SF5: Consider Implementing green infrastructure in areas that are most vulnerable to stormwater flooding	Near term (2022–2026)	• Public Works • Parks and Recreation	• Ventura County	• General Fund	• TCC • CNRA urban greening program
SF6: Remedy areas with stagnant water prone to mosquito breeding	Near term (2022–2026)	• Public Works • Parks and Recreation	• Ventura County Public Health • Landscape Contractors	• General Fund	• None identified
SF7: Initiate flood study based on 2030 SLR high tide and 3-day atmospheric river event	Near term (2022–2026)	• Public Works • Parks and Recreation • Emergency Services	• Ventura County Public Health • Landscape Contractors	• General Fund	• None identified

Tracking Progress

GHG Emissions Reduction

Arbor Day event

City staff will annually present updates to the City Manager and the City Council that summarize CAAP implementation progress. With the help of a sustainability analyst, annual updates will be undertaken in conjunction with the Housing Element Annual Progress Report and General Plan Progress Report. The CAAP Annual Report will evaluate the successes and challenges in meeting the performance objectives for each strategy, as listed in Chapter 3 and Table 5-2, and summarize progress toward the City's 2030 GHG reduction target. City staff will provide the status of implementation (e.g., initiated, ongoing, completed), assess the effectiveness of the strategies and programs included in the Plan against the established performance objectives, and recommend adjustments to programs or tactics as needed. Tracking economic, health and resilience indicators overtime, as described above, will also be an effective tool to gauge progress and re-prioritize future actions. The annual report will also assess whether the City's actual growth and development is consistent with the forecasts made in this CAAP. Tracking the 2030 performance goals for each GHG reduction strategy on a periodic basis will inform the City and community over time as to how the CAAP implementation strategies are working towards achieving GHG reduction targets and will help the City prioritize actions in future CAAP updates.

An update of the City's GHG inventory and comprehensive revision of the CAAP should occur at least every five years to monitor progress of GHG reductions against the 2030 target.

Community Resilience to Climate Change

Green Alley Way event

As described above, the City is in the early stages of planning to increase community resiliency. Strategies provided in Chapter 4 and Table 5-3 will require further refinements and development. Through the City's budgeting process, the cost and financial implications of each strategy, along with the latest data on climate impacts, will need to be weighed against the risk and potential cost of not taking action. In conjunction with the annual updates of GHG emission reductions described above, the CAAP Annual Report will include updates on steps taken and progress made towards implementing the adaptation strategies. City staff will provide the status of implementation, assess the effectiveness of the strategies, recommend adjustments based on community priorities and funding availability, and identify next steps. Doing this concurrently with the annual reporting of GHG reduction measures will ensure that the City continues to make progress towards achieving a more resilient community, while reducing its carbon footprint.

Transportation and Land Use: Longer-Term Considerations

As introduced in Chapter 1, California Senate Bill (SB) 32 establishes a target to reduce statewide emissions 40 percent below 1990 levels by 2030, while policy established by Governor Executive Order S-03-05 establishes a longer-term goal of reducing emissions 80 percent below 1990 levels by 2050. This CAAP provides a roadmap for the City to achieve GHG reductions consistent with the statewide SB 32 target, while putting the City on a path to reduce emissions in line with the state's longer-term climate stabilization goals. Deep cuts in future emissions are highly dependent on technological developments and strong leadership at the federal and state levels, but they will also require substantial changes to local development patterns and transportation systems. It is appropriate for the City to plan for this challenge now, as such changes to local land use, transportation modes, and community behavior could require decades of planning, public engagement, and policy development.

The Transportation and Land Use sectors represent perhaps the biggest challenge to meeting the state's 2045 carbon-neutral target, and to local efforts to reduce emissions. SB 375 (Sustainable Communities and Climate Protection Act of 2008) mandates GHG reductions from transportation, assigning reduction targets to SCAG and the rest of the state's 18 metropolitan planning organizations (MPOs) for emissions from on-road transportation vehicles; however, like all cities in California, Oxnard retains authority over local land use. As the state continues to develop its longer-term policies and strategies for reducing emissions, the City of Oxnard will continue its longer-term visioning on how future growth and development can be accommodated while still reducing GHG emissions.

This CAAP provides a framework for a more in-depth discussion on ways to accommodate future growth sustainably and reduce local dependence on single-occupancy vehicle (SOV) travel. As described in Chapter 3, the strategies under Transportation (T) are intended to expand infrastructure for pedestrians, bikes, and micro-mobility solutions; improve transit effectiveness and accessibility; expand car and bike sharing; and support a shift towards EVs. The strategies under Land Use (L) are intended to decrease the need for motor vehicle travel through transit-oriented and mixed-use development. The strategies for Clean Energy (E) support the transition to transportation modes powered by renewable electricity. Whereas many of these measures currently rely on voluntary actions and behavior change, GHG reductions over the long term can be greatly enhanced through municipal codes, ordinances, and other regulatory means.

Relationship to CEQA

Under the California Environmental Quality Act (CEQA), the effects of GHG emissions are considered a potentially significant environmental impact. In addressing climate change, CEQA provides a useful mechanism for local agencies to evaluate the environmental effects of new development but may also create inefficiencies for both agency staff and applicants through repetitive assessments of small projects on an individual basis, rather than considering cumulative effects of future development and determining needed mitigation up front. The CEQA Guidelines recognize this and include a provision for streamlining the analysis of projects that are consistent with a comprehensive plan for the reduction of GHG emissions.

CEQA Guidelines Section 15183.5(b) allows lead agencies to analyze and mitigate the significant effects of GHG at a programmatic level, such as in a general plan or a separate GHG reduction plan, so that later project-specific environmental documents may tier from that programmatic review. Projects consistent with a so-called “qualified” GHG reduction plan (i.e., climate action plan) may be considered to have a less-than-significant impact with respect to GHG emissions. To be considered qualified, a climate action plan or similar GHG reduction plan must meet the following conditions:

(A) Quantify GHG emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area;

(B) Establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable;

(C) Identify and analyze the GHG emissions resulting from specific actions or categories of actions anticipated within the geographic area;

(D) Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level;

(E) Establish a mechanism to monitor the plan’s progress toward achieving the level and to require amendment if the plan is not achieving specified levels; and

(F) Be adopted in a public process following environmental review.

A qualified climate action plan is one that demonstrates with a high degree of certainty that a jurisdiction’s emissions will be reduced over time in a manner consistent with state reduction targets. Recent CEQA case law

makes it clear that tiering from a "qualified" local GHG reduction plan[10] provides the most-defensible method of achieving CEQA clearance for new development projects with respect to GHG emissions (*Center for Biological Diversity v. California Department of Fish and Wildlife*, 2015). The GHG emissions reduction plan can be either a stand-alone climate action plan or it can be integrated directly into the general plan. Regardless of approach, the plan should be consistent with the general plan and its growth projections.

A development project could demonstrate consistency with a local climate action plan if it is consistent with the plan's assumptions regarding the amount and type of future development and is consistent with the GHG reduction measures identified in the climate action plan. Projects consistent with the climate action plan, including conformance with any performance measures applicable to the project, would not require additional GHG emissions analysis and mitigation under CEQA Guidelines Sections 15064(h) and 15183.5(b)(2).[11]

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[10] Meet the requirements for tiering project CEQA analysis off the CAP, as defined in CEQA Guidelines Section 15183.5(b)(1).
[11] If there is substantial evidence that the effects of a particular project may be cumulatively considerable, notwithstanding the project's compliance with the GHG reduction plan, CEQA requires that an EIR be prepared.

Meet Up, Clean Up day


JFC 231
CALIFORNIA
51 DLUXX


NO PARKING
2AM - 6AM
2 HOUR PARKING
6AM - 11PM
California
6KQH639

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