



YOLO COUNTY CLIMATE ACTION AND ADAPTATION PLAN





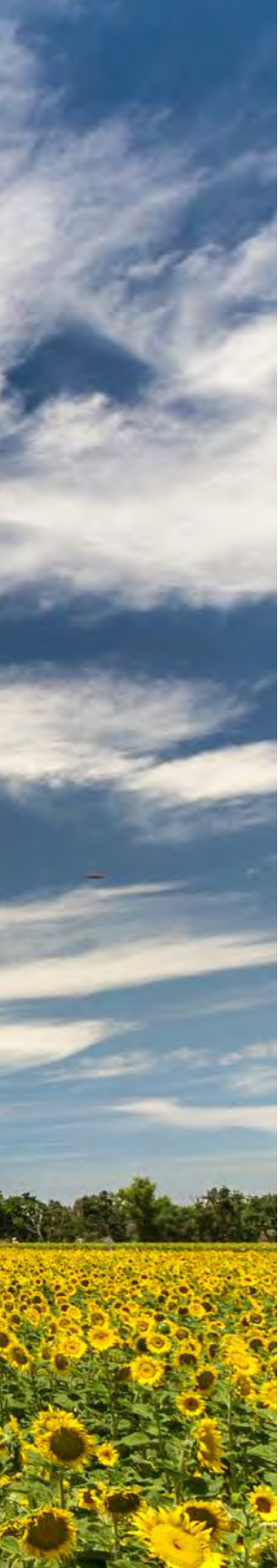


TABLE OF CONTENTS

Acknowledgements	iv
Opening Letter	vii
Yolo Climate Action and Adaptation Plan at a Glance	viii
A Resilient and Sustainable Yolo County in 2030.	xxii
Reader's Guide	xxiv
Chapter 1. Introduction.....	2
Chapter 2. Communication, Engagement, and Equity	14
The Farmersworkers' Voices	24
Chapter 3. Climate Action Background.....	28
Chapter 4. Natural and Working Lands Background.....	52
Chapter 5. Climate Adaptation Background.....	64
Chapter 6. Strategies, Measures, and Actions	78
Chapter 7. Funding and Financing.....	210
Chapter 8. Implementation and Monitoring	226
Acronyms and Glossary	230
References	240

APPENDICES

- A. Community Engagement and Equity Strategy
- B. Climate Action
- C. Natural and Working Lands
- D. Climate Adaptation
- E. Strategies, Measures, and Actions Supporting Information
- F. Funding and Financing
- G. Implementation and Monitoring
- H. Summary of Public Comments and Changes

ACKNOWLEDGEMENTS

Honoring the Land's Original Stewards

The land that is now called Yolo County has been the home of Patwin people for thousands of years. Today, there are three federally recognized Patwin tribes: Cachil Dehe Band of Wintun Indians of the Colusa Indian Community, Kletsel Dehe Band of Wintun Indians, and Yocha Dehe Wintun Nation. The Patwin people have remained committed to the stewardship of this land over many centuries. It has been cherished and protected, as elders have instructed the young through generations. We are honored and grateful to be here today on their traditional lands.

Acknowledgements

The 2030 Yolo County Climate Action and Adaptation Plan (CAAP) would not have been possible without the significant contributions in time, energy, and thought of many. A sincere thank you to the more than 1,000 Yolo County community members and dozens of partners who gave their time to provide input in the development of this plan.

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- Lucas Frerichs, District 2
- Mary Vixie Sandy, District 3
- Jim Provenza, District 4
- Angel Barajas, District 5

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 - De Colores Resource Center
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District 1



Lucas Frerichs
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Mary Vixie Sandy
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Jim Provenza
District 4



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OPENING LETTER

Dear Yolo County Community Members,

As members of this vibrant and diverse community, we find ourselves at a pivotal moment in our shared history. Yolo County has always been a place where neighbors come together, where our differences are celebrated, and where collective action is valued. Today, we are confronted with an unprecedented challenge: the pressing need to address climate change. While this challenge touches every aspect of our lives—from our health and well-being to our economy and the future of Yolo County—it also presents us with an opportunity to harness our community’s strengths and resilience to create positive change.

Residents of Yolo County have told us, and we see plainly, that climate change already harms and threatens some of our residents disproportionately. As the impacts of climate change are projected to increase, so too are the harms that accrue to the most vulnerable among us. Therefore, it is absolutely critical that our response is expeditious and just, with a focus on residents who face the gravest consequences of our changing climate.

In recognition of this urgency, in September 2020, the Yolo County Board of Supervisors approved a Climate Emergency Declaration (Resolution No. 20-114), which set a countywide goal of achieving net-negative emissions by 2030 while ensuring a Just Transition to an inclusive, equitable, sustainable, and resilient local economy. This declaration was a call to action for all of us to come together as a community and chart a course toward a more sustainable and resilient future. In response, County staff, numerous community partners, and the Yolo County Climate Action Commission have been hard at work for more than 2 years developing the Yolo County Climate Action and Adaptation Plan (CAAP) presented here.

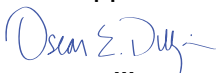
The CAAP is more than just a document; it is a roadmap for how we can work together to reduce our carbon footprint, protect our natural resources, and ensure that every resident can thrive in the face of a changing climate. It is also about investing in solutions that benefit us all, from cleaner air and water to new job opportunities and healthier communities.

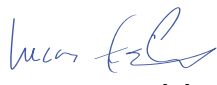
However, we cannot do it alone. Climate change knows no boundaries, and neither should our efforts to address it. That is why it is crucial for us to work together, across jurisdictional lines, with our neighboring communities and partners, to advance these goals. By sharing resources, expertise, and ideas, we can amplify our impact and make real progress toward a more sustainable future for everyone.


As we move forward with CAAP implementation, we invite each and every one of you to join us in this important work. Whether it’s attending community meetings, volunteering with local community organizations, or simply making small changes in your daily life, every action counts. Together, we can build a stronger, more resilient Yolo County for generations to come.


Thank you for your commitment to our community and let us continue to work together toward a brighter future for all.


With appreciation,


Oscar Villegas
Districts 1


Lucas Frerichs
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Mary Vixie Sandy
District 3


Jim Provenza
District 4


Angel Barajas
District 5

YOLO COUNTY CLIMATE ACTION AND ADAPTATION PLAN AT A GLANCE

Continued Commitment for a Better Future

The County of Yolo (County) Climate Action and Adaptation Plan (CAAP) is a comprehensive roadmap to achieve reductions in greenhouse gas (GHG) emissions and increase resilience in response to the impacts of climate change while centering equity and ensuring a Just Transition.

A Just Transition is a set of vision-led, place-based principles and practices designed to empower historically disadvantaged communities and create social and economic opportunities. The CAAP aims to protect the most vulnerable populations from climate change while ensuring they play a central role in decision-making and can fully benefit from the plan's outcomes.

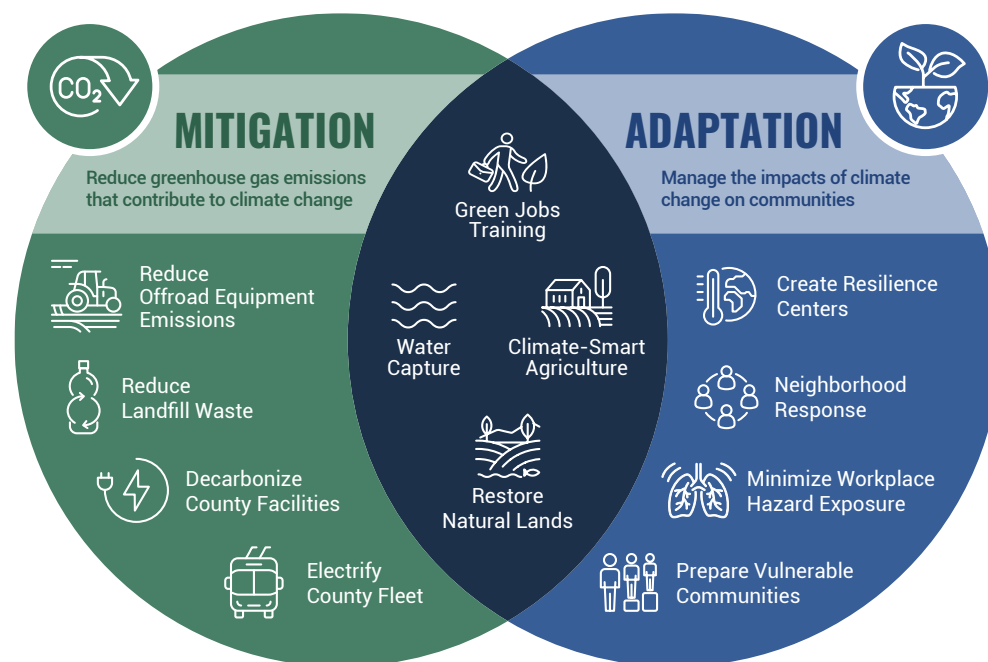
This CAAP builds from the County's strong history of being in the forefront of climate action and the Green Movement starting in the 1980s, including past successes of the 2011 Climate Action Plan with land use policies that emphasized growth management, open space preservation, and agricultural protection. The 2011 Climate Action Plan sought to reduce 2008 GHG emissions back to the levels estimated by 1990, or by 613,651 metric tons (MT) carbon dioxide equivalent (CO₂e). To achieve this target, the 2011 Climate Action Plan proposed fifteen energy programs including such measures as increasing renewable energy production, enhancing energy and water conservation, and expanding alternative transportation. The County recognizes the scientific consensus that climate change is impacting local communities now and will continue to pose a great challenge to society in the future.

This updated CAAP effort stemmed from community action. The County's Climate Emergency Declaration (Resolution No. 20-114) was spearheaded by the Yolo County Climate Emergency Coalition, a volunteer team, and endorsed by over one hundred grassroots organizations and individuals, which signified the urgency of

addressing climate change and its impacts. The Board adopted resolution set forth a countywide goal for Yolo County to achieve net-negative carbon (i.e., GHG) emissions by 2030, an ambitious target that aims to go beyond traditional emission reductions to incorporate sequestration of carbon within Yolo County's natural and working lands (NWL).

The CAAP addresses both climate mitigation and adaptation. Climate mitigation is reducing GHG emissions that cause climate change, while climate adaptation is managing the risks of climate change impacts, as illustrated in Figure Executive Summary (ES)-1. By combining action and adaptation in one plan, the County can ensure it does its fair share to reduce its contribution to climate change, while also preparing the community for the local effects of climate change. Addressing both needs in one plan allows for the County to implement crosscutting strategies to synergize mitigation and adaptation using County resources efficiently.

Figure ES-1: Mitigation and Adaptation Venn diagram.



Crafted By and For the Community

The CAAP was crafted by community voices through abundant comments and feedback received during many workshops, tabling events, presentations, surveys, and interviews as part of the extensive outreach effort. The CAAP's Community Engagement and Equity Strategy outlines the strategy used to engage residents in CAAP development, with a focus on equity and justice as a central goal of the CAAP. Engagement initiatives collected the feedback and perspectives of the Yolo County community and ensured the specific needs of vulnerable communities were incorporated into the CAAP. Communication tools were crafted to highlight the strengths, capacities, and positive attributes of the diverse communities within Yolo County, ensuring that all voices were heard and considered in the development of the CAAP. The primary goal of CAAP communication and engagement is to foster two-way communication between Yolo County residents, particularly frontline communities, and the CAAP development team, to ensure the CAAP guides the County through a Just Transition.

To guide the development and implementation of the CAAP, the Yolo County Climate Action Commission (YCCAC), Equity and Engagement Technical Advisory Committee (E&E TAC), and Natural and Working Lands Technical Advisory Committee (NWL TAC), along with dedicated Community-Based Organizations (CBOs) and Community-Based Partners (CBPs), were actively involved in providing valuable input and unique community insights.

Meeting the County's climate goals will require some big changes or "transitions" in energy use, the transportation system, and more. The County wants to make sure that this transition is equitable and "just," and that vulnerable communities and those most impacted by climate change are not only protected but also play a central role in the decision-making process. The communities and individuals of Yolo County are at the heart of this plan; their input was critical to its development, and their participation will be even more critical to its implementation to mitigate and adapt to climate change.

How Yolo County Impacts Climate Change

Yolo County contributes to climate change by generating GHG emissions from various sectors, including on-road transportation, building energy, water and wastewater, solid waste, off-road equipment, and agriculture.

Climate action refers to any deliberate efforts to mitigate future impacts of climate change by avoiding, reducing, or sequestering GHG emissions. The critical components of the CAAP climate action process are development of the baseline GHG emissions inventory, forecasting future emissions, establishing reduction targets, estimating the related emissions gap, and identifying reduction strategies needed to close this gap.

This CAAP evaluates Yolo County's GHG emissions in three different ways:

- **Community-Wide Inventory**, which includes emissions from all residential, commercial, industrial, and agricultural land uses within unincorporated Yolo County
- **Municipal Inventory**, which is limited to County-owned facilities and vehicles¹
- **Consumption-Based Inventory Narrative**, which focuses on life cycle emissions associated with the activities, goods, and services provided to households within unincorporated Yolo County

These three inventories are separate methods of understanding Yolo County's GHG emissions and are not additive (i.e., there is substantial overlap across inventories).

Yolo County's community-wide GHG emissions in 2022, the baseline year applied in the CAAP, are estimated to be 755,520 MT CO₂e, with on-road transportation and building energy accounting for over half of the inventory, as shown in Table ES-1.

Compared to the 2016 community-wide inventory (prepared in 2018), the 2022 community-wide inventory represents an approximately

¹ GHG emissions from unincorporated cities within the County are not included.

30% reduction in GHG emissions (1,082,801 MT CO₂e in 2016 compared to 755,520 MT CO₂e in 2022). The GHG emissions reduction is primarily attributed to the reduction in the on-road transportation sector, which is associated with a reduced number of vehicle miles traveled (VMT). Nonetheless, the County's impressive climate-related efforts between 2016 and 2022 may have also played an important role in reducing community-wide GHG emissions.

The County's municipal baseline inventory in 2022 is estimated to be 39,485 MT CO₂e, as shown in Table ES-2, with approximately 96% of GHG emissions associated with solid waste from the County's landfill operation.

Regarding the consumption-based inventory narrative, Figure ES-2 presents the relative breakdown of direct and indirect GHG emissions by transportation, housing, food, goods, and services, with transportation accounting for approximately 35% of an individual's carbon footprint.

Table ES-1. Community-Wide 2022 Baseline Inventory

Sector	2022 Baseline MT CO ₂ e	Percent of Total
On-Road Transportation	269,588	36%
Building Energy	172,064	23%
Water and Wastewater	28,079	4%
Solid Waste	38,097	5%
Off-Road Equipment	132,302	18%
Agriculture	115,391	15%
Total	755,520	100%

Notes: MT CO₂e = metric tons of carbon dioxide equivalent.

Percentage may not total due to rounding.

Table ES-2. Municipal 2022 Baseline Inventory

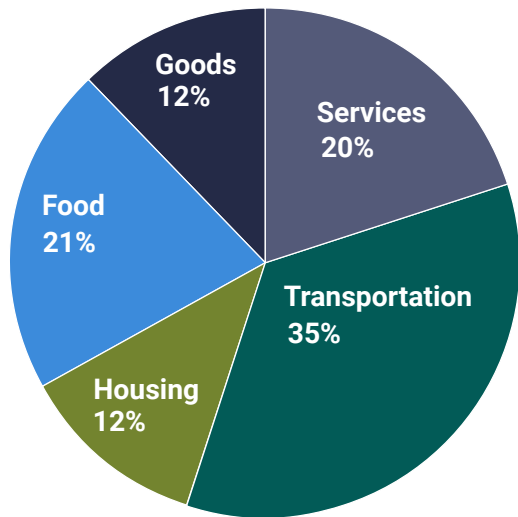
Sector	2022 Baseline MT CO ₂ e	Percent of Total
On-Road Transportation	1,522	4%
Building Energy	72	<1%
Water and Wastewater	2	<1%
Solid Waste	37,821	96%
Off-Road Equipment	67	<1%
Total	39,485	100%

Notes: MT CO₂e = metric tons of carbon dioxide equivalent.

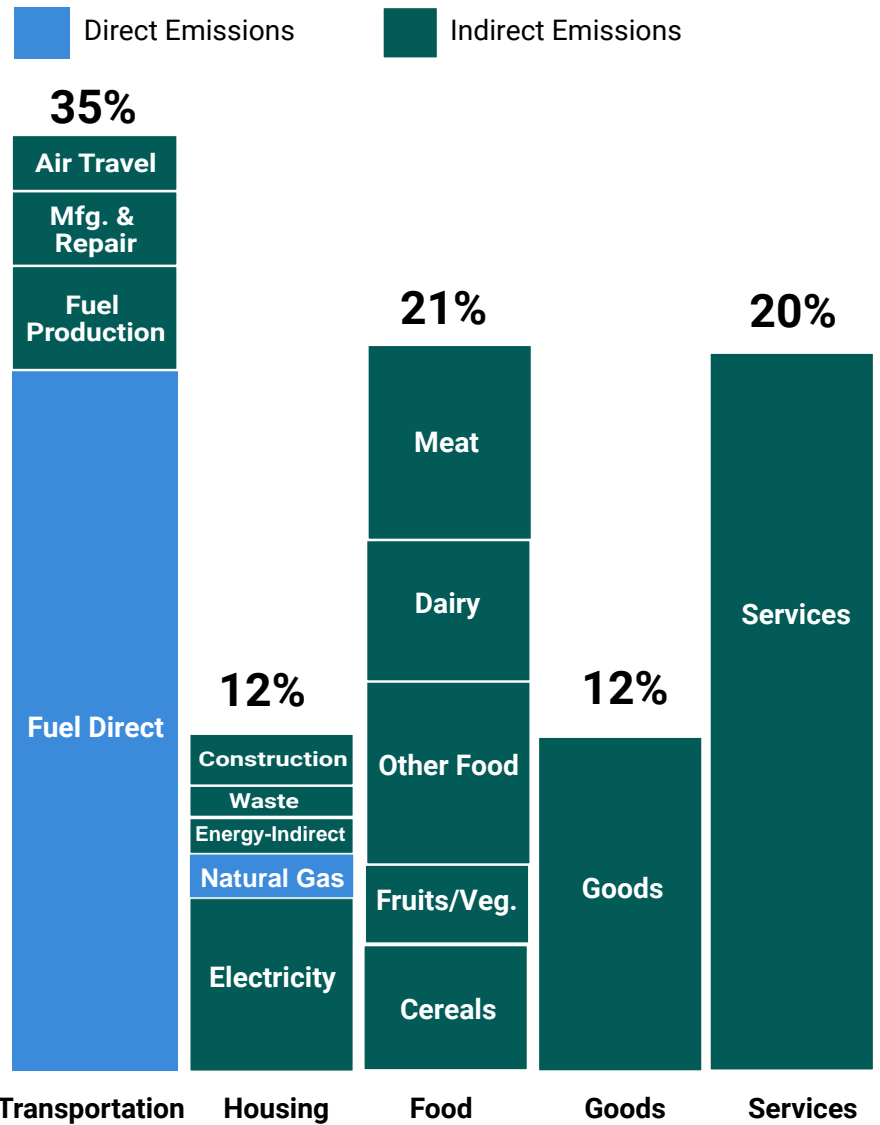
Percentage may not total 100% due to rounding.

▼ Figure ES-2: Consumption-Based Inventory Narrative Pie and Bar Charts (MT CO₂e).

2017



2017



Following development of the County's baseline inventories for community-wide and municipal emissions, business-as-usual (BAU) and adjusted business-as-usual (ABAU) scenarios were projected to understand how GHG emissions are expected to increase or decrease in the future for forecast years 2027, 2030, and 2045. The BAU scenario describes emissions based on projected growth in population, employment, and other factors and does not consider policies that would reduce GHG emissions in the future. The ABAU scenario describes emissions based on projected growth and considers policies that will achieve GHG reductions in the future (i.e., it assumes Federal- and State-mandated GHG emission reduction measures would be implemented by the projected forecast year).

Focusing on 2030 as the County's key target year, community-wide emissions under BAU are anticipated to be 774,003 MT CO₂e, which is a 2% increase from baseline in 2022. Under the ABAU scenario, community-wide emissions are estimated to be 641,072 MT CO₂e, which is a 15% decrease from 2022 baseline and a 132,930 MT CO₂e (-17%) decrease from BAU in 2030. Table ES-3 presents community-wide GHG emissions under BAU and ABAU in 2030 alongside 2022 baseline emissions.

Table ES-3. Community-Wide Inventory Business-as-Usual and Adjusted Business-as-Usual 2030 Projections Comparison

Sector	2022 Baseline MT CO ₂ e	2030 Projected Emissions MT CO ₂ e		Change from 2030 BAU to ABAU MT CO ₂ e (%)
		BAU	ABAU	
On-Road Transportation	269,588	271,486	225,990	-45,496 (-17%)
Building Energy	172,064	182,998	95,580	-87,418 (-48%)
Water and Wastewater	28,079	28,081	28,065	-16 (-1%)
Solid Waste	38,097	40,448	40,448	0 (0%)
Off-Road Equipment	132,302	135,599	135,599	0 (0%)
Agriculture	115,391	115,391	115,391	0 (0%)
Total	755,520	774,003	641,072	-132,930 (-17%)

Notes: MT CO₂e = metric tons of carbon dioxide equivalent.

As shown in Table ES-4, the County's municipal inventory is anticipated to increase 6% to 41,905 MT CO₂e in 2030 under BAU and to similarly increase 6% to 41,841 MT CO₂e under ABAU in 2030 as compared to baseline in 2022. The 2030 ABAU represents a less than 1% reduction from BAU in 2030.

Table ES-4. Municipal Inventory Business-as-Usual and Adjusted Business-as-Usual 2030 Projections Comparison

Sector	2022 Baseline MT CO ₂ e	2030 Projected Emissions MT CO ₂ e		Change BAU to ABAU MT CO ₂ e (%)
		BAU	ABAU	
On-Road Transportation	1,522	1,598	1,566	-32 (-2%)
Building Energy	72	76	44	-32 (-42%)
Water and Wastewater	2	2	2	<1 (2%)
Solid Waste	37,821	40,158	40,158	0 (0%)
Off-Road Equipment	67	71	71	0 (0%)
Total	39,485	41,905	41,841	-64 (-<1%)

Notes: MT CO₂e = metric tons of carbon dioxide equivalent.

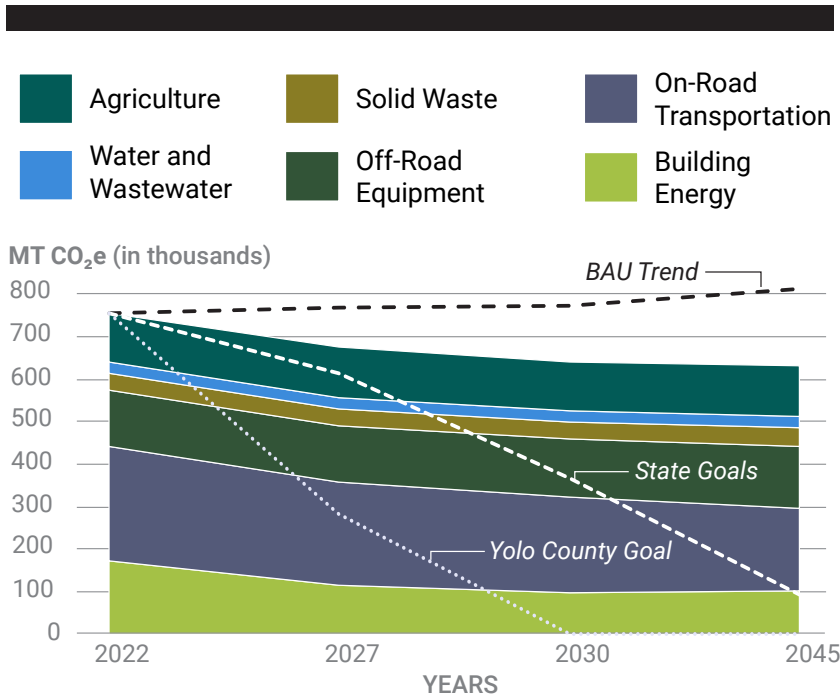
As noted previously, the County established a goal of achieving net-negative carbon emissions by 2030. The County's goal is one of the most ambitious local reduction targets in the country, aiming to surpass achieving carbon neutrality over a decade earlier than the State.

Yolo County would have to reduce GHG emissions by 774,004 MT CO₂e from the BAU scenario to meet the County's target of net negative, which for mathematical purposes is assumed to be -1 MT CO₂e in 2030. While Federal and State legislative actions would account for a meaningful portion of the reductions needed to achieve the County's goal (132,930 MT CO₂e or 17% of reductions), State legislative actions on their own would not be enough to achieve the County's 2030 GHG reduction goals. The additional reduction needed at the local level to meet the County's identified reduction target of net-negative GHG emissions by 2030 is referred to as the "local gap." To close the local gap and meet the County's target, the County will need to implement additional local actions that would result in a reduction of approximately 641,073 MT CO₂e by 2030, or an additional reduction of 83% from BAU.

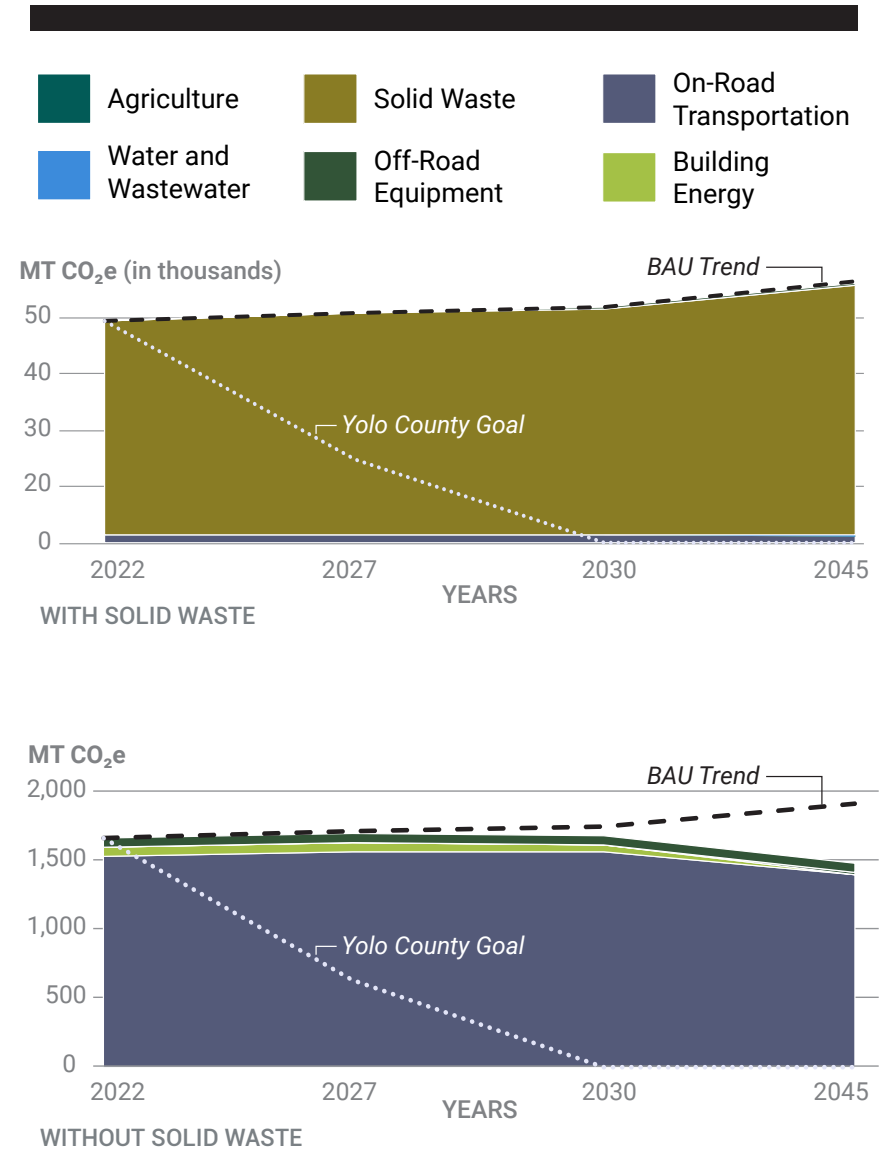
For the municipal inventory, to close the local gap and meet the County's target, the County would need to implement additional municipal actions that would result in a reduction of approximately 41,841 MT CO₂e by 2030.

Figures ES-3 and ES-4 present the 2027, 2030, and 2045 GHG emissions inventories, GHG targets, and local gaps for the community-wide inventory and municipal inventory, respectively.

▼ **Figure ES-3.**
Community-Wide GHG Emissions, Targets, and Local Gap



▼ **Figure ES-4.**
Municipal GHG Emissions Targets, and Local Gap with and without Solid Waste



The County Has Great Potential to Sequester Carbon in Natural and Working Lands

Carbon sequestration is the process by which carbon dioxide (CO₂) is removed from the atmosphere and stored in a reservoir, also referred to as a “carbon pool.” Given that a net-negative GHG emissions target requires removing more CO₂ than is emitted, efforts to promote carbon sequestration are critical to achieving the County’s climate goals. While there are various types of carbon sequestration (e.g., mechanical and biological), the County’s landscape presents a unique opportunity to utilize nature-based carbon sequestration within its NWL.

Actions implemented within NWL to support carbon sequestration involve stewardship, restoration, and conservation efforts. To evaluate Yolo County’s NWL carbon sequestration potential, the Yolo County Resource Conservation District (YCRCD), in collaboration with the NWL TAC and other partners, implemented a five-step process including: outreach, existing-setting review, measure and action development, suitable acreage analysis, and sequestration quantification. The County’s NWL have the capacity to sequester and store carbon into the future to supplement emission reduction efforts to achieve the 2030 goal, while also supporting vital ecosystem services and enhancing the local agricultural economy.

How Climate Change Impacts Yolo County

Climate change will affect Yolo County in many ways: through an increase in extreme heat events; more extreme precipitation events, including flood and drought; and larger and more-catastrophic wildfires. These climate hazards will affect public health, especially vulnerable communities.

The CAAP outlines the foundational steps to support the County in adapting to and being resilient to climate change. Climate adaptation refers to the actions taken to prepare for and respond to the impacts of climate change, which involves adjusting and planning for the potential changes in temperature, precipitation, sea level, extreme weather events, and other climate variables to reduce vulnerabilities and increase resiliency. Resiliency, in the context of climate change,

is the ability of individuals, communities, systems, institutions, and businesses to withstand, recover, and thrive in the face of climate change and chronic stress.

As climate change continues to influence the frequency, magnitude, and intensity of these climate hazards, adaptation plays an increasingly important role in protecting people and infrastructure, and in building resilience in social and economic systems. Looking forward, the County must prioritize sustainable development such that economic opportunity is equitable and in line with GHG reduction goals. Building resilience in Yolo County involves more than physical improvements—it is also about the community’s capacity for response and recovery. Education is key to the successful implementation of many CAAP strategies, and resilience centers can act as a hub for information on both climate action and adaptation.

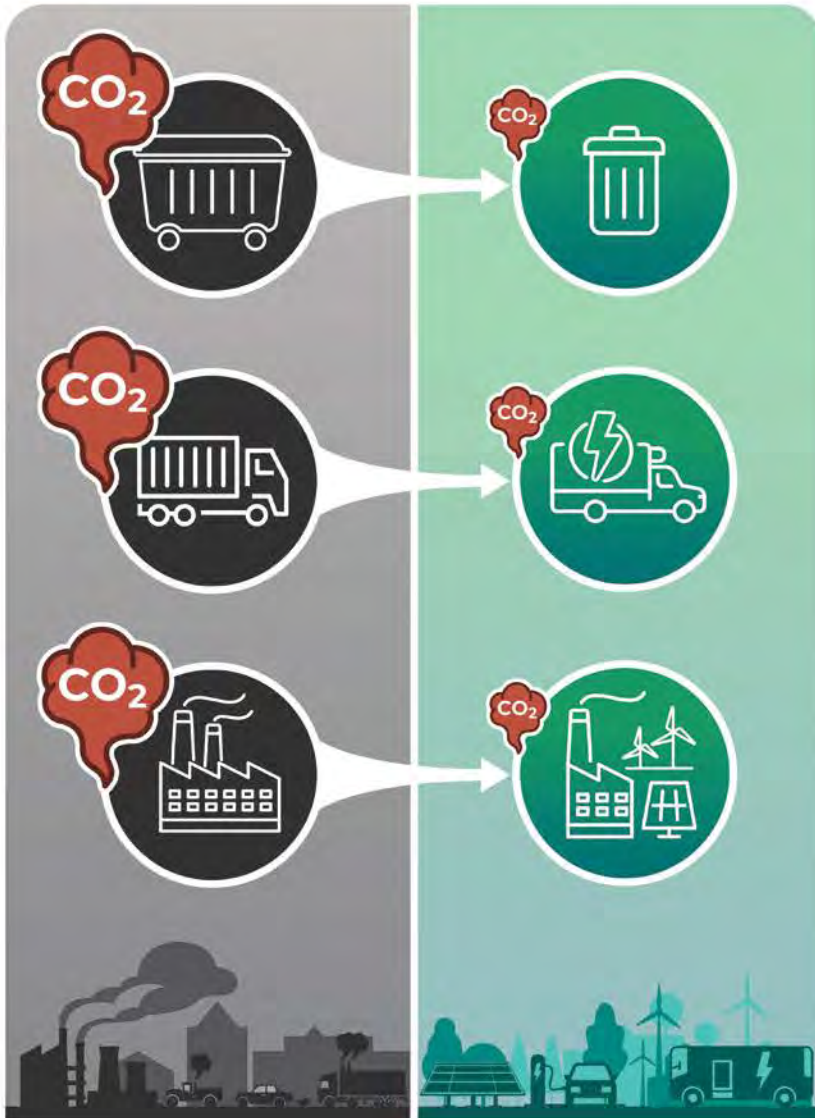
How the County Can Achieve Its Climate Goals

A net-negative emissions goal means that all County anthropogenic GHG emissions released into the atmosphere must be counterbalanced by the GHGs that are removed. This net-negative goal can be achieved through two complementary pathways: (1) Reduction or elimination of anthropogenic sources of GHG emissions; and (2) carbon dioxide removal, which refers to mechanisms that draw down ongoing and historical carbon emissions that currently exist in the atmosphere. Nature-based sequestration in NWL is the focus of the County’s approach for carbon dioxide removal. Figure ES-5 is a conceptual figure that illustrates the two main pathways that will be employed to achieve the County’s net-negative goal.

▼ Figure ES-5. Emission Reduction and Carbon Sequestration
Note: this is a conceptual figure, so the depicted processes are simplified.

EMISSION REDUCTION

Reduce or eliminate emissions of GHGs to the atmosphere



CARBON SEQUESTRATION

Remove atmospheric CO₂ and store carbon





Achieving net-negative carbon emissions by 2030 while increasing resiliency and ensuring a Just Transition requires an ambitious, well-coordinated approach. Given the scale of effort needed, the roadmap for CAAP implementation is organized within a tiered framework that includes three main components: strategies, measures, and actions. This framework provides a manageable structure for efficiently achieving the County's collective climate goals. Each component is briefly described below.

- **Strategies:** are the high-level implementation components that comprise the main GHG emission source and adaptation sectors relevant to achieving the County's CAAP goals.
- **Measures:** are the second tier of the implementation framework and are contained within each strategy to further specify the sector- or subsector-specific goals.
- **Actions:** are the final tier of the implementation framework and include specific policies, programs, plans, initiatives, or tools that will be deployed to achieve the expressed goals of the related measure and strategy.

Because equity is an important consideration woven throughout the entire CAAP, relevant equity concerns and potential equity solutions and approaches are identified for each strategy. Each measure was qualitatively evaluated for co-benefits that include the following: improves air quality, improves mobility, improves public health and safety, enhances the natural environment, enhances the local or regional economy and/or supports job creation, saves money, promotes equity, and provides education. Each measure is characterized by its function as either a mitigating, adapting, or crosscutting effort (a measure that achieves both mitigation and adaptation and that synergizes County efforts). Ideally, all actions would be implemented in Phase 1, but local governments have limited resources and competing needs; therefore, phasing helps lay out a temporal framework to focus County resources. Three phases were identified, corresponding to the following years: Phase 1: 2024–2027; Phase 2: 2027–2030; Phase 3: 2030–2045. Regardless of phasing, all actions are important, and the intent is that they are all implemented as soon as possible.

The story of the County's CAAP implementation process is best expressed at the measure level. Measures are presented below for each of the 10 CAAP strategies.

- STRATEGY 1**
Decarbonize Transportation
 - DT1** Electrify County Fleet
 - DT2** Install Electric Vehicle Charging Infrastructure
 - DT3** Encourage Transition to Electric Vehicles
 - DT4** Encourage Transition to Other Zero-Emissions Vehicle Technologies
- STRATEGY 2**
Reduce Vehicle Miles Traveled
 - VMT1** Reduce Single-Occupancy Vehicle Trips
 - VMT2** Encourage Transit-Oriented and Infill Development
- STRATEGY 3**
Decarbonize Energy and Buildings and Increase Energy Efficiency
 - EB1** Increase Energy Efficiency in Buildings
 - EB2** Decarbonize and Electrify Buildings
 - EB3** Increase Renewable Energy Generation and Storage
 - EB4** Procure Zero-Carbon Electricity
- STRATEGY 4**
Optimize Water Use
 - W1** Conserve and Enhance Natural Water Sources
 - W2** Encourage Efficient Water Use in Agricultural Operations
 - W3** Promote Graywater, Recycled Water, and Stormwater Capture
 - W4** Reduce Water Consumptions
- STRATEGY 5**
Minimize Waste
 - SW1** Reduce Landfill Waste
 - SW2** Increase Construction and Demolition Waste Diversion
 - SW3** Reduce Emissions from Waste Management
- STRATEGY 6**
Reduce Off-Road Equipment Emissions
 - OFR1** Increase Electric and Zero-Emission Off-Road and Landscaping Equipment Adoption
 - OFR2** Decarbonize Agricultural Equipment
- STRATEGY 7**
Support Climate Smart Agriculture
 - AG1** Reduce Use of Chemical Inputs
 - AG2** Support Agricultural Innovation that Promotes Resilience
 - AG3** Reduce Methane Emissions

STRATEGY 8
Sequester and Store Carbon
in Natural and Working Lands

- NWL1** Encourage Climate Smart Practices in Working Lands
- NWL2** Restore Natural Lands
- NWL3** Promote Stewardship within Natural Lands
- NWL4** Conserve Natural and Working Lands

STRATEGY 9
Reduce Carbon Footprint of
Consumption and Production

- RCP1** Responsible Consumption Guidance
- RCP2** Neighborhood Carpool Program
- RCP3** Personal Water Efficiency
- RCP4** Carbon Neutral Travel
- RCP5** Increase Consumption and Production of Local Agricultural Products
- RCP6** Require Environmentally Responsible Purchasing

STRATEGY 10
Resilient Infrastructure
and Healthy Communities

- HC1** Create Resilience Centers
- HC2** Increase Neighborhood Response
- HC3** Prepare Vulnerable Communities
- HC4** Improve Equitable Distribution of Resources
- HC5** Minimize Hazard Exposure
- HC6** Minimize Workplace Hazard Exposure
- HC7** Reduce Urban Heat Island Effect
- HC8** Prioritize Sustainable Economic Development

How It All Comes Together

The County's community-wide GHG emissions gap of 641,073 MT CO₂e by 2030 will be achieved through substantial GHG emission reductions and sequestration within NWL.

Table ES-5 presents the estimated GHG emission reduction or carbon sequestration by quantified measure for 2030.

Table ES-5. Community-Wide GHG Emission Reductions and Carbon Sequestration

Measure	2030 Reductions MT CO ₂ e
Strategy 1 - Decarbonize Transportation	
DT 3 Encourage Transition to Electric Vehicles	57,279
Strategy 3 - Decarbonize Energy and Buildings and Increase Energy Efficiency	
EB 1 Increase Energy Efficiency in Buildings	1,207
EB 2 Decarbonize and Electrify Buildings	67,082
EB 3 Increase Renewable Energy Generation and Storage	66
EB 4 Procure Zero-Carbon Electricity	146
Strategy 4 - Optimize Water Use	
W 2 Encourage Efficient Water Use in Agricultural Operations	4,041
W 4 Reduce Water Consumption	1
Strategy 5 - Minimize Waste	
SW 3 Reduce Emissions from Waste Management	3,640
Strategy 6 - Reduce Off-Road Equipment Emissions	
OFR 1 Increase Electric and Zero-Emission Off-Road and Landscaping Equipment Adoption	62,682
OFR 2 Decarbonize Agricultural Equipment	38,117
Strategy 8 - Sequester and Store Carbon in Natural and Working Lands	
NWL 1 Encourage Climate-Smart Practices in Working Lands	412,461
NWL 2 Restore Natural Lands	6,597
Total Reductions	653,319
Local Gap	641,073
GHG Target	-1
Local Gap Achieved?	Yes

Notes: MT CO₂e = metric tons of carbon dioxide equivalent.

As shown in Table ES-5, there are 12 key measures within the CAAP that account for 100% of the quantified GHG emission reductions for the community-wide inventory. All strategies, measures, and actions are important, and many are non-quantified supporting efforts that promote measures that are quantified.

The municipal inventory includes substantial overlap with the community-wide inventory; they are two different ways of illustrating Yolo County's GHG emissions. The purpose of the municipal inventory is to baseline government operations to develop specific reduction measures to allow County government to lead by example. For this reason, many of the strategies for the community-wide reductions are mirrored with the municipal reductions (e.g., electrifying buildings and vehicles). For the municipal inventory, seven measures were quantified that account for an approximately 5,298 MT CO₂e reduction in 2030 (3,620 MT CO₂e attributed to Strategy 5, Minimize Waste, and the remaining 1,678 MT CO₂e associated with the following strategies: 1, Decarbonize Transportation; 3, Decarbonize Energy and Buildings and Increase Energy Efficiency; and 6, Reduce Off-Road Equipment Emissions). The County's municipal inventory would reduce from the 2030 ABAU forecast of 41,841 MT CO₂e in 2030 to 36,543 MT CO₂e, and the remainder (i.e., 36,543 MT CO₂e primarily associated with legacy landfill gas waste-in-place GHG emissions) would be met through carbon sequestration measures within Strategy 8, Sequester and Store Carbon in Natural and Working Lands.

The consumption-based inventory narrative, which is the third way of illustrating Yolo County's GHG emissions as evaluated in this CAAP, was included to provide individuals, families, and businesses an understanding of the wholistic (e.g., life cycle) GHG emissions from all their actions. The consumption-based inventory narrative is not quantified in the same way as the community-wide and municipal GHG emission inventories. Therefore, the associated measures and actions focused within Strategy 9, Reduce Carbon Footprint of Consumption and Production, are not quantified. Strategy 9 directs the County to provide information on how the County's community members can reduce their carbon footprint (i.e., total GHG emissions

associated with the actions of an individual, family, or business). While not quantified herein, if community members modify their actions and behaviors to reduce their carbon footprint associated with consumption and production, there is a potential for substantial GHG emission reduction both within Yolo County and beyond County jurisdictional borders. In addition, as the County implements all 10 strategies of the CAAP, it is anticipated that individual community members' carbon footprint would also reduce.

While many adaptation-focused actions may not be quantifiable from a GHG emission reduction perspective, they are critical to meeting the County's adaptation and resiliency goals. While all adaptation and crosscutting actions collectively serve as an essential component of the CAAP, key adaptation measures include creating resilience centers and increasing neighborhood response to ensure the community, including its most vulnerable members, is prepared for the adverse effects of climate change.

Funding, Financing, Implementation, and Monitoring are Keys to Success

Achieving the County's carbon-negative goal involves substantial commitment of resources in the form of staff labor and capital costs. A clear implementation plan and monitoring are critical to achieving the County's climate-related goals in the near term and long term. Many other implementation responsibilities for County staff from several departments are documented in Appendix G. To maintain accountability, actions have performance metrics that will be tracked by lead departments, and annual reporting on overall progress will be fulfilled by the County's Sustainability Division.

Achieving the ambitious goal of net-negative GHG emissions requires a monumental effort. Continual and thorough monitoring provides the opportunity to identify what is working and what could be improved and then to adjust as necessary to ensure progress is being made. Nonetheless, if in 2030 the County's climate goals are not achieved in full, the substantial progress made will serve as momentum to keep striving to attain the County's goals soon after.

A RESILIENT AND SUSTAINABLE YOLO COUNTY IN 2030

Our Vision: Yolo County is a resilient, inclusive, and equitable community where government, individuals, businesses, and community-based organizations unite to achieve a carbon-negative footprint. Together, we thrive in the face of climate change adversity, ensuring access to resources for all and creating a sustainable future for generations to come.

The CAAP Vision for Yolo County was shaped by the many comments received from 16 workshops conducted throughout the County and more than 1,200 resident, worker, and business interviews and surveys designed to assess needs, gain insights, and identify priorities.

This vision can only be accomplished through multisector collaboration focused on combining efforts and resources. The choices we make have a direct impact on our local communities, as well as people and ecosystems around the world. Ensuring an inclusive, equitable, resilient, and sustainable Yolo County is possible through the collective impact of our choices if we come together as a community: the Yolo Way. The CAAP is a comprehensive roadmap to help us achieve this vision together, ensuring a Just Transition and centering the needs of our most vulnerable and marginalized communities. Together, we can create a Yolo County where:

- ▲ Every resident lives in a healthy, sustainable, and efficient home served by affordable, reliable, and clean energy.
- ▲ Every resident has easy access to nutritious, affordable, and local food.

- ▲ Every resident has access to clean, affordable, and reliable transportation.
- ▲ Every resident has access to safe and accessible pedestrian and bicycle paths.
- ▲ All workers have safe, well-paying, and sustainable jobs.
- ▲ Youth and adults have access to green job education and training.
- ▲ Infrastructure is upgraded and maintained to withstand extreme weather events including wind, rain, and heat.
- ▲ Tree canopies, shelters, and cool roofs and surfaces reduce urban heat.
- ▲ Homes and landscapes are hardened against wildfire damage and smoke infiltration.
- ▲ Small- and large-scale farmers receive support to implement climate-smart agricultural practices.
- ▲ Ecosystems and biodiversity are restored, enhanced, and protected.
- ▲ Yolo County is a model of climate action, inclusion and equity, adaptation, resilience, and innovation for the State and the nation.

With the CAAP, Yolo County is continuing its long history of environmental protection and climate action. Through implementation, the CAAP will build on our past as we meet the challenges to our future and create a resilient and sustainable Yolo County in which we all can thrive. This is the Yolo County envisioned by this plan.

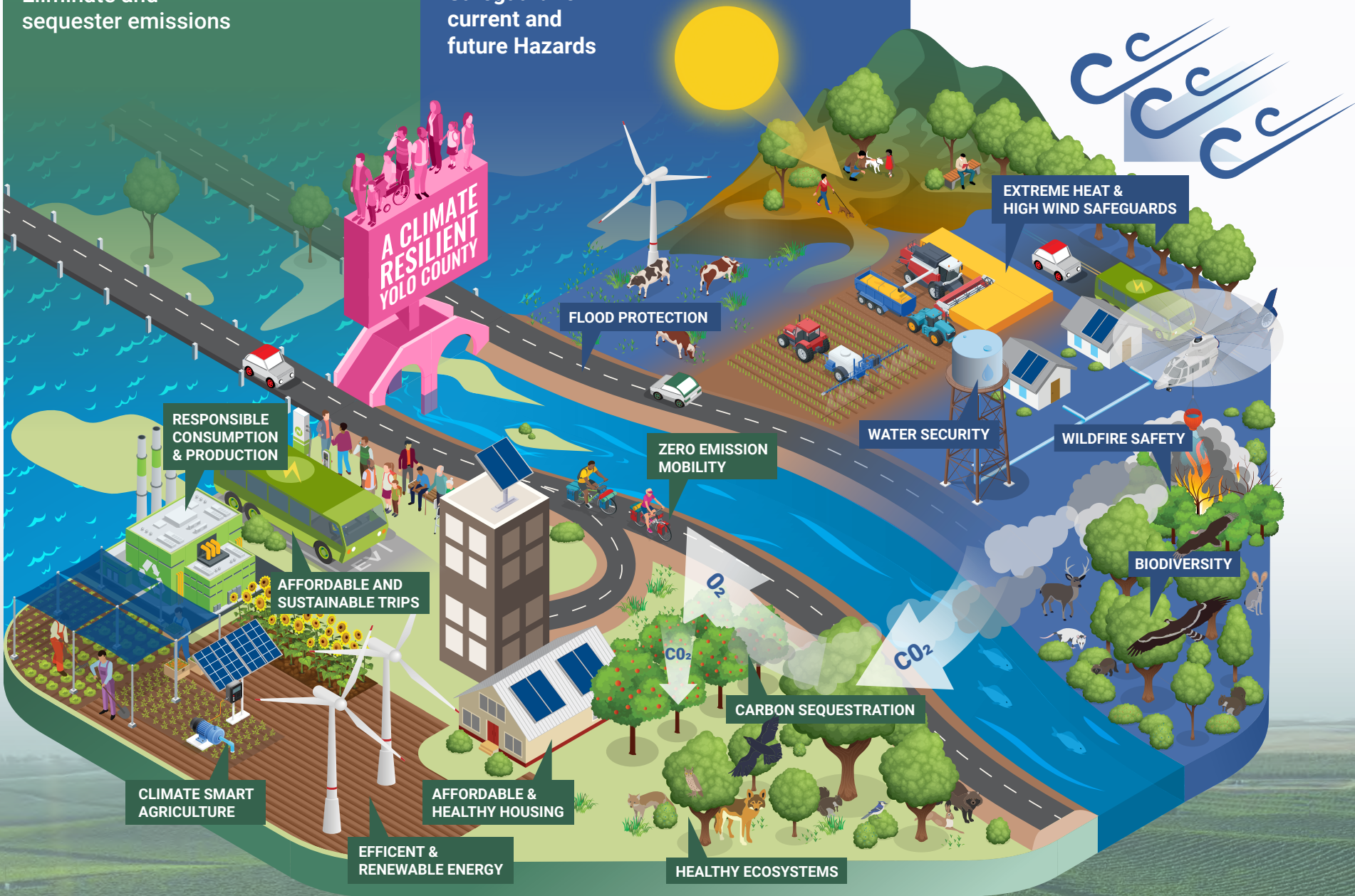


CLIMATE MITIGATION

Eliminate and sequester emissions

CLIMATE ADAPTATION

Safeguard for current and future Hazards



A CLIMATE RESILIENT YOLO COUNTY

RESPONSIBLE CONSUMPTION & PRODUCTION

AFFORDABLE AND SUSTAINABLE TRIPS

CLIMATE SMART AGRICULTURE

EFFICIENT & RENEWABLE ENERGY

AFFORDABLE & HEALTHY HOUSING

FLOOD PROTECTION

ZERO EMISSION MOBILITY

CARBON SEQUESTRATION

HEALTHY ECOSYSTEMS

WATER SECURITY

EXTREME HEAT & HIGH WIND SAFEGUARDS

WILDFIRE SAFETY

BIODIVERSITY

O₂

CO₂

CO₂

READER'S GUIDE

The Reader's Guide is meant to outline where you, the reader, can find what you are looking for. The CAAP is intended to be readable and digestible for a wide range of interested parties, meaning there are a number of technical details, data, or methods that are available in appendices. Each section of the CAAP will reference the appendix that has additional relevant information.

Opening Pages

The CAAP's Opening Pages include an Opening Letter from County leadership, Acknowledgements, Executive Summary, the Vision Statement, and this Reader's Guide.

Chapter 1. Introduction

Chapter 1 is an introduction to the CAAP, covering some of the largest concepts being tackled by the CAAP, including the County's declared climate emergency, the plan's purpose and objectives, and the fundamental goal of centering equity and a Just Transition. This chapter also gives basic local context on Yolo County, its climate impacts, and its history of climate leadership. This chapter concludes with descriptions of the scientific and regulatory background that influence the CAAP throughout.

Chapter 2. Community Engagement

Chapter 2 outlines how the CAAP process worked to center equity and justice while communicating and engaging with the public. It describes some of the guiding principles and committees that influenced outreach and engagement strategy development. Tools to promote the CAAP and encourage engagement are listed, followed by a summary of each engagement method used and the resulting themes that emerged. Engagement methods included interviews, a community survey, public workshops, and tabling at events.

Chapter 3. Climate Action

Chapter 3 provides the GHG emissions background, including information on the previous inventories and the 2022 baseline inventory, both for municipal and community-wide emissions. The inventory covers the following emission sectors: agriculture, energy, off-road, solid waste, transportation, water, and wastewater. Next, the inventory is used in combination with projections, trends, and regulations to develop business-as-usual (BAU) and adjusted business-as-usual (ABAU) scenarios. The County's reduction targets and goals are then outlined and compared to the projected emissions.

Chapter 4. Natural and Working Lands

Chapter 4 details Yolo County's natural and working lands. Yolo County's natural and working lands are critical to its overall identity, given that these lands comprise the majority of the County's total acreage. As such, this chapter provides additional context to one of its most important assets, detailing what these lands are and who works on or manages them. It also offers insight into Yolo County's sequestration potential, where atmospheric GHGs are captured and stored in the land, giving Yolo County the ability to offset emissions from other sectors.

Chapter 5. Climate Adaptation

Chapter 5 provides context for climate adaptation in Yolo County, which is a concept referring to the actions taken to prepare for and respond to the impacts of climate change such as changes in temperature, precipitation, and more. This chapter provides background information on the climate vulnerabilities of each sector described in Chapters 3 and 4, as well as a final sector, people and equity.

Chapter 6. Strategies, Measures, and Actions

Chapter 6 provides the CAAP's strategies, measures, and actions. This chapter begins by describing the strategies, measures, and actions for the CAAP. Strategies are the broadest category of the three and include several measures, which have specific actions relevant to them. This chapter then outlines the different co-benefits that can occur as a result of a measure. The co-benefits are assigned icons that are used again in subsequent sections of the CAAP. From there, the chapter is organized by strategy, providing overall GHG reduction potential, equity insights, local background information, and snippets of what was heard during community engagement, before listing all measures and actions for that strategy.

Chapter 7. Funding and Financing

Chapter 7 includes estimates of costs and savings for the actions identified within Chapter 6. This includes considerations for both the County, residents, and businesses. This chapter also contains a funding and financing roadmap, which identifies funding sources and gaps, as well as mechanisms to finance the CAAP's planned activities.

Chapter 8. Implementation and Monitoring

Chapter 8 describes how the CAAP will be implemented and monitored, including identification of responsible parties, categorization of county actions, and more. After describing these important implementation components, a matrix presents the information in a succinct, clear format for ease of use and understanding by County staff and the public. Ongoing monitoring is included in this matrix in the form of identified performance metrics that track assumptions and benchmark success. The chapter concludes with the method for annual progress reporting.

Acronyms, Glossary, and References

The closing pages include tools for the reader to reference as desired, including a table of acronyms, a glossary, and a full suite of references (though additional references not used in the plan itself may be found in the detailed appendices).





Keep Yolo County
Beautiful

Chapter **1**

INTRODUCTION

Chapter 1 is an introduction to the CAAP, covering some of the largest concepts being tackled by the CAAP, including the County's declared climate emergency, the plan's purpose and objectives, and the fundamental goal of centering equity and a Just Transition. This chapter also gives basic local context on Yolo County, its climate impacts, and its history of climate leadership. This chapter concludes with descriptions of the scientific and regulatory background that influence the CAAP throughout.

CHAPTER 1

Introduction

Climate Emergency

While climate change is a global phenomenon, its effects manifest at local scales, where communities bear the brunt of climate-related disasters and consequences. The world faces an unprecedented climate emergency, with rising temperatures, extreme weather events, and ecological disruptions that have and will continue to upend the planet's stability into the future. Yolo County (County), like many regions, is experiencing the impacts firsthand, with threat of wildfires, droughts, and changing agricultural conditions that challenge the stability of the region's local economy. The County cannot solve the global crisis on its own, but a strong local response will amplify the County's call advocating for regional, national, and international efforts. By continuing to lead by example, the County can encourage others to follow suit and take action locally to contribute to the broader fight to mitigate climate change.

While the climate emergency presents considerable challenges, there is also a great opportunity to create a better future for Yolo County community members while simultaneously addressing climate concerns.

In September 2020, the Yolo County Board of Supervisors approved a Climate Emergency Declaration (Resolution No. 20-114), signifying the urgency of addressing climate change and its impacts. The resolution set forth a countywide goal for Yolo County to achieve net negative carbon emissions by 2030, an ambitious target that aims to go beyond traditional emission reductions to incorporate sequestration of carbon within Yolo County's natural and working lands. Acknowledging the role that the COVID-19 pandemic had in exacerbating social and economic disparities, the resolution further specified the need for a Just Transition toward an inclusive, equitable, sustainable, and resilient local economy while mitigating and adapting to climate change within unincorporated Yolo County.



Resolution No. 20-114 established the Yolo County Climate Action Commission (YCCAC) to develop the 2030 Climate Action and Adaptation Plan (CAAP) to achieve net-negative carbon emissions. In development of the plan, the YCCAC is charged with ensuring vulnerable, marginalized, and historically underserved communities are centered in the process. The County and the YCCAC have laid the groundwork to achieve these ambitious goals, including developing early action projects and a Climate Early Action Grant Strategy to ensure progress is made toward achieving climate goals while the CAAP was under development. Yolo County is uniquely situated to address the global climate emergency and has positioned itself to take advantage of this extraordinary opportunity to enhance the life and well-being of residents countywide.

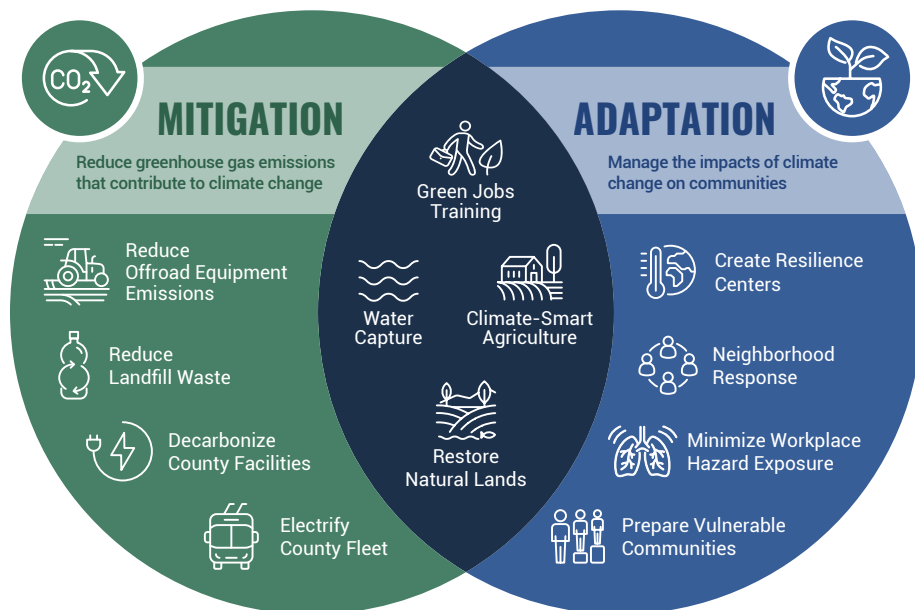
Carbon negative means that Yolo County will remove more carbon from the atmosphere than it produces. The County will do this by reducing its local GHG emissions, while also supporting practices that remove atmospheric CO₂ and store carbon in vegetation and soil (also known as carbon sequestration).

Purpose and Objectives

A CAAP is a comprehensive road map that outlines the activities and informs the decisions that an agency will undertake to achieve reductions in greenhouse gas (GHG) emissions while also increasing resilience in response to the impacts of climate change.

The CAAP addresses both climate mitigation and adaptation. Climate mitigation is reducing GHG emissions that cause climate change, while climate adaptation is managing the risks of climate change impacts. By combining action and adaptation in one plan, the County can ensure it does its fair share to reduce its contribution to climate change, while also preparing the community for the local effects of climate change. Addressing both needs in one plan allows for the County to implement cross-cutting strategies to synergize mitigation and adaptation and use County resources efficiently.

▼ Figure 1. Venn Diagram of Mitigation and Adaptation



Building on the County's strong history of climate action, including the 2011 Climate Action Plan (CAP), the County identified the following goals and objectives for the 2030 CAAP:

- Develop strong partnerships in the CAAP process with the County's communities, including the agricultural sector (including farmers and farmworkers), tribes, businesses, youth, marginalized groups, and other County communities.
- Center equity and a Just Transition in all CAAP processes and outcomes.
- Use best available and publicly accessible science.
- Create an approach that takes regional goals and neighboring jurisdictions activities into account and allows the County to work across jurisdictions to support the CAAP.
- Promote health, equity, and holistic resilience in every step of the process.
- Create an ambitious and achievable CAAP, with a focus on implementation that will reach the goal of being carbon negative by 2030.
- Create a CAAP that reflects the unique role Yolo County plays in the region, including the carbon sequestration benefits of agriculture and the value of agriculture to the regional economy.

The objectives of the CAAP are driven by public input and include recommendations for how the County can lower emissions, protect natural resources, increase renewable energy use, support the sustainable agricultural practices that are already thriving here in Yolo County, and more. The CAAP is designed to benefit all community members and to promote health, equity, and resilience in all processes and outcomes.

The CAAP strives to foster a resilient, equitable, and carbon-negative future for Yolo County.

Centering Equity and a Just Transition

A fundamental goal of the CAAP is to center equity and justice in the process, specifically ensuring a Just Transition to net negative carbon emissions by 2030. Meeting our climate goals will require some big changes or “transitions” in our energy use, transportation system, and more. Yolo County wants to make sure that this transition is equitable and “just,” and that vulnerable communities and those most impacted by climate change are not only protected but also play a central role in the decision-making process. Ensuring a Just Transition is a key focus point for the CAAP.

A Just Transition is a set of vision-led, place-based principles and practices designed to empower historically disadvantaged communities and create social and economic opportunities. The CAAP aims to protect the most vulnerable populations from climate change while ensuring they play a central role in decision-making and can fully benefit from the plan's outcomes.

The term “equity” refers to “fairness and justice achieved through systematically assessing disparities in opportunities, outcomes, and representation and redressing [those] disparities through targeted actions” (Kania et al. 2021). Centering equity requires not only programmatic and process changes, but foundational systemic changes. It is essential that communities share a common language and understanding of what equity means and how to address power in relationships to strengthen empathy and engagement.

Centering equity in CAAP development and implementation requires intentionally incorporating the principles of a Just Transition. A Just Transition is one that maximizes social and economic opportunities of climate action and adaptation, while intentionally ensuring fairness and inclusivity in the process (International Labour Organization 2024). Effecting a Just Transition within Yolo County means moving toward a more sustainable, inclusive, equitable, and resilient future that benefits all residents.

Yolo County is home to a diversity of frontline communities, meaning those that are confronted first and with the worst consequences of

climate change. In Yolo County, these include indigenous communities, communities of color, agricultural workers, limited English proficiency speakers, and rural residents. The County has recognized the need to tailor outreach initiatives to these communities to implement climate actions successfully and equitably. The Community Engagement and Equity Strategy prepared for this CAAP outlines the strategy used to engage residents in CAAP development, with a focus on equity and justice. Communication tools were crafted to highlight the strengths, capacities, and positive attributes of the diverse communities within Yolo County, ensuring that all voices were heard and considered in development of the CAAP.

Unincorporated Yolo County

The landscape and people of Yolo County define what is possible for this CAAP. Yolo County is a center for agriculture in the southern Sacramento Valley and is home to approximately 19,000 residents across 14 census-designated unincorporated communities (not including University of California, Davis, U.S. Census Bureau 2023).

***Jurisdictional Control.** The CAAP specifically covers the unincorporated area of Yolo County (the area outside of our four cities), and our outreach is focused on the unincorporated area and communities that have historically been excluded from planning processes. However, the County hopes to coordinate closely with the Cities of Davis, West Sacramento, Winters, and Woodland; the Yocha Dehe Wintun Nation; the University of California, Davis; and other partners to align goals and projects in our planning process.*

A diverse group of people reside in Yolo County, many of whom are part of one or more frontline communities (defined in Section 1.3). Yolo County is home to the Yocha Dehe Wintun Nation, which is a federally recognized Patwin tribe. The Patwin people have been present on this land for thousands of years, and include the Cachil Dehe Band of Wintun Indians of the Colusa Community, the Kletsel

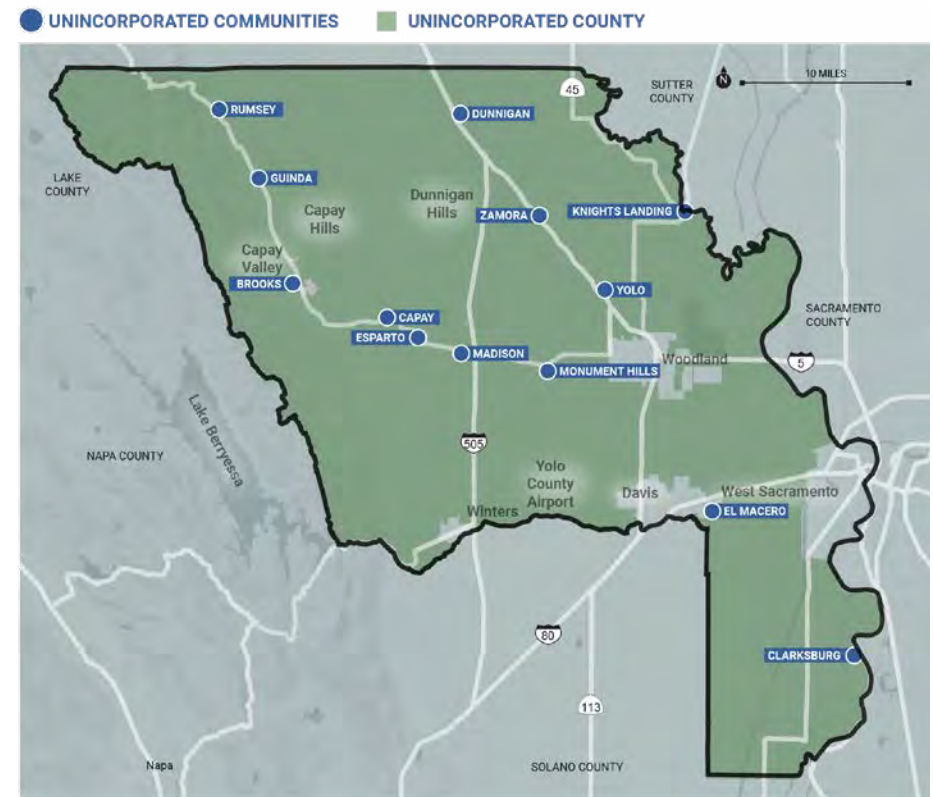
Dehe Band of Wintun Indians, and the Yocha Dehe Wintun Nation. Additionally, roughly 32.6% of Yolo County residents (including those in the incorporated cities within the County) identify as Hispanic or Latinx, and approximately 21.6% of residents are foreign-born, 45% of which were born in Latin America (Census Reporter 2023). Approximately 15.6% of Yolo County residents are Limited English Proficiency (LEP) speakers, and approximately 65% of LEP speakers speak Spanish or Spanish Creole (LEP 2023). Additionally, roughly 14.8% of the County falls below the poverty line, which is approximately 25% higher than the rate of poverty in California (11.5%) (USDA 2022). There are 13,000 people employed by Yolo County's agricultural industry (U.S. Census Bureau 2023). The capacities of each group of frontline communities have been considered during community engagement and within strategy development. The capacities of these communities will continue to benefit Yolo County throughout implementation of the CAAP.

Agriculture is a defining characteristic of Yolo County's economy and culture and represents a key opportunity for climate change progress. Approximately 85% of land in Yolo County is dedicated to agricultural uses, and on a national level, Yolo County is consistently ranked a top-20 producer of total commodities (Woodland Chamber of Commerce 2024; County of Yolo Agriculture/Weights and Measures Department 2021; Yolo County 2023d). Residents and visitors enjoy Yolo County's wineries, farmers markets, produce stands, and annual festivals, such as the Capay Valley Almond Festival, Woodland Honey Festival, and Growers and Farmworkers Festival. The agricultural industry is particularly important to the CAAP's emissions inventory and strategies and provides a unique opportunity to mitigate Yolo County's GHG emissions.

Other major employers in Yolo County include the County government, local school districts, Cache Creek Casino, and the University of California, Davis (U.S. Census Bureau 2023). The University of California, Davis is the largest employer in Yolo County, with approximately 17,000 faculty and staff members (UC Davis 2023.)¹

Environmental stewardship, land consciousness, and sustainability are common threads woven throughout all of Yolo County. There is a strong presence of advisory committees, nonprofits, and organizations dedicated to the protection of Yolo County's natural assets, including the Yolo Wildlife Bypass, Cache Creek Nature Preserve, Cache Creek Regional Park, Putah Creek, the Sacramento River, among others. These groups offer strong volunteer bases and means of education and engagement that the County will leverage for CAAP implementation.

▼ Figure 2. Map of Yolo County



¹ While important to Yolo County's overall local economy, it is important to note that activities related to the University of California, Davis campus are not included within this CAAP, as the campus has prepared its own climate action plan.

How Climate Change Affects Yolo County

Although climate change is driven by global atmospheric conditions, its impacts are felt locally, and its consequences are already affecting California and Yolo County. Yolo County will experience climate change impacts through an increase in extreme heat events; more extreme precipitation events, including flood and drought; and larger and more-catastrophic wildfires. These impacts will affect public health, especially vulnerable communities who work outside or cannot afford air conditioning. Additionally, reduction in snowpack and increase in variability of rain events will pose challenges to water and flood management. Changes in temperature and precipitation patterns may alter crop yields, shift planting and harvesting schedules, and increase pressure from pests and diseases. Climate change will also cause species migrations, while rapidly changing environments will give an advantage to invasive species. Finally, large wildfires could devastate communities and increase hazardous-air days far beyond a wildfire's boundary (OPR 2018).

History of Yolo County Climate Leadership

The priorities and actions of residents and local decision makers has made the County a leader in local climate action for many years. The following section outlines climate action accomplishments and milestones the County has achieved to date. See Figure 3 for a summary of these efforts.

- ▲ County efforts to address climate impacts began in the **1980s**, when sustainability and climate resiliency became key policy focuses for the community. With land use policies that emphasize growth management, open space preservation, and agricultural protection, the County has a long history of being at the forefront of the Green Movement.
- ▲ In **1982**, the County adopted a first of its kind, comprehensive energy plan related to transportation, electricity, and natural gas usage in Yolo County. This plan resulted in the construction of a gas-to-energy facility in 1985 at the Yolo County Central Landfill that generates 20,000 kilowatt hours per year and captures 90% of methane emissions.
- ▲ In **2007**, the County became one of 12 charter members of the 2007 Cool Counties Initiative, a nationwide pledge to an 80% reduction in GHG emissions by 2050.
- ▲ In **2008**, the County conducted its first countywide greenhouse gas inventory to understand the magnitude of its emissions. In the same year, the County's 2008 Strategic Plan included an action plan for reducing GHG emissions associated with County operations.
- ▲ In **2009**, the County adopted its 2030 General Plan, which included more than 350 climate-change-oriented policy/action recommendations (Yolo County 2009). The General Plan also called for the development of a County climate action plan.
- ▲ In **2010**, the U.S. National Renewable Energy Laboratory recognized Yolo County for the first known use of Qualified Energy Conservation Bonds, saving the county at least \$8.7 million over 25 years, further enhancing the County's status as a pioneer in climate change and sustainability.

▼ Figure 3. Summarized Timeline of Yolo County Climate Leadership



-
- ▲ In **2011**, the County created its first climate action plan using 2008 GHG inventory data. The climate action plan represented a significant milestone for the County.
 - ▲ In **2013**, the U.S. Environmental Protection Agency (EPA) recognized Yolo County as being among the nation's leading green-power users. In 2014 at the Green California Summit, the County received a leadership award for its Renewable Energy for a Countywide Solar Project.
 - ▲ In **2015**, the County released a report on its progress toward meeting the goals outlined in the climate action plan.
 - ▲ In **2018**, climate action plan inventory data was updated using 2016 GHG data, to reflect current emissions status more accurately.
 - ▲ In **2020**, the County Board of Supervisors adopted a climate emergency declaration (Resolution 20-114), which declared climate change a crisis, requiring "urgent and inclusive mobilization" of public and private resources. This resolution led to the creation of the YCCAC, the 11-member advisory body tasked with leading the development and implementation of the 2030 CAAP while ensuring that historically marginalized and vulnerable communities are centered in the process (Yolo County 2023a). The YCCAC began meeting in the fall of 2021.
 - ▲ Significantly, in **2021**, the County also created its first sustainability plan. This plan specifically called out the need for a new climate action plan, or rather, a CAAP that would serve as a roadmap for the County to achieve its principal goal of achieving net carbon negativity by 2030 while centering equity and ensuring a Just Transition to an inclusive, equitable, sustainable, and resilient local economy (Yolo County 2021).
 - ▲ To further guide development and implementation of the CAAP, in **2022**, the County formed two CAAP advisory committees: the Equity and Engagement Technical Advisory Committee and the Natural and Working Lands Technical Advisory Committee (Yolo County 2023c).

Working Together

Achieving the County's ambitious goals will require support and participation from partners at the regional, community, and individual levels. Collaboration across boundaries, particularly at a regional scale, will allow for coordinated efforts and efficiency in achieving goals. Many programs and plans currently exist within the region to reduce emissions and adapt to the impacts of climate change. Strengthening existing partnerships and leveraging efforts from cities and agencies with common goals will ensure the County's response is swift and in step with local experts.

While these regional efforts play a crucial role, meaningful progress in addressing climate change hinges on active participation from local communities and individuals. Collective action at the grassroots level—whether it's choosing to retrofit for energy efficiency, reducing single-occupancy vehicle trips, adopting sustainable practices, advocating for policy changes, or fostering environmental awareness—will be essential to the shared success of the County's CAAP. The communities and individuals of Yolo County are at the heart of this plan; their input was critical to its development, and their participation will be even more critical to its implementation.

Relationship to Other County Plans

The CAAP complements existing County plans, including the County's General Plan and Multi-Jurisdictional Hazard Mitigation Plan. The General Plan is a State-required plan that covers a variety of topics that overlap with CAAP concepts, including energy conservation, transportation, land use, and agriculture. The Multi-Jurisdictional Hazard Mitigation Plan responds to Federal incentives and delves deeply into hazards, providing background and establishing programs to address them. The CAAP works with these and other planning documents by utilizing existing background information and history, retaining consistency with overarching goals, and building off existing policies.

Scientific Background

Climate Change Overview

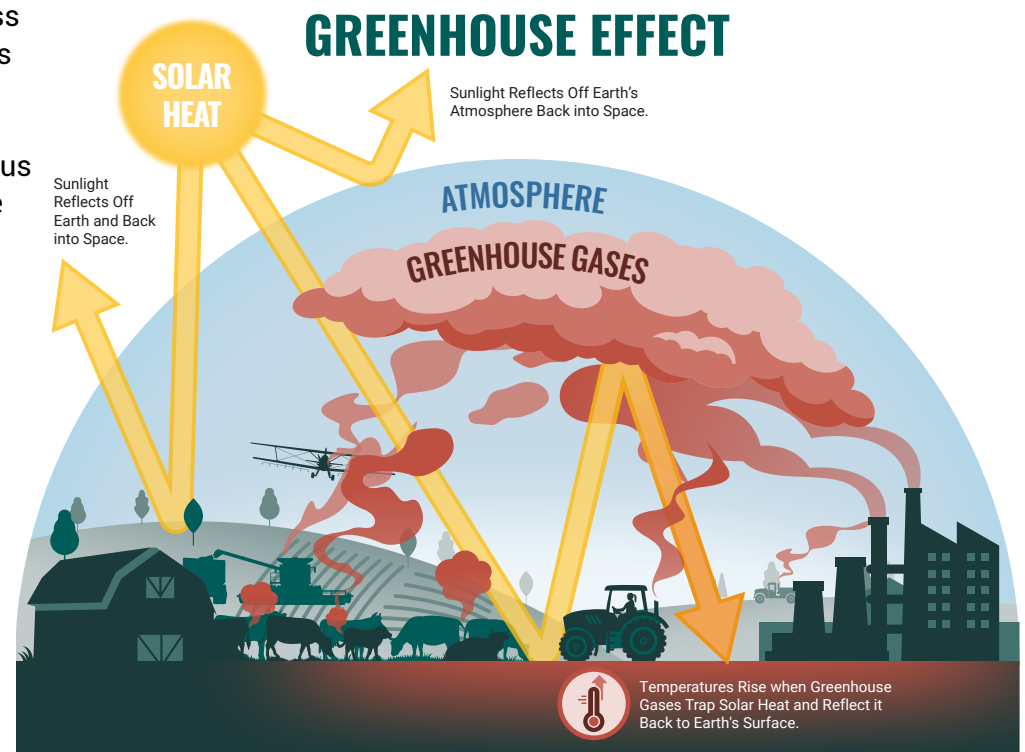
Climate change refers to any significant change in global or regional climate patterns attributed largely to human-caused increases in levels of GHGs. Earth's temperature depends on the balance of energy entering and leaving the planet's system. Many factors, both natural and human, can cause changes in Earth's energy balance, including variations in the amount of the sun's energy reaching Earth's surface, changes in the reflectivity of Earth's atmosphere and surface, and a process known as the greenhouse effect, which affects the amount of heat retained by Earth's atmosphere (EPA 2023a, 2023b).

The greenhouse effect refers to the gradual buildup of heat in the atmosphere near the Earth's surface when atmospheric GHGs prevent a portion of the solar energy that reaches the Earth's surface from escaping. The greenhouse effect is a natural process that contributes to regulating the Earth's temperature and creates a pleasant, livable environment on the Earth. However, human activities that emit additional GHGs increase the amount of solar energy that gets absorbed as heat before escaping into space, thus enhancing the greenhouse effect and causing the Earth's surface temperature to rise. The greenhouse effect is one of the primary ways human activities contribute to global climate change. A visualization of the greenhouse effect is presented in Figure 4.

The scientific record of the Earth's climate shows that the climate system varies naturally over a wide range of time scales and that, in general, climate changes prior to the Industrial Revolution in the 1700s can be explained by natural causes, such as changes in solar energy, volcanic eruptions, and natural changes in GHG concentrations. However, recent climate changes, such as the warming observed over the past century, cannot be explained by natural causes. Rather, human activities have unequivocally caused the global warming observed

since the mid-twentieth century and are the principal driver of climate change (IPCC 2021a; EPA 2023b). Human influence on the climate system is evident from a rapid increase in atmospheric GHG concentrations, an imbalance in the amount of solar energy retained as heat close to the Earth's surface (i.e., positive radiative forcing), observed warming, and improved understanding of the climate system (IPCC 2021a). The atmospheric concentrations of GHGs have increased to levels unprecedented in the last 800,000 years, primarily from fossil fuel emissions and secondarily from emissions associated with land use changes (IPCC 2021a). Continued emissions of GHGs will cause further warming and changes in all components of the climate system, and the GHG emissions that have caused this warming will remain in the atmosphere for hundreds to thousands of years (IPCC 2021a).

▼ Figure 4. Greenhouse Effect



Greenhouse Gases

A greenhouse gas is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. GHGs include carbon dioxide (CO₂), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Of these gases, CO₂ and methane are emitted in the greatest quantities from human activities. Manufactured GHGs, which have a much greater heat-absorption potential than CO₂, include fluorinated gases, such as hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, which are associated with certain industrial products and processes.

Some gases are more effective than others at trapping heat and contributing to the greenhouse effect, warming Earth's oceans, land, and atmosphere. For each GHG, a global warming potential (GWP)

was developed to allow comparisons of the global warming impacts of different GHGs. Specifically, GWP is a measure of how much energy the emissions of 1 ton of a gas will absorb over a given period of time, typically a 100-year time span, relative to the emissions of 1 ton of CO₂ (EPA 2024). Gases with a higher GWP absorb more energy (per ton emitted) than gases with a lower GWP and thus contribute more to warming the Earth (EPA 2024).

All GHGs in the emissions inventory and reduction measures in this CAAP are presented in terms of metric tons CO₂ equivalent (MT CO₂e), which account for weighted GWP factors for methane and nitrous oxide. The GWPs applied are from the Intergovernmental Panel on Climate Change Sixth Assessment Report (IPCC 2021a). Table 1 provides a summary of the three primary GHGs, their sources, and their GWPs.

Table 1. Greenhouse Gases

GHG	Description	GWP (100-year value)
Carbon Dioxide (CO₂)	CO ₂ is a naturally occurring gas that is also a byproduct of human activities, primarily through the combustion of fossil fuels and changes in land use, such as deforestation. It is the principal anthropogenic (i.e., human-caused) GHG that affects the Earth's solar radiative balance.	1
Methane (CH₄)	CH ₄ is produced through both natural and human activities and is the main component of natural gas. It is produced through anaerobic (without oxygen) decomposition of landfill and animal waste, flooded rice fields, animal digestion, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion. Methane derived from fossil fuel sources has a slightly higher GWP than methane from non-fossil fuel sources.	27.9
Nitrous Oxide (N₂O)	N ₂ O is produced through natural and human activities, mainly through agricultural activities and natural biological processes, although fuel burning and other processes also create N ₂ O. Sources of N ₂ O include soil cultivation practices, especially the use of fertilizers; manure management; industrial processes (such as in the production of nylon, and from fossil-fuel-fired power plants); vehicle emissions; and use as a propellant (such as in rockets, racecars, and aerosol sprays).	273

Notes: GHG = greenhouse gas; GWP = global warming potential. The descriptions of GHGs are summarized from the Intergovernmental Panel on Climate Change Sixth Assessment Report (IPCC 2021b) and the California Air Resources Board's (CARB) Glossary of Terms Used in GHG Inventories (CARB 2024).

Regulatory Background

A global issue such as climate change needs to be addressed at all levels of government in the United States, from the Federal government to State government to regional and local governments. The regulations highlighted in the following reflect the key regulatory framework that provides important context for the CAAP.

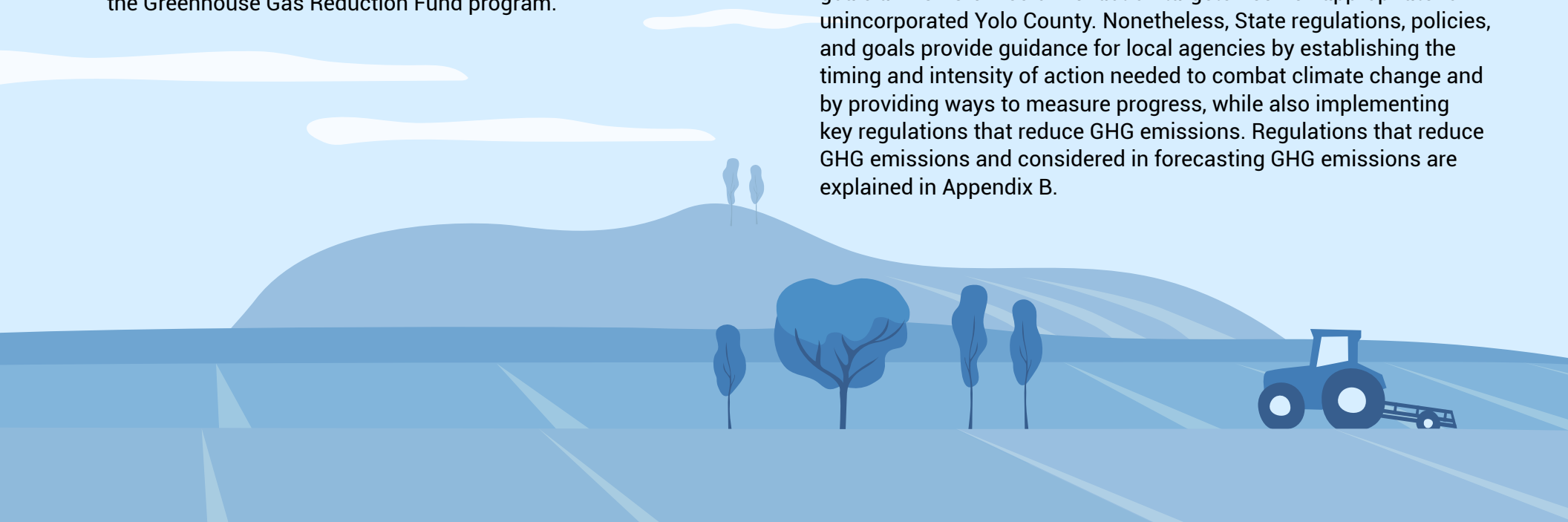
Federal Context

At a Federal level, Executive Order (EO) 14057, Catalyzing Clean Energy Industries and Jobs through Federal Sustainability (December 2021) and the Inflation Reduction Act (August 2022) are two recent actions to address climate-related issues. EO 14057 establishes that the Federal government will lead by example to achieve a carbon-pollution-free electricity sector by 2035 and net-zero emissions economy-wide by 2050. The Inflation Reduction Act includes specific investment in energy and climate reform and is projected to reduce GHG emissions within the United States by 40% as compared to 2005 levels by 2030. The Inflation Reduction Act allocates funds to boost renewable energy infrastructure (e.g., solar panels and wind turbines), includes tax credits for the purchase of electric vehicles, includes measures that will make homes more energy efficient, and authorizes the U.S. Environmental Protection Agency to implement the Greenhouse Gas Reduction Fund program.

State Context

The State of California has enacted numerous regulations such as EOs, assembly bills, senate bills, and other plans and policies that would directly or indirectly reduce GHG emissions and/or address climate change issues. The following regulations highlight the State's foundational climate goals related to climate mitigation, natural and working lands, and climate adaptation.

Of note, this CAAP is not a qualified plan for GHG emission reductions under the California Environmental Quality Act and is therefore not required to comply with California Environmental Quality Act Guidelines Section 15183.5, Tiering and Streamlining the Analysis of Greenhouse Gas Emissions. Often, qualified GHG reduction plans demonstrate alignment with statewide GHG emission reduction targets, while this CAAP has the opportunity to identify the goals and GHG emission reduction targets deemed appropriate for unincorporated Yolo County. Nonetheless, State regulations, policies, and goals provide guidance for local agencies by establishing the timing and intensity of action needed to combat climate change and by providing ways to measure progress, while also implementing key regulations that reduce GHG emissions. Regulations that reduce GHG emissions and considered in forecasting GHG emissions are explained in Appendix B.



Climate Mitigation

Executive Order S-3-05 (2005) identified the following targets: reduce GHG emissions to 2000 levels by 2010, reduce GHG emissions to 1990 levels by 2020, and reduce GHG emissions to 80% below 1990 levels by 2050.

Assembly Bill 32, the California Global Warming Solutions Act of 2006 (California Health and Safety Code Sections 38500–38599), provided initial direction on creating a comprehensive multiyear program to reduce California's GHG emissions to 1990 levels by 2020 and initiate the transformations required to achieve the State's long-range climate objectives.

Senate Bill 32 (2016) codified the 2030 emissions-reduction goal of EO B-30-15 by requiring the CARB to ensure that statewide GHG emissions are reduced to 40% below 1990 levels by 2030.

Executive Order B-55-18 (2018) identified a policy for the State to achieve carbon neutrality as soon as possible (no later than 2045) and achieve and maintain net negative emissions thereafter.

Assembly Bill 1279, the California Climate Crisis Act (2022) declares the policy of the State to achieve net zero GHG emissions as soon as possible, but no later than 2045, and achieve and maintain net negative GHG emissions thereafter, and by 2045, statewide anthropogenic GHG emissions be reduced to at least 85% below 1990 levels.

Natural and Working Lands

Executive Order N-82-20 (2020) directs State agencies to deploy nature-based strategies to remove carbon from the atmosphere and store it in California's natural and working lands. The order sets a goal to conserve 30% of California's land and coastal waters by 2030. To implement EO N-82-20, the California Natural Resources Agency (CNRA) developed the Natural and Working Lands Climate Smart Strategy, which defines the natural and working landscapes, and identifies land management actions that will help achieve carbon neutrality (CNRA 2022).

Senate Bill 27, Carbon Sequestration: State Goals: Natural and Working Lands: Registry of Projects (2021) required CNRA, in coordination with other State agencies, to establish the Natural and Working Lands Climate Smart Strategy (released in April 2022). This bill also requires CARB to establish specified CO₂ removal targets for 2030 and beyond as part of its Scoping Plan. CNRA is to establish and maintain a registry to identify projects in California that drive climate action on natural and working lands and are seeking funding.

Assembly Bill 1757, California Global Warming Solutions Act of 2006: Climate Goal: Natural and Working Lands (2022) required the CNRA to determine a range of targets for natural carbon sequestration and nature-based climate solutions that reduce GHG emissions for future years 2030, 2038, and 2045. The bill also requires CARB, by January 1, 2025, to develop standard methods for State agencies to track GHG emissions and reductions, carbon sequestration, and additional benefits from natural and working lands over time.

Climate Adaptation

Senate Bill 379 and California Government Code 65302. California Senate Bill 379 (2015) amended Government Code Section 65302 to require cities to adopt comprehensive, long-term General Plans that address environmental risks. The CAAP addresses the following areas in compliance with Section 65302:

- **Vulnerability Assessment (Government Code Section 65302[g][4][A]):** Create a vulnerability assessment that identifies both the risks posed by climate change, including flood and wildfire, and the geographic areas at risk.
- **Goals, Policies and Objectives (Government Code Section 65302[g][4][B]):** Create adaptation and resilience goals, policies, and objectives based on this vulnerability assessment.
- **Climate Change – Feasible Mitigation (Government Code Section 65302[g][4][C]):** Create a set of feasible implementation measures designed to carry out these goals, policies, and objectives.



Chapter 2

COMMUNICATION, ENGAGEMENT, AND EQUITY

Chapter 2 outlines how the CAAP process worked to center equity and justice while communicating and engaging with the public. It describes some of the guiding principles and committees that influenced outreach and engagement strategy development. Tools to promote the CAAP and encourage engagement are listed, followed by a summary of each engagement method used and the resulting themes that emerged. Engagement methods included interviews, a community survey, public workshops, and tabling at events.

A Focus on Equity

Focusing on equity in the CAAP development process is vital for its long-term success. As such, centering equity and ensuring a Just Transition are central goals of the CAAP. The CAAP aims to protect the most vulnerable populations from climate change while ensuring they play a central role in decision-making and can fully benefit from the plan's outcomes.

Yolo County is home to a diverse group of frontline communities, including Indigenous communities, communities of color, agricultural workers, other language proficiency speakers, and rural residents. For years, the County has recognized the need to tailor outreach initiatives to these communities to implement climate actions successfully and equitably. In 2020, the County passed the Climate Emergency Declaration (Resolution No. 20-114), which recognized that the COVID-19 pandemic exacerbated many of the socioeconomic disparities that existed prior to 2020, and emphasized the need for communication strategies and initiatives that promote inclusivity and equity. The CAAP communication, engagement, and equity strategies were designed to build upon existing programs and efforts, recognizing that frontline communities are often the most vulnerable to climate-change-related impacts because these communities already face barriers accessing healthcare, adequate nutrition, transportation, and affordable housing.

Frontline communities are those communities that experience the most immediate and worst impacts of climate change and are most often communities of color, Indigenous, elderly, youth, and/or low-income.

The primary goal of CAAP communication and engagement is to foster two-way communication between Yolo County residents, particularly frontline communities, and the CAAP development team, to ensure the CAAP guides the County through a Just Transition. Engagement initiatives collected the feedback and perspectives of the Yolo County community and ensured the specific needs of vulnerable communities were incorporated into the CAAP.

To guide the development and implementation of the 2030 CAAP, County staff formed two advisory committees in addition to the YCCAC: the Equity and Engagement Technical Advisory Committee (E&E TAC) and the Natural and Working Lands Technical Advisory Committee (NWL TAC) (Yolo County 2023c). Additionally, Yolo County is fortunate to have dedicated Community-Based Organizations (CBOs) and Community-Based Partners (CBPs) that were actively involved in the CAAP's communication and engagement efforts. These CBOs and CBPs provide unique community insights and networks relevant to their specific areas of reach.

Communication and engagement efforts, covered in depth in the Community Engagement and Equity Strategy (Appendix A), used various strategies and channels (via the E&E TAC and local, trusted CBOs and CBPs) to maximize the volume and quality of input from Yolo County residents.

Engagement Strategies and Outcomes

A Just Transition is a set of vision-led, place-based principles and practices designed to empower historically disadvantaged communities and create social and economic opportunities.

Conducting broad and thorough outreach and engagement efforts in Yolo County is no simple feat. The unincorporated County population of approximately 19,000 spans 14 unincorporated/census-designated communities, with each community having its own unique perspective, opportunities, and challenges. A one-size-fits-all approach to outreach and engagement would not be effective for Yolo County. Instead, the structure of engagement efforts considered each community's socioeconomic, geographic, infrastructure, and cultural needs and priorities to ensure outreach was comprehensive and all voices were heard. Prominent factors considered and addressed during the development of outreach and engagement strategies included:

- ▲ Distance between the unincorporated communities can make travel to a central meeting location prohibitive.
- ▲ Inconsistent broadband access/lack of access to laptops, computers, tablets, and smart phones in many rural communities make remote engagement challenging/inequitable.
- ▲ Poverty/inequality exacerbates barriers to participation in many communities.
- ▲ Choosing the right language to connect with community members is key; the idea of building community resilience is more tangible to many rural residents than combatting climate change.
- ▲ 28.6% of people in Yolo County over the age of five speak Spanish in the home (U.S. Census Bureau 2023a); outreach materials need to be, at a minimum, bilingual to ensure equitable access.



A variety of tools were used to promote the CAAP effort and to encourage engagement throughout the process, detailed in Table 2. The County regularly utilized social media posts, email blasts, and website posts to spread the word to the public. Additionally, a public-facing community engagement portal (<https://www.yolocaap.org/>) was created to further facilitate outreach and engagement surrounding the CAAP. Specifically, the portal included key information on the background and purpose of the plan, with engaging infographics. This included a timeline for plan development, adoption, and implementation, as well as dates, times, and sign-up links for workshops. The portal also included links for community members to share stories, take the community survey, contact the County, and read relevant background materials (Yolo County Resolution No. 20-114, workshop summaries, etc.).

Key principles and strategies for communication and engagement utilized during this effort, discussed in further detail in Appendix A, encompass the following:

- ▲ Meeting the Community Where They Are
- ▲ Approaching Conversations With Community Relevance
- ▲ Accessibility
- ▲ Asset Framing
- ▲ Community Compensation



Table 2. Equity and Engagement Strategies

EQUITY AND ENGAGEMENT STRATEGIES		
Action	Description	Timeline
Establishing Partnerships with CBOs/CBPs	Relationships and opportunities for collaboration were established, partnerships between organizations were established, and engagement and shared leadership opportunities were identified.	Commenced in February 2023 and continued throughout the development of the CAAP and to adoption
Creation of Dedicated/ Funded CBO/CBP Leadership and Representation Opportunities	County conducted a solicitation for community outreach partners to contribute to CAAP outreach and have dedicated seats on the E&E TAC.	March 2023
Agency and CBO/ CBP Interviews	Small group interviews were conducted with appropriate agency staff and CBOs/CBPs. The purpose of interviews was to understand the community's visions, priorities, strengths, assets, needs, risks, and vulnerabilities. Outcomes were used to inform the next steps of the engagement strategy and the initial community survey. Interview questions were tailored to the interviewees. Interview questions were reviewed and approved by the Sustainability Division and the E&E TAC.	March 2023– September 2023
Tabling Events	Tabling was conducted at pre-organized community events throughout Yolo County. English and Spanish materials included activities for children, stickers, informational graphics, and surveys. In total, 30 tabling events were conducted. Tabling occurred in locations where communities are known to congregate for greater accessibility and convenience including at libraries, housing facilities, and community festivals.	Commenced in April 2023 and continued throughout the development of the CAAP
Surveys	A preliminary, short survey assessed public perception and interest surrounding climate action. A second, longer survey gathered pointed feedback on individual and countywide climate action opportunities as well as demographic information.	Preliminary survey open from April through June 2023 Extended survey open from July through September 2023

EQUITY AND ENGAGEMENT STRATEGIES		
Action	Description	Timeline
Presentations to Boards, Commissions, and other Decision-Making and Leadership Groups	Outreach was conducted to school boards, chambers of commerce, Citizens Advisory Committee meetings, business association meetings, and at board meetings of other public boards and commissions. Outreach included presentations on the CAAP and distribution of informational materials and survey(s). In total, 20 presentations were conducted at public meetings.	Commenced in May 2023 and ongoing through CAAP development
Workshops on Development of the CAAP	<p>A total of three workshop series in English and Spanish were organized over the course of CAAP development and sequenced to progressively build upon themes required for a successful CAAP. Workshops were structured for the purposes of understanding and creating meaningful dialogue about the CAAP development process, as well as discussing the development of reduction, adaptation, and implementation strategies. Each workshop contained elements of presentation, breakout groups, and processing. Representatives from each breakout group reported highlights and outcomes. All workshop facilitation and materials were in English and Spanish, and compliant with the ADA.</p> <p>Workshops were strategically located around Yolo County for increased accessibility, comfort, and convenience. Workshops were scheduled on different days of the week and at different times in consideration of community members with various scheduling barriers. Food from local restaurants and childcare services was provided at all in-person workshops.</p>	<p>Workshop Series 1: June 2023 3 workshops total</p> <p>Workshop Series 2: November 2023– January 2024 9 workshops total</p> <p>Workshop Series 3: June 2024 4 workshops total</p>
Notices, Emails, Newsletters, Social Media Posts	<p>Emails, notices, newsletters, and social media posts were language appropriate and, at a minimum, in Spanish and English, and occasionally Russian. They were branded with the ADA-accessible CAAP logo and messaging was at fifth-grade reading level.</p> <p>Social media outlets included the Yolo County Sustainability Team’s Instagram and Facebook accounts and the County’s main Facebook and YouTube accounts. Messaging was also included in the monthly Yolo County Sustainability Newsletter.</p>	At strategic times to coincide with events, announce milestones, and share important information

EQUITY AND ENGAGEMENT STRATEGIES

Action	Description	Timeline
Bilingual (English/Spanish) Visual Technical Storytelling Web-Based Portal and Informational Graphics	<p>The development and implementation of the CAAP requires technical information to be communicated in a relatable and accessible way for all communities in Yolo County.</p> <p>Visual storytellers worked in concert with technical subject matter experts to shape complex processes into visual stories tailored to residents of unincorporated areas and the agricultural community, including growers, residents, non-governmental organizations, CBOs, as well as stories that are effective for use in all media.</p> <p>Visual technical storytelling creates engaging, easy-to-understand graphics to communicate complex descriptions of air quality, climate, and carbon sequestration processes that may otherwise be hard for readers to conceptualize.</p>	<p>Informational graphics prepared throughout development of the CAAP and shared at events, workshops, and on the website and portal; public CAAP portal launched in May 2023</p>

Notes: CAAP = Climate Action and Adaption Plan; E&E TAC = Equity and Engagement Technical Advisory Committee; CBO = Community-Based Organization; CBP = Community-Based Partner; ADA = Americans with Disabilities Act.



Interviews. Approximately 12 interviews were conducted at the beginning of the CAAP process with key trusted local organizations and individuals with deep ties to the community. Organizations and individuals were interviewed regarding the challenges and opportunities they saw for climate action and adaptation in Yolo County, as well as strategies for engaging and meeting the needs of frontline communities. Input from these conversations directly informed the outreach and engagement strategies, efforts, and materials, including public survey questions.

Survey. Over the course of community engagement efforts, two surveys were created and distributed to the general public. The initial survey was shorter in length and acted as a pulse assessment of the community's interest and awareness surrounding climate action and adaptation in Yolo County. This survey collected 376 responses. The vast majority of survey respondents (more than 85%) demonstrated concern about the effects of a changing climate.

hubs, heating/cooling centers, and backup generators). Finally, the community discussed strategies for increasing engagement and accessibility of the CAAP development process.

Workshop Series Two. The second series of workshops consisted of community-specific dialogues, which were held in selected urban and rural areas throughout Yolo County. Specifically, eight in-person community dialogues were held in Winters, Dunnigan, Guinda, Woodland, West Sacramento, Davis, Davis-Rancho Yolo, and Clarksburg, and one community dialogue was held virtually. Approximately 140 individuals participated in the series, which was designed to collect feedback directly from community members on specific climate action and adaptation strategies. Strategies were formulated and selected for each location based on insight from community-based organizations and partners, as well as location-based feedback from survey responses. Strategies generally fell into four categories, although additional strategies proposed by community members during the dialogues were also recorded:

- ▲ Decarbonize Transportation/Reduce Vehicle Miles Traveled
- ▲ Decarbonize Energy and Buildings
- ▲ Conserve Water/Minimize Waste
- ▲ Resilient Infrastructure and Healthy Communities

While the first series of workshops primarily focused on introducing the CAAP process and goals, the principal focus of the second series was to collect specific, local feedback from a variety of demographics within Yolo County, with a specific emphasis on frontline communities. Central themes from the community dialogues included centering equity for the unhoused population and Spanish speakers, providing rebates/financial incentives (especially for renters), providing additional education/technical assistance, and improving the safety and connectivity of public and alternative modes of transportation. The third workshop series has not occurred at the time of publication, but will focus on public review of the final CAAP.

Additional details on the workshops, including agendas, summaries, and outcomes, are included in Appendix A-2, Workshop Summaries.





Tabling and Events. County staff tabled at 30 events from April 2023 through February 2024. To promote the CAAP effort at these events, the County provided stickers, word games related to climate, infographics coloring books, and QR codes to the survey and CAAP website. Materials were available in both English and Spanish. Tabling occurred at a variety of locations across Yolo County, in both unincorporated and incorporated areas. In addition, County staff presented to 20 entities or events from May 2023 through February 2024. Presentations were given in both unincorporated and incorporated areas of Yolo County and were given to groups representing interests related to commerce, planning, education, hazard mitigation, water/flood control, housing, voting/politics, among others.

Event and presentation schedules, graphics, and all produced materials are included in Appendix A-3, Events, Materials, and Graphics.

Details about the Natural and Working Lands outreach are found in Chapter 4, Natural and Working Lands Carbon Sequestration, and Appendix C of the CAAP.



The Farmworkers' Voices

UNA experiencia que tube fue que una de mis compañeras se sintio mal y se fue a la sombra y el mayordomo le dijo que si no se entaba manana no

“Once, my coworker wasn’t feeling well and decided to sit in the shade to rest. However, the foreman came over and told her that if she didn’t return to work, she wouldn’t be allowed back the next day.”

1- me veo afectado en que el cheque sale mas chico y tengo estres financiero

“The high heat results in less work and less income, putting me in financial stress.”

El clima afecta mi salud pues el calor me debilita me duele la cabeza y ya no rindo en el trabajo

“The climate impacts my health. The heat makes me weak, gives me headaches, and I can’t work as hard.”

Tenemos que trabajar con mal clima polvo, humo, lluvia, altas temperaturas. Trabajamos menos horas no ganamos lo suficiente para sostener nuestras familias y nos estresamos. Todo esto nos hace trabajar en condiciones inseguras.

“We have to work in bad weather, dust, smoke, rain, and high temperatures. We work fewer hours and we don’t earn enough to support our families and we stress a lot. All this makes us work in unsafe conditions.”



“We all suffered a lot at home. I bought fans but that didn’t help because it was only circulating hot air inside the apartment.”

“During the last rainy season, we had water leaking through our roof and we lost power for 3 days and had to throw away all of our food.”

“We need more resources to help us with food, rent, and utilities when we can’t work because of the weather.”

“Climate changes are giving us anxiety and worry, and we have difficulty sleeping.”

“The wind tore off half of the neighbor’s trailer’s roof and hit the light post and knocked it down.”

“Last year, it was so hot that they just stopped us from working because the tomatoes spoiled with the heat.”

“The wildfire smoke affects our lungs and quality of life.”

These are the voices of Yolo County farmworkers.

Agriculture has been the heart of Yolo County's identity, character, economy, and way of life since the County's founding in 1850. Climate change is already affecting the community members and the economic sector that are the foundation of Yolo County.



The De Colores Resource Center conducted outreach to farmworkers in Yolo County to gather testimonials capturing their experiences resulting from climate change and identifying resources farmworkers believe would be most helpful for them. Conversations occurred individually, in groups, or during a Farmworker Health Retreat where De Colores facilitated a Climate Stress Workshop. Collectively, the narratives gathered represent the voices of 80 farmworkers.

Shared experiences include the following:

1. The increase in the number of days with extremely high temperatures results in farmworkers being sent home from work without pay. Their income decreases while their utility bills increase as they are forced to go home and use their air conditioners to be able to stay cool.
2. Excessive rain during the winter season delays the harvest season, prolonging the unemployment period for farmworkers. Some exhaust their unemployment income during this time. Or, if they are undocumented, they go without income for a longer period of time.
3. Farmworkers who were most impacted by weather events are those living in housing mostly provided by farmers in rural areas of Yolo County. They live in trailers or homes that are not maintained properly and feel they cannot complain due to the low cost for rent and because their landlord is also their employer.
4. Cannery and plant workers are subject to extreme internal temperatures with very little ventilation, making working conditions sometimes worse than out on the farm.
5. Farmworkers are afraid of reporting heat stress incidents for fear of retaliation.

Suggested resources include the following:

1. Financial assistance to help pay for utilities and rent, and more accessibility to proper low-income housing.
2. Help accessing food, especially during the winter when income is low, and money is prioritized for housing and utilities.
3. Increased awareness of farmworker rights, specifically for situations during which they are experiencing symptoms of heat stress.
4. Access to generators for emergency use at no cost.



Chapter 3

CLIMATE ACTION BACKGROUND

Chapter 3 provides the GHG emissions background, including information on the previous inventories and the 2022 baseline inventory, both for municipal and community-wide emissions. The inventory covers the following emission sectors: agriculture, energy, off-road, solid waste, transportation, water, and wastewater. Next, the inventory is used in combination with projections, trends, and regulations to develop business-as-usual (BAU) and adjusted business-as-usual (ABAU) scenarios. The County's reduction targets and goals are then outlined and compared to the projected emissions.

Climate action refers to any deliberate efforts to mitigate future impacts of climate change by avoiding, reducing, or sequestering GHG emissions. The critical components of the CAAP climate action process are development of the baseline GHG emissions inventory, forecasting future emissions, establishing reduction targets, estimating the related emissions gap, and identifying reduction strategies needed to close this gap. This chapter outlines the foundational components of this process, including the inventory, forecasting, target setting, and gap analysis, while Chapter 6 addresses the strategies, measures, and actions proposed to reduce GHG emissions in line with the County's goals.

Purpose of a Greenhouse Gas Emissions Inventory

An emissions inventory is a snapshot of the GHG emissions associated within a geographic boundary—in this case unincorporated Yolo County—during a given period of time. Establishing a baseline inventory of GHG emissions is an important initial step, both for its function as a point of reference for subsequent inventories to track progress and for forecasting future GHG emissions. These foundational steps are also necessary to estimate the GHG emissions gap that must be addressed to meet the County's reduction target.

The inventory and associated reduction target then serve as a guide for identifying GHG emission reduction strategies, measures, and actions, identified in Chapter 6. Overall, understanding the current community-wide and municipal GHG emissions Yolo County generates, and projections of emissions that can be reasonably expected in the future, helps guide the development and implementation of strategies the County can administer to do its part in combating climate change.

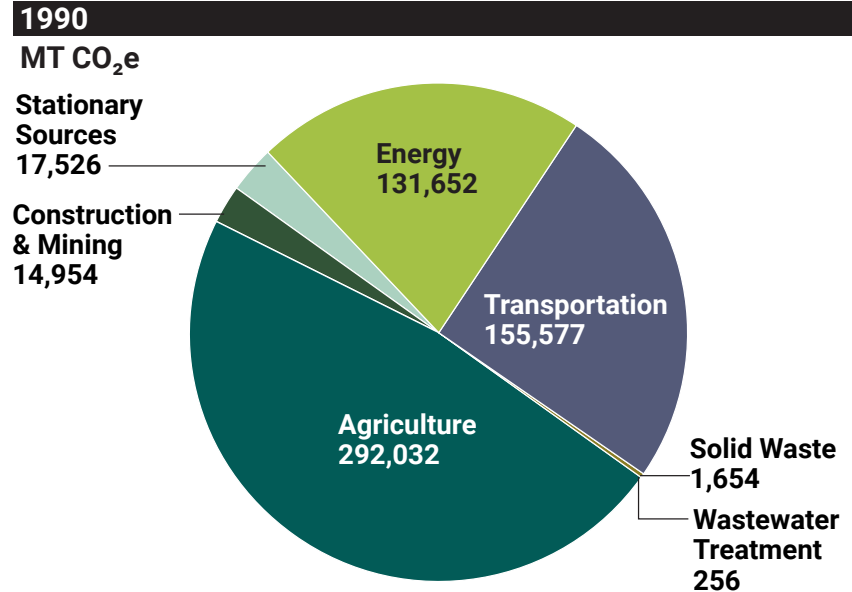
In addition to providing a helpful understanding of the County's GHG emission contribution, GHG inventories also serve as a basis for tracking and measuring progress during CAAP implementation. More information regarding GHGs and GWP is presented in Chapter 1.

Benefits of a GHG inventory include: (1) understanding GHG sources and the magnitude of each, (2) forecasting future emissions to understand the County's local GHG emissions gap to meet reduction targets, (3) the ability to track and measure progress.

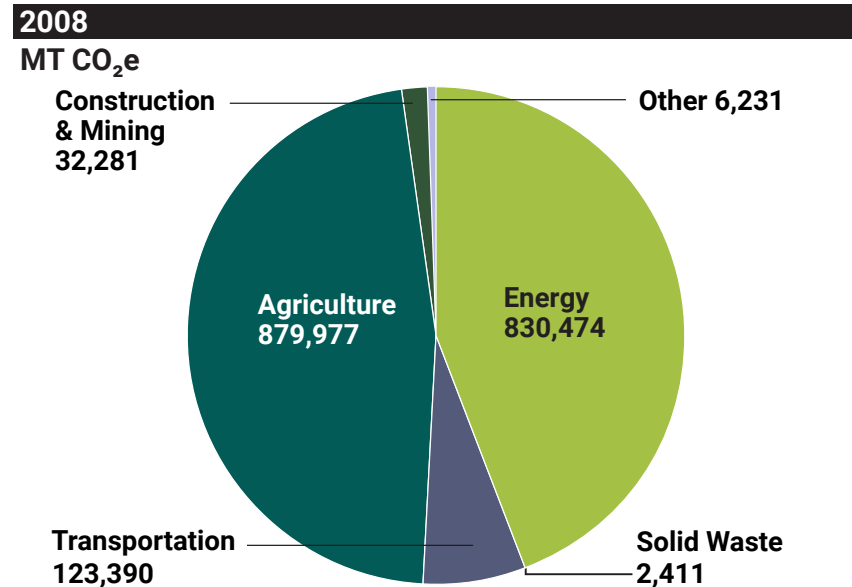
Previous Greenhouse Gas Emissions Inventories

The County has prepared GHG emission inventories in the past, and this section will briefly summarize those inventories to illustrate how GHG emissions have changed and the potential reasons for those changes (e.g., change in activity versus change in methodology). Previous County GHG emissions inventories include the historical emissions inventory (1990) and 2008 base-year inventories in the County's 2011 climate action plan, as well as the County's 2016 inventory compiled in 2018, which also included an updated inventory for the year 2008.

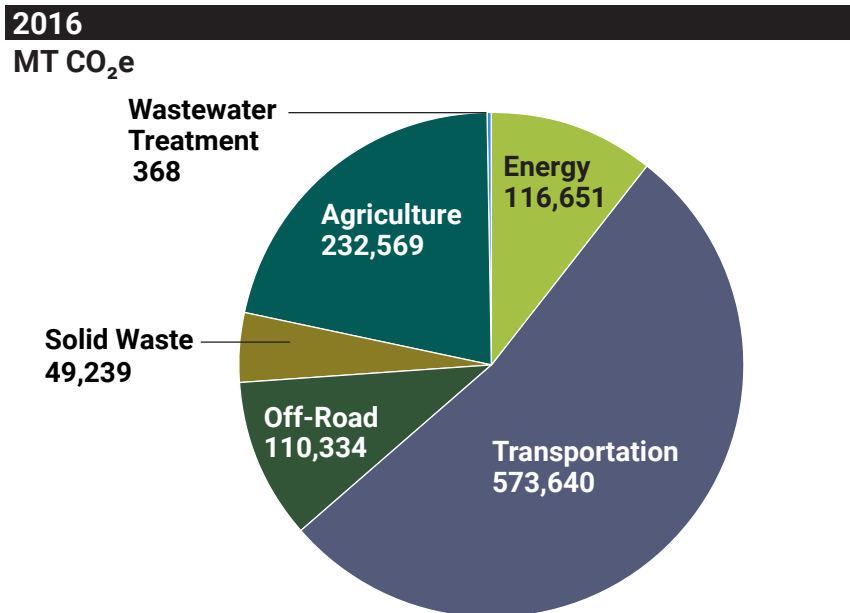
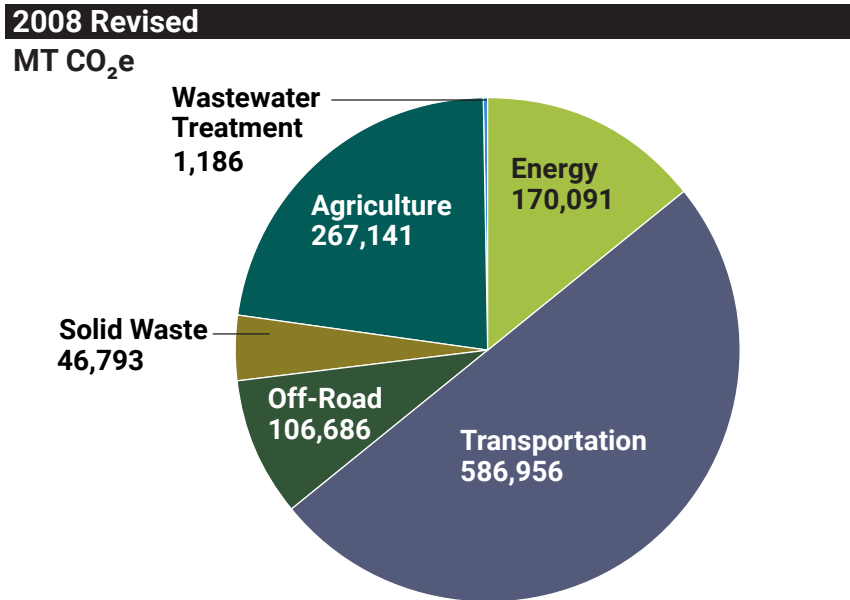
▼ Figure 3-1. 1990 and 2008 GHG Emissions by Sector



The County's 2011 climate action plan contains a backward forecasted emissions inventory for 1990 and an inventory for the year 2008. Figure 3-1 shows the GHG emissions by sector for the historical 1990 and 2008 GHG emissions inventories. The unincorporated portions of Yolo County were estimated to generate approximately 613,651 MT CO₂e in 1990 and approximately 1,874,764 MT CO₂e in 2008. Agriculture was estimated to be the sector with the greatest GHG emissions in Yolo County in 1990 and 2008, accounting for 48% and 46% of total emissions in the unincorporated areas of the County, respectively. The primary difference between the two inventory years presented in the County's 2011 climate action plan is the increase in GHG emissions from the energy sector in 2008—indicating a sizable increase in household energy demand—and a decrease in transportation sector emissions between 1990 and 2008, largely due to improved fuel efficiency and air quality standards.



▼ Figure 3-2. Revised 2008 and 2016 GHG Emissions by Sector



A 2018 report by the County provided an inventory of GHG emissions estimates for 2016 and a revised inventory for 2008. Figure 3-2 shows the GHG emissions by sector for these inventories. In the revised 2008 inventory, the unincorporated portions of Yolo County were estimated to generate approximately 1,178,853 MT CO₂e in 2008 and approximately 1,082,801 MT CO₂e in 2016. Compared to the revised 2008 inventory, the biggest changes seen in the 2016 inventory are a decrease in GHG emissions from energy consumption (-31%), agriculture (-13%), and wastewater treatment (-69%).

The changes to overall emissions and breakdown of emissions by sector seen in the revised 2008 inventory reflect changes in both the methodology used to calculate emissions and in sector categorization. These changes are discussed in detail in Appendix B.

Baseline Greenhouse Gas Emissions Inventory

This CAAP addresses the following three types of GHG emission inventories:

- **Community:** Wide Inventory, which includes emissions from all residential, commercial, industrial, and agricultural land uses within unincorporated Yolo County.
- **Municipal Inventory:** Which is limited to the emissions from County-owned facilities and vehicles.
- **Consumption-Based Inventory Narrative:** Which is a qualitative assessment of life cycle emissions associated with the activities, goods, and services provided to households within unincorporated Yolo County. Because the consumption-based inventory it is not quantified for the baseline inventory, it is not included in Table 3-1 but can be found in Appendix B.

It should be noted that there is overlap of emissions across the three inventories. For example, waste-in-place emissions are accounted for in both the community-wide and municipal inventories given that efforts to reduce emissions from this source can be achieved at both the community- (e.g., reducing community waste generation) and the municipal-levels (e.g., improving landfill gas collection). As such, emissions are not additive, and each inventory should be considered independently.



The community-wide and municipal inventories reflect an emissions “snap-shot” and are reflective of activities for the given baseline year (i.e., 2022). As such, GHG emissions may be over or underestimated relative to average trends, especially if the annual activities for a given sector are atypical. For example, according to the Yolo County Department of Agriculture 2022 Crop & Livestock Report, drought conditions in 2022 effected rice production and livestock operations (Yolo Department of Agriculture 2022). Therefore, GHG emissions related to rice and livestock operations may be lower than a typical year not under drought conditions. Variabilities can occur across all sectors depending on the environmental or economic factors of the chosen baseline year. Regular monitoring and inventory updates are recommended to establish realistic trends and account for anomalies.

Table 3-1 provides basic information on the community-wide and municipal inventories, sorted by emissions source sector. Table 3-2 shows key data sources used in the baseline inventory, organized by sector. For more detailed information regarding baseline emissions inventory methodology and data sources, see Appendix B.

Table 3-1. CAAP Sectors and Inventory Applicability

Sector	Description	Community-wide Inventory	Municipal Inventory
On-Road Transportation	Cars and trucks consume gasoline and diesel fuel that generate GHG emissions	Vehicles traveling to, from, and within unincorporated Yolo County	County fleet operations
Energy	Building electricity consumption, natural gas combustion, and propane combustion for heating, cooling, lighting, and cooking	Electricity and natural gas use at buildings in unincorporated Yolo	Operation of buildings and facilities owned or operated by the County
Water and Wastewater	Energy used to extract, treat, and distribute water in the unincorporated areas for domestic, commercial, and industrial purposes Energy consumption at wastewater treatment plants (WWTPs) and methane emissions from processing of domestic sewage and industrial wastewater at WWTPs	Water consumption in unincorporated Yolo County Treatment of wastewater generated in unincorporated Yolo County	Water consumed at buildings and facilities owned and/or operated by the County Emissions from County-run wastewater treatment facilities
Solid Waste	Emissions from the decay over time of solid waste deposited into Yolo County Central Landfill (waste-in-place) Waste generated in unincorporated Yolo County sent to other landfills, inside or outside Yolo County	Waste-in-place emissions at the County-operated landfill Waste generated by residents of unincorporated Yolo County	Yolo County Central Landfill operations: methane off-gassing, on-site support equipment, and truck fleet Solid waste generation at County-owned and/or operated facilities
Off-Road Equipment	Gasoline, diesel, and natural gas consumption by off-road vehicles and equipment, including construction and landscaping equipment and recreational vehicles	Operation of diesel, gasoline, or natural gas off-road equipment, including agricultural, industrial, construction, and lawn and garden equipment	Off-road equipment owned and operated by the County
Agriculture	Emissions from livestock (enteric fermentation and manure management), residue burning, fertilizer use, soil management, rice cultivation, and irrigation pumps	Agricultural operations within unincorporated Yolo County, including livestock operations and croplands	No County-specific agricultural operations

Table 3-2. Data Sources for Estimating Activity and Emission Factors, 2022 Baseline Inventory

Sector	Detail	Key Data Sources
Transportation	Activity	Daily vehicle miles traveled from Fehr & Peers (2023) for community vehicle travel County-owned vehicle fleet, fuel types, and fuel use provided by the Yolo County Fleet Superintendent
	Emission factor(s)	Vehicle emission factors from CARB's Emission FACTor (EMFAC) Mobile Sources Emissions Inventory Model (EMFAC 2021 v1.0.2) assuming Yolo County region for 2022
Building Energy	Activity	Annual natural gas consumption (therms per year) for community (residential and nonresidential) uses and County operations provided by PG&E Annual electricity consumption (kilowatt-hours per year) for community (residential and nonresidential) uses and County operations provided by PG&E and VCE
	Emission factor(s)	Natural gas emission factors for CO ₂ , CH ₄ , and N ₂ O from The Climate Registry PG&E and VCE GHG emissions intensity factors (lbs CO ₂ e/MWh) for electricity for year 2022
Water and Wastewater	Activity	Groundwater pumping (well production) for North Davis Meadows and Wild Wings CSD, from Yolo County Wastewater influent volume for Wild Wings, Madison, Knights Landing, Esparto, Dunnigan, and City of Davis (unincorporated population) wastewater treatment facilities
	Emission factor(s)	Next10. The Future of California's Water-Energy-Climate Nexus, 2021. Electricity emission factor: PG&E CO ₂ intensity factor for 2022 CARB. Documentation of California's GHG Inventory. 2023. IPCC. Default MCF Values and EFs for Industrial Wastewater. 2019.
Solid Waste	Activity	CalRecycle. 2022. RDRS Reports 2 and 3. Waste Tonnage Delivered by Jurisdiction and Alternative Daily Cover by landfill. EPA. 2022. Flight Database. Amount of waste deposited and landfill gas collection hours and efficiency at a given landfill by year.
	Emission factor(s)	CARB. 2021. Landfill Gas Tool. Consistent with IPCC's First-Order Decay Model. EPA. 1998. U.S. EPA Emission Factor Database, Chapter 2.4, Municipal Solid Waste Landfills. Mixed Solid Waste Emission Factor. 100-year warming potential of CH ₄ based on IPCC Sixth Assessment (AR 6)
Off-Road Equipment	Activity	CARB OFFROAD inventory
	Emission factor(s)	Emissions from the CARB OFFROAD inventory

Sector	Detail	Key Data Sources
Agriculture	Activity	Total irrigation pumps by fuel type operating within unincorporated Yolo County provided by the Yolo-Solano Air Quality Management District Harvested crop acreage by crop type, including almonds, barley, corn, rice, walnuts, and wheat Total heads of livestock, including cattle and calves, and sheep and lambs Total annual tonnage of chemicals applied, including liming materials (i.e., limestone), urea, and synthetic nitrogen fertilizer
	Emission factor(s)	Fuel emission factors for CO ₂ , CH ₄ , and N ₂ O from The Climate Registry Emission factors for residue burning, enteric fermentation, manure management, liming, urea, and fertilization obtained from the CARB GHG emissions inventory Technical Support Document

Note: CARB = California Air Resources Board; PG&E = Pacific Gas and Electric Company; VCE = Valley Clean Energy; CO₂ = carbon dioxide; CH₄ = methane; N₂O = nitrous oxide; GHG = greenhouse gas; CO₂e/MWh = carbon dioxide equivalent/megawatt-hour; IPCC = Intergovernmental Panel on Climate Change; EPA = U.S. Environmental Protection Agency.



COMMUNITY-WIDE INVENTORY

Table 3-3 presents a summary of the community-wide inventory by sector. Figure 3-3 presents the data in graphical form.

Table 3-3. Community-Wide 2022 Baseline Inventory

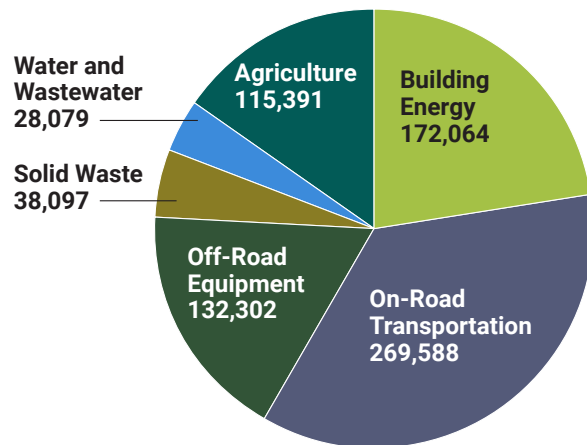
Sector	2022 Baseline (MT CO ₂ e)	Percent of Inventory
On-Road Transportation	269,588	36%
Building Energy	172,064	23%
Water and Wastewater	28,079	4%
Solid Waste	38,097	5%
Off-Road Equipment	132,302	18%
Agriculture	115,391	15%
Total	755,520	100%

Notes: MT CO₂e = metric tons of carbon dioxide equivalent. Percentage may not total due to rounding.

▼ Figure 3-3 Yolo County Community-Wide GHG Emissions

2022

MT CO₂e



As detailed in Appendix B, compared to the 2016 community-wide inventory (prepared in 2018), the 2022 community-wide inventory represents an approximately 30% reduction in GHG emissions (1,082,801 MT CO₂e in 2016 compared to 755,520 MT CO₂e in 2022). The GHG emissions reduction is primarily attributed to the reduction in the on-road transportation sector, which is associated with a reduced VMT. There was also a substantial decrease in agriculture sector emissions between 2016 and 2022. It is important to note that agricultural production was down in 2022 due to lack of water stemming from a multi-year drought. In 2022, production was down 14.5% from the previous year in Yolo County, and rice cultivation was at a 60-year low statewide. Nonetheless, it is reasonable to assume that the County's impressive climate-related efforts between 2016 and 2022 may have also played an important role in reducing community-wide GHG emissions.

MUNICIPAL INVENTORY

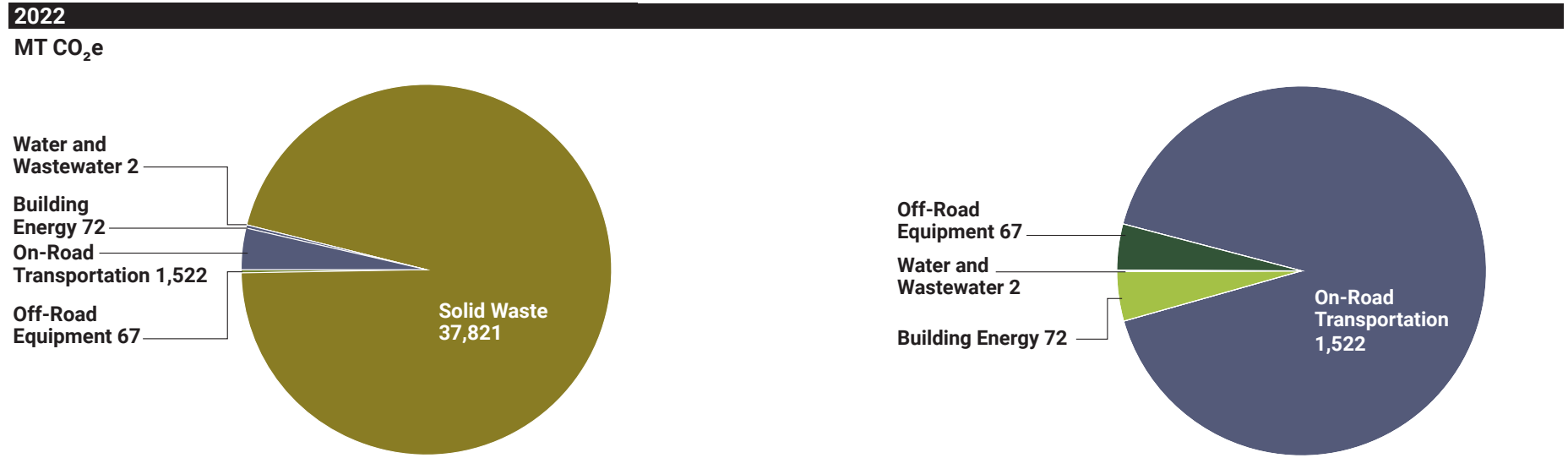
Table 3-4 presents a summary of the municipal inventory by sector. As shown below, the predominant emission sector is solid waste due to County landfill operations. Figure 3-4 presents the data in a graphical form.

Table 3-4. Municipal 2022 Baseline Inventory

Sector	2022 Baseline (MT CO ₂ e)	Percent of Inventory
On-Road Transportation	1,522	4%
Building Energy	72	<1%
Water and Wastewater	2	<1%
Solid Waste	37,821	96%
Off-Road Equipment	67	<1%
Total	39,485	100%

Notes: MT CO₂e = metric tons of carbon dioxide equivalent. Percentage may not total due to rounding.

▼ Figure 3-4 Yolo County Municipal Inventory with Solid Waste and Without Solid Waste



CONSUMPTION-BASED INVENTORY NARRATIVE

The consumption-based inventory narrative focuses on life cycle GHG emissions associated with the consumption of materials, goods, and services. Actions to reduce the carbon intensity of products, materials, and the supply chain are the responsibility of manufacturers and not within the jurisdictional control of the County. The narrative focuses on encouraging a shift of consumer choice toward more sustainable options. The objective is to educate individuals, families, and communities about GHG emissions—which extend beyond Yolo County borders—associated with their consumption of materials, goods, and services, which can help those individuals make informed choices. The consumption-based inventory narrative was scaled at a household level to provide individuals and families a picture of their contribution of GHG emissions.

Life cycle emissions embedded in materials include emissions associated with the mining, refining, and processing of raw materials into the finished products consumed and the disposal of materials after consumption.

Unlike the community-wide and municipal inventories, the consumption-based narrative is a qualitative inventory. While strategies to reduce an individual's consumption-based GHG emissions are important, they are not quantified within this CAAP; therefore, a quantitative consumption-based baseline inventory at the County level is not necessary to identify opportunities to make a difference reducing one's carbon footprint. Nonetheless, to understand the types of actions that result in GHG emissions and the magnitude of consumption-related GHG emissions, quantitative consumption-based inventory data developed at a national level and divided into census-block groups was used to approximate a consumption-based inventory for Yolo County.

The consumption-based inventory narrative is divided into the following five sectors of emissions: transportation, housing/buildings, goods, services, and food. Table 3-5 presents a summary of the consumption-based narrative GHG emission sectors. Figure 3-5 presents the breakdown of the consumption-based inventory narrative by sector, and Figure 3-6 presents a pie chart that shows the additional emissions by activity within each sector, as applicable.



Table 3-5. Consumption-Based Inventory Narrative Sector Summary

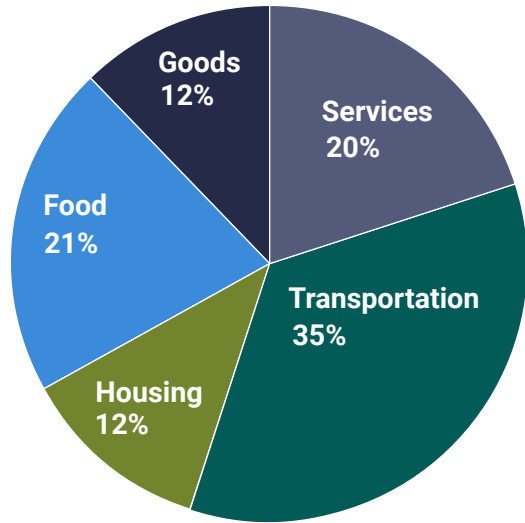
Sector	Summary of Life Cycle Emissions	Percent of Inventory
Transportation	<ul style="list-style-type: none"> • Mining, collection, and processing of vehicle raw materials • Mining and refinement of gasoline or diesel fuel • Fuel consumed during the economic life of the vehicle • Recycling and deposition of the various components of the vehicle at the end of its economic life 	35%
Housing/Buildings	<ul style="list-style-type: none"> • Mining and processing of raw materials including cement, sand, gravel, metal, glass, and roofing materials; lumber cutting and processing • Manufacturing of synthetic materials including carpeting and plastics • Maintenance, energy, and water consumed; waste and wastewater generated during the economic life of the home • Recycling and deposition of the various components of the home at the end of its economic life 	12%
Goods	<ul style="list-style-type: none"> • Mining and processing of raw materials needed to manufacture goods, including synthetic materials • Maintenance and use of goods • Recycling and deposition of goods 	12%
Services	<ul style="list-style-type: none"> • Operation of banks, real-estate offices, insurance company activities • County courts, attorneys' offices, and law enforcement offices 	20%
Food	<ul style="list-style-type: none"> • Tilling and other row crop preparation, irrigation water, fertilizer, and harvesting • Transportation, food processing and packaging, and delivery to the market • Meat also includes the grains used in feeding the animals while they are being raised and fattened in preparation for butchering, as well as the butchering process. 	21%

Note: The goods sector includes electronics, appliances (that are not built into the home), furniture, lamps, art, other furnishings, clothing, backpacks, and other non-food consumables (dish detergent, laundry soap, shampoo, etc.).

The services sector includes operation of banks, real-estate offices, travel services (not the travel itself), insurance company activities, and County services including the operation of courts, attorneys' offices, and law enforcement.

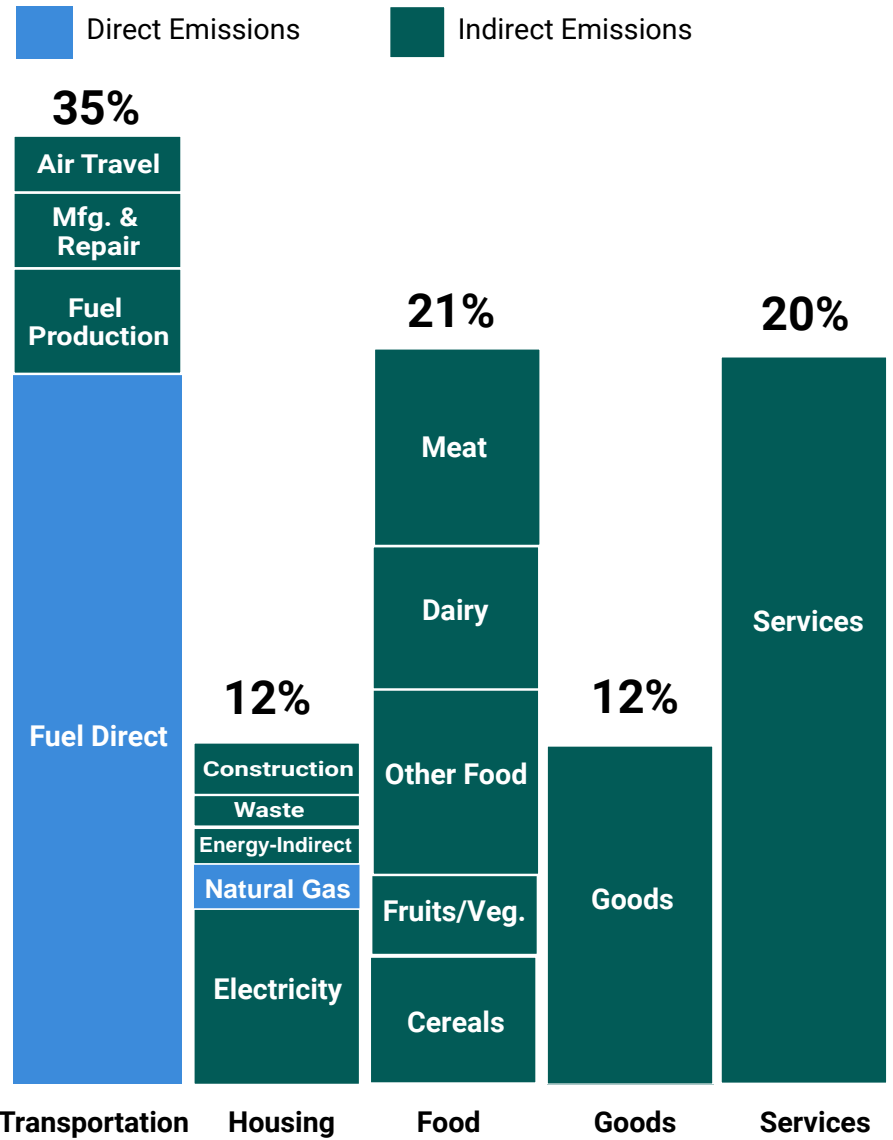
▼ Figure 3-5: Consumption-Based Pie Chart.

2017



▼ Figure 3-6: Consumption-Based Inventory Narrative Bar Chart.

2017





Demographic Trends

County demographics influence GHG emissions. As such, to project future emissions, demographic trends must first be established. Population, households, employment, and vehicle miles traveled are all metrics that influence inventory sector projections including solid waste, water, wastewater, energy, and on-road transportation (see Table 3-6). Other sectors may not follow demographic trends. Future off-road emissions, for instance, are forecasted using the California Air Resources Board's OFFROAD model for Yolo County. Furthermore, agricultural emissions generally do not align with demographic data, making agricultural emissions trends challenging to predict. Agricultural activities change in response to market demand, weather, water availability, and other unpredictable factors, which subsequently impact the related GHG emissions trends. As such, and while Yolo County land use forecasts predict a decrease in overall agricultural land use through 2030, emissions related to agricultural operations were assumed to remain constant for future year forecasts (Yolo County 2018).

Table 3-6. Existing and Projected Demographic Trends

Demographic Metric	Applicable Inventory Sector(s)	2022 Baseline	Projected (Percent Change from 2022)			Data Source
			2027	2030	2045	
Population (persons)	Solid Waste, Water, Wastewater	18,856	19,466 (3.24%)	19,833 (5.18%)	21,665 (14.90%)	SACSIM19 Model
Households	Energy (residential)	6,688	6,900 (3.24%)	7,027 (5.07%)	7,663 (14.90%)	SACSIM19 Model
Employment (jobs)	Energy (industrial, commercial)	6,635	7,027 (5.90%)	7,262 (9.44%)	8,437 (27.15%)	SACSIM19 Model
Vehicle Miles Traveled (miles)	On-Road Transportation	4,097,774	4,102,737 (0.12%)	4,105,715 (0.19%)	4,120,605 (0.56%)	Fehr & Peers (2023)

Note: SACSIM19 = Sacramento Activity-Based Travel Simulation Model.



Greenhouse Gas Emissions Projections

Yolo County GHG emissions were forecasted for three future years (i.e., 2027, 2030, and 2045) for two scenarios: Business-as-Usual (BAU) and Adjusted BAU (ABAU). The BAU scenario describes emissions based on projected growth in population, employment, and other factors and does not consider policies that would reduce GHG emissions in the future. The ABAU scenario describes emissions based on projected growth and considers policies that will achieve GHG reductions in the future (i.e., assumes Federal- and State-mandated GHG emission reduction measures would be implemented by the projected forecast year). The ABAU, unlike the BAU, accounts for adopted GHG emissions reductions because of regulations that would be implemented between the 2022 baseline year and 2027, 2030, and 2045.

Business-as-Usual

Table 3-7 presents the BAU projections for 2027, 2030, and 2045, along with the 2022 baseline, by emission sector for the community-wide inventory.

Yolo County's community-wide BAU GHG emissions in 2027 are estimated to be 766,931 MT CO₂e, or a 2% increase from baseline (2022) emissions. By 2030, community emissions are estimated to increase 2% from the baseline level to 774,003 MT CO₂e. By 2045, community emissions are estimated to increase 8% from the baseline level to 813,602 MT CO₂e.

Table 3-7. Community-Wide Inventory Business-as-Usual Projections

Sector	2022 Baseline (MT CO ₂ e)	Projected Emissions MT CO ₂ e (% change from 2022)		
		2027	2030	2045
On-Road Transportation	269,588	270,774 (<1%)	271,486 (1%)	275,044 (2%)
Building Energy	172,064	178,898 (4%)	182,998 (6%)	203,501 (18%)
Water and Wastewater	28,079	28,080 (<1%)	28,081 (<1%)	28,084 (<1%)
Solid Waste	38,097	39,566 (4%)	40,448 (6%)	44,856 (18%)
Off-Road Equipment	132,302	134,222 (1%)	135,599 (2%)	146,726 (11%)
Agriculture	115,391	115,391 (0%)	115,391 (0%)	115,391 (0%)
Total	755,520	766,931 (2%)	774,003 (2%)	813,602 (8%)

Note: MT CO₂e = metric tons carbon dioxide equivalent.

Similarly, Table 3-8 presents the BAU projections for 2027, 2030, and 2045, along with the 2022 baseline, by emission sector for the municipal inventory.

By 2027, Yolo County's municipal BAU will emit 40,995 MT CO₂e, which is a 4% increase from baseline (2022) emissions. Municipal GHG emissions are estimated to increase 6% from the baseline level to 41,905 MT CO₂e in 2030 and increase 18% from the baseline level to 46,452 MT CO₂e in 2045.

Table 3-8. Municipal Inventory Business-as-Usual Projections

Sector	2022 Baseline (MT CO ₂ e)	Projected Emissions MT CO ₂ e (% change from 2022)		
		2027	2030	2045
On-Road Transportation	1,522	1,567 (3%)	1,598 (5%)	1,750 (15%)
Building Energy	72	75 (3%)	76 (5%)	83 (15%)
Water and Wastewater	2	2 (3%)	2 (5%)	2 (15%)
Solid Waste	37,821	39,282 (4%)	40,158 (6%)	44,540 (18%)
Off-Road Equipment	67	69 (3%)	71 (5%)	78 (15%)
Total	39,485	40,995 (4%)	41,905 (6%)	46,452 (18%)

Note: MT CO₂e = metric tons carbon dioxide equivalent.

Adjusted Business-as-Usual

As previously noted, the ABAU scenario forecasts emissions based on projected growth with adjustments for policies that are currently mandated that will achieve GHG reductions in the future. Adjustments to the BAU scenario are made for any legislation (Federal, State, County, etc.) that has been approved and/or adopted prior to adoption of the CAAP that will reduce GHG emissions in Yolo County. Given that this legislation will be implemented in the future with no additional local action required by the County, adjusting for the related emissions reductions provides a realistic accounting of expected future emissions from which reduction targets should be established.

The following State legislation and related GHG emissions reductions were included in the ABAU emissions scenario:

- AB 1493 Pavley standards
- Advanced Clean Cars I (including low-emission vehicle regulations)
- Advanced Clean Trucks
- California Renewables Portfolio Standard
- VCE Board goal of 100% renewable electricity by 2030
- Title 24 Building Energy Efficiency Standards (applied to new development only)

Table 3-9 presents the ABAU projections for 2027, 2030, and 2045, along with the 2022 baseline, by emission sector for the community-wide inventory.

Yolo County's community-wide ABAU GHG emissions in 2027 are estimated to be 673,329 MT CO₂e, or a 11% decrease from baseline (2022) emissions. By 2030, community emissions are estimated to decrease 15% from the baseline level to 641,072 MT CO₂e. By 2045, community emissions are estimated to decrease 17% from the baseline level to 628,898 MT CO₂e.

Table 3-9. Community-Wide Inventory Adjusted Business-as-Usual Projections

Sector	2022 Baseline MT CO ₂ e	Projected Emissions MT CO ₂ e (% change from 2022)		
		2027	2030	2045
On-Road Transportation	269,588	241,037 (-11%)	225,990 (-16%)	191,715 (-29%)
Building Energy	172,064	115,042 (-33%)	95,580 (-44%)	102,166 (-41%)
Water and Wastewater	28,079	28,072 (-1%)	28,065 (-1%)	28,043 (-2%)
Solid Waste	38,097	39,566 (4%)	40,448 (6%)	44,856 (18%)
Off-Road Equipment	132,302	134,222 (1%)	135,599 (2%)	146,726 (11%)
Agriculture	115,391	115,391 (0%)	115,391 (0%)	115,391 (0%)
Total	755,520	673,329 (-11%)	641,072(-15%)	628,898(-17%)

Note: MT CO₂e = metric tons carbon dioxide equivalent.

Table 3-10 presents the ABAU projections for 2027, 2030, and 2045, along with the 2022 baseline, by emission sector for the municipal inventory.

By 2027, Yolo County's municipal ABAU emissions are estimated to be 40,979 MT CO₂e, which is a 4% increase from baseline (2022) emissions. Municipal GHG emissions are estimated to increase 6% from the baseline level to 41,841 MT CO₂e in 2030 and increase 17% from the baseline level to 46,020 MT CO₂e in 2045 under ABAU conditions.

Table 3-10. Municipal Inventory Adjusted Business-as-Usual Projections

Sector	2022 Baseline MT CO ₂ e	Project Emissions MT CO ₂ e (% change from 2022)		
		2027	2030	2045
On-Road Transportation	1,522	1,567 (3%)	1,566 (3%)	1,400 (-8%)
Building Energy	72	58 (-20%)	44 (-48%)	1 (-99%)
Water and Wastewater	2	2 (1%)	2 (2%)	2 (12%)
Solid Waste	37,821	39,282 (4%)	40,158 (6%)	44,540 (18%)
Off-Road Equipment	67	69 (3%)	71 (5%)	78 (15%)
Total	39,485	40,979 (4%)	41,841 (6%)	46,020 (17%)

Business-as-Usual and Adjusted Business-as-Usual Inventory Projections Comparison

Table 3-11 presents a comparison between the community-wide BAU and ABAU and the percent change between BAU and ABAU conditions for future year 2030.

Table 3-11. Community-Wide Inventory Business-as-Usual and Adjusted Business-as-Usual 2030 Projections Comparison

Sector	2022 Baseline MT CO ₂ e	2030 Projected Emissions MT CO ₂ e		Change from BAU to ABAU MT CO ₂ e (%)
		BAU	ABAU	
On-Road Transportation	269,588	271,486	225,990	-45,496 (-17%)
Building Energy	172,064	182,998	95,580	-87,418 (-48%)
Water and Wastewater	28,079	28,081	28,065	-16 (-1%)
Solid Waste	38,097	40,448	40,448	0 (0%)
Off-Road Equipment	132,302	135,599	135,599	0 (0%)
Agriculture	115,391	115,391	115,391	0 (0%)
Total	755,520	774,003	641,072	132,930 (-17%)

Note: MT CO₂e = metric tons carbon dioxide equivalent.

As shown in Table 3-11, the community-wide ABAU is 17% less than the BAU in 2030.

Table 3-12 presents a comparison between the municipal inventory BAU and ABAU and the percent change between BAU and ABAU conditions focusing on the year of 2030.

Table 3-12. Municipal Inventory Business-as-Usual and Adjusted Business-as-Usual 2030 Projections Comparison

Sector	2022 Baseline MT CO ₂ e	2030 Projected Emissions MT CO ₂ e		Change from BAU to ABAU MT CO ₂ e (%)
		BAU	ABAU	
On-Road Transportation	1,522	1,598	1,566	-32 (2%)
Building Energy	72	76	44	-32 (42%)
Water and Wastewater	2	2	2	<1 (2%)
Solid Waste	37,821	40,158	40,158	0 (0%)
Off-Road Equipment	67	71	71	0 (0%)
Total	39,485	41,905	41,841	-64 (<1%)

Notes: MT CO₂e = metric tons of carbon dioxide equivalent.

As shown in Table 3-12, the municipal ABAU is less than 1% below the BAU in 2030.

Reduction Targets and Goals

Reduction targets are set to provide a clearly defined pathway to reduce GHG emissions by a specific amount and by a predetermined date. By establishing a target, the County can identify the amount of GHG emissions it must collectively reduce to meet its climate goals. The State and County GHG emission reduction targets are summarized in the following.

State Legislative Targets

California has passed legislative targets laying out statewide emission reduction goals for several milestone years. SB 32 set a goal of 40% below 1990 levels by 2030, and AB 1279 sets a net carbon neutral goal by 2045 (85% emissions reduction from anthropogenic sources, 15% from carbon sequestration/removal).

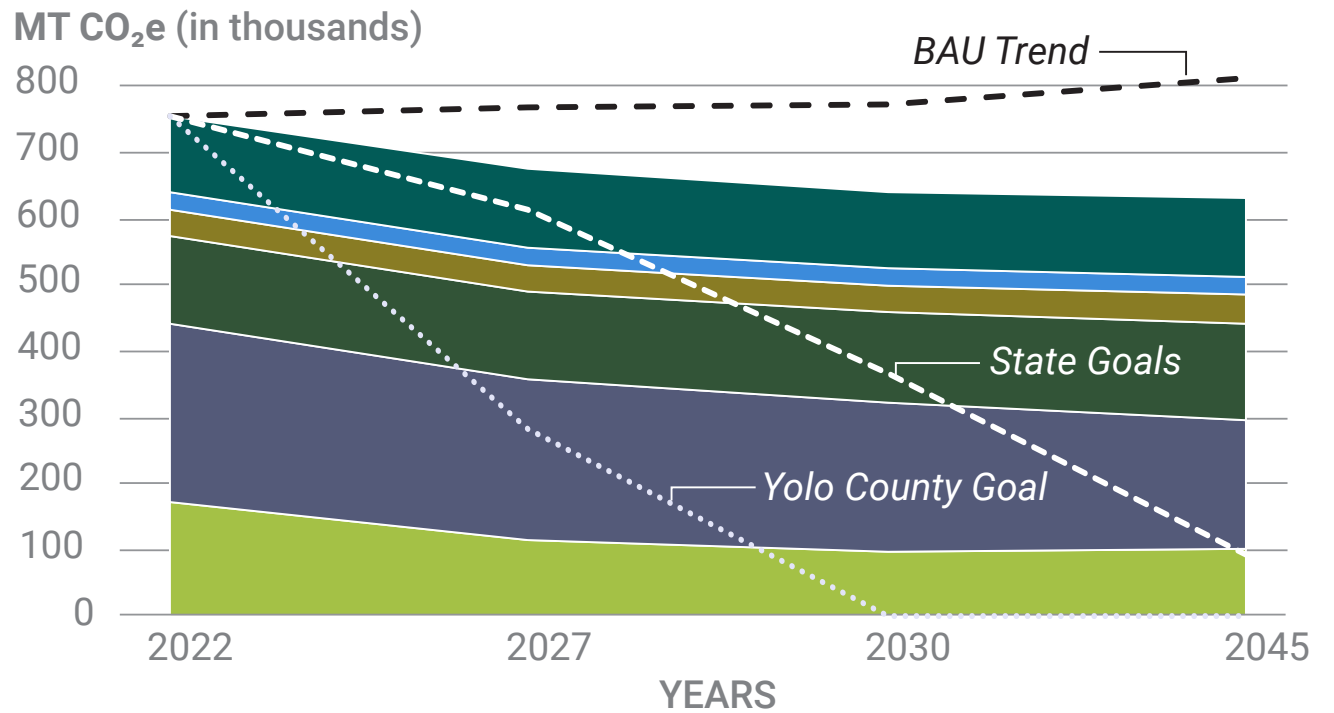
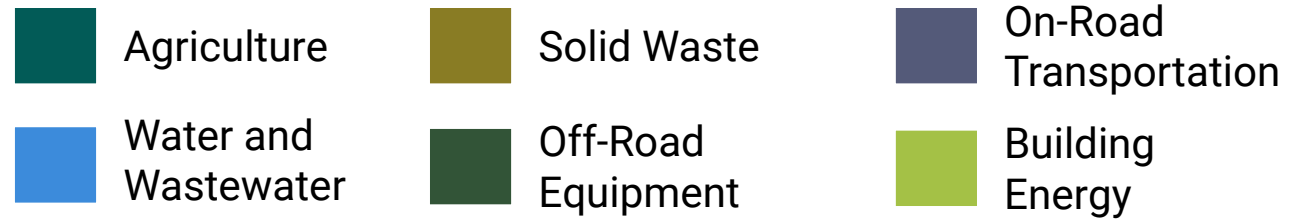
County Goals

In 2020, the County adopted Resolution No. 20-114, Resolution Declaring a Climate Crisis Requiring an Urgent and Inclusive Mobilization in Yolo County, which established a goal to achieve net-negative carbon emissions by 2030. The County's goal is one of the most ambitious local reduction targets in the country, aiming to achieve carbon neutrality over a decade earlier than the State.

Local Greenhouse Gas Emissions Gap

As shown in Figure 3-7, Yolo County would have to reduce GHG emissions by 774,004 MT CO₂e from the BAU scenario to meet the County's target of net-negative, which for mathematical purposes is assumed to be -1 MT CO₂e in 2030. While Federal and State legislative actions would account for a meaningful portion of the reductions needed to achieve the County's goal (132,930 MT CO₂e or 17%), State legislative actions on their own would not be adequate to achieve the County's 2030 GHG reduction goals. The additional reduction needed at the local level to meet the County's identified reduction target of carbon negative by 2030 is referred to as the "local gap." To close the local gap and meet the County's target, the County will need to implement additional local actions that would result in a reduction of approximately 641,073 MT CO₂e by 2030, or an additional reduction of 83% from BAU.

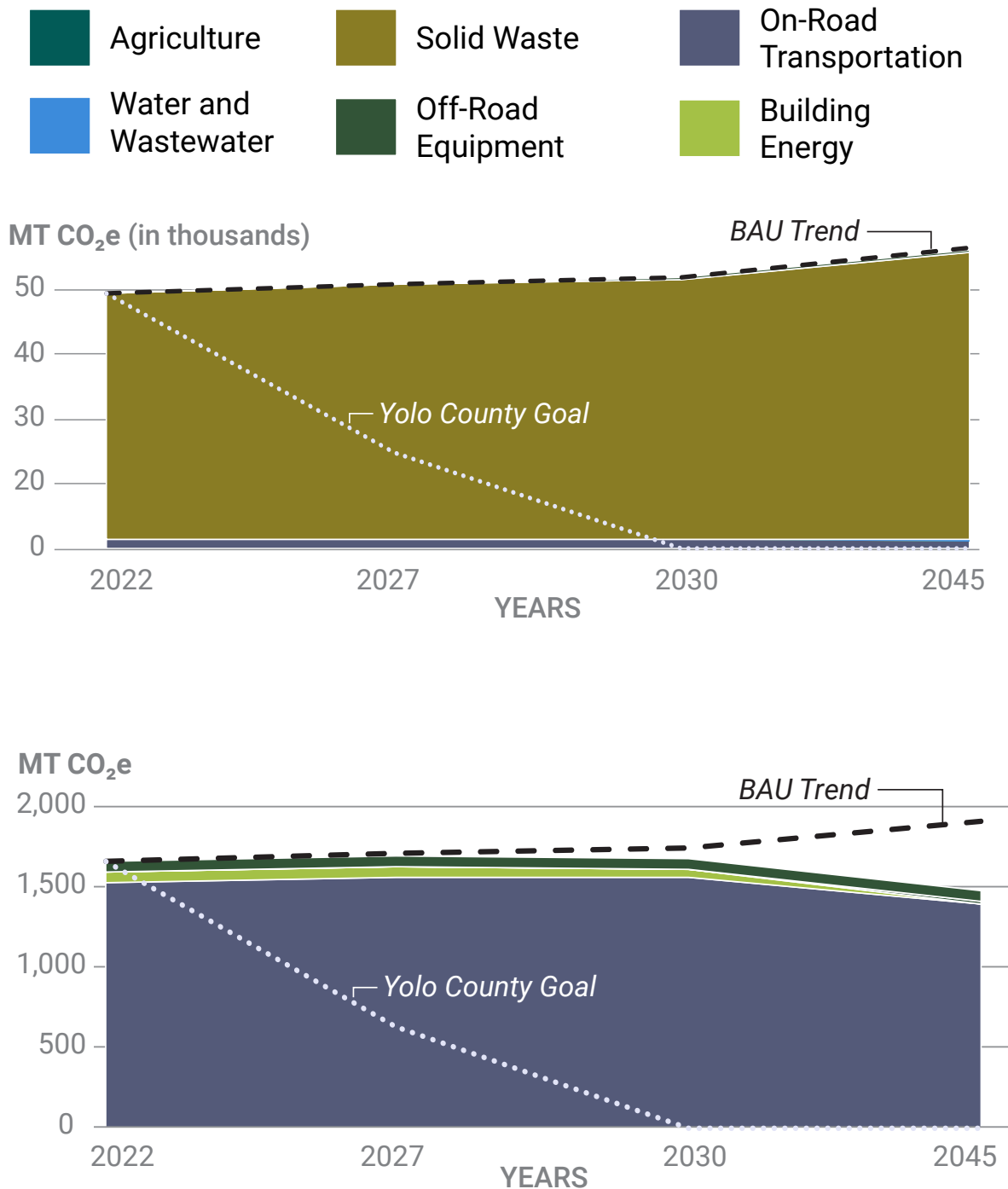
► Figure 3-7.
2027, 2030, and 2045 Community-
Wide GHG Emissions Targets and
Local Gap



► **Figure 3-8.**
Municipal GHG Emissions Targets, and
Local Gap with Solid Waste

As summarized in Figure 3-8, for the municipal inventory, to close the local gap and meet the County's target, the County would need to implement additional municipal actions that would result in a reduction of approximately 41,841 MT CO₂e by 2030, or an additional reduction of 100% from ABAU. Approximately 96% of the County municipal emissions come from solid waste due to the County landfill operations. As such, the top graph of Figure 3-8 appears as almost entirely solid waste. The bottom graph of Figure 3-8 presents the same data with the omission of solid waste to more clearly highlight the differences between other sectors. By omitting emissions caused from the solid waste sector, the bottom graph highlights the relative emissions between other municipal inventory sectors.

GHG emission reduction and sequestration strategies, measures, and actions identified to fill the gap as discussed in Chapter 6, with a background on carbon sequestration of NWL in Chapter 3.





be kind to animals!



Chapter 4

NATURAL AND WORKING LANDS BACKGROUND

Chapter 4 details Yolo County's natural and working lands. Yolo County's natural and working lands are critical to its overall identity, given that these lands comprise the majority of the County's total acreage. As such, this chapter provides additional context to one of its most important assets, detailing what these lands are and who works on or manages them. It also offers insight into Yolo County's sequestration potential, where atmospheric GHGs are captured and stored in the land, giving Yolo County the ability to offset emissions from other sectors.

Natural and Working Lands Carbon Sequestration Background

In 2020, Yolo County declared “a Climate Crisis Requiring an Urgent and Inclusive Mobilization” by adopting Resolution No. 20-114, which calls for the County to achieve net-negative carbon (GHG) emissions by 2030. Achieving negative GHG emissions requires Yolo County to remove more CO₂e annually than it emits into the atmosphere. This ambitious goal sets a timeline that is 15 years earlier than the State's established carbon neutrality goal in Assembly Bill 1279 requiring California to have net-zero GHG emissions by 2045 and maintain net-negative GHG emissions thereafter.

The California Air Resources Board states in its 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan) that there is “no path to carbon neutrality without carbon removal and sequestration” and incorporates California's NWL for their role in sequestering and storing atmospheric carbon to help reach reduction targets (CARB 2022). Consistent with CARB's findings for the statewide strategy, NWL have a very important role to play in Yolo County reaching net-negative GHG emissions.

As shown in Chapter 3, the County's estimated local gap is 641,073 MT CO₂ per year. The County's NWL can potentially contribute significantly to moving beyond the GHG emission reductions required for net-zero GHG emissions by removing carbon from the atmosphere through practices that sequester carbon in the soil, trees, shrubs, and perennial grasslands. Yolo County's NWL include woodlands, chaparral, grasslands, and agricultural lands. Generally, natural lands are uncultivated lands that serve as wildlife habitat or recreational areas, while working lands are used to produce food and fiber. Natural lands include parks, open space, and preserves; working lands include rangeland, cropland, orchards, and vineyards.

The County has incorporated the following NWL carbon sequestration analysis to supplement the reduction strategies for GHG emissions from anthropogenic sources. The aim is to utilize the County's NWL to help close the local GHG emissions gap and achieve net-negative GHG emissions.

This chapter provides the background and process for the NWL carbon sequestration evaluation. Estimated carbon sequestration potential is provided at the measure level, as applicable, in Chapter 6,

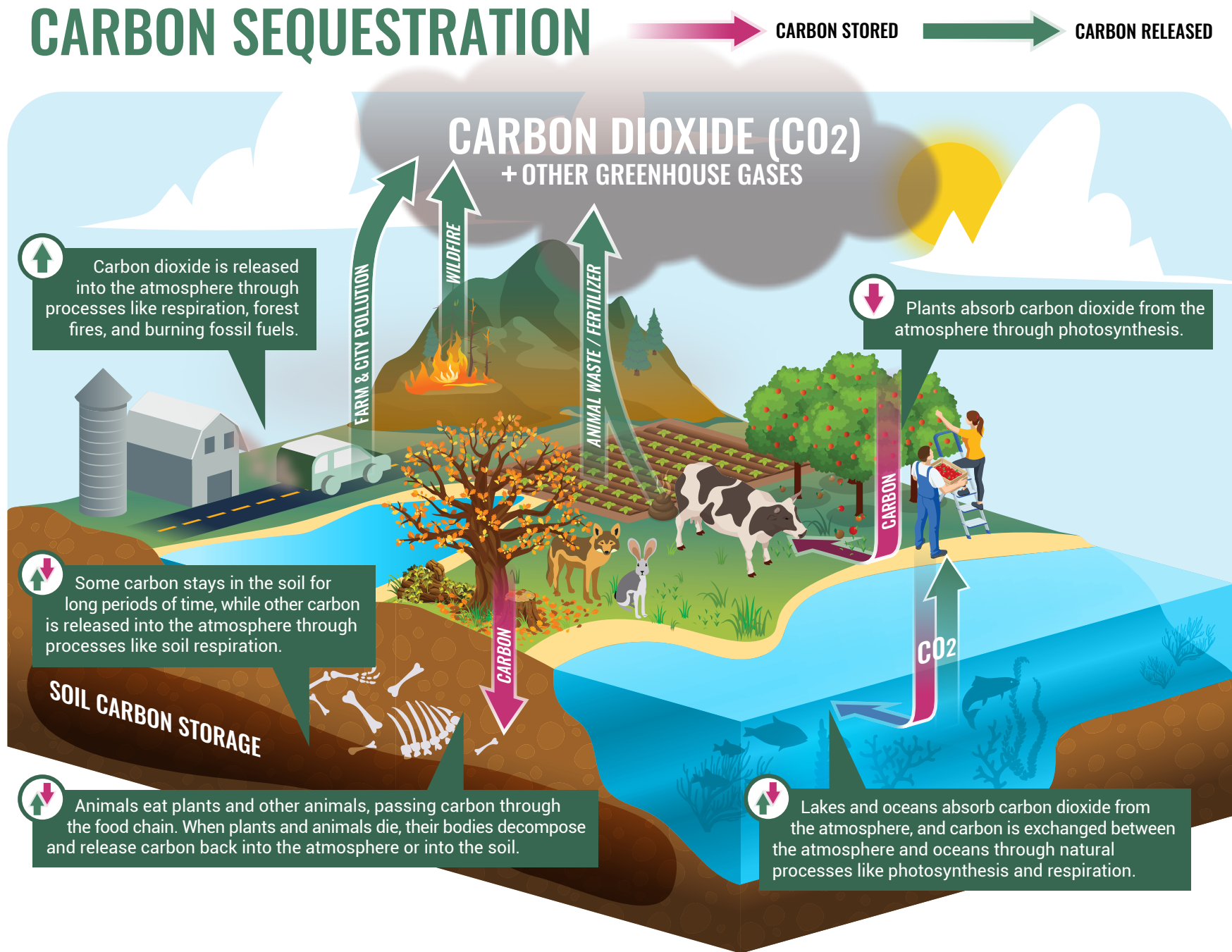
Strategies, Measures, and Actions. Appendix C estimates the carbon sequestration potential of NWL at various rates of practice adoption.

Carbon Sequestration

Carbon (C) sequestration is the capture, removal, and storage of atmospheric CO₂. There are three types of carbon sequestration: biological, geological, and technological. Biological carbon sequestration is the storage of CO₂ in vegetation such as crops, forests, and grasslands, as well as in soils and oceans. NWL serve as terrestrial carbon pools, where vegetation (i.e., trees, crops, grasses) takes in CO₂ during photosynthesis and stores the processed carbon as biomass and below ground in soils. Stewardship practices can affect the amount of CO₂ sequestered; some farm, ranch, and natural lands stewardship practices will increase the amount of C stored in the soil while others will decrease the amount of C storage. Increasing carbon sequestration on natural and working lands is connected directly to ecological health, biodiversity, water infiltration and retention, and ecological resilience. As opposed to carbon storage inventories that estimate total carbon for a given location for a particular point in time, sequestration analyses quantify the amount of CO₂ that is being removed from the atmosphere with a given action. Please refer to Figure 4-1 for a depiction of the carbon sequestration process.

Nature-based CO₂ removal in NWL represents one of two main pathways by which the County can achieve its net-negative emissions goal. These pathways are discussed in further detail in the context of the CAAP's implementation framework in Chapter 6.

Figure 4-1 Carbon Sequestration Process





Core Approaches

The County's NWL can sequester and store carbon, performing a vital service in addition to providing food, habitat, pollination, and other ecosystem services and contributing to the local economy. These lands are also vulnerable to the impacts of climate change and if not thoughtfully stewarded, can also release more atmospheric CO₂ than they store, becoming a source of atmospheric CO₂ and driving future warming and climate change. Ensuring that NWL continue to sequester atmospheric CO₂ requires climate-smart land stewardship strategies that support healthy ecosystem function (CARB 2022). Actions implemented within NWL to support carbon sequestration involve stewardship and enhancement, restoration, and conservation efforts, as described below¹.

- **Land Stewardship² and Enhancement:** Land stewardship is the maintenance of ecological conditions and values within a natural community to prevent its degradation. Land enhancement is the alteration of the physical, chemical, or biological characteristics of a land cover type to heighten, intensify, or improve one or more specific existing ecological function(s). Examples of land stewardship and enhancement strategies that support sequestration include livestock grazing to prevent the spread of invasive species and agricultural practices that support carbon storage in soils.
- **Restoration:** Natural community restoration refers to actions to alter the physical, chemical, or biological characteristics of a site with the intent to return natural or historical functions that have been lost due to the loss of one or more necessary ecological factors or the result of past disturbance. To support carbon sequestration, degraded lands can be appropriately restored and stewarded to provide ecosystem services, including increased carbon storage.

- **Conservation:** Conservation efforts involve land use planning and policy intervention to avoid and minimize the conversion of NWL land cover types that store large amounts of carbon to those with less carbon storage and sequestration potential and greater emissions potential. In addition to zoning and County policy, strategies for conservation include tax incentives, mitigation opportunities, and conservation easements. In isolation, conservation of natural lands does not result in additional carbon sequestration but can be supplemented with the other core approaches (i.e., stewardship/enhancement and restoration) to ensure continued carbon storage (e.g., no loss of carbon through emissions due to wildfire) and sequestration. Land conservation can protect existing carbon stocks, and if stewarded properly, the protected land could continue to sequester carbon. Conversion of NWL to alternative land uses could lead to increased GHG emissions such as conversion of irrigated cropland to urban development (Jackson et. al. 2012).

Regional efforts related to sequestration in Yolo County's NWL include plans, programs, and organizations that support stewardship, restoration, and conservation, as well as specific efforts supporting sequestration through climate-smart agricultural practices. These voluntary efforts and relevant State efforts are discussed in further detail in Appendix C; specific objectives, goals, and actions related to these plans and programs are found in Appendix C-1.

1 Definitions provided herein build from the Yolo Habitat Conservation Plan/Natural Community Conservation Plan (Yolo County 2018).

2 The term "management" has been replaced with the term "stewardship" throughout the plan to describe a thoughtful, conservation-focused approach to actions to maintain or enhance natural communities to support carbon sequestration.

Sequestration Potential Process

To evaluate Yolo County's NWL carbon sequestration potential, Yolo County Resource Conservation District (YCRCD), in collaboration with the NWL TAC and other relevant partners, implemented a five-step process, including outreach, existing setting review, measure and action development, suitable acreage analysis, and sequestration quantification. To support the sequestration potential quantification process, spatial data was gathered. These steps are briefly summarized below. Steps 1 and 2, Outreach and Existing Setting, are discussed further in the following sections, and the results of Steps 3–5 were used to inform the implementation framework in Chapter 6. Additional details of the sequestration analysis are provided in Appendix C.

1. **Outreach:** Connecting with the community, primarily the agricultural community, to understand local opinions, current practices that are being implemented and can continue to be implemented, and barriers to implementation.
2. **Existing Setting:** Identifying the land cover types and zoning within unincorporated Yolo County using available data, such as geographic information system (GIS) databases for land use types (e.g., cropland, grazing, open space, etc.) and vegetation types (e.g., forest, grassland, woodland, etc.).
3. **Sequestration-Related Measure and Action Development:** Identifying feasible practices that have the potential to sequester carbon within Yolo County's NWL and grouping similar practices into measures by their core approach for implementation tracking.
4. **Potential Acreage:** Identifying total suitable acreage within unincorporated Yolo County for which each carbon sequestration practice is applicable using land cover and zoning data.
5. **Sequestration Quantification:** Quantifying the potential carbon that may be sequestered by action (practice), on a per-acre and per-year basis, using annual sequestration rates developed for each of the practices by authoritative sources (e.g., USDA). The total sequestration potential for Yolo County's NWL was then quantified.

Yolo County's Existing Natural and Working Lands Land Cover

The existing NWL cover types within unincorporated Yolo County include agriculture, grasslands, riparian and wetlands, shrublands and scrub, unvegetated/vacant/urban, and woodlands and forest, which are described below. Total acreage by type is summarized in Table 4-1 and depicted spatially in the land cover map in Figure 4-2.

As shown, the majority (approximately 93%) of Yolo County land is characterized by NWL, which provides great opportunity for nature-based sequestration.

Agriculture: includes a variety of row and grain crops, hay crops, rice, orchards and vineyards, nursery and berry crops, and dryland and irrigated pasturelands.

Grasslands: typically lands with less than 10% tree canopy cover that are dominated by grasses or herbaceous vegetation (CNRA 2022). In Yolo County, grasslands include annual grasslands, dryland pasture, and serpentine.

Riparian and Wetlands: includes woody vegetation growing adjacent to bodies of water and lands saturated by water for all or portions of a year (CNRA 2022). In Yolo County, these land cover types include alkali sink, fresh emergent wetlands, open water, valley–foothill riparian, and vernal pools.

Shrublands and Scrub: includes land with greater than or equal to 10% canopy cover composed of shrub and chaparral species. In Yolo County, these include chamise and mixed chaparral.

Unvegetated, Vacant, Urban: includes lands characterized by low levels of vegetation (i.e., 10% or less) and those developed for human use, such as suburban and rural infrastructure (CNRA 2022). In Yolo County, these lands include barren sites (e.g., rock outcrops; gravel and sand bars), and built-up sites.

Woodlands and Forest: forested lands include those with greater than or equal to 10% canopy cover composed of trees (CNRA 2022). In Yolo County, these include primarily oak woodlands, and to a smaller extent, pine, eucalyptus, and montane hardwoods with a grassland understory.

Table 4-1. Yolo County Land Cover Type Acreage

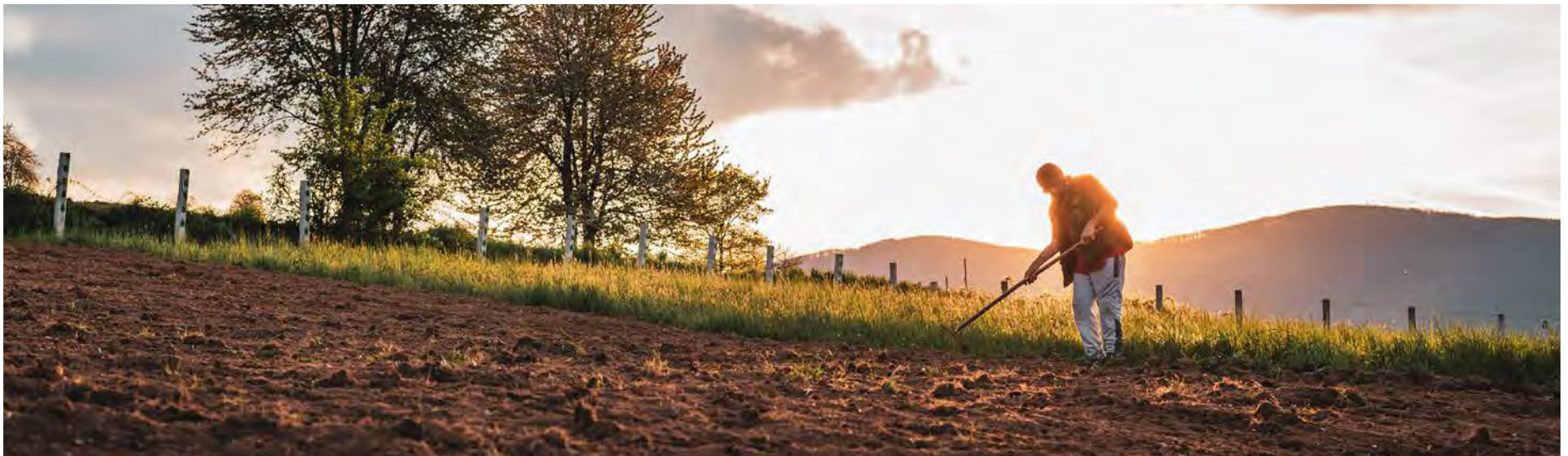
Land Cover Type	Acres	Percentage
Agriculture	372,981	57%
Grasslands	62,875	10%
Riparian and Wetlands	45,400	7%
Shrublands and Scrub	44,642	7%
Unvegetated/Vacant/Urban	44,709	7%
Woodlands and Forest	82,947	13%
Total	653,553	100%^a

Source: Yolo GIS, Land cover at SuperAssoc level.

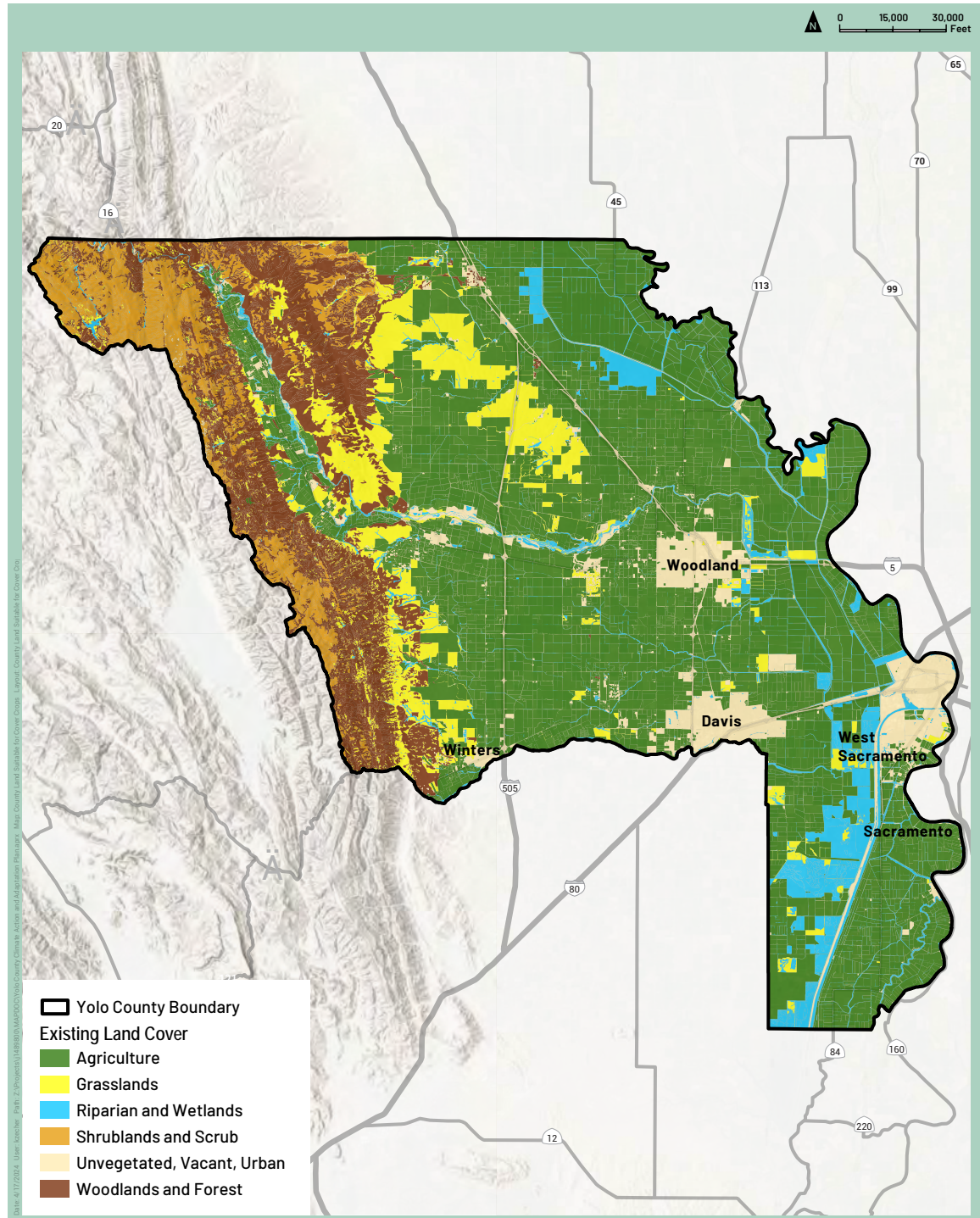
Notes: Land cover refers to the vegetative characteristics or human-made construction on the land's surface, which is different from land use/zoning data.

^aPercentage may not total 100% due to rounding.

As shown in Table 4-1, the majority (57%) of Yolo County land is characterized by agricultural land cover types (e.g., croplands, orchards, vineyards). As discussed below, land zoned for agricultural purposes includes additional land cover types, such as grasslands and wetlands, and accounts for an even greater proportion of Yolo County acreage (84%).



► Figure 4-2.
Yolo County Land Cover Map



Zoning

Zoning governs how property can be used within Yolo County and determines potential land use. Given a certain tract, zoning laws outline what types of developmental and operational activities are permitted. Zones may be defined for a single use (e.g., residential) or can combine several potential uses. Zoning within Yolo County was used as an indicator for which lands are appropriate for implementation of sequestration actions.

Total Yolo County acreage by zone is summarized in Table 4-2 and depicted spatially in the zoning map in Figure 4-3. As shown, approximately 84% of Yolo County is zoned for agriculture, which provides considerable opportunity for sequestration through climate-smart agricultural practices. Further detail of the County's zoning and use in determining suitable acreage for sequestration is provided in Appendix C and Appendix C-3.

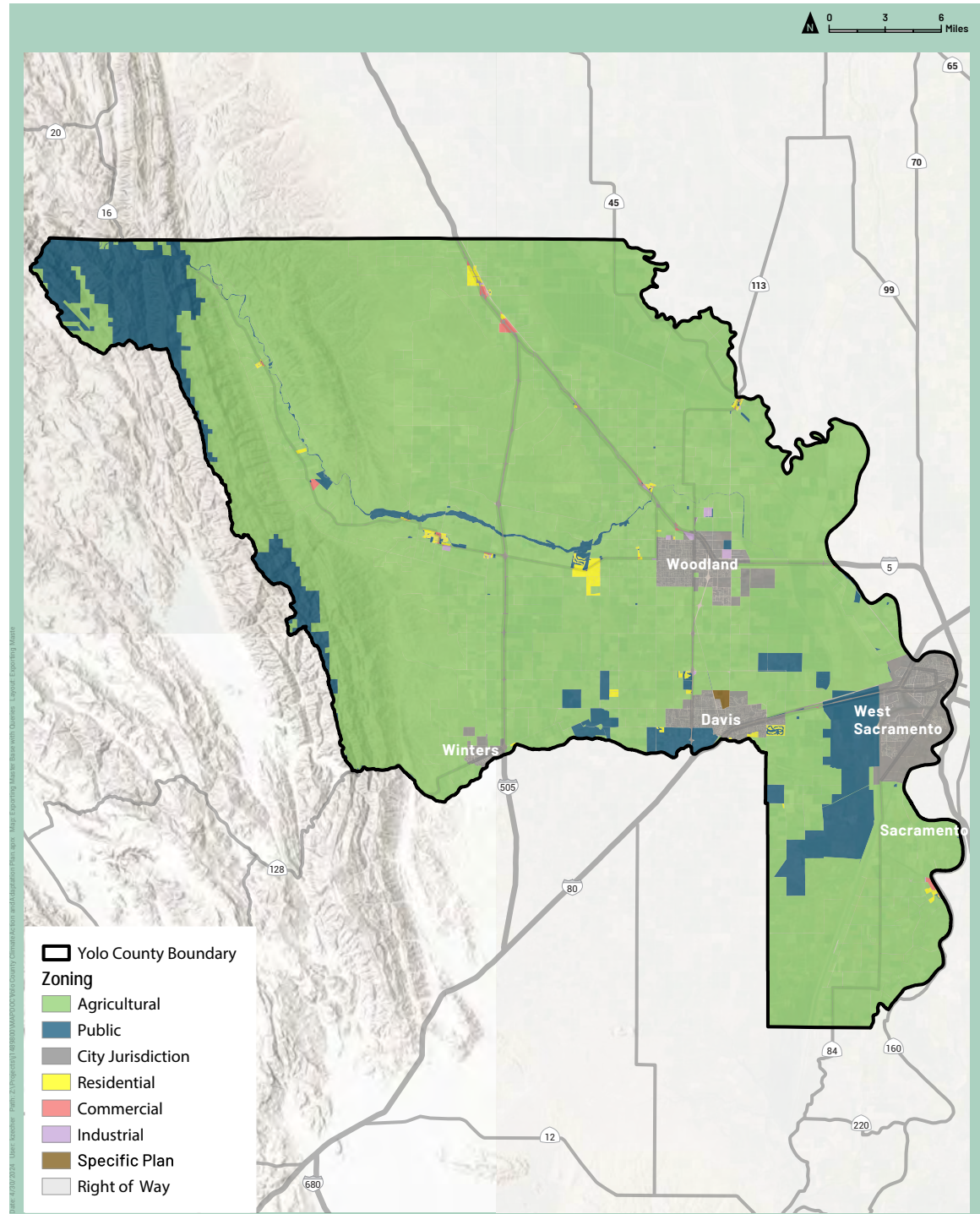
Table 4-2. Yolo County Zoning

Zoning Category	Acres	Percentage
Agriculture	546,726	84%
Cities Jurisdiction	27,148	4%
Commercial	760	<1%
Industrial	607	<1%
Public	61,241	9%
Residential	2,936	<1%
Specific Plan	383	<1%
Right-of-way	13,752	2%
Total	653,553	100%^a

Source: Yolo GIS.

^aPercentage may not total 100% due to rounding.

► Figure 4-3.
Yolo County Zoning Category Map





Outreach

The NWL TAC, chaired by the YCRC, developed a Working Lands Outreach survey to understand the extent of climate-smart practices currently implemented within Yolo County and the feasibility of expanding these practices to achieve CAAP goals and advance associated co-benefits.

Results of the NWL survey were used to help guide the sequestration quantification and to address barriers and challenges to the implementation of the proposed sequestration practices. Overall, results of the NWL outreach and survey efforts indicate concern among the community about the imposition of new regulations and the cost of technologies and practices those regulations may entail. Furthermore, while the respondents were concerned with the apparent effects of climate change, their priority was operational sustainability. Survey respondents indicated that implementation costs and economic sustainability considerations were important when making decisions about sequestration practice adoption. For this reason, financial incentives are recommended to increase the likelihood of practice implementation.

Additional details of the NWL survey process and results are provided in Appendix C and discussed within Strategies 7 and 8 of the implementation framework in Chapter 6.

TAKE CARE OF
OUR EARTH



Chapter **5**

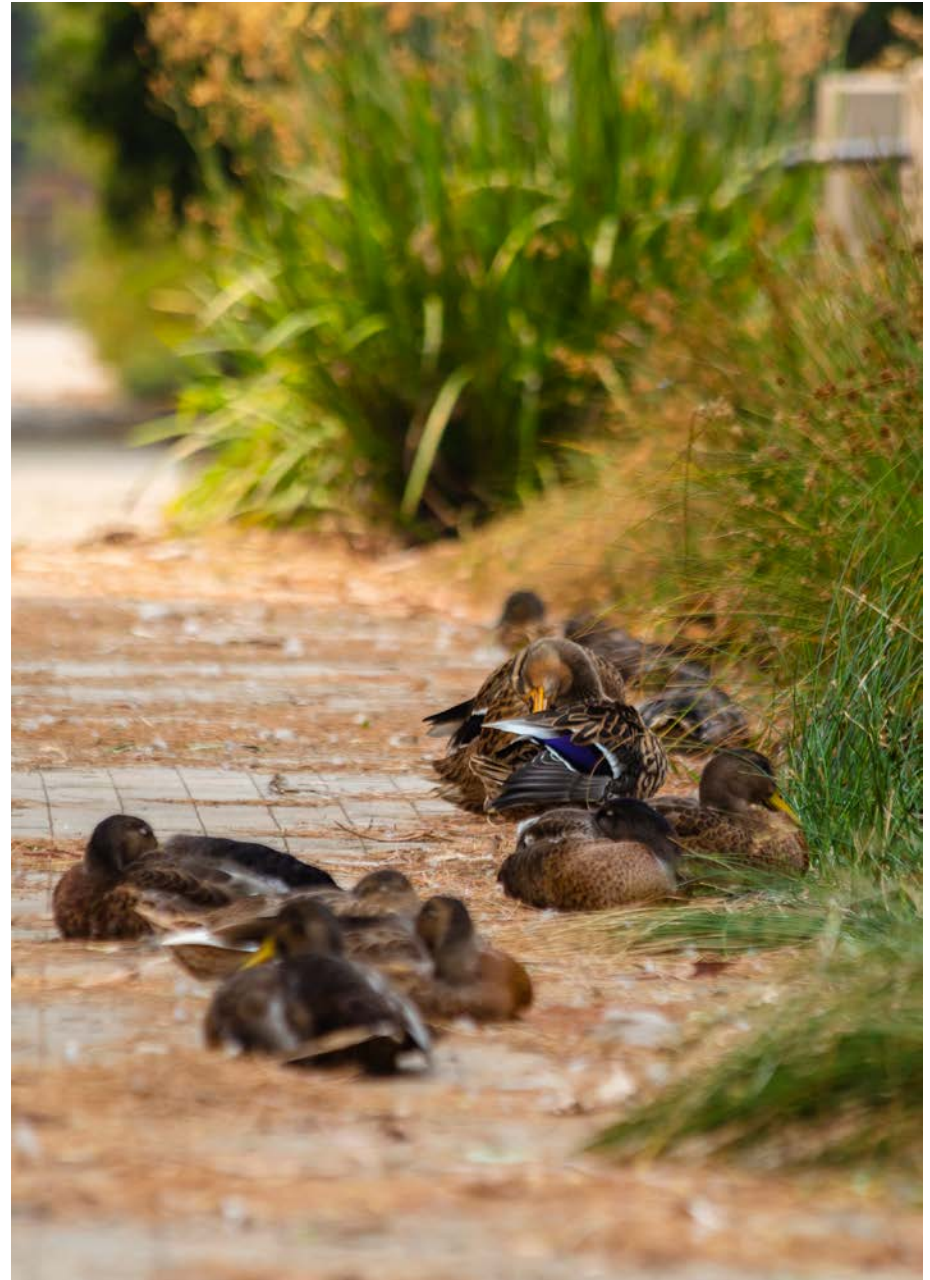
CLIMATE ADAPTATION BACKGROUND

Chapter 5 provides context for climate adaptation in Yolo County, which is a concept referring to the actions taken to prepare for and respond to the impacts of climate change such as changes in temperature, precipitation, and more. This chapter provides background information on the climate vulnerabilities of each sector described in Chapters 3 and 4, as well as a final sector, people and equity.

Climate Vulnerability Assessment

The CAAP outlines the foundational steps to support the County in adapting to and being resilient to climate change. Climate adaptation refers to the actions taken to prepare for and respond to the impacts of climate change, which involves adjusting and planning for the potential changes in temperature, precipitation, sea level, extreme weather events, and other climate variables to reduce vulnerabilities and increase resiliency. Resiliency, in the context of climate change, is the ability of individuals, communities, systems, institutions, and businesses to withstand, recover, and thrive in the face of climate change and chronic stress. It involves building systems and structures that can absorb and adapt to the changes brought about by climate change while also preparing for future impacts. Strategies that build adaptive capacity in specific sectors may additionally offer benefits to meeting GHG emissions reduction goals, such as natural land restoration or reducing urban heat islands.

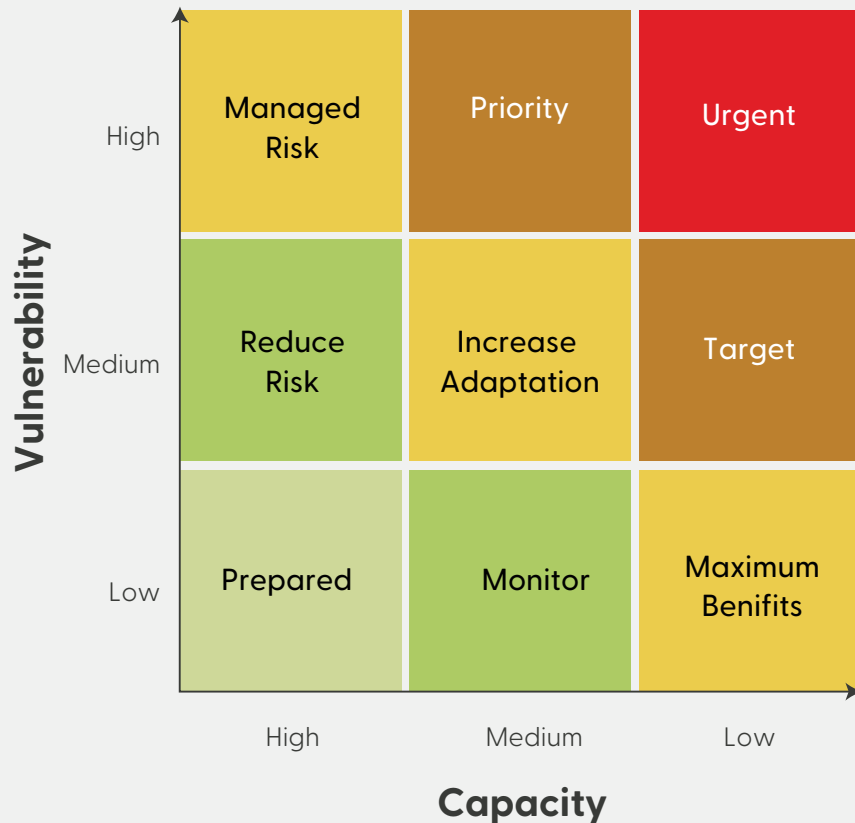
This section describes the current and anticipated impacts of climate change in Yolo County. It provides an overview of forecasts of four climate-related hazards: drought, extreme heat, flooding, and wildfire, as well as the unique impacts on the seven sectors identified in Chapter 3, Climate Action Background. The assessment is derived from an examination of available data related to exposure to various hazards and sensitivity in the context of social, economic, and environmental factors; this analysis is then paired with the sector's current capacity to adapt and respond to climate hazards to determine how to proceed with adaptation strategies. For every sector, a pathway is "ranked" for each hazard, in order to guide policy. (See Figure 5-1 for definitions of the pathways). This chapter is a high-level summary of these findings. A detailed analysis of climate change impacts and opportunities in Yolo County is presented in Appendix C.



▼ Figure 5-1. Adaptation Pathways

YOLO COUNTY ADAPTATION PATHWAY

This assessment analyzes how well existing policies and planning address the four climate hazards of drought, extreme heat, flooding, and wildfire. This analysis concludes with a ranking of each sector according to how well prepared the sector as it intersects with the level of risk it faces from the four hazards. This ranking indicates the adaptation pathway for that hazard. Those pathways are as follows:



Urgent: When risk is high and vulnerability is wide-spread, urgent action is necessary to reduce harm.

Priority: When risk is high where the general population is prepared but sensitive, vulnerable, or frontline census tracts are at risk, policy should be focused to protect these populations.

Target: When risk is moderate but the general community is not prepared, targeted policy should be developed for the most at risk areas.

Managed Risk: When risk is high but existing planning documents address the risk. Existing planning documents should be effectively implemented and monitored, and new focused policy should still strive to reduce risk and enhance recovery and rebuilding plans.

Increase Adaptation: When risk is moderate and the general population is somewhat prepared, community assets with less redundancy and serving vulnerable populations should be protected.

Maximize Benefits: When risk is limited and therefore there is not current investment, this risk should be addressed with benefits and no regrets policy.

Reduce Risk: When risk is moderate and the community is well prepared, targeted risk reduction should be pursued the most in risk areas.

Monitor: When risk is low and therefore there is only moderate preparation, the hazard should be monitored to see if the risk increases and the pathway shifts.

Maximize Benefits: When risk is low and therefore the community is not well prepared, this risk should be addressed with co-benefits and no regrets policy.

Prepared: When risk is low and preparation is high, this should be the lowest priority.

Climate Hazards in Yolo County



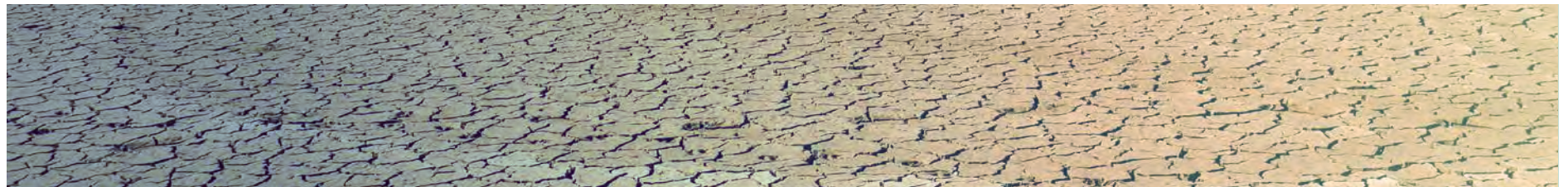
Drought and Water Quality

The frequency and duration of drought events in Yolo County are likely to increase as a result of more extreme weather, including long dry periods and increased temperatures, which evaporate surface water. As droughts become more common and intense, surface water supplies will be depleted first, and the County's water users will become more dependent on groundwater. Increasing reliance on groundwater could result in shallow wells drying up and saltwater intrusion threatening water quality for the entire region. The effects of drought on people are concentrated especially within communities related to the agricultural sector and in low-income communities reliant on groundwater. Yolo County is already preparing for these changes, and projects are underway to enhance water recharge capacity, storage, and monitoring to mitigate drought impacts outlined in the Yolo Subbasin Groundwater Sustainability Plan (GSP).



Extreme Heat

Yolo County will continue to warm overall and to experience extreme heat events, which are expected to increase in frequency over the coming decades. Extreme heat is a deadly hazard that especially impacts the most vulnerable community members, including youth and the elderly, along with those such as farmers who endure exposure to earn a living. Additionally, according to testimonials from farmworkers engaged for this plan, they are highly exposed to extreme heat in both indoor and outdoor settings, causing health problems and loss of wages (see Farmworkers' Voices section of the CAAP). Heat increases demand for water and creates health challenges for those who work in the fields and in warehouses. The urban heat island effect (UHIE) leads to temperatures that are even higher in urban environments where people live, attend school, and conduct business. UHIE can be mitigated through adaptations to the built environment, including adding trees, as illustrated in Figure 1. The energy required to mitigate heat indoors with air conditioning is costly and creates secondary problems for the electricity supply grid. Improving urban greening, utilizing cool and green roofs, increasing energy efficiency and installing back up power sources reduces people's exposure to extreme heat, making it easier to cool indoors without additional reliance on the grid. It is critical to public health to prioritize vulnerable populations, such as youth, older adults, and farmworkers, when addressing extreme heat.





Flooding

As the intensity of precipitation events increases, so does the risk for flooding, which is exacerbated by compacted soils caused by drought conditions. Flooding is a frequent occurrence in Yolo County due to its terrain—many communities and assets are located in a 100-year floodplain. Though flood infrastructure in Yolo County is extensive, it is aging and, in some cases, undersized. Flooding typically causes damage to buildings and infrastructure, but it can also harm natural and agricultural lands and create health and economic stressors among residents. Flooding covers roads and impairs people's ability to travel to work, school, or the doctor. Farmworkers lose wages when farms are too flooded to work or if the crops are lost. Flooded roads especially impact response and recovery efforts. Enhancing natural flood controls reduces the hazard and conserves water; the Yolo County Flood Control & Water Conservation District (YCFWCWD) is currently coordinating several such projects.



Wildfire

Due to climate-driven changes in weather and to historical forest management activities, wildfires in the region are expected to become larger and more frequent. In Yolo County this poses the highest risk to communities in the northern and western parts of the County, especially those in proximity to forests, such as those in the Capay Valley. While communities in fire hazard zones are faced with life and property safety issues, the entirety of Yolo County is impacted by the resulting poor air quality that results from smoke and ash from fires within and outside the County. Vulnerable populations are at a higher risk of health complications, as are those who work outdoors. Wildfire weather conditions sometimes lead to power shutoffs, with financial impacts to people and businesses, while also complicating efforts to mitigate other stressors.

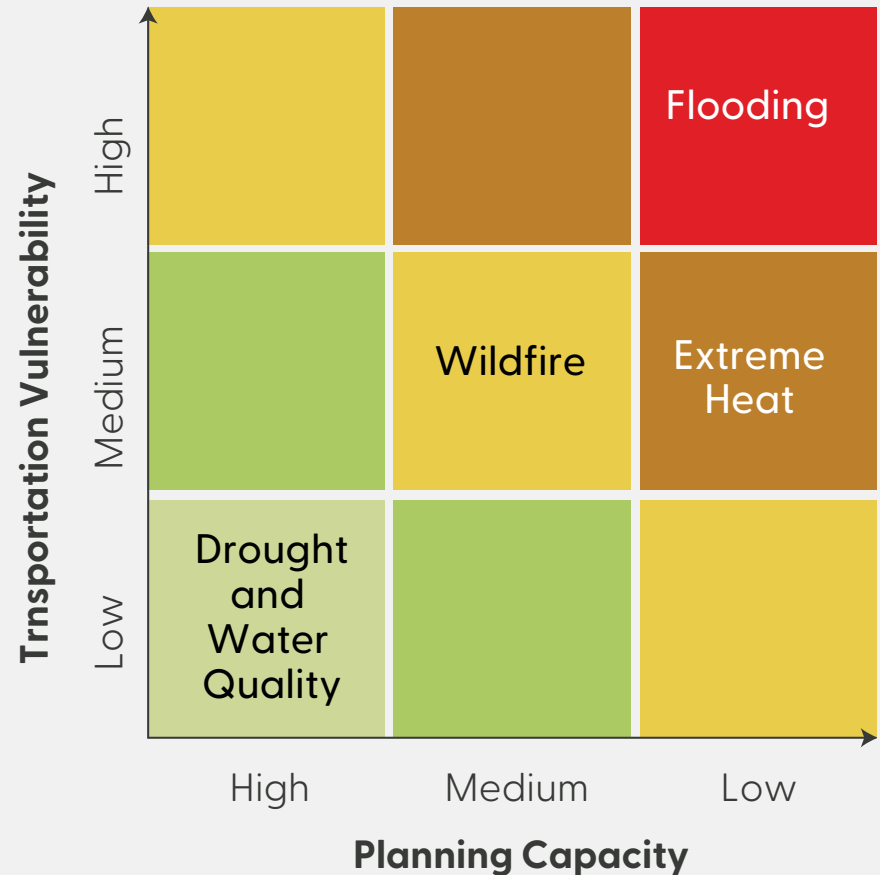


Impacts on Sectors



Transportation

Unincorporated Yolo County's transportation system includes interstate highways, state roads, local/farm roads, and public transportation. Many of these roads are utilized as evacuation and response routes in the event of flood or fire and are of critical importance to public safety. When roads are damaged, people are unable to go about their daily business. Flooding in particular impacts frontline communities and is a priority adaptation pathway in this sector, as seen in Figure 5-2. Public transportation is an economic and climate-friendly mode of transport that is especially important to those without access to a car. Utilizing public transit safely requires protection from hazards, especially extreme heat, at bus stops and along walking routes, extreme heat is a target adaptation pathway to focus on transit dependent communities. Expanding access to schools, community assets, and employment sites with safe and climate-friendly transportation options increases overall resilience in the community. During community engagement outreach for this plan, community members identified the expansion of public transit as number one on their list of preferred climate action strategies. Adapting all parts of the transportation system to climate change is a key part of a Just Transition.

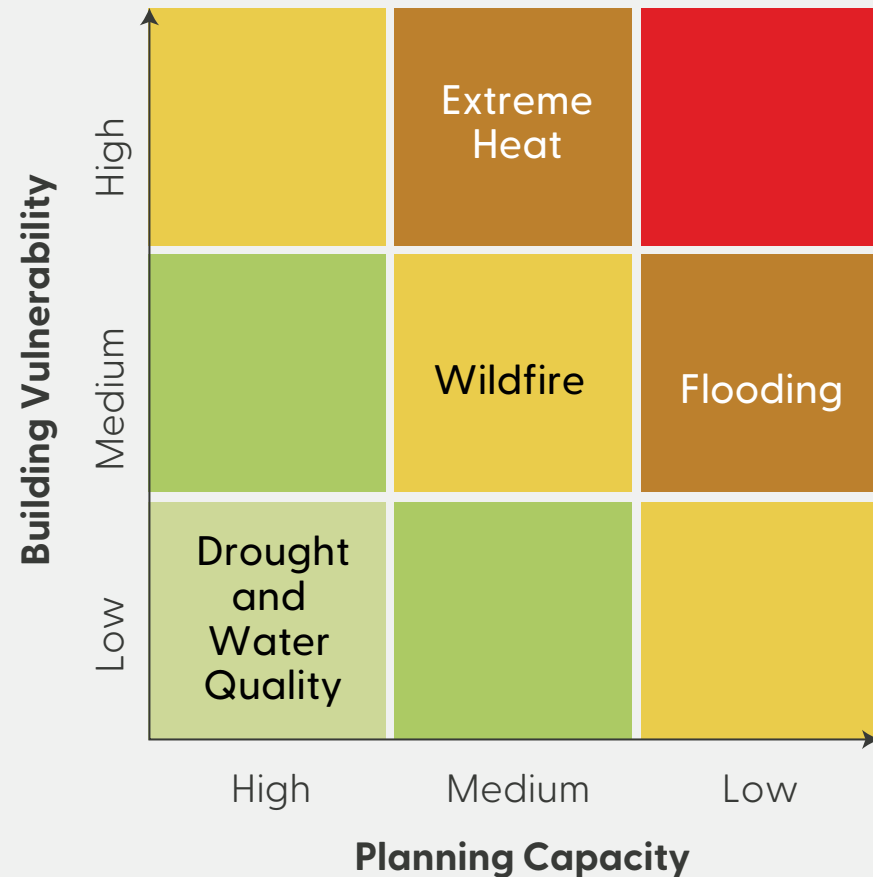


▲ Figure 5-2. Transportation Adaptation Pathway



Buildings

Unincorporated Yolo County is characterized by 15 census-designated communities set among large swaths of farmland. Most of the built environment exists within these communities, and new development is concentrated in urban areas and is limited by land use designations and flood zone restrictions. Critical facilities utilized in response and recovery along with assets known as “community lifelines” that enable human well-being and security are essential to the health and safety of the community. Residential buildings play a key role in keeping people safe from hazards, especially from extreme heat and poor air quality. Extreme heat is a priority adaptation pathway for the building sector, to protect those vulnerable to this risk, as seen in Figure 5-3. The built environment includes warehouses and other commercial structures that may not be climate controlled due to size, use, or age; according to worker testimony, this subjects’ employees working in these buildings to extreme indoor air temperatures (see the Farmworkers’ Voices section of the CAAP). Buildings are impacted by power outages if they are not equipped with a backup power source. Buildings located in flood and fire hazard zones are at risk of damage relative to the risk of the hazard occurrence and should be prioritized for adaptation accordingly. Flooding is a target adaptation pathway, meaning that policy should focus on areas with highest risk. The built environment consumes a significant amount of energy; many adaptation strategies create opportunities to reduce emissions, such as energy-efficient weatherization and air conditioning, cool roofs, and increased tree canopy. Reducing damage to structures from hazards like flood and fire keeps materials out of landfills, conserves energy, and reduces costs to the broader community.

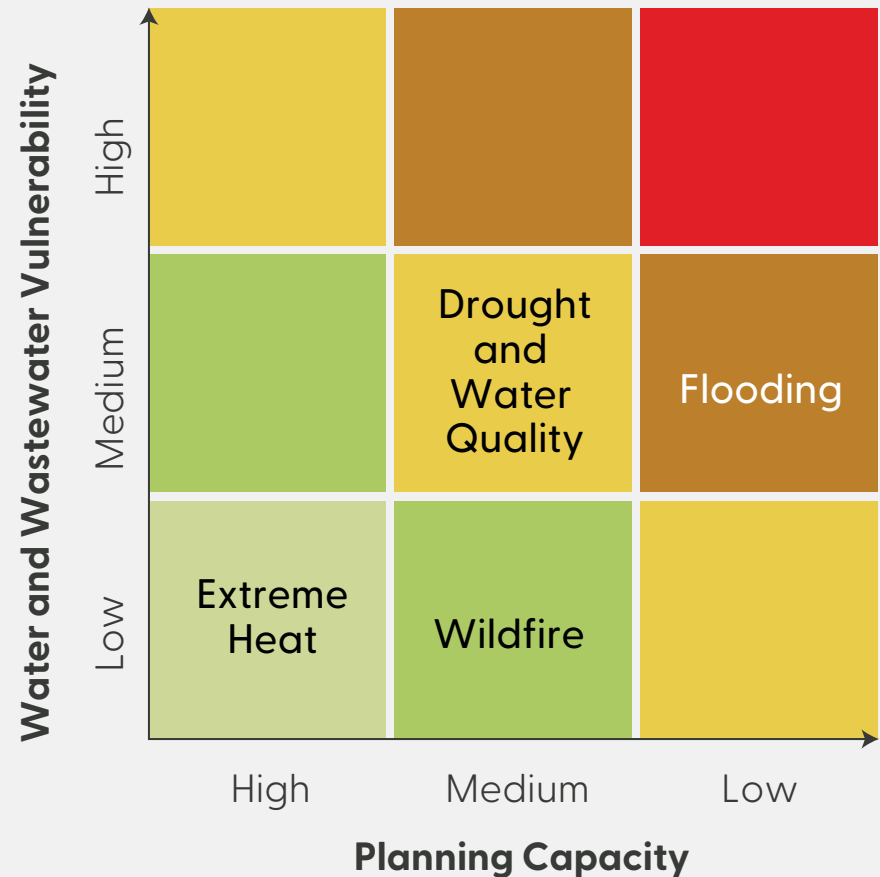


▲ Figure 5-3. Building Adaptation Pathway



Water and Wastewater

Yolo County's extensive water management infrastructure guides natural waterways and stormflows away from development to protect against flooding and ensure agricultural productivity. Facility systems convey extracted water throughout Yolo County for residential and commercial use. In addition, centralized wastewater treatment facilities are managed by municipalities in Yolo County, while various unincorporated communities are served by special districts. Issues surrounding storm drainage within Yolo County include levee erosion, inadequate levee protection in Madison and Esparto, and demand for vegetation removal on Cache Creek. Water and wastewater infrastructure are key to protecting Yolo County from climate-related hazards because flood and drought events impact water supplies and put people, their livelihoods, and their properties at risk. As climate change is projected to increase hazard intensity and duration, infrastructure will degrade at faster rates due to high-stress hazard events that push design limits. Flooding is a target adaptation pathway, meaning that policy should be developed in areas of this sector most at risk for damage, as seen in Figure 5-4. New updated infrastructure will be necessary to continue protecting people and property from hazard events, as outlined in area and agency plans.

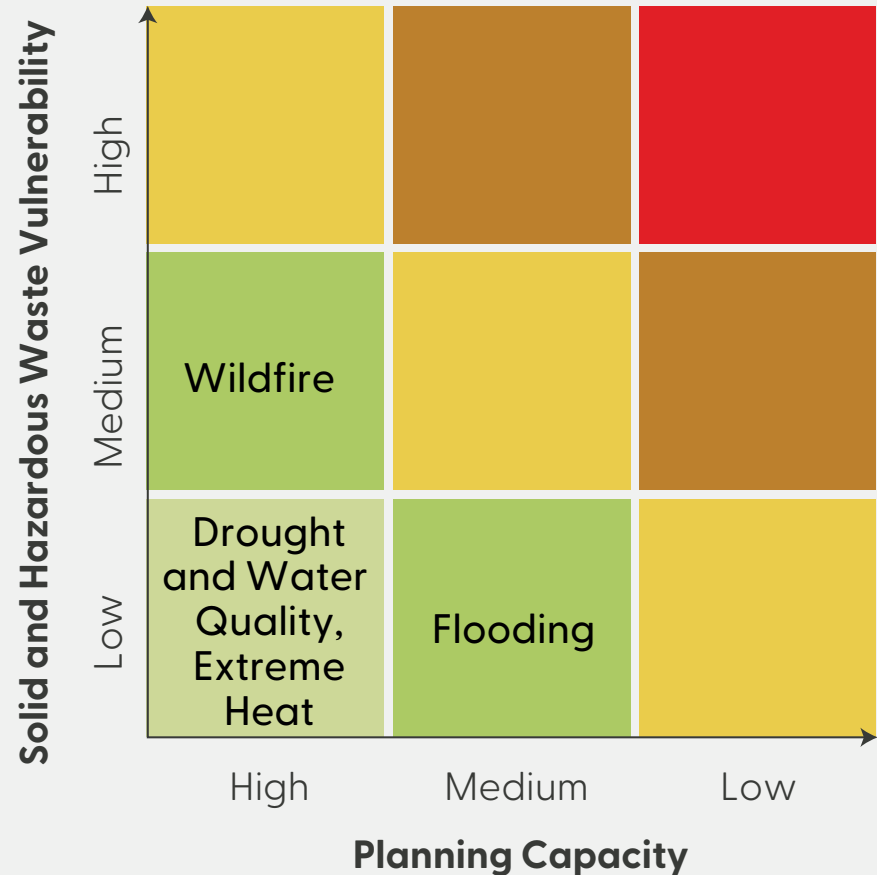


▲ Figure 5-4. Water and Wastewater Adaptation Pathway



Solid and Hazardous Waste

Disposal of industrial, agricultural, and household waste is a utility function managed by the County in partnership with private sector haulers and processors. Disturbance or damage to these waste disposal facilities could lead to public health concerns due to exposure to contaminants. Preparing waste disposal sites for hazardous events like wildfires and floods will help keep the communities near these facilities safe, County services operational, and crops healthy. As the County takes measures to reduce emissions from these sites, hardening against hazards should be considered. Fortunately, the County's hazardous waste facilities generally have limited overlap with hazard zones. Meanwhile, fire presents the potential for additional waste to be generated within Yolo County by damaging buildings and vegetation, which creates a need for continued waste diversion and recycling. No hazards present this sector with target, priority, or urgent adaptation pathways, as seen in Figure 5-5.



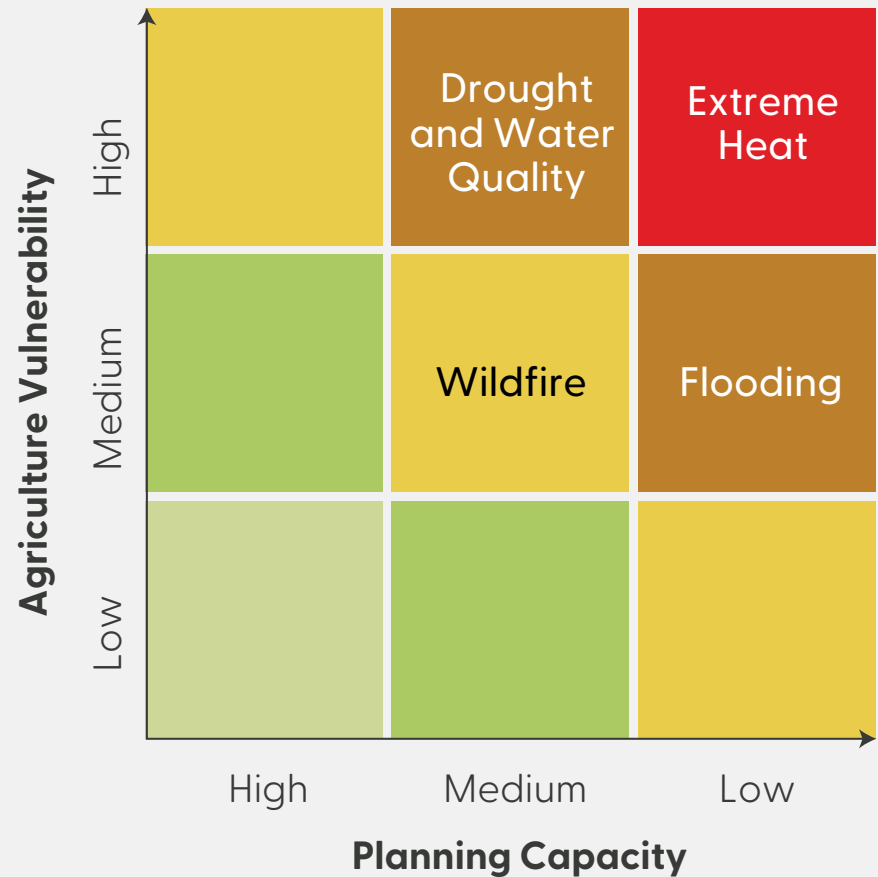
▲ Figure 5-5. Solid and Hazardous Waste Adaptation Pathway



Agriculture

Agriculture is critical to the economy and character of Yolo County; a longstanding commitment to the preservation of agricultural

lands is encapsulated in County planning documents. Producers have long faced issues related to climate impacts, and they need support and resources to continue meeting these challenges. Agriculture is most at risk from drought-related impacts such as increases in pests, water insecurity, and crop failure, and much planning has been done to mitigate this risk. As such, drought and water quality are assessed as priority adaptation pathways, as seen in Figure 5-6, and policies should focus on those most at risk to harm. Extreme heat and flooding can lead to economic losses and health impacts for agricultural workers. Due to the projections of increased frequency of the extreme heat hazard and less planning capability in this area of concern, extreme heat is ranked as an urgent adaptation pathway. Adapting to climate change will involve coordination and partnership between local growers and local and State government to achieve climate goals while preserving and protecting this vital land and the people for whom it provides. The process will incorporate a range of tactics, including the repurposing and protection of certain lands; adopting climate-smart agricultural practices; optimizing water use by investing in water conservation, irrigation, and storage infrastructure; and developing strategies for improving the living standards and livelihoods of those in agricultural industry.

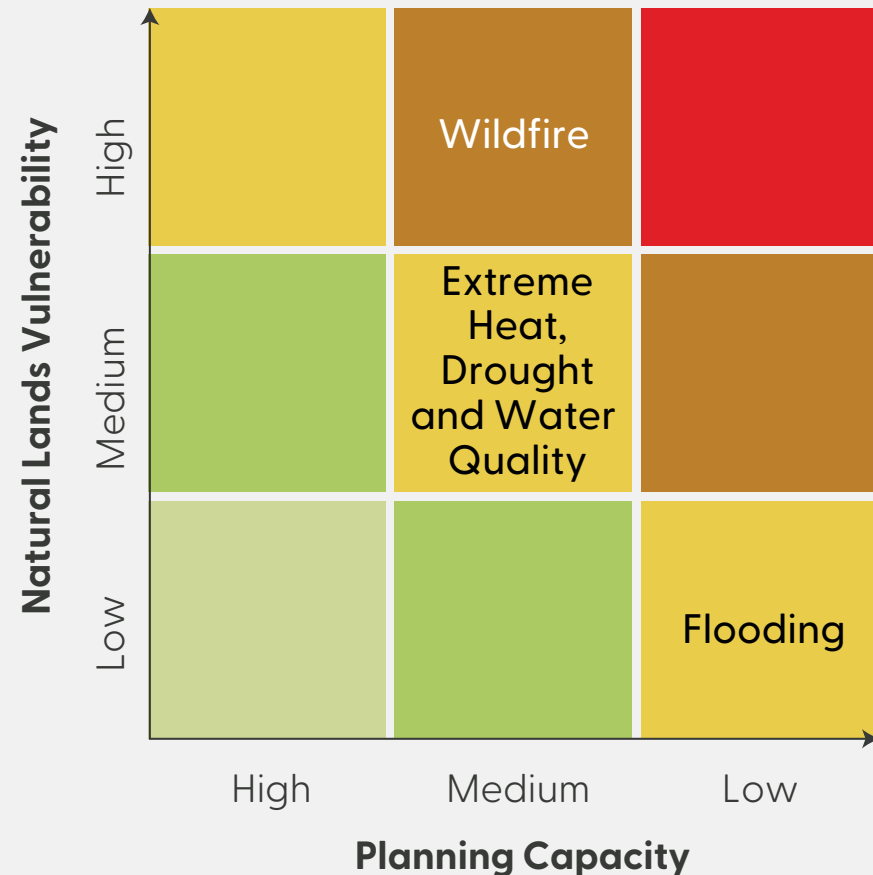


▲ Figure 5-6. Agriculture Adaptation Pathway



Natural Lands

Natural lands play a critical role in carbon sequestration, species preservation, and natural hazard mitigation, while also providing communities opportunities for recreation, a connection to nature, and a sense of place. Adapting to climate change in Yolo County requires reestablishing sustainable floodplain systems. Protecting landscapes near waterways should be combined with efforts to increase natural water flows and connections among rivers and streams, including setting back levees and restoring wetlands. Wetlands are an important part of groundwater sustainability in Yolo County. Prescribed burns and strategic thinning of forest stands can reduce fuels loads for fire and reduce the number of smaller trees, which allows for the increased growth and carbon sequestration capacity of the remaining larger trees. Stewardship of forests includes vegetation management and invasive species removal. Conservation of natural lands supports the species living within them, especially those under threat, including native pollinators and the State-Threatened Swainson's hawk. Identifying and implementing opportunities for preservation, restoration, and enhancement of Yolo County natural lands requires year-round attention from County staff, as well as with coordination with State and local conservation agencies (and other entities) for implementing projects and actions. There are no adaptation pathways that rank in the priority, target, or urgent categories, due to moderate risk and capability in this sector, as seen in Figure 5-7.



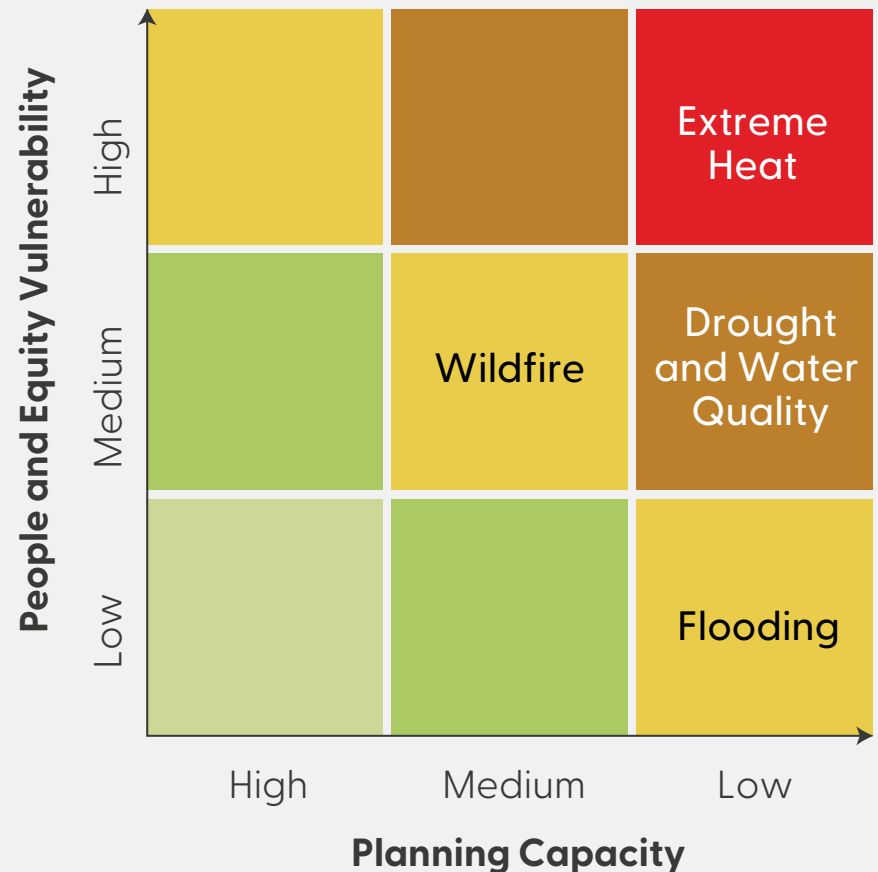
▲ Figure 5-7. Natural Lands Adaptation Pathway



People and Equity

Because the effects of climate change do not affect people equally, climate adaptation strategies should reflect the lived reality of vulnerable and frontline communities in Yolo County. As such, climate resilience measures of the CAAP are best implemented in collaboration with community partners and should be recorded and reported transparently and driven by an inclusive decision-making process that integrates the diverse voices of Yolo County. Yolo County communities are already experiencing harm from climate change, especially from extreme heat, precipitation, and flooding. Climate change impacts people's health and damages their property, while also impacting their ability to earn a living wage when climate change harms crops. Farmworkers are especially vulnerable to climate hazards because they are exposed to heat and smoke at high rates and tend to suffer the most immediate economic impacts. Due to elevated risk to people from a projected increase in temperatures combined with lower planning capability, extreme heat ranks as an urgent adaptation pathway, as seen in Figure 5-8. The risk from wildfire to people is primarily from smoke and air quality impacting vulnerable populations, resulting in a priority adaptation pathway. Drought and water quality issues are generally well planned for, but still require policies that reduce risk in communities facing disproportionate impacts. Adaptations in this sector require resources but also awareness and connection; trusting relationships between communities and government are key to building resilience. Indeed, many adaptations cannot be taken by individuals or organizations and require government action. Yolo County will need to coordinate between departments and across jurisdictions to accomplish its adaptation goals. The County is committed to a Just Transition, a concept first articulated in the 2020 climate emergency declaration to describe the rapid mobilization of resources toward effecting "a just transition to

an inclusive, equitable, sustainable, and resilient local economy while also supporting and advocating for regional, national, and international efforts necessary to reverse the climate, social justice, and economic crises" (Yolo County 2020).



▲ Figure 5-8. People and Equity Adaptation Pathway

Summary

As discussed in this section, many Yolo County sectors have previous experience with drought, heat, flooding, and wildfires. As climate change continues to influence the frequency, magnitude, and intensity of these hazards, adaptation plays an increasingly important role in protecting people and infrastructure and in building resilience in social and economic systems. Looking forward, the County must prioritize sustainable development such that economic opportunity is equitable and in line with GHG reduction goals.

Building on existing efforts to protect natural and working lands from the serious threat of extreme heat, drought and fire, increasing adaptation through the enhanced stewardship of all lands, the implementation of nature-based solutions to flooding, as well as water conservation and treatment, is recommended. Climate-smart agriculture offers co-benefits to ecosystems and communities while building resilience in this critical economic sector.

To support healthy communities, adaptation strategies reduce exposure to hazards at the workplace and at home, with a focus on those most vulnerable to harm. Reducing people's exposure to extreme heat in urban areas is ranked urgent as a pathway and requires adapting the built environment and urban areas with nature-based and energy-efficient cooling systems by increasing shade, tree canopy, and the use of solar-reflective building materials. Reliable access to clean water is essential to public health; as such, the County will continue its effort to achieve groundwater sustainability in coming decades and should consider increasing drinking water access in public areas while targeting policy at reducing risk in frontline communities. People facing hazards at work need support and resources—including awareness of workers' rights, specifically for situations during which they are

experiencing symptoms of heat stress—to mitigate the serious health risks associated with extreme heat and poor air quality. Climate adaptation and hazard mitigation often require significant resources, and to that end the County and its partners should pursue State and Federal grant opportunities as much as possible. Resulting awards should be invested equitably such that those who are experiencing disproportionate harm are prioritized.

Building resilience in Yolo County involves more than physical improvements, it is also about the community's capacity for response and recovery. When households and businesses are prepared for and aware of the hazards, they experience less harm as a result. To increase levels of preparedness in Yolo County, public officials must engage with the hardest-to-reach communities to provide them with the information and materials they need to thrive.

Additionally, the County recognizes the key role certain facilities (such as libraries) play in providing space for communities to gather, cool off, connect to resources, and learn. These sites already serve as "resilience centers" in many ways, but this role should be formalized and enhanced with financial, infrastructure, and programmatic supports. Education is key to the successful implementation of many CAAP strategies, and resilience centers can act as a hub for information on both climate action and adaptation.

Ultimately, the CAAP must guide the County to a Just Transition to carbon negativity by 2030. A Just Transition is a set of vision-led, place-based principles and practices designed to empower historically disadvantaged communities and create social and economic opportunities. This transition balances the urgency of necessary changes with the commitment to sustainable and just realignments.





Chapter 6

STRATEGIES, MEASURES, AND ACTIONS

Chapter 6 provides the CAAP's strategies, measures, and actions. This chapter begins by describing the strategies, measures, and actions for the CAAP. Strategies are the broadest category of the three and include several measures, which have specific actions relevant to them. This chapter then outlines the different co-benefits that can occur as a result of a measure. The co-benefits are assigned icons that are used again in subsequent sections of the CAAP. From there, the chapter is organized by strategy, providing overall GHG reduction potential, equity insights, local background information, and snippets of what was heard during community engagement, before listing all measures and actions for that strategy.

Strategies, Measures, and Actions

Achieving net-negative GHG emissions by 2030 while increasing resiliency and ensuring a Just Transition requires an ambitious, well-coordinated approach. A net-negative emissions goal means that all Yolo County GHG emissions released into the atmosphere must be outweighed by the GHGs that are removed. This net-negative goal can be achieved through two complementary pathways:

1. Reduction or elimination of anthropogenic (human-caused) GHG emissions
2. Carbon dioxide removal (CDR), which refers to mechanisms, such as carbon sequestration, that draw down ongoing and historical carbon emissions that currently exist in the atmosphere

CDR options include mechanical approaches, such as direct air capture, and nature-based sequestration in natural and working lands, the latter of which is the focus of the County's approach. Figure 6-1 is a conceptual figure that illustrates the two main pathways that will be employed to achieve the County's net-negative goal.

As discussed in Chapter 3, Climate Action, while State legislative actions account for a meaningful portion of the GHG emission reductions needed to achieve the County's goal, additional local actions are required to reduce the remaining 641,072 MT CO₂e forecasted for 2030. Emissions reductions will be important to closing this gap, but achieving net-negative emissions will not be possible without use of carbon sequestration within Yolo County's natural and working lands.

The 2030 goal is ambitious and will require the County to make significant changes within a short period of time. This will involve transitioning fossil-fueled vehicles to zero-emission alternatives, electrifying existing buildings, adopting zero-emission technology for off-road equipment, and use of climate-smart agricultural practices.

While challenging, the net-negative emissions goal is technically feasible with substantial financial commitment and community dedication to action.

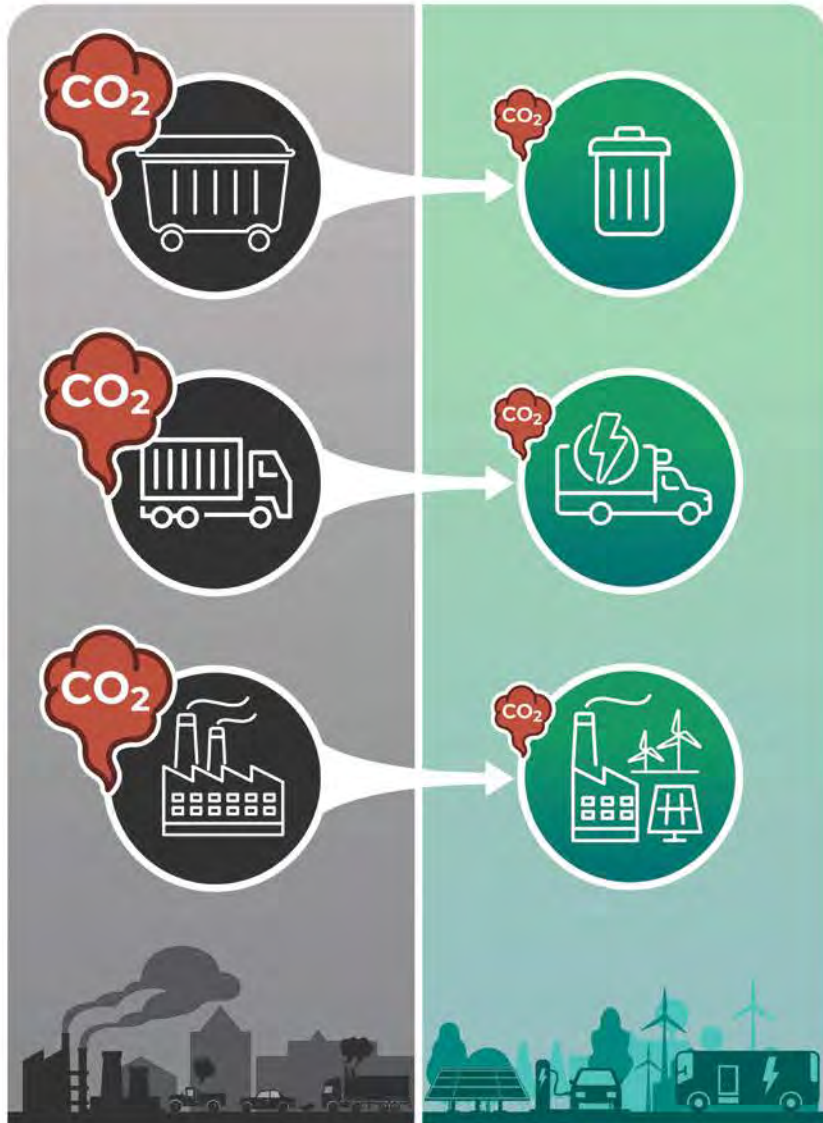
Given the scale of effort required to achieve the County's ambitious GHG emission reduction target, CAAP implementation is organized within a tiered framework consisting of three main components—strategies, measures, and actions—which is outlined in further detail in this chapter. This framework, like the goal itself, is ambitious and will require significant coordination and effort to achieve. It is important to note that even if the County is unable to reach their goal by the target date, implementation of the following framework itself signifies great progress and will provide a strong foundation for momentum toward carbon neutrality and carbon-negative emissions.



▼ **Figure 6-1. Pathways to Net-Negative Greenhouse Gas Emissions**
Note: this is a conceptual figure, so the depicted processes are simplified

EMISSION REDUCTION

Reduce or eliminate emissions of GHGs to the atmosphere



CARBON SEQUESTRATION

Remove atmospheric CO₂ and store carbon



Implementation Framework

As previously noted, the roadmap for CAAP implementation is organized within a tiered framework, including three main components: strategies, measures, and actions. This framework provides a manageable structure for efficiently achieving the County's collective climate goals. The tiered structure is illustrated in Figure 6-2, and each component is briefly described in the following.

- **Strategies** are the high-level implementation components that comprise the main GHG emission source and adaptation sectors relevant to achieving the County's CAAP goals.
- **Measures** are the second tier of the implementation framework and are contained within each strategy to further specify the sector- or subsector-specific goals.
- **Actions** are the final tier of the implementation framework and include specific policies, programs, plans, initiatives, or tools that will be deployed to achieve the expressed goals of the related measure and strategy.

▼ Figure 6-2. Tiered Implementation Framework



Roadmap to the Framework

Co-benefits

Co-benefits are additional advantages related to actions that directly reduce GHG emissions or increase climate resilience and are often cited to justify the funding, planning, and implementation of GHG emission reduction actions (CAPCOA 2021). Each measure's co-benefits will be identified in their respective strategy sections. The co-benefits categories qualitatively evaluated for each measure are as follows:

CO-BENEFITS KEY



Improves Air Quality: reduces criteria air pollutants that negatively impact human health.



Improves Mobility: increases the ease with which residents can access public transit, commute options, or other modes of transportation without using a passenger vehicle.



Improves Public Health and Safety: reduces risk to pedestrians and bicyclists, vehicle collisions, and exposure to toxic air contaminants; improves public safety, drinking water quality, or health outcomes.



Enhances Natural Environment: increases biodiversity, access to open spaces for residents, promotes natural resource conservation/restoration, or improves soil or water quality.



Enhances Local or Regional Economy and/ or Supports Job Creation: supports local businesses or facilitates new business opportunities employing local workers.



Cost Savings: reduces costs to residents and local businesses over longer time horizons than is quantified in an action (e.g., housing, energy, water, food, etc.).



Promotes Equity: addresses existing inequities such as access to food or other necessities, disproportionate pollution burden, housing affordability, energy costs, or employment.



Provides Education: informs residents of local or regional policies or sustainable consumption practices; provides outreach and education efforts to residents to boost community engagement.

Phasing

A large number of actions are needed to achieve the County's climate goals; however, these actions are not uniform and should involve strategic phasing for their implementation to meet County goals within a reasonable timeline. Ideally, all actions would be implemented in Phase 1, but local governments have limited resources and competing needs; therefore, phasing helps lay out a temporal framework to focus County resources. Regardless of phasing, all actions are important, and the intent is that they are all implemented.

To fairly determine phasing, several criteria were considered, including the following:

- ▲ GHG reduction potential and/or climate adaptation value of the action
- ▲ Whether an action unlocked or provided foundation to others
- ▲ The action's cost-effectiveness
- ▲ Availability of funding for the action
- ▲ Whether an action enhanced equity
- ▲ What co-benefits were promoted by an action
- ▲ Whether there was community interest shown for an action
- ▲ When an action is anticipated to be technologically feasible
- ▲ The level of Yolo County's local governance and control over implementation of the action

While GHG reduction potential/climate adaptation value and whether an action is foundational to implementing further actions are weighted the highest, factoring in other criteria, including what the County and community feels is important, increases the probability of achieving the CAAP goals.

Based on the weighted criteria above actions were sorted into three phases, corresponding to the following years:

- **Phase 1:** 2024–2027 ● ● ● PHASE I
- **Phase 2:** 2027–2030 ● ● ● PHASE II
- **Phase 3:** 2030–2045 ● ● ● PHASE III

Further details on phasing methods can be found in Appendix E.

Categorization

Each measure is characterized by its function as a mitigating, adapting, or crosscutting effort, as defined in the following.

- **Mitigation:** measures that reduce GHG emissions that contribute to climate change
- **Adaptation:** measures that manage the impacts of climate change on communities
- **Crosscutting:** measures that address both mitigation and adaptation

[MITIGATION](#) | [ADAPTATION](#) | [CROSSCUTTING](#)

Greenhouse Gas Reduction Potential

The GHG emissions reduction potential was quantified, where possible, using industry standard methods and assumptions, as detailed in Appendix E. Each strategy includes a summary of the total emission reduction potential from all applicable measures and actions, and each measure includes the reduction potential and associated performance metrics by phase, as applicable. Some measures were not quantified in the CAAP due to data availability and calculation methodology constraints. However, quantification methods and data may be available in the future to quantify associated GHG emission reductions.

Cost-Benefit Analysis

Preliminary high-level estimated ranges for societal cost-effectiveness for CAAP efforts are provided at the measure level. The cost-effectiveness estimates are calculated based on several components.

1. Upfront investment cost for a new or replacement technology.
2. Upfront investment cost for supporting infrastructure such as EV charging stations.
3. Comparative ongoing costs of the new or replacement technology versus the current conventional technology. This often results in net benefits due to lower energy prices and maintenance requirements.
4. Social value of reduced GHG emissions, which relies on the projected reductions in GHG emissions and the U.S. Environmental Protection Agency's adopted social cost of carbon.
5. Social value of reduced criteria air pollutants such as oxides of nitrogen, reactive organic gases, and particulate matter. As with GHG emissions, this relies on projected emission reductions and the U.S. Environmental Protection Agency's social cost of pollutants.

The net present value over the expected technology life is divided over the net present value of the emission reductions to arrive at the dollars per ton.

- **\$\$-** Large Net Benefit >\$1,000/ton
- **\$-** Small Net Benefit \$100–\$1,000/ton
- **\$+/-** Neutral Costs/Benefits
- **\$+** Small Net Cost \$100–\$1,000/ton
- **\$\$+** Large Net Cost >\$1,000/ton
- **N/A** Not yet evaluated

The cost-effectiveness estimates can be further refined based on the best information available at that time as CAAP actions are implemented.

Strategies, Measures, and Actions

This section provides the details for each strategy identified, including a description of the strategy, total GHG reduction potential, key local and regional planning background, and relevant community outreach. Because equity is an important consideration that is woven throughout the entire CAAP, for each strategy, relevant equity concerns and potential equity solutions and approaches are noted. For each measure, a short description is provided along with the GHG reduction potential and general cost estimate. Each action includes the action code (e.g., EB-1), a short description, phase, and categorization.

STRATEGY 1

Decarbonize Transportation (DT)

Reducing greenhouse gas emissions from the transportation sector will be critical to achieving net-negative emissions because vehicle travel is the predominant source of emissions within Yolo County.

Transportation accounts for nearly 39% of California's emissions, making the sector the largest single contributor to California's GHG emissions (CARB 2023). On-road transportation emissions from fossil fuel vehicle travel is the largest contributor to GHG emissions in unincorporated Yolo County as well. The community-wide GHG inventory conducted for this plan showed that on-road transportation was responsible for 269,588 MT CO₂e, or 36%, of overall Yolo County emissions in 2022.

The measures to implement this strategy aim to reduce GHG emissions from fossil fuel-powered vehicles and equipment by promoting the adoption of both electric vehicles (EVs) and equipment for public and private drivers across Yolo County. The proposed measures to achieve these reduction goals include a variety of incentives to encourage the replacement of gasoline- and diesel-powered vehicles and equipment with electric alternatives, as well as the rollout of a network of accessible charging infrastructure that makes the transition to an electric vehicle feasible for all Yolo County residents.

2030 GHG REDUCTION POTENTIAL

57,279 MT CO₂e





Equity Concerns

- ▲ There will be differential access to financing and incentive programs, such as rebate programs that require up-front payment or building retrofits for EV chargers, which are often cost-prohibitive to low-income community members and unfeasible for renters whose leases prevent them from making alterations to their residences.
- ▲ If equity concerns are not expressly incorporated into the planning process, communities with a greater proportion of low-income and disadvantaged households are often the last to receive infrastructure critical to transportation electrification, such as publicly accessible EV charging stations.
- ▲ There are additional impediments to accessing incentives or resources, including language barriers, lack of access to technology (e.g., a steady internet connection), or inability to devote extra time to seek out such information or navigate applications.



Equity Solutions

- ▲ When securing funding for incentive and rebate programs, prioritize access for households in low-income and vulnerable communities.
- ▲ Prioritize placement of charging infrastructure at or near multifamily buildings in addition to public charging stations to address common barriers to EV charger access.
- ▲ Communications and outreach programs pertaining to County policies should account for any language and resource barriers within the community.

Key Local and Regional Background

Table 6-1. Current Planning Efforts Related to Decarbonizing Transportation

Plan/Program Name	Summary	Coordinating Organization	Implications for CAAP
Regional			
Zero Emission Vehicle Action Plan	<p>Board-approved Climate Early Action Project that will include:</p> <ul style="list-style-type: none"> An analysis of existing charging network to make recommendations for expansion; An inventory of existing ZEV municipal needs and a timeline to transition the entire fleet to ZEVs; and An outreach strategy to implement ZEV rollout programs and infrastructure upgrades. 	Led by the County in partnership with Caltrans; the Cities of Davis, Winters, Woodland, and West Sacramento; UC Davis; Yocha Dehe Wintun Nation; and Yolo Transportation District	When completed, the ZEV Action Plan will serve as a blueprint for ZEV transition programs proposed in this CAAP. The CAAP will integrate the recommendations from the Action Plan into the measures and actions proposed under the Decarbonize Transportation strategy category.
Electrify Yolo – Valley Clean Energy	Initiative established to develop the installation of electric vehicle charging stations for public use within the cities and unincorporated communities of Yolo County.	Valley Clean Energy	Encourages the transition to electric vehicles, thereby lowering both vehicle miles traveled and greenhouse gas emissions.

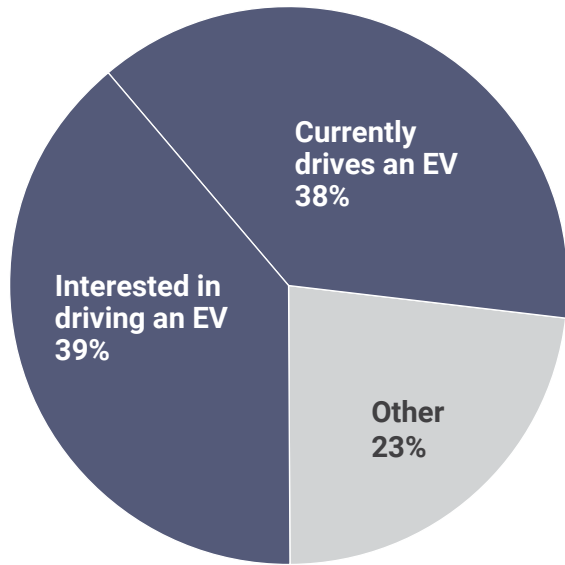
Note: ZEV = zero-emission vehicle; Board = Yolo County Board of Supervisors; UC = University of California.

Relevant Community Outreach

Community outreach results are reflective of voluntary County participants, and accordingly, may or may not represent the views of the community as a whole.

The Yolo County community response related to decarbonizing transportation efforts is summarized in Figure 6-3 and Figure 6-4. As shown, there is strong community support for actions to reduce vehicle emissions, including investment in expanded EV charging infrastructure. Community outreach also found that this support is backed by many in the community who either currently drive EVs or are interested in driving one.

▼ Figure 6-3. Electric Vehicle Support and ► 6-4. Yolo County Community Support for Decarbonizing Transportation



Implement policies to reduce vehicle emissions (such as coordinating traffic lights, limiting idling, or establishing vehicle-free streets and zones)



Invest in expanded electric vehicle charging infrastructure



Provide incentives for existing building owners to install electric vehicle (EV) charging infrastructure



MEASURE DT 1:

Electrify County Fleet

Procure EV replacements for gasoline- and diesel-powered County vehicles and install EV charging infrastructure to run them.

ACTIONS

- DT 1a** Install EV charging stations at County facilities to facilitate the use of County-owned EVs.
 ● ● ● PHASE I MITIGATION | ADAPTATION | CROSSCUTTING
- DT 1b** Replace County light-duty gasoline- and diesel-fueled vehicles with EVs.
 ● ● ● PHASE I MITIGATION | ADAPTATION | CROSSCUTTING
- DT 1c** Provide an internal County education program focused on the advantages of EVs per the forthcoming Yolo County Zero-Emission Vehicle Action Plan (ZEV Action Plan), highlighting the transition implications within the new fleet policy.
 ● ● ● PHASE II MITIGATION | ADAPTATION | CROSSCUTTING
- DT 1d** Coordinate with Yolo Transportation District to develop and implement a countywide EV shuttle plan and apply for grant funding to purchase EV shuttles.
 ● ● ● PHASE I MITIGATION | ADAPTATION | CROSSCUTTING
- DT 1e** Develop County facility EV charging plans that maximize EV charging during solar peak hours.
 ● ● ● PHASE II MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE DT 1 HIGHLIGHTS

CO-BENEFITS:



**GHG REDUCTION POTENTIAL
(MT CO₂e)**
2030: N/A
2045: N/A
COST: \$-



MEASURE DT 2:

Install Electric Vehicle Charging Infrastructure

Expand EV charger access for all Yolo County residents through incentive programs for private development, installations at public facilities, and changes to the Yolo County Code of Ordinances (County Code).

ACTIONS

- DT 2a** Install EV charging stations at nonresidential public parking areas within unincorporated Yolo County using findings from the forthcoming ZEV Action Plan and regional Electrify Yolo project.

● ● ● PHASE I MITIGATION | ADAPTATION | CROSSCUTTING
- DT 2b** Develop pilot vehicle-grid integration applications at County facilities to maximize the benefits that daytime charging for plug-in EVs can have on the grid, including demand response to reduce peak loads and energy storage during periods of renewable overproduction.

● ● ● PHASE II MITIGATION | ADAPTATION | CROSSCUTTING
- DT 2c** Develop an incentive program to encourage building owners to install EV supply equipment.

● ● ● PHASE II MITIGATION | ADAPTATION | CROSSCUTTING
- DT 2d** Adopt an ordinance to require CALGreen Tier 2 standards or similar EV charging requirements for EV receptacles and supply equipment for new residential and nonresidential construction.

● ● ● PHASE I MITIGATION | ADAPTATION | CROSSCUTTING
- DT 2e** Apply for State grants to fund the installation of EV chargers within locations designated by the forthcoming countywide ZEV Action Plan.

● ● ● PHASE II MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE DT 2 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: N/A

2045: N/A

COST: \$-

MEASURE DT 3:

Encourage Transition to Electric Vehicles

Advance education programs highlighting the benefits of EVs, roll out incentive and pilot programs to expand access to EV alternatives, and work with local organizations to increase EV adoption by residents and businesses across Yolo County.

ACTIONS

- DT 3a** Coordinate with school districts and transit agencies in development of the countywide ZEV Action Plan.

● ● ● PHASE I MITIGATION | ADAPTATION | CROSSCUTTING
- DT 3b** Develop a low-cost neighborhood EV sharing program for integrating a suite of low-speed, zero-emission vehicles for micromobility within a defined area. The program should be prioritized in low- and very low-income neighborhoods to provide better EV equity within the unincorporated Yolo County area. EV chargers for this program should be considered and prioritized in the forthcoming countywide ZEV Action Plan. Libraries and/or existing bus stops can serve as hubs. Critical populations such as those in Madison/Esparto and Knights Landing should be prioritized.

● ● ● PHASE II MITIGATION | ADAPTATION | CROSSCUTTING
- DT 3c** Develop and implement a countywide education program that educates residents and businesses on the advantage of EVs.

● ● ● PHASE II MITIGATION | ADAPTATION | CROSSCUTTING
- DT 3d** Develop an ordinance to require Transport Refrigeration Units (TRUs) and auxiliary power units (APUs) to utilize electric plug-in units at loading docks, if capable.

● ● ● PHASE I MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE DT 3 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL (MT CO₂e)

2030: 57,279

2045: 156,739

COST: \$-

MEASURE DT 3:

Encourage Transition to Electric Vehicles

Advance education programs highlighting the benefits of EVs, roll out incentive and pilot programs to expand access to EV alternatives, and work with local organizations to increase EV adoption by residents and businesses across Yolo County.

ACTIONS

- DT 3e** Develop EV truck incentive pilot program for large-scale mining and gravel operations within Yolo County.
● ● ● PHASE III MITIGATION | ADAPTATION | CROSSCUTTING

- DT 3f** Update the zoning code to specify that subdivided land that is used to build an EV fuel station offering 100% renewable, carbon-neutral, or carbon-negative fuel is not required to have a building.
● ● ● PHASE I MITIGATION | ADAPTATION | CROSSCUTTING

- DT 3g** Update the zoning code to exempt up to two EV charging stations from non-conforming use requirements and/or Conditional Use Permits when added to an existing business or property when it does not require additional non-conforming construction.
● ● ● PHASE II MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE DT 3 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: 57,279

2045: 156,739

COST: \$-

MEASURE DT 4:

Encourage Transition to Other
Zero-Emission Vehicle Technologies

Run a program testing low-emission fuels in vehicles where few EV alternatives currently exist.

ACTIONS

DT 4a

Research and develop a program to support the transition to hydrogen fuel for medium- and heavy-duty vehicles.

● ● ● **PHASE III**

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE DT 4 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: N/A

2045: N/A

COST: \$+/-



STRATEGY 2

Reduce Vehicle Miles Traveled (VMT)

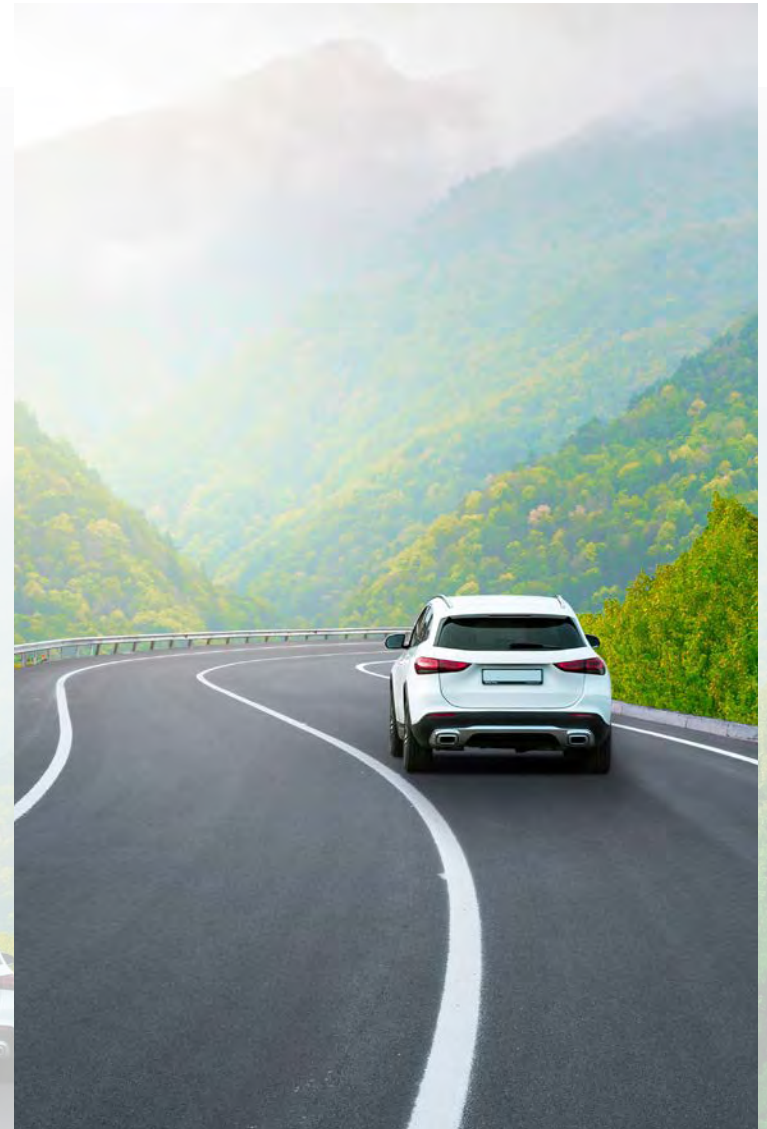
While important to continue to strive to reduce vehicle miles traveled, it will be a challenge given the rural nature of Yolo County.

Similar to Strategy 1, Decarbonize Transportation, the strategy to reduce vehicle miles traveled (VMT) addresses the GHG emissions from the transportation sector. However, while Strategy 1 focuses on reducing emissions through cleaner fuel and alternative technologies, Strategy 2 seeks to lower GHGs from transportation by reducing overall vehicle travel, measured as VMT. As discussed above, on-road transportation emissions from fossil fuel-powered vehicle travel are the largest source of GHG emissions in unincorporated Yolo County. The 2022 County GHG inventory indicates that on-road transportation accounted for 269,588 MT CO₂e, or 36%, of overall Yolo County emissions in 2022 (see Chapter 3).

The measures to achieve this strategy aim to reduce transportation emissions by reducing single-occupancy vehicle trips and encouraging transit-oriented and infill development. By providing residents with alternatives to single-occupancy vehicle travel, such as carpooling and shuttle services, the County can decrease VMT, an essential component of reducing the GHG emissions from the transportation sector.

2030 GHG REDUCTION POTENTIAL

The Strategy 2 actions were all selected based on their potential to reduce VMT within the County's land use context based on available research and data. However, no VMT reductions were quantified. While reducing VMT would directly reduce GHG emissions associated with vehicle travel, because no VMT reductions were quantified, no GHG emission reductions from Strategy 2 measures were quantified. Nonetheless, VMT reductions associated with implementation of Strategy 2 measures and actions are anticipated.





Equity Concerns

- ▲ Changes to existing public service routes or the creation of new public service routes could disproportionately burden more isolated, lower-income, and vulnerable communities.
- ▲ VMT reduction efforts may lead to increased property values in certain communities, potentially displacing long-standing residents.



Equity Solutions

- ▲ Consult the Yolo Active Transportation Corridors Plan (YATC) to address barriers to mobility for low-income and vulnerable communities.
- ▲ Focus route expansion efforts on increasing service for low-income and vulnerable communities.
- ▲ Transit planning and scheduling should accommodate language and access needs of lower-income and vulnerable communities.

Key Local and Regional Background

Table 6-2. Current Planning Efforts Related to Reducing Vehicle Miles Traveled

Plan/Program Name	Summary	Coordinating Organization	Implications for CAAP
Regional			
Green Means Go	A pilot funding program in the six-county Sacramento region with the goal of increasing mobility options, reducing vehicle emissions, and creating more infill housing within Green Zones. Green Zones are key areas established by SACOG's MTP/SCS with infill capacity. Green Zones in unincorporated Yolo County include Esparto and Dunnigan.	Sacramento Area Council of Governments (SACOG)	<p>Could provide funding to accelerate infill development.</p> <p>Accelerate travel options and provide pedestrian network improvement.</p> <p>Accelerate EV development through increased charging infrastructure.</p>
Local			
Yolo Active Transportation Corridors Plan (YATC)	Aims to develop an active transportation plan for a network of multi-use trails to promote mobility and alternative forms of transportation.	Yolo Transportation District	The plan seeks to address barriers to mobility for low-income, minority populations living in the region's most isolated and disadvantaged areas.
Yolo County 2030 General Plan Circulation Element	The Circulation Element of the Yolo County General Plan is focused on mobility, with a goal of ensuring accessibility while taking safety, air quality, GHG emissions, smart growth, and quality of service into account.	Yolo County Planning Department	The plan aligns with CAAP goals of clean, reliable, and accessible transportation for residents while also developing innovative approaches to address agricultural needs. Examples include designating routes for farm-to-market trips and industrial/commercial trucking travel.
Yolo Commute	Yolo Commute is a nonprofit partnership of public and private employers working together to address regional transportation and air quality issues by reducing single-occupant commutes.	Yolo County	Reduces vehicle miles traveled and GHG emissions as an employee-driven rideshare service.
Yolobus BeeLine	On-demand microtransit rideshare program serving Woodland, Winters, and Knights Landing.	Yolobus	Reduces vehicle miles traveled and GHG emissions by providing a reliable public transportation service.

Notes: SACOG = Sacramento Area Council of Governments; MTP/SCS = Metropolitan Transportation Plan/Sustainable Communities Strategy; EV = electric vehicle; GHG = greenhouse gas.

Relevant Community Outreach

Community outreach results are reflective of voluntary County participants, and accordingly, may or may not represent the views of the community as a whole.

The Yolo County community response related to actions to reduce VMT is summarized in Figure 6-5 and Figure 6-6. As shown, Yolo County residents are in support of improved infrastructure and safety measures that encourage alternative modes of transportation. Additionally, there is a strong foundation of existing community members who choose to walk or bike to limit vehicle trips.

► Figure 6-5 ▼6-6.

Yolo County Community Support for Reducing Vehicle Miles Traveled

“Improve public and bike transport options between cities (especially Sac, Davis, Woodland).”

“Give high school kids PE credit for biking to school.”

These strategies are supported by community action, demonstrated by the 50% of survey respondents who already replace local car trips with walking or biking. The community also makes an effort to reduce their driving or to combine trips when possible. Public transportation interests the community, as 26% already use it and another 33% would like to use it or learn more about it. However, the community would like support in using public transit through expansion of routes and increased frequency of buses.

Requests for County support from survey respondents: 49% want expansion of dedicated/protected bike lanes to increase safety when biking; 38% want more secure bike parking options in public places.

Improve infrastructure and safety to support alternative modes of transportation such as cycling and walking

78%

Expand/improve public transit options (such as buses, paratransit, and van pools)

84%



MEASURE VMT 1:

Reduce Single-Occupancy Vehicle Trips

Work with local and regional authorities to develop and implement policies, such as commute reduction programs that coordinate vanpooling and incentives for non-automotive transport, that reduce VMT from single-occupancy vehicle trips.

ACTIONS

VMT 1a

Coordinate with Yolo Transportation District and Yolo Commute to develop and implement a farmworker commute reduction program that includes evaluation of best practices to coordinate and/or encourage farmworker shuttles to transport farmworkers to and from the fields and farms where they work.

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING

VMT 1b

Coordinate with the Yolo Transportation District to implement the Yolo Active Transportation Corridors Plan (YATC) and ensure the plan provides feasible and reasonable bicycle and pedestrian infrastructure solutions (including secure bike storage) for Yolo County's unincorporated areas. Focus on adding bike lanes that connect people to destinations in populated areas within Yolo County or rural areas that are adjacent to existing communities. Pedestrian network improvements would be prioritized in key areas in need of sidewalks, which would be identified based on past pedestrian accidents, and safe routes to schools within residential neighborhoods would be developed (acknowledging that sidewalks are the responsibility of the landowner once installed).

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING

VMT 1c

Develop and implement a carpool/vanpool program for County staff that includes incentives for staff who participate. Consider adoption of an ordinance requiring employers that employ 200 or more employees to include an employer-sponsored vanpool program for relevant/applicable community hubs. Coordinate with Yolo Commute to provide additional funding to incentivize vanpooling for employers across Yolo County.

● ● ● PHASE III

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE VMT 1 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: N/A

2045: N/A

COST: \$\$+

MEASURE VMT 1:

Reduce Single-Occupancy
Vehicle Trips

Work with local and regional authorities to develop and implement policies, such as commute reduction programs that coordinate vanpooling and incentives for non-automotive transport, that reduce VMT from single-occupancy vehicle trips.

ACTIONS

VMT 1d

Coordinate with Yolo Commute to use County facilities (community centers, libraries, or other appropriate facilities) to provide a place for residents to go and receive electric bike (e-bike) subsidies. Also use County facilities for e-bike safety training sessions. Coordinate with the California Department of Transportation (Caltrans) and Health and Human Services Agency (HHSA) to ensure educational materials for e-bike safety (e.g., bike helmet use) are provided community-wide to increase e-bike usage while emphasizing safety. Coordinate with Yolo Unified School District to encourage e-bike use with a focus on middle schools.

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE VMT 1 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: N/A

2045: N/A

COST: \$\$+

MEASURE VMT 2:

Encourage Transit-Oriented and Infill Development

Facilitate transit-oriented development (TOD) across Yolo County to encourage use of alternative transit to reduce VMT.

ACTIONS

VMT 2a Review locations of high-quality transit centers and adjacent TOD within the cities and coordinate with the city staff to develop better connectivity to the transit centers and TOD within unincorporated Yolo County through bike and pedestrian paths, bus routes, etc.

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING

VMT 2b Adopt an ordinance that will require TOD development to join Yolo Commute as a condition of approval.

● ● ● PHASE III

MITIGATION | ADAPTATION | CROSSCUTTING

VMT 2c If another round of funding is approved, apply to the Regional Early Action Planning Grants (REAP) program to explore options to accelerate infill development that facilitates housing supply, choice, and affordability, and realizes multimodal communities.

● ● ● PHASE III

MITIGATION | ADAPTATION | CROSSCUTTING

VMT 2d Investigate feasibility of the Housing Relocation-Subsidy Program (HRSP).

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE VMT 2 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: N/A

2045: N/A

COST: \$+/-



Strategy 3

Decarbonize Energy and Buildings and Increase Energy Efficiency (EB)

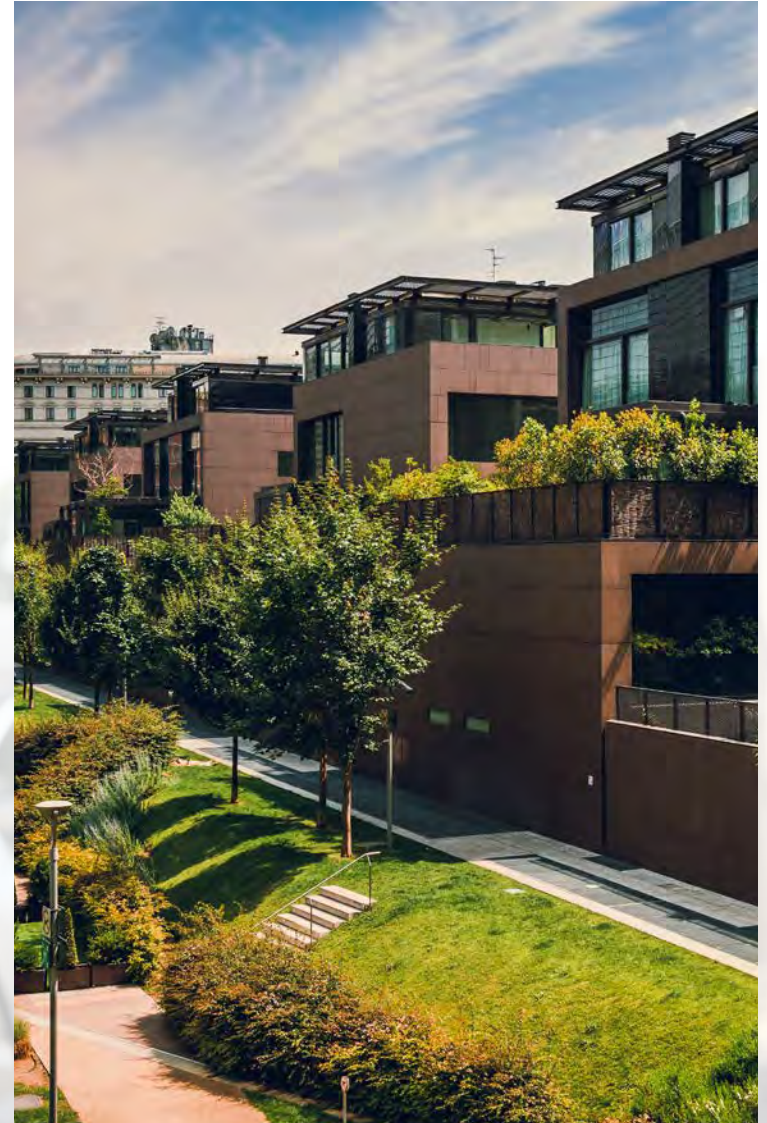
Reducing GHG emissions from energy use requires a multifaceted approach to transition to cleaner fuels while also increasing efficiency.

At the State level, residential and commercial buildings alone account for approximately 25% of statewide emissions (CARB 2024). Similarly, the 2022 County GHG inventory indicates that building energy accounted for 172,064 MT CO₂e, or 23%, of overall Yolo County emissions in 2022. Reducing emissions from building energy use will involve increased renewable energy generation and storage and increasing energy efficiency for heating and operating buildings. Strategy 3 aims to reduce Yolo County's GHG emissions from the consumption of natural gas and electricity to operate residential, commercial, and industrial buildings.

The measures to achieve this strategy aim to rapidly decrease GHG emissions from building energy use through policies facilitating retrofits to increase efficiency and electrify heating systems and appliances, procuring zero-carbon electricity, and encouraging further buildout of renewable energy generation to speed grid decarbonization.

2030 GHG REDUCTION POTENTIAL

68,501 MT CO₂e





Equity Concerns

- ▲ Low-income households may not be able to afford costly electrification or energy efficiency retrofits.
- ▲ Subsidies and incentives may not be sufficient to cover the cost of electrification for low-income households.
- ▲ As residents throughout Yolo County electrify their homes, those still using gas for heating or cooking could face rate increases.
- ▲ Landlords may pass on electrification costs to their tenants, disproportionately burdening low-income households, who are more likely to rent than own their homes.
- ▲ Electrification policies, including updates to the County Code, may impact the price and availability of affordable housing if the cost of upgrades is passed on to renters and/or homebuyers.
- ▲ Language barriers, lack of access to technology (e.g., a steady internet connection), or inability to devote extra time to seek out such information are also concerns.



Equity Solutions

- ▲ Pilot programs for electrification or energy efficiency grants and incentives should make sure to include low-income and vulnerable communities.
- ▲ A portion of subsidies or incentives should be reserved to offset the costs of electrification specifically for low-income households.
- ▲ The County should consider implementing grant programs that can provide financial support to landlords, offsetting their electrification costs without burdening renters.
- ▲ The County should accommodate all community members by providing translated materials, organizing workshops, and collaborating with community leaders to promote energy-efficient practices across diverse language groups.

Key Local and Regional Background

Table 6-3. Current Planning Efforts Related to Decarbonizing Energy and Buildings

Plan/Program Name	Summary	Coordinating Organization	Implications for CAAP
Regional			
Property Assessed Clean Energy Financing Programs	Three approved programs that enable property owners to finance on-site energy/water efficiency and renewable energy projects through a voluntary special tax assessment on the property.	Yolo County Planning Division	PACE programs provide unique financing options for environmentally beneficial improvements.
Local			
Woodsmoke Reduction Program	Offers vouchers (ranging from \$1,000-\$3,500) for Yolo-Solano Air Quality Management District residents to replace an in-use non-EPA-certified wood stove with an EPA-certified wood stove/insert, natural gas, or electric heating device.	Yolo-Solano Air Quality Management District	Model voucher program for efficient appliance upgrades.
Electrification Retrofit Rebate Outreach Project	Board-approved Climate Early Action Project organized by Valley Clean Energy that will provide outreach, education, information, and hands-on support to help low-income households in unincorporated Yolo County access funding and rebates for electric retrofits and natural gas appliance replacement.	Valley Clean Energy	Energy efficiency and electric retrofits will lower energy bills, create local jobs, and improve indoor air quality and health-related issues by eliminating natural gas combustion in homes.
Inventory and Feasibility Study to Remove Fossil Fuels from County Operations	Board-approved Climate Early Action Project to develop an inventory of all fossil fuels used in County operations and then assess the feasibility of removing them from use.	Yolo County Department of General Services	Will identify opportunities and establish clear targets for the transition to cleaner energy sources.

Plan/Program Name	Summary	Coordinating Organization	Implications for CAAP
Home Energy Score Program	Board-approved Climate Early Action Pilot Program that provides free home energy assessments to unincorporated Yolo County community members. Developed by the U.S. Department of Energy, Home Energy Score is a program that assesses a home's energy efficiency on a scale of 1–10 and provides recommendations for improving efficiency.	The County in partnership with BayREN and StopWaste	Will increase education and access to home energy efficiency rebates and incentives and will assess community interest in expanding beyond a pilot program.
100% Renewable Electricity Accounts	Board-approved Climate Early Action Project to enroll all Yolo County municipal electric accounts not covered by existing County solar/renewable projects into UltraGreen via Valley Clean Energy.	The County in partnership with Valley Clean Energy	Ensures that all municipal electric accounts are covered by renewable energy.

Notes: EPA = U.S. Environmental Protection Agency; Board = Yolo County Board of Supervisors; PG&E = Pacific Gas and Electric Company.

Relevant Community Outreach

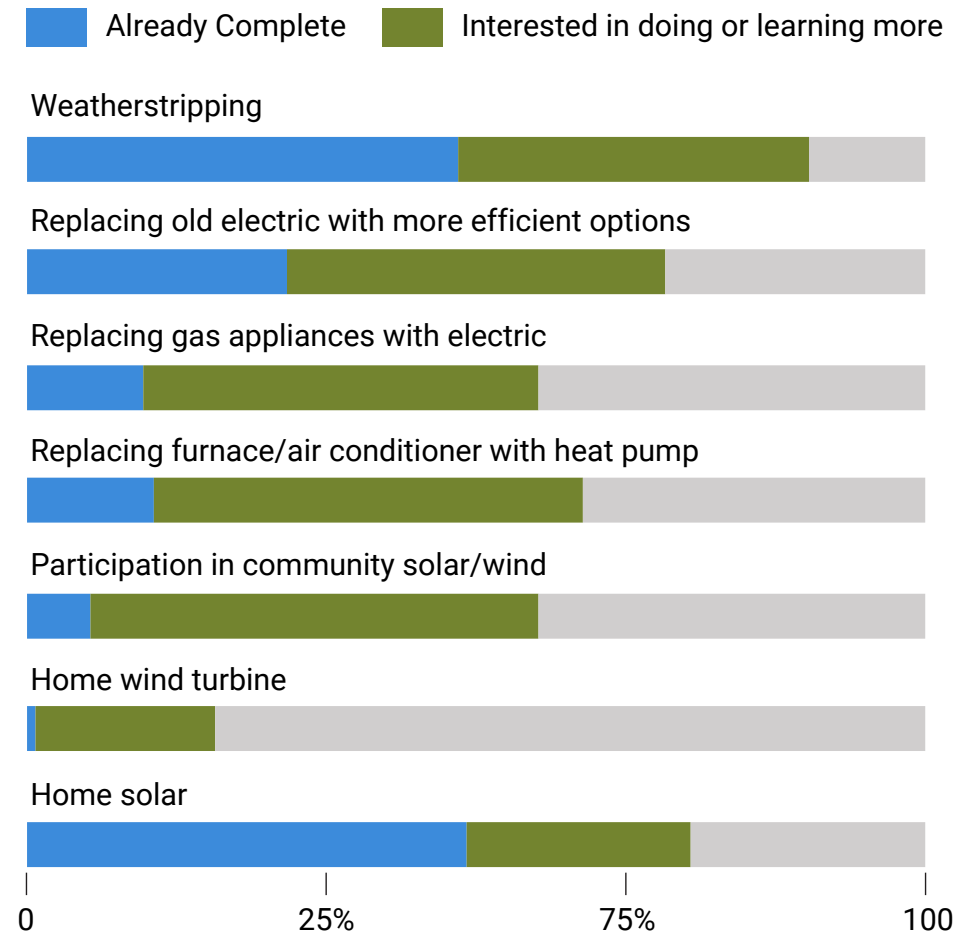
Community outreach results are reflective of voluntary County participants, and accordingly, may or may not represent the views of the community as a whole.

The Yolo County community response related to actions to decarbonize and increase energy efficiency of buildings is summarized in Figure 6-7 and Figure 6-8. As shown, several actions to increase energy efficiency are already in use by members of the community. Additionally, there is strong support for weatherization and other efficiency options for homes. Notably, requirements to install solar panels and electrify all buildings, which will be crucial to achieving net-negative emissions, garnered less support than other actions.

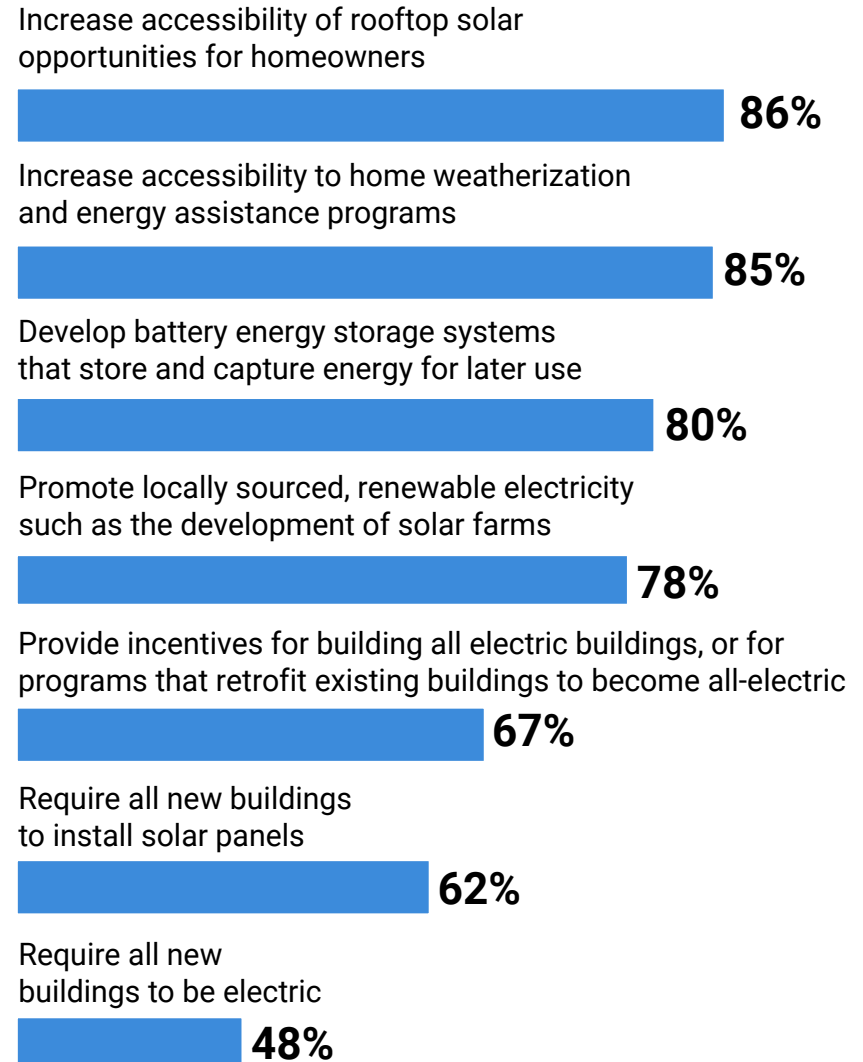
► Figure 6-7.

Yolo County Community Support for Efficiency Improvements

“Provide technical assistance for families and businesses to switch to energy-efficient equipment.”



► Figure 6-8.
Yolo County Community Support for Energy Solutions



MEASURE EB 1:

Increase Energy Efficiency in Buildings

Develop policies to increase residential and commercial energy efficiency through incentives for retrofits and changes to the County Code.

ACTIONS

- EB 1a** Implement energy efficiency retrofits across County facilities, including the installation of cool roofs and replacement of all incandescent and fluorescent lighting with LED lighting.

● ● ● PHASE I MITIGATION | ADAPTATION | CROSSCUTTING
- EB 1b** Incentivize residents and businesses to install cool roofs and green roofs by providing educational materials about their costs and benefits and by offering loans, grants, and/or rebates to property owners who install them.

● ● ● PHASE II MITIGATION | ADAPTATION | CROSSCUTTING
- EB 1c** Increase accessibility to home weatherization and energy assistance programs, focusing outreach efforts on low-income and non-English-speaking households to ensure widespread access to these programs.

● ● ● PHASE I MITIGATION | ADAPTATION | CROSSCUTTING
- EB 1d** Develop policies and incentive programs to implement energy efficiency retrofits for existing residential, commercial, and industrial buildings, such as upgrading lighting and replacing energy-intensive appliances and equipment with more-efficient systems (such as Energy Star-rated equipment and equipment controllers). Continue to implement Property Assessed Clean Energy (PACE) program to promote energy efficiency retrofits.

● ● ● PHASE I MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE EB 1 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: 1,207

2045: 2,011

COST: \$\$- to \$-

MEASURE EB 1:

Increase Energy Efficiency in Buildings

Develop policies to increase residential and commercial energy efficiency through incentives for retrofits and changes to the County Code.

ACTIONS

- EB 1h** Create an incentive program to replace conventional supermarket direct expansion systems, which use emission-heavy refrigerants with high global warming potential (GWP), with indirect systems such as secondary loop, transcritical CO₂, and/or cascade systems. As opposed to direct expansion systems, which circulate one refrigerant from the machinery room out to the store and back to the machinery room, indirect systems employ a primary and secondary refrigerant or heat-transfer fluid.

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING
- EB 1i** Research and develop an education and incentive program to encourage use and replacement of air conditioning units with lower-GWP refrigerants.

● ● ● PHASE III

MITIGATION | ADAPTATION | CROSSCUTTING
- EB 1j** Update the Yolo County building code to require installation of more-efficient alternatives to conventional furnaces or air conditioners, such as heat pumps and whole house fans, in new developments.

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE EB 1 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: 1,207

2045: 2,011

COST: \$\$- to \$-

MEASURE EB 2:

Decarbonize and Electrify Buildings

Electrify County-owned and operated buildings and facilitate building electrification efforts at homes and businesses throughout Yolo County.

ACTIONS

- EB 2a** Require all natural gas appliances within County buildings be replaced with electric appliances, including retrofitting the HVAC system to include heat pumps and/or combined heat and power systems (CHP).

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING
- EB 2b** Create incentive programs, such as rebates for building retrofits, to electrify all appliances and equipment in existing residential, commercial, industrial, and agricultural buildings and facilities where possible.

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING
- EB 2c** Adopt an ordinance by 2027 that all new development (residential and nonresidential [commercial, industrial, and agricultural]) is required to install all-electric equipment or zero-GHG-emission equipment.

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING
- EB 2d** Partner with agricultural organizations to develop an outreach and incentives program to encourage farmers to improve pump efficiency, with a goal of electrification of all agricultural pumps.

● ● ● PHASE III

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE EB 2 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL (MT CO₂e)

2030: 67,082
2045: 100,032
COST: \$- to \$+

MEASURE EB 3:

Increase Renewable Energy Generation and Storage

Increase renewable energy generation and storage to meet more of the energy demand at County facilities and pursue policies to expand renewable energy generation and storage throughout Yolo County.

ACTIONS

- EB 3a** Install photovoltaic (PV) solar panels at County-owned facilities. On-site renewable systems could include PV systems on rooftops of municipal buildings, on canopies in public parking lots, over irrigation canals, etc.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING
- EB 3b** Secure funding to upgrade existing municipal building electrical infrastructure to support building electrification, battery storage integration, etc. Funding to be prioritized to facilities/projects as identified in the Inventory and Feasibility Study to Remove Fossil Fuels from County Operations.

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING
- EB 3c** Install battery storage systems at County-owned facilities that include electric generation from on-site renewable power systems to expand the use of zero-emission electricity during times when renewable energy is not being generated.

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING
- EB 3d** Continue to require new residential and commercial development to install solar PV systems capable of providing a proportion of the development's total projected electricity consumption and consider opportunities to amend County Code to go above and beyond existing regulation.

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE EB 3 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: 66

2045: 0

COST: \$\$+

MEASURE EB 3:

Increase Renewable Energy Generation and Storage

Increase renewable energy generation and storage to meet more of the energy demand at County facilities and pursue policies to expand renewable energy generation and storage throughout Yolo County.

ACTIONS

- EB 3e** Develop an outreach and incentive program to help facilitate adoption of enhanced solar PV system requirements. Incentives like direct subsidies for lower-income households should be considered.

● ● ● PHASE II MITIGATION | ADAPTATION | CROSSCUTTING
- EB 3f** Facilitate the creation of community solar or wind projects (with storage to capture excess generation at off-peak-demand hours) that residents and businesses can invest in or subscribe to. Create a feasibility program evaluating access to community solar projects for Yolo County residents.

● ● ● PHASE II MITIGATION | ADAPTATION | CROSSCUTTING
- EB 3g** Develop a publicly accessible community energy map that identifies opportunities for deploying distributed energy resources and microgrids to improve energy resiliency.

● ● ● PHASE II MITIGATION | ADAPTATION | CROSSCUTTING
- EB 3h** Partner with local utility to facilitate managed microgrids, which offer the opportunity to deploy more zero-emission electricity sources, thereby reducing GHG emissions. Create a feasibility program for battery-backed microgrids throughout Yolo County.

● ● ● PHASE II MITIGATION | ADAPTATION | CROSSCUTTING
- EB 3i** Facilitate deployment of renewable energy production, distribution, and storage systems on privately owned land uses (e.g., through permit streamlining and information sharing).

● ● ● PHASE II MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE EB 3 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: 66

2045: 0

COST: \$\$+

MEASURE EB 3:

Increase Renewable Energy Generation and Storage

Increase renewable energy generation and storage to meet more of the energy demand at County facilities and pursue policies to expand renewable energy generation and storage throughout Yolo County.

ACTIONS

- EB 3j** Develop a farmer-to-farmer workshop program promoting opportunities for on-farm renewable energy generation facilities through demonstration projects, including use of agrivoltaics.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING

- EB 3k** Explore feasibility/grant funding to support a program that would waive County permit fees for projects that convert tailwater-return pumps to solar power.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE EB 3 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: 66

2045: 0

COST: \$\$+

MEASURE EB 4:

Procure Zero-Carbon Electricity

Offer incentives and conduct outreach for Yolo County residents who wish to purchase carbon-free electricity from local providers.

ACTIONS

- EB 4a** Enroll all Yolo County municipal electric accounts not covered by existing County solar/renewable projects into UltraGreen via Valley Clean Energy (VCE) or the similar Pacific Gas and Electric Company "Green Saver" program.

● ● ● PHASE I MITIGATION | ADAPTATION | CROSSCUTTING
- EB 4b** Continue to facilitate participation in existing demand response program(s) created by local utilities (PG&E and VCE). Such programs could include time-based rates or time-of-use (TOU) pricing, critical peak pricing, or critical peak rebates, and should provide outreach materials that are accessible to all residents, including non-English speakers.

● ● ● PHASE III MITIGATION | ADAPTATION | CROSSCUTTING
- EB 4c** Create an education and outreach program to increase enrollment of Yolo County residents and businesses in the 100% renewable and carbon-free UltraGreen option offered by Valley Clean Energy (VCE), the local Community Choice Aggregation (CCA) program.

● ● ● PHASE I MITIGATION | ADAPTATION | CROSSCUTTING
- EB 4d** Provide incentives to offset the extra cost to residents of opting into VCE's UltraGreen power option and to complement outreach efforts aimed at adoption of VCE's 100% renewable and carbon-free electricity portfolio option. Focus this effort on low-income consumers, especially those enrolled in the California Alternate Rates for Energy (CARE) and Family Electric Rate Assistance (FERA) programs.

● ● ● PHASE II MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE EB 4 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: 146

2045: 0

COST: +/-

STRATEGY 4

Optimize Water Use (W)

While GHG emissions embedded in the life cycle of water used by the County are of concern for climate mitigation efforts, any plan addressing California's water resources must consider the threats posed by water shortages.

The GHG emissions from water use include indirect emissions from the energy needed to pump, treat, and distribute water, and direct emissions from the release of methane gas during wastewater treatment. The 2022 County GHG inventory indicates that water use accounted for 28,079 MT CO₂e, or 3.7%, of overall County emissions in 2022 (see Chapter 3). The State of California's latest Water Supply Strategy (State of California 2022) prepares for a future where California's water supplies shrink by up to 10% by 2040 and warns that without decisive action, climate change will continue to exacerbate drought conditions, posing a serious threat to future water resources.

With over 80% of its land dedicated to agriculture, the County recognizes the significance of responsible water management. The measures in this strategy are focused on building on the County's existing water conservation efforts to address GHG emissions and to safeguard Yolo County's surface and groundwater resources for future generations. They include actions aimed at reducing GHG emissions from water consumption and wastewater treatment, promoting water recycling and stormwater capture, growing partnerships with departments including the Yolo Subbasin Groundwater Sustainability Agency and the Yolo County Flood Control & Water Conservation District to enhance the region's natural water resources, and encouraging efficient water use in agriculture.

2030 GHG REDUCTION POTENTIAL

4,042 MT CO₂e





Equity Concerns

- ▲ The up-front costs associated with implementing water-use reduction strategies may disproportionately affect lower-income households.
- ▲ Landlords could pass on the cost of water-saving measures on their properties to their tenants, which disproportionately affects low-income renters.
- ▲ Vulnerable communities could experience additional barriers to understanding policy changes that may affect their water bills, including language barriers, lack of access to technology (e.g., a steady internet connection), or inability to devote extra time to seek out such information.



Equity Solutions

- ▲ The County should provide financial assistance, such as subsidies or grants, to alleviate the financial burden associated with adopting any costly water-saving measures.
- ▲ The County should also consider implementing grant programs that can provide financial support to landlords, offsetting their costs associated with water-saving measures without burdening renters.
- ▲ The County should accommodate all community members by providing translated materials, organizing workshops, and collaborating with community leaders to promote water-saving practices across diverse language groups.

Key Local and Regional Background

Table 6-4. Current Planning Efforts Related to Optimizing Water Use

Plan/Program Name	Summary	Coordinating Organization	Implications for CAAP
Regional			
Yolo County Zoning Code (Title 8) Land Development Chapter 3: Water Efficient Landscaping Ordinance	Title 8 of the Yolo County Zoning Code includes an ordinance with provisions addressing water-efficient landscaping, with the goal of the conservation and efficient use of water.	Yolo County Planning Department	Sets irrigation, landscaping, and public education standards for the County to ensure water efficiency and conservation.
Knights Landing Flood Management Project	Project designed to attain a 100-year level of flood protection in Knights Landing, reduce flood risk to the greater Knights Landing Basin, provide safe access to the river, and improve riparian habitat viability.	Yolo County	The current management project in Knights Landing can serve as a reference for the implementation of actions to conserve and enhance natural water sources in other parts of Yolo County.
Water Efficient Landscape Plants for Yolo County	Comprehensive list of Yolo County water-efficient plants (and provides comments on how to take care of them).	University of California Department of Agricultural and Natural Resources	Determine a way to make this information widespread and include information on where to purchase the recommended plants. Correlates to CAAP goals of water-efficient landscapes.
Recommended Water-Efficient Vines for Yolo County	Comprehensive list of Yolo County water-efficient vines.	University of California Department of Agricultural and Natural Resources	Determine a way to make this information widespread and include information on where to purchase the recommended vines. Correlates to CAAP goals of water-efficient landscapes.
Water Conservation Rebate Program – Wild Wings County Service Area Residents	The Program was approved in October 2021 by the Yolo County Board of Supervisors to help Wild Wings residents reach a 25% voluntary water conservation target. The rebate program consisted of landscape design assistance, grass removal, and rebates for both the purchase and installation of weather-based irrigation controllers.	Yolo County	Can serve as a model for the future implementation of rebate programs in various Yolo County communities.



Relevant Community Outreach

Community members across Yolo County have asked for increased education about and access to rainwater capture. In addition, outreach specific to those active in Yolo County's natural and working lands found that many operators currently utilize irrigation practices that reduce water use.

MEASURE W 1:

Conserve and Enhance
Natural Water Sources

Work with local and regional authorities to protect natural waterways and increase groundwater recovery.

ACTIONS

- W 1a** Acquire land and construct setback levees, which allow streams to return to a more natural flow regime, slow down overland flow, and enhance groundwater infiltration. Ensure flows in rivers and streams are sufficient to provide key ecological and climate-resilience functions.

● ● ● PHASE II MITIGATION | ADAPTATION | CROSSCUTTING
- W 1b** Collaborate with local groundwater agency to bring the Yolo Subbasin into sustainable conditions that avoid adverse effects of chronic overdrafting, including land subsidence, degradation of water quality, and groundwater depletion.

● ● ● PHASE I MITIGATION | ADAPTATION | CROSSCUTTING
- W 1c** Support local water districts and agencies with continued restoration of riparian corridors. Where practical, remove barriers, such as aging or obsolete dams and undersized culverts, to allow streams to function naturally and restore species’ access to cooler water habitats. Reconnect aquatic habitats to help fish and wildlife endure drought and adapt to climate change.

● ● ● PHASE I MITIGATION | ADAPTATION | CROSSCUTTING
- W 1d** Collaborate with tribal governments to preserve and restore natural waterways on ancestral lands.

● ● ● PHASE I MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE W 1 HIGHLIGHTS

CO-BENEFITS:



**GHG REDUCTION POTENTIAL
(MT CO₂e)**

2030: N/A

2045: N/A

COST: \$+/1 to \$+

MEASURE W 2:

Encourage Efficient Water Use
in Agricultural Operations

Coordinate groundwater recharge projects with farmers and set up education and outreach programs encouraging farmers to adopt water-saving irrigation practices.

ACTIONS

- W 2a** Partner with local farmers to implement groundwater recharge projects by flooding disused fields.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING

- W 2b** Increase managed groundwater recharge on working croplands that capture rain and storm runoff and redirect water during periods of extended high flows, allowing water to enter aquifers in a manner that does not exacerbate water quality issues and ensures diversions are protective of native fish and wildlife.

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING

- W 2c** Work with University of California Cooperative Extension, YCFCWCD, YCRCD, reclamation districts, water districts, and farming organizations to develop an outreach program that encourages farmers to adopt alternative irrigation techniques such as alternative-furrow, drip, and deficit irrigation.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE W 2 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: 4,041

2045: 8,082

COST: \$-

MEASURE W 3:

Promote Graywater, Recycled Water, and Stormwater Capture

Implement policies encouraging the safe and efficient use of graywater and recycled water and increase stormwater capture and storage.

ACTIONS

W 3e Develop a recycled-water infrastructure plan that should include an assessment of opportunities to increase water reuse and recycled water use in urban green spaces, the use of nonpotable water for outdoor uses, and the expansion of recycled water systems, as feasible. Current projects utilizing recycled water throughout Yolo County should be included as models for future projects.

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING

W 3f Review existing storm drains to determine the need for stormwater grates, oil/water separators, contaminant containment, and other mechanisms to clean stormwater flows prior to draining into natural waterways.

● ● ● PHASE III

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE W 3 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: N/A

2045: N/A

COST: \$\$+

MEASURE W 4:

Reduce Water Consumption

Reduce GHGs from wastewater treatment and implement policies limiting inefficient or wasteful water consumption.

ACTIONS

- W 4a** Coordinate with cities to install methane recovery in wastewater treatment plants.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING
- W 4b** Require a standard of no net increase in water demand for new buildings by revising the County Building Code.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING
- W 4c** Require existing buildings be retrofitted with water-efficient fixtures prior to resale and partner with Yolo County water districts to promote voluntary water efficiency retrofits for existing buildings through technical assistance, free water efficiency audits, and rebate incentives.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING
- W 4d** Allocate funding to incentive and outreach programs for water-efficient landscaping, weather-based irrigation systems, and drought-tolerant yards, including actions such as native species planting and lawn removal.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING

CO-BENEFITS:



**GHG REDUCTION POTENTIAL
(MT CO₂e)**

2030: 1

2045: 0

COST: \$\$+

STRATEGY 5

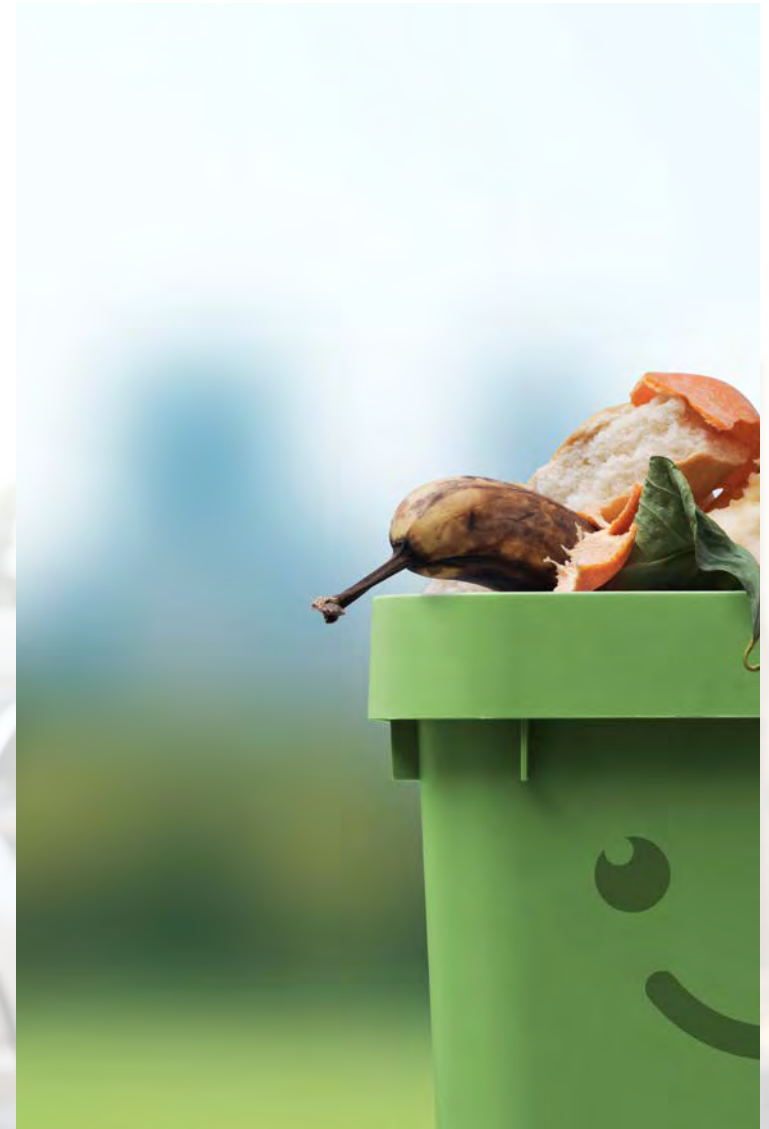
Minimize Waste (SW)

GHG emissions from solid waste are a result of the release of gaseous CH₄ and CO₂ from organic decomposition that occurs over time at landfills.

Between 2016 and 2022, waste emissions decreased by approximately 23%, as documented in Yolo County's 2022 Emissions Inventory. This is in part due to the County's landfill being home to some of the most efficient landfill gas collection in California. Still, solid waste accounts for roughly 5% of the County's overall GHG emissions and is a sector that remains important for achieving broader emission reduction goals. The following measures aim to minimize waste by reducing landfill waste, diverting construction and demolition waste, and reducing emissions from waste management.

2030 GHG REDUCTION POTENTIAL

3,640 MT CO₂e





Equity Concerns

- ▲ Communities near landfills and other waste sites experience elevated levels of air pollution, often disproportionately affecting frontline communities. The Yolo County Central Landfill is the only landfill within Yolo County, so this burden would primarily relate to a small number of residents or employees on neighboring rural land or to hazardous waste sites.
- ▲ Frontline communities could experience additional barriers to accessing incentives or resources, including language barriers, lack of access to technology (e.g., a steady internet connection), or inability to devote extra time to seek out such information.



Equity Solutions

- ▲ The County should involve affected communities in waste planning to understand their needs and concerns.
- ▲ The County should also educate community members about waste reduction options and encourage or incentivize participation in waste reduction programs.
- ▲ The County should accommodate all community members by providing translated materials and collaborating with community leaders to promote waste-reducing practices across diverse language groups.
- ▲ The County or agency partners should monitor air quality and address health disparities in impacted neighborhoods.

Key Local and Regional Background

Table 6-5. Current Planning Efforts Related to Minimizing Waste

Plan/Program Name	Summary	Coordinating Organization	Implications for CAAP
Local			
Edible Food Recovery Capacity Study and Funding Assessment in Yolo County	Comprehensive study assessing Yolo County's regional capacity of edible food recovery programs to meet the requirements mandated by Senate Bill 1383.	Yolo County Integrated Waste Management Division; Abound Food Care; Total Compliance Management	Study can be used as reference of feasibility and capacity when it comes to the future development and implementation of additional food recovery programs.
Source Separated Organics Collection	The Division of Integrated Waste Management purchased and provided all County facilities with designated disposal bins to sort organics, trash, and recyclables.	Yolo County Integrated Waste Management Division	The actions to reduce landfill waste as part of Strategy 5 continue this effort.
Construction and Demolition Debris Recycling and Diversion Ordinance	An ordinance that requires construction, demolition, and renovation projects to dispose of waste properly. It is superseded by CALGreen, who calls for 65% of construction materials to be diverted from the landfill.	Yolo County Integrated Waste Management Division	Strategy 5's action to increase construction and demolition waste diversion continues this effort and fulfills CalGreen requirements.
Davis Night Market	A grassroots volunteer organization that recovers food from local restaurants and businesses and redistributes it for free to community members.	Davis Night Market	Diverts food from being sent to the landfill while providing food to food-insecure residents. Can serve as a community partner or look into potential expansion to the different Yolo County communities to increase benefit.
Yolo County Central Landfill Compost Facility	The Compost Facility at the Central Landfill works to divert organic material from regular landfill disposal through the use of anaerobic composters cells and covered aerated static piles.	Yolo County Integrated Waste Management Division; Yolo County Central Landfill	Transforms organic waste into compost (provided to residents for free), which can be used for residential landscaping/gardening and for agricultural endeavors.

Plan/Program Name	Summary	Coordinating Organization	Implications for CAAP
Local			
Flip the Lid Campaign	Volunteer program in which individuals canvass Woodland neighborhoods, inspecting contents of trash, waste, and organic bins and providing tips/feedback/educational materials on correct sorting for future practice.	Yolo County Integrated Waste Management Division; EnviroWoodland	Can potentially be expanded and implemented on a countywide level to educate residents about proper waste disposal.
Methane Capture and Use as an Energy Source at the Yolo County Central Landfill	The Yolo County Central Landfill houses a gas collection system that captures methane from decomposing landfill cells and converts it to electricity that is then sold to the Sacramento Municipality Utility District.	Yolo County Integrated Waste Management Division; Yolo County Central Landfill	Apply methane capture practices used on closed landfill cells to County wastewater treatment plants for additional electricity generation.

Note: CALGreen = California Green Building Standards.

Relevant Community Outreach

The County is a regional leader in efficient waste management practices that meet and exceed State-mandated recycling requirements. The Yolo County Integrated Waste Management Division has been proactive in providing programs to reduce waste and encourage responsible consumption. The Big Blue Barn Thrift Store, which was established at the Yolo County Central Landfill in 2016, is a model of these successes. Since its opening, The Big Blue Barn has diverted over 500 tons of waste that would otherwise be destined for the landfill and would contribute to solid waste GHG emissions. The overwhelming support from the community for reuse and waste diversion highlights the opportunity for future reductions from this emissions sector.

► Figure 6-9.
The Big Blue Barn Thrift Store



MEASURE SW 1:

Reduce Landfill Waste

Reduce organic waste sent to landfills by expanding recycling and composting programs, conducting outreach, and providing incentives to promote community member behavioral changes.

ACTIONS

- SW 1a** Coordinate with waste haulers to expand the types of materials accepted by recycling programs, as economic conditions allow. Study options to expand existing and identify new opportunities to manage hard-to-recycle materials in the unincorporated areas through additional hauler services, drop-off locations, and/or center for hard-to-recycle materials.

● ● ● PHASE II MITIGATION | ADAPTATION | CROSSCUTTING
- SW 1b** Continue a source-separated organics collection service at all County facilities.

● ● ● PHASE I MITIGATION | ADAPTATION | CROSSCUTTING
- SW 1c** Continue to implement three-stream recycling (trash, recycling, and compost) at all County facilities.

● ● ● PHASE I MITIGATION | ADAPTATION | CROSSCUTTING
- SW 1d** Promote the use of reusable items by individuals, such as reusable bags in place of plastic bags.

● ● ● PHASE III MITIGATION | ADAPTATION | CROSSCUTTING
- SW 1e** Work with large grocers (based on CalRecycle’s Tier 1 Commercial Edible Food Generator definition) to develop outreach and incentive programs designed to promote the use of reusable bags over single-use plastic.

● ● ● PHASE III MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE SW 1 HIGHLIGHTS

CO-BENEFITS:



**GHG REDUCTION POTENTIAL
(MT CO₂e)**
2030: N/A
2045: N/A
COST: \$+/-

MEASURE SW 2:

Increase Construction and Demolition Waste Diversion

Divert demolition waste away from landfills and use recycled materials during construction.

ACTIONS

- SW 2a** Continue the diversion and recycling of construction and demolition waste.

● ● ● PHASE III

MITIGATION | ADAPTATION | CROSSCUTTING

- SW 2b** Develop an urban wood reuse program to require projects to source wood materials from urban reuse wood.

● ● ● PHASE III

MITIGATION | ADAPTATION | CROSSCUTTING

- SW 2c** Amend procurement policy to prioritize rubberized asphalt made from recycled tires collected at landfill for County road improvement projects.

● ● ● PHASE III

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE SW 2 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: N/A

2045: N/A

COST: \$\$+

MEASURE SW 3:

Reduce Emissions from
Waste Management

Increase the efficiency of existing gas collection systems at the Yolo County Central Landfill, create a food waste diversion program, and increase community awareness of existing waste management programs to amplify program impacts.

ACTIONS

- SW 3a** Coordinate and develop a diversion program for food waste that cannot be used in food recovery programs to be used by feed lots and farmers for feeding livestock.

● ● ● PHASE I MITIGATION | ADAPTATION | CROSSCUTTING
- SW 3b** Explore existing landfill gas collection and destruction systems at the Yolo County Central Landfill and consider alternatives that improve capture efficiency and emissions reductions.

● ● ● PHASE I MITIGATION | ADAPTATION | CROSSCUTTING
- SW 3c** Consider adoption of compliance program designed to ensure proper recovery/disposal of refrigerant emissions, in partnership with the Yolo County Environmental Health Division and the district attorney's office.

● ● ● PHASE II MITIGATION | ADAPTATION | CROSSCUTTING
- SW 3d** Secure funding to encourage residents and businesses to responsibly collect and dispose of waste and prevent illegal dumping/burning in the unincorporated area. Consider trash patrols, conducting additional "amnesty days," adding incentives, or promoting the Adopt-a-Road program.

● ● ● PHASE II MITIGATION | ADAPTATION | CROSSCUTTING
- SW 3e** Educate residents on proper waste sorting through school engagement and promotion of educational materials.

● ● ● PHASE III MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE SW 3 HIGHLIGHTS

CO-BENEFITS:



**GHG REDUCTION POTENTIAL
(MT CO₂e)**

2030: 3,640

2045: 6,280

COST: \$\$+



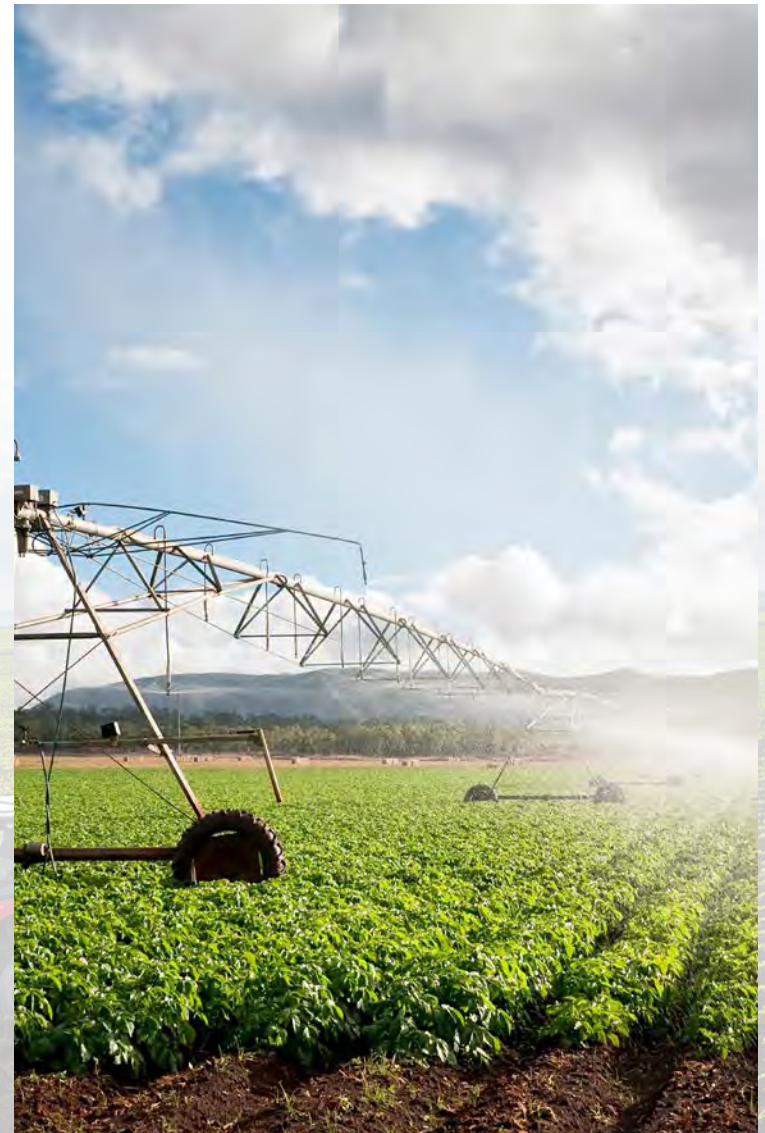
STRATEGY 6

Reduce Off-Road Equipment Emissions (OFR)

GHG emissions from off-road equipment result from diesel-, gasoline-, and in some cases, natural gas-powered equipment.

In Yolo County, this equipment includes construction equipment, agricultural equipment, recreational vehicles and equipment, and industrial equipment. In 2022, off-road equipment was responsible for approximately 132,302 MT CO₂e, or 18%, of overall County GHG emissions. The measures under this strategy aim to reduce GHG emissions from off-road equipment by decarbonizing agricultural equipment and increasing the use of electric and zero-emission off-road and landscaping equipment.

2030 GHG REDUCTION POTENTIAL
100,799 MT CO₂e





Equity Concerns

- ▲ Transitioning to electric or zero-emission equipment may be cost-prohibitive for small businesses or lower-income communities.
- ▲ Vulnerable communities could experience additional barriers to understanding policies that may affect them, such as ordinances or County Code changes. These challenges could include language barriers, lack of access to technology (e.g., a steady internet connection), or inability to devote extra time to seek out such information.



Equity Solutions

- ▲ The County should provide financial assistance, such as subsidies or grants, for zero-emission equipment specifically for low-income residents and/or small business owners to alleviate the financial burden associated new ordinance compliance.
- ▲ The County should accommodate all community members by providing translated materials, organizing workshops, and collaborating with community leaders to increase early understanding of any rule changes and potential exchange programs or incentives across diverse language groups.

Key Local and Regional Background

Table 6-6. Current Planning Efforts Related to Decarbonizing Off-Road Equipment

Plan/Program Name	Summary	Coordinating Organization	Implications for CAAP
Regional			
Agricultural Equipment Replacement Program	Board-approved Climate Early Action Project that, in partnership with YSAQMD, creates an electric utility task vehicle replacement program for Yolo County farmers.	Yolo County, Yolo-Solano Air Quality Management District	Incentivizes the replacement of supportive agricultural transportation from gas to electric through financial assistance opportunities.
Commercial Lawn and Garden Program	Offers vouchers to commercial landscapers for switching from gas- or diesel-powered equipment to zero-emission battery-operated alternatives.	Yolo-Solano Air Quality Management District	Incentivizes the replacement of commercial lawn and gardening equipment from gas to electric through financial assistance opportunities.
Carl Moyer Program	Provides grants to support the implementation of cleaner-than-required engines, equipment, and emission reduction technologies.	Yolo-Solano Air Quality Management District, California Air Resources Board	Promotes the reduction of diesel emissions from heavy-duty off-road equipment.

Notes: Board = Yolo County Board of Supervisors; YSAQMD = Yolo-Solano Air Quality Management District.

Relevant Community Outreach

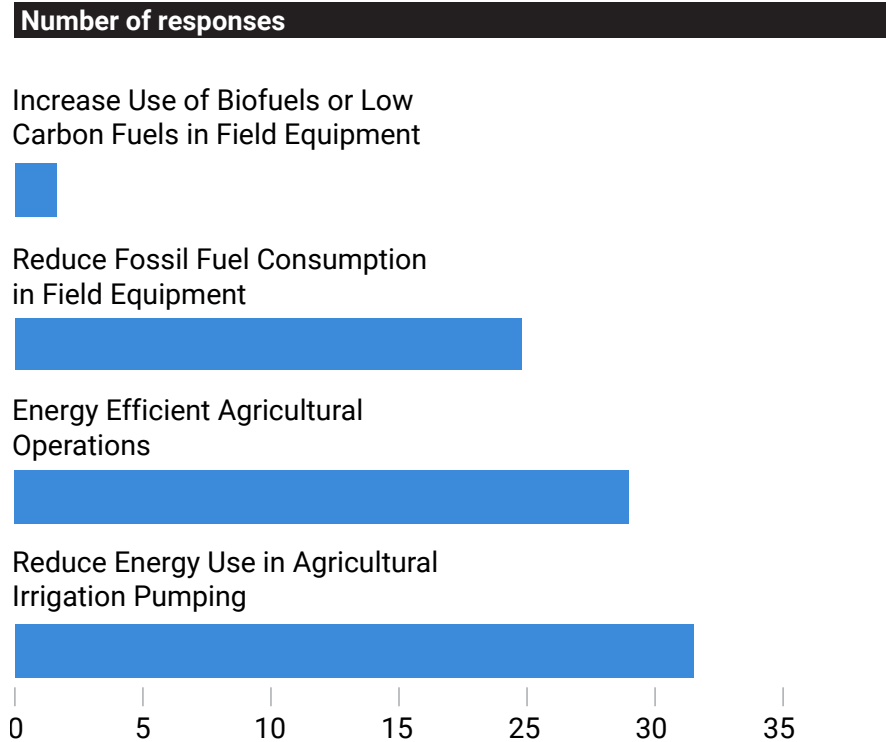
Community outreach results are reflective of voluntary County participants, and accordingly, may or may not represent the views of the community as a whole.

The community response gathered from a survey of Yolo County farmers and ranchers related to actions to reduce GHG emissions from off-road equipment, specifically for agricultural operations, is summarized in Figure 6-10 and Figure 6-11. As shown, while many farmers and ranchers currently implement practices that reduce fossil fuel consumption from agricultural equipment use, there are doubts that further energy efficiency actions would be feasible, even if challenges and resource barriers are addressed. For the GHG-reducing measures and actions related to off-road equipment presented below to be successful, consideration of these community concerns should be prioritized.

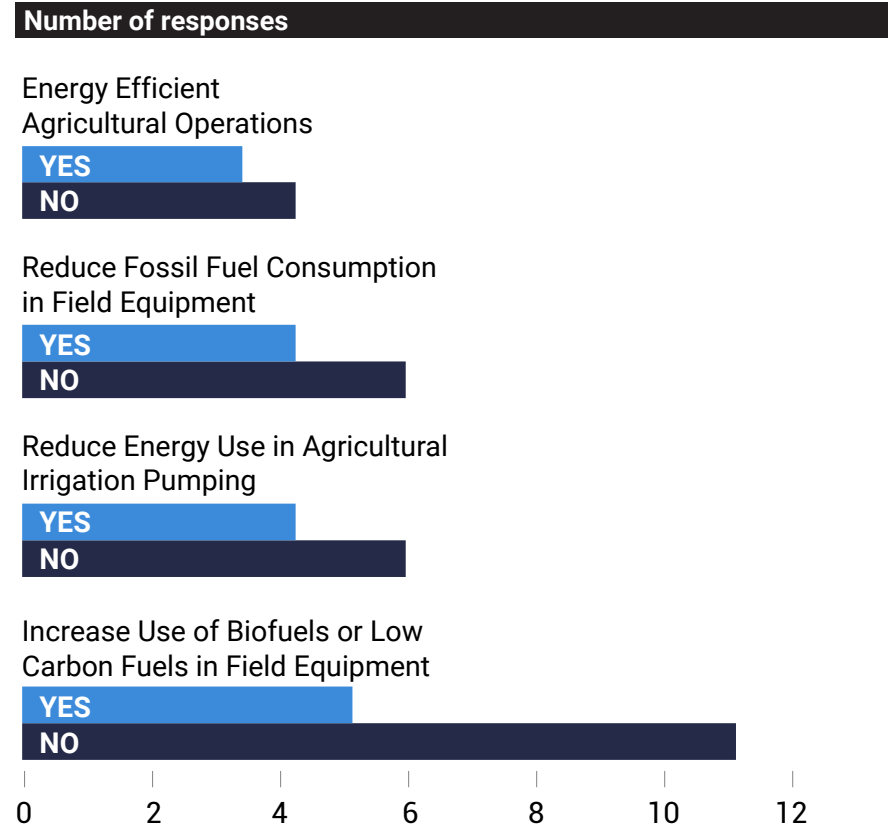


Figures ▼6-10 and ►6-11. Yolo County Agricultural Community Support for Reducing Emissions from Off-Road Equipment

Q: Do you currently implement any of the following greenhouse gas emissions reduction practices for your operations within Yolo County?



Q: Assuming your challenges and resource needs are met, would any of the following greenhouse gas emissions reduction practices be feasible for your operations within Yolo County?



MEASURE OFR 1:

Increase Electric and Zero-Emission Off-Road and Landscaping Equipment Adoption

Adopt ordinances and create incentive programs to reduce use of gas-powered landscape equipment and increase use of zero-emission alternatives. Create a plan to transition County-owned and operated off-road equipment to electric or zero-emission alternatives and to encourage commercial and industrial operations to phase out fossil fuel equipment by 2030.

ACTIONS

- OFR 1a** Identify types of electric and zero-emission off-road equipment that are commercially available (e.g., forklifts, loaders, welders, saws, pumps, fixed cranes, air compressors, sweepers, aerial lifts, pressure washers) and develop a plan and funding strategy to transition County-owned and operated equipment by 2030.

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING
- OFR 1b** Adopt an ordinance that would require industrial land uses such as warehouses, logistics, and distribution centers to phase out fossil fuel equipment and replace with electric equipment or zero-emissions equipment by 2030.

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING
- OFR 1c** Adopt an ordinance requiring use of only electric or zero-emission off-road equipment, where commercially available, for all new development.

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING
- OFR 1d** Replace gas-powered landscape equipment with zero-emission landscaping equipment at County facilities and install charging facilities where needed. Equipment types historically powered by gasoline engines covered by this action include chainsaws, chippers, lawn mowers, leaf blowers/ vacuums, riding mowers, tillers, and trimmers.

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE OFR 1 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: 62,682

2045: 102,287

COST: \$\$+

MEASURE OFR 2:

Decarbonize Agricultural Equipment

Work with agricultural organizations to provide outreach and education promoting existing incentives for fuel-efficient farm equipment.

ACTIONS

- OFR 2a** Coordinate with agricultural organizations to provide workshops/presentations and outreach materials focused on promoting fuel-efficient farm equipment and operations; encourage participation in the CARB/YSAQMD Carl Moyer incentive program.
● ● ● PHASE I MITIGATION | ADAPTATION | CROSSCUTTING

- OFR 2b** Encourage the use of biofuels or low-carbon fuels in field equipment, instead of fossil fuels, by providing educational materials to the community about benefits and resources.
● ● ● PHASE I MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE OFR 2 HIGHLIGHTS

CO-BENEFITS:



**GHG REDUCTION POTENTIAL
(MT CO₂e)**

2030: 38,117
2045: 44,439
COST: \$\$+



STRATEGY 7

Support Climate-Smart Agriculture (AG)

Agricultural lands comprise the vast majority (over 80%) of Yolo County's total acreage. As such, agriculture is critical to Yolo County's local economy and subsequently contributes significantly to overall GHG emissions.

Agricultural GHG emissions are related to activities such as crop cultivation, livestock management, fertilizer application, and pesticide use. Results of the 2022 County GHG inventory indicate that agricultural operations accounted for 115,391 MT CO₂e, or 15%, of overall County emissions in 2022. Emission reduction efforts within this sector are crucial to achieving the County's climate goals and include reducing chemical inputs, promoting resilient innovation, and curbing methane emissions associated with rice cultivation. Specific actions include communication with local agricultural organizations, outreach to local farmers, and incentives for implementing emissions-reducing practices. By adopting these measures, the County aims to create a more sustainable and climate-resilient agricultural sector.

2030 GHG REDUCTION POTENTIAL

The quantified GHG emissions reductions from implementation of Strategy 7 are not specifically presented in this CAAP. However, given that improved nutrient management results in an increase in soil carbon as well as changes to soil nitrous oxide emissions, the GHG benefits of AG 1b are accounted for as carbon sequestration potential within Strategy 8 below. There are approximately 288,628 acres of land available for improved nutrient management within the County, which represents approximately 78,216 MT of sequestered carbon per year.





Equity Concerns

- ▲ Differential access to financing and incentive programs.
- ▲ Additional impediments to accessing incentives or resources, including language barriers, lack of access to technology (e.g., a steady internet connection), or inability to devote extra time to seek out such information.
- ▲ New voluntary management practices may require a disproportionate number of changes to day-to-day farming and added expense to certain crops if adopted.
- ▲ Farmers with smaller plots of land may not have the ability to institute voluntary practices such as prescribed burns.



Equity Solutions

- ▲ When securing funding for agricultural incentive programs, prioritize access for farms in low-income and vulnerable communities.
- ▲ Communications and outreach programs pertaining to County policies should account for any language and resource barriers that present challenges for a subset of the community.
- ▲ Provide services targeted toward both large and small farming operations.

Key Local and Regional Background

Table 6-7. Current Planning Efforts Related to Climate-Smart Agriculture

Plan/Program Name	Summary	Coordinating Organization	Implications for CAAP
Local			
Yolo County Carbon Farming Partnership	The Carbon Farming Partnership provides Yolo County growers, including growers who identify as Black, Indigenous, and People of Color (BIPOC), as well as new farmers, with tools, training, and technical assistance to develop and implement carbon farm plans and other practices to reduce carbon emissions and sequester carbon.	Yolo County Resource Conservation District; Carbon Cycle Institute; The Center for Land-Based Learning; Yolo Land Trust	The program provides insight on the utilization of carbon farming practices in Yolo County and provides a model for developing Carbon Farm Plans in Yolo County.
Yolo County RCD 2024 Strategic Plan Update	An outline of Yolo RCD's overall values and purpose and a catalog of its goals. Outlines the following seven areas of conservation focus and associated goals and actions: noxious and invasive weeds, biodiversity, water quality and quantity, riparian and aquatic habitats, soil, wildfire, and carbon.	Yolo County Resource Conservation District	States the role of Yolo County RCD, recommended actions, and potential funding sources for each of the areas of conservation focus.
Yolo County Department of Agriculture Agricultural Crop Report, 2020	This annual publication summarizes the acreage production and valuation of Yolo County's agricultural commodities. These figures denote gross value of production and do not attempt to reflect net farm income.	Yolo County Department of Agriculture	The report provides information on the agricultural output of Yolo County.
Yolo County Department of Agriculture, Crop & Livestock Report, 2021	This annual publication summarizes the acreage production and valuation of Yolo County's agricultural commodities. These figures denote gross value of production and do not attempt to reflect net farm income.	Yolo County Department of Agriculture	The report provides information on the agricultural output of Yolo County.

Notes: RCD = Resource Conservation District.

Relevant Community Outreach

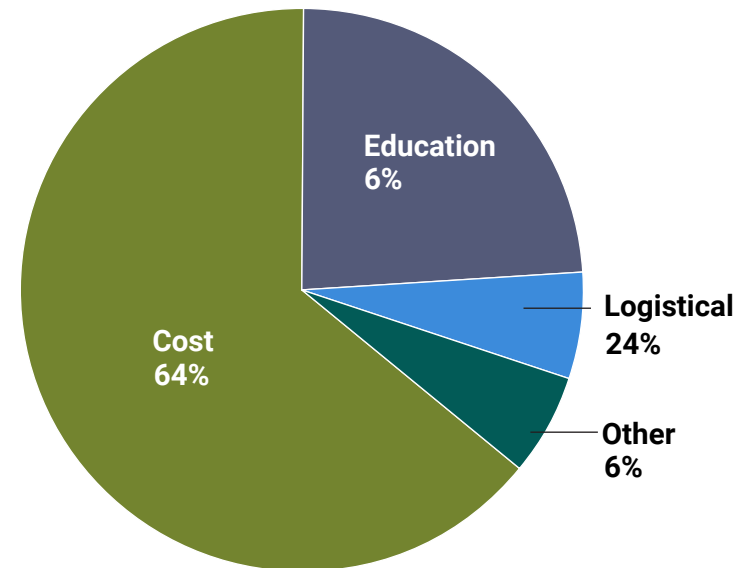
Community outreach results are reflective of voluntary County participants, and accordingly, may or may not represent the views of the community as a whole.

The Yolo County NWL community response related to actions to reduce GHG emissions from agricultural practices is summarized in Figure 6-12. As shown, to effectively implement climate-smart agricultural practices across Yolo County, there are several barriers that must be addressed, which were considered during measure and action development.

► Figure 6-12.
Yolo County Community Response Related to Climate-Smart
Agricultural Practices

What barriers or challenges with implementing greenhouse gas emissions reduction or irrigation management practices do you face?

Number of responses



MEASURE AG 1:

Reduce Use of
Chemical Inputs

Careful management of chemical inputs is essential to reduce GHG emissions from farming. Applying nitrogen fertilizer in an amount in excess of the needs of crops can result in the loss of the nitrogen to the air as N₂O. Additionally, the application of pesticides to agricultural land can result in both short- and long-term GHG emissions.

ACTIONS

- AG 1a** Work with agricultural organizations and existing partnerships to develop and expand outreach programs to inform Yolo County farmers about ways to reduce nitrogen fertilizer application with minimal effects on crop yield.

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING
- AG 1b** Implement practices to improve nutrient management, including reduction or replacement of synthetic nitrogen fertilizer use. (NRCS Conservation Practice Standard [CPS] 590)

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING
- AG 1c** Scale up the use of integrated pest management; advance safer, more sustainable pest management practices and provide tools to support the accelerated transition away from harmful pesticides.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE AG 1 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: N/A

2045: N/A

COST: N/A

MEASURE AG 2:

Support Agricultural Innovation that Promotes Resilience

Agricultural innovation promotes the efficiency of farming practices, the health of the environment, and the mitigation of climate impacts. Innovation can take many forms, including expanding the use of historically significant crops, cultural burns¹, and drought-resistant crop varieties.

ACTIONS

- AG 2a** Develop incentive programs that support the expanded use of crop varieties that are drought and heat tolerant and require fewer nutrient inputs from synthetic fertilizers.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING
- AG 2b** Facilitate planting, harvesting, and sustaining culturally and historically significant food crops.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING
- AG 2c** Increase opportunities for prescribed burns that reduce wildfire GHG emissions. Increase voluntary cultural easements for cultural burns and support the use of cultural burns to ensure California Native American tribes have access to cultural resources and cultural landscapes.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE AG 2 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)
 2030: N/A
 2045: N/A
 COST: N/A

¹ Cultural burns refer to the practice of conducting regular, controlled burns to promote new growth of native plants for their continued beneficial use in Native American practices (Cache Creek Conservancy 2023).

MEASURE AG 3:

Reduce Methane Emissions

Methane emissions from irrigated rice fields are a large part of agricultural GHG emissions and require careful management and oversight.

ACTIONS

AG 3a Incentivize irrigation water management (such as alternated wetting and drying [AWD]) on rice fields to control the volume, frequency, and application rate of irrigation water. (NRCS CPS 449)

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE AG 3 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: N/A

2045: N/A

COST: N/A



STRATEGY 8

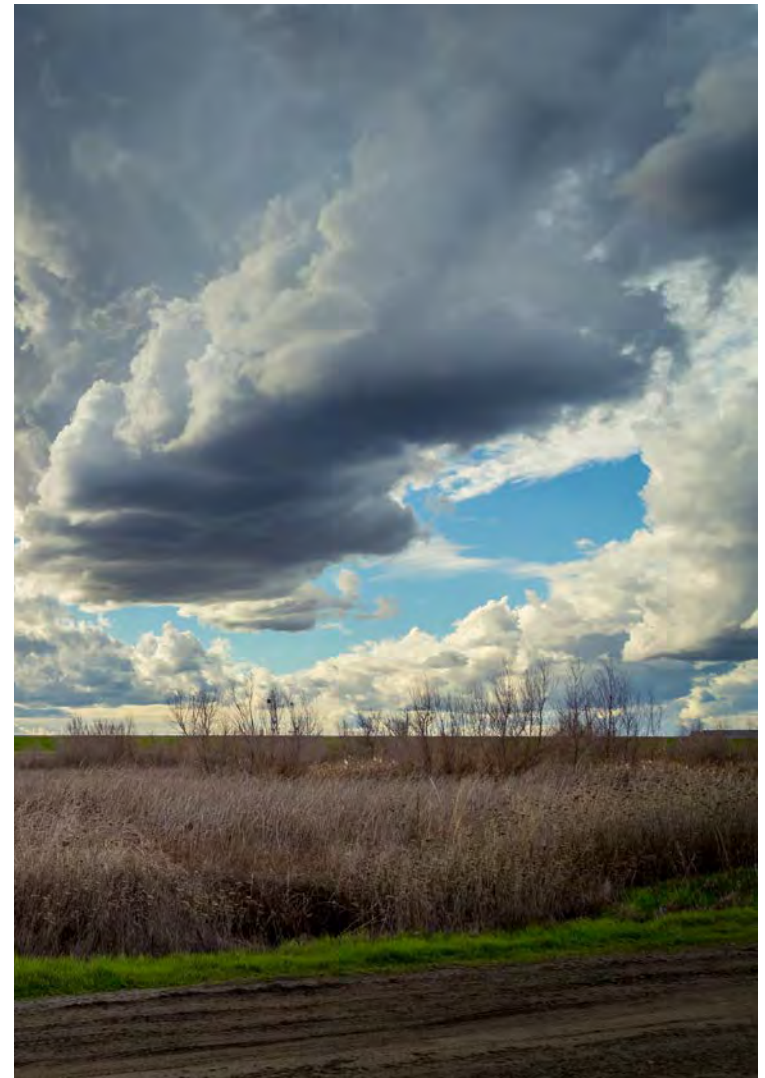
Sequester and Store Carbon in Natural and Working Lands (NWL)

While the GHG emission reduction measures and actions discussed above will be important to the County's goal, achieving net-negative GHG emissions will not be possible without use of carbon sequestration within Yolo County's natural and working lands.

Carbon sequestration is a crucial strategy for reducing GHG emissions. Capturing and storing carbon from the atmosphere can help to offset carbon emissions and achieve a net-negative status. As a primarily agriculture-driven region, Yolo County has championed agricultural land conservation. The Yolo Carbon Farming Partnership has been a collaborative effort between the Yolo County Resource Conservation District and other local organizations and agencies to promote land conservation (Yolo RCD 2024). Actions that promote land conservation and carbon farming on agricultural lands will help the County achieve its climate goals and build climate resilience within the region.

The following measures and actions aim to promote carbon sequestration within Yolo County's natural and working lands through three core approaches: improved land stewardship, restoration, and conservation.

2030 GHG REDUCTION POTENTIAL
419,058 MT CO₂e



2030 Greenhouse Gas Reduction Potential

Table 6-8 provides a summary of carbon sequestration potential with implementation of the quantifiable measures and actions for Strategy 8. Maximum sequestration potential is presented and represents sequestration that can be achieved on an annual basis if the action is applied to 100% of the available acreage.

Understanding that it is infeasible to apply all practices to 100% of suitable land, the annual sequestration rate (MT CO₂e/acre/year) and a range of adoption scenarios (5%, 20%, 50%, and 70%) is also provided in Table 6-8. It is unlikely that any practice will achieve 100% adoption rates over all crop types for which it may be suitable due to site specific conditions, grower needs and preferences, and the inherent incompatibility of certain practices.

Additionally, it is important to note that some practices within the table are mutually exclusive and so would not occur together on the same available acreage. To avoid reporting an unrealistic scenario, mutually exclusive practices are indicated within the table and not taken together. Maximum sequestration potential excludes sequestration for mutually exclusive practices, using the higher sequestration value where needed.

Actions in Table 6-8 are presented by measure in order of carbon sequestration rate (MT CO₂e/acre/year), starting with greatest sequestration potential. As shown, on a per acre basis, hedgerows, windbreaks, and riparian buffers achieve the highest sequestration potential of the quantified actions. However, this is not necessarily indicative of their overall potential for Yolo County carbon sequestration given limited land where these practices could be implemented. Of practices that are implemented as part of growing food, soil carbon amendments in the form of compost provide the greatest per-acre sequestration, as well as the greatest total sequestration potential.

As shown in Table 6-8, when accounting for mutually exclusive actions, implementing Strategy 8 measures and actions on all suitable lands within Yolo County would result in approximately 2,095,291 MT CO₂e sequestered. Additional details including methodology and assumptions of the NWL sequestration analysis are provided in Appendix C.



Table 6-8. Yolo County Sequestration Potential Scenarios with Implementation of Strategy 8 Measures and Actions

Measure/Action	Available Acreage	Average Sequestration Rate (MT CO ₂ e/ acre/ year)	Annual Sequestration Potential (MT CO ₂ e/year)				
			Maximum Potential (100% Practice Adoption)	5% Practice Adoption	20% Practice Adoption	50% Practice Adoption	70% Practice Adoption
NWL 1: Encourage Climate-Smart Practices in Working Lands							
NWL 1e. Hedgerow Planting	20,000	13.89	277,844	13,892	55,569	138,922	194,491
NWL 1e. Windbreaks/ Shelterbreaks	20,000	13.89	277,844	13,892	55,569	138,922	194,491
NWL 1e. Riparian Forest Buffer	6,000	4.52	27,102	1,355	5,420	13,551	18,971
NWL 1c. Soil Carbon Amendments: Compost Application	288,628	4.47	1,291,465	64,573	258,293	645,733	904,026
NWL 1c. Multiple Conservation Practices ^c	192,998	0.62	118,726	5,936	23,745	59,363	83,108
NWL 1d. Range Planting	80,694	0.34	27,377	1,369	5,475	13,689	19,164
NWL 1c. Cover Crops ^{a,c}	178,291	0.29	51,007	2,550	10,201	25,504	35,705
NWL 1c. Nutrient Management ^c	288,628	0.27	78,216	3,911	15,643	39,108	54,752
NWL 1e. Riparian Herbaceous Cover	6,000	0.27	1,620	81	324	810	1,134
NWL 1c. Conservation Crop Rotation ^a	140,783	0.26	37,162	1,858	7,432	18,581	26,013
NWL 1c. Mulching	98,728	0.21	20,305	1,015	4,061	10,153	14,214
NWL 1c. Residue and Tillage Management: No Till ^{b,c}	252,011	0.17	42,994	2,150	8,599	21,497	30,096
NWL 1c. Stripcropping	70,391	0.15	10,829	541	2,166	5,415	7,581
NWL 1c. Residue and Tillage Management: Reduced Till ^{b,c}	163,812	0.10	15,583	779	3,117	7,792	10,908

Measure/Action	Available Acreage	Average Sequestration Rate (MT CO ₂ e/ acre/ year)	Annual Sequestration Potential (MT CO ₂ e/year)				
			Maximum Potential (100% Practice Adoption)	5% Practice Adoption	20% Practice Adoption	50% Practice Adoption	70% Practice Adoption
NWL 1d. Prescribed Grazing	80,694	0.08	6,179	309	1,236	3,089	4,325
NWL 1c. Soil Carbon Amendments: Whole Orchard Recycling	79,563	0.04	3,016	151	603	1,508	2,111
NWL1 Sequestration Potential Total^d			2,062,307	103,115	412,461	1,031,154	1,443,615
NWL 2: Restore Natural Lands							
NWL 2a. Restore Wetlands	100	318.35	31,835	1,592	6,367	15,918	22,285
NWL 2d. Repurpose Fallowed Cropland	100	9.45	944.56	47	189	472	661
NWL 2c. Restore Native Grasslands	100	1.05	104.86	5	21	52	73
NWL 2b. Restore Riparian Forests	100	0.99	99.60	5	20	50	70
NWL 2 Sequestration Potential Total			32,984	1,649	6,597	16,492	23,089
Total Strategy 8 Sequestration Potential^d			2,095,291	104,764	419,058	1,047,646	1,466,704

Notes: Additional detail provided in Appendix C, Natural and Working Lands

a Cover Crops (CPS340) and Conservation Crop Rotation (CPS 328) are heavily overlapping practices, and thus their sequestration potentials should not be taken cumulatively.

b Residue and Tillage Management practices (CPS 328 and 329) are overlapping practices, and thus their sequestration potentials should not be taken cumulatively.

c Given the interacting effect of several practices, applying in combination is not necessarily additive. Therefore, maximum potential sequestration for lands implementing Cover Crops (CPS 340), Residue and Tillage Management (CPS 329 and 345), and Nutrient Management (CPS 590) concurrently is estimated within the Multiple Conservation Practices option within COMET-Planner.

d Total sequestration excludes sequestration for mutually exclusive practices, taking the higher sequestration value where needed.



Equity Concerns

- ▲ Differential access to financing and incentive programs.
- ▲ Additional impediments to accessing incentives or resources, including language barriers, lack of access to technology (e.g., a steady internet connection), or inability to devote extra time to seek out such information.
- ▲ New voluntary management practices may require a disproportionate number of changes to day-to-day farming and added expense to certain crops if adopted.
- ▲ Farmers with smaller plots of land may not have the ability to institute voluntary practices.
- ▲ Land conservation limits landownership to only a few people and results in insecure land tenure.
- ▲ Farmers who do not already own their land may not benefit from policies protecting agricultural lands from development.



Equity Solutions

- ▲ When securing funding for natural and working lands incentive programs, prioritize access for areas in low-income and vulnerable communities.
- ▲ Communications and outreach programs pertaining to County policies should account for any language and resource barriers that present challenges for a subset of the community.
- ▲ When designing land conservation policies, provide incentives to both large and small farming operations and to farmers who rent rather than own their land.

Key Local and Regional Background

Table 6-9. Current Planning Efforts Related to Natural and Working Lands

Plan/Program Name	Summary	Coordinating Organization	Implications for CAAP
Local			
Cache Creek Area Plan	A watershed management plan addressing the conservation of six resources associated with the Cache Creek area: floodway and channel stability, water resources, biological resources, open space and recreation, aggregate resources, and agricultural resources.	Yolo County Natural Resources Division	The region surrounding the Cache Creek channel is characterized as related to agricultural practices. The channel provides surface irrigation water and drainage for nearby operations.
Cache Creek Resource Management Plan	This multi-agency management plan aims to stabilize the condition of Cache Creek and return the channels' operations to a more natural state. Chapter 7.0, Agricultural Resources Element, outlines the impact of Cache Creek restoration on agricultural lands.	Yolo County	Land use, soils, and agriculture are among the impacts identified in the implementation plan for this program. The region surrounding the Cache Creek channel is characterized as related to agricultural practices. The channel provides surface irrigation water and drainage for nearby operations
Lower Putah Creek Watershed Management Action Plan	The plan outlines Phase I of a three-phase program to enhance the watershed resources in Lower Putah Creek. The first phase consists of comprehensive assessments of the watershed's resources and summaries of stakeholder input and previously implemented watershed enhancement efforts.	University of California, Davis, Office of Resource Management and Planning	The plan includes actions spanning concern areas and land uses for a very important area of interest in Yolo County. Phase I evaluates the success of stewardship actions and management approaches on the future of Putah Creek.

Plan/Program Name	Summary	Coordinating Organization	Implications for CAAP
Local			
Yolo Bypass Wildlife Area Land Management Plan	The plan guides land use management and public-use opportunities in a manner that benefits wildlife, plant resources, and adjoining property owners. It provides environmental documentation and impact assessments along with objectives for the future of the Yolo Bypass Wildlife Area. Goals include habitat management, the establishment of a native species inventory, and an ecosystem-centric approach to land management.	California Department of Fish and Game	The plan includes actions spanning concern areas and land uses in a very important area of interest in Yolo County. It is biology-focused but includes some land management initiatives. The Yolo Bypass helps protect local communities, farms, and land from flooding.
Capay Valley Watershed Stewardship Plan	The mission of this guidance document is to enhance and protect watershed resources by bringing together all interested parties in a collaborative process that promotes watershed stewardship through community outreach and cooperative planning and implementation of projects. The plan offers a collection of recommended actions developed through a collaborative effort between Yolo County RCD and Cache Creek Watershed Stakeholders Group.	Cache Creek Watershed Stakeholders Group and Yolo County Resource Conservation District	Includes resources for project financial and technical support as well as a recommended process for developing and carrying out a tributary or neighborhood conservation plan. The Capay Valley Watershed Conservation and Restoration Manual includes specific information about conservation practices, required permits, and informational and financial resources for watershed work.
Yolo County Oak Woodland Conservation and Enhancement Plan	This plan promotes voluntary efforts of Yolo County residents to conserve and enhance local oak woodlands.	Yolo County Parks Division	Voluntary conservation and enhancement efforts minimize the impact of land conversion and other conservation disturbances.

Plan/Program Name	Summary	Coordinating Organization	Implications for CAAP
Local			
Yolo County Agricultural Conservation Priority Plan	Plan detailing conservation of agricultural land in Yolo County. Conservation methods include creation of an agricultural mitigation bank, managing privately held conservation easements, locating conservation lands within the same areas as lands conserved for open space and habitat conservation easements, and implementing carbon sequestration and other programs.	Yolo County	The plan provides insight on the prioritization of the conservation of specific areas in Yolo County.
Yolo County Department of Agriculture Agricultural Crop Report, 2020	This annual publication summarizes the acreage production and valuation of Yolo County's agricultural commodities. These figures denote gross value of production and do not attempt to reflect net farm income.	Yolo County Department of Agriculture	The report provides information on the agricultural output of Yolo County, useful information for the preservation of natural and working lands.
Yolo County Department of Agriculture Crop & Livestock Report, 2021	This annual publication summarizes the acreage production and valuation of Yolo County's agricultural commodities. These figures denote gross value of production and do not attempt to reflect net farm income.	Yolo County Department of Agriculture	The report provides information on the agricultural output of Yolo County, useful information for the preservation of natural and working lands.

Plan/Program Name	Summary	Coordinating Organization	Implications for CAAP
Yolo County Carbon Farming Partnership	The Carbon Farming Partnership provides Yolo County growers, including growers who identify as Black, Indigenous, and People of Color (BIPOC), as well as new farmers, with tools, training, and technical assistance to develop and implement carbon farm plans and other practices to reduce carbon emissions and sequester carbon.	Yolo County Resource Conservation District; Carbon Cycle Institute; The Center for Land-Based Learning; Yolo Land Trust	The program provides insight on the utilization of carbon farming practices in Yolo County and provides a model for developing Carbon Farm Plans in Yolo County.
Local			
Yolo Habitat Conservation Plan/ Natural Communities Conservation Plan (Yolo HCP/NCCP)	The Yolo Habitat Conservation Plan/ Natural Communities Conservation Plan (Yolo HCP/NCCP) is a comprehensive, countywide plan to provide for the conservation of 12 sensitive species and the natural communities and agricultural land on which they depend, as well as a streamlined permitting process to address the effects of a range of future anticipated activities on these 12 species.	Yolo Habitat Conservancy	This document includes quantitative conservation actions geared toward protecting and improving the conditions of natural habitats.
Yolo Regional Conservation Investment Strategy and Local Conservation Plan (RCIS/LCP)	These collaborative planning efforts provide a framework for conservation efforts in Yolo County. Both mitigation-driven and voluntary strategies are provided. The RCIS/LCP supports efforts that protect natural habitats compatible with agricultural lands.	Yolo Habitat Conservancy and California Department of Water Resources	Chapters include data assessments and information gaps for regional conservation efforts. The document includes the impact of farming, ranching, plant cover, and urban development on conservation efforts.
Yolo County RCD 2024 Strategic Plan	An outline of Yolo RCD's overall values and purpose and a catalog of its goals. Outlines the following seven areas of conservation focus and associated goals and actions: noxious and invasive weeds, biodiversity, water quality and quantity, riparian and aquatic habitats, soil, wildfire, and carbon.	Yolo County Resource Conservation District	States the role of Yolo County RCD, recommended actions, and potential funding sources for each of the areas of conservation focus.

Notes: RCD = Resource Conservation District.

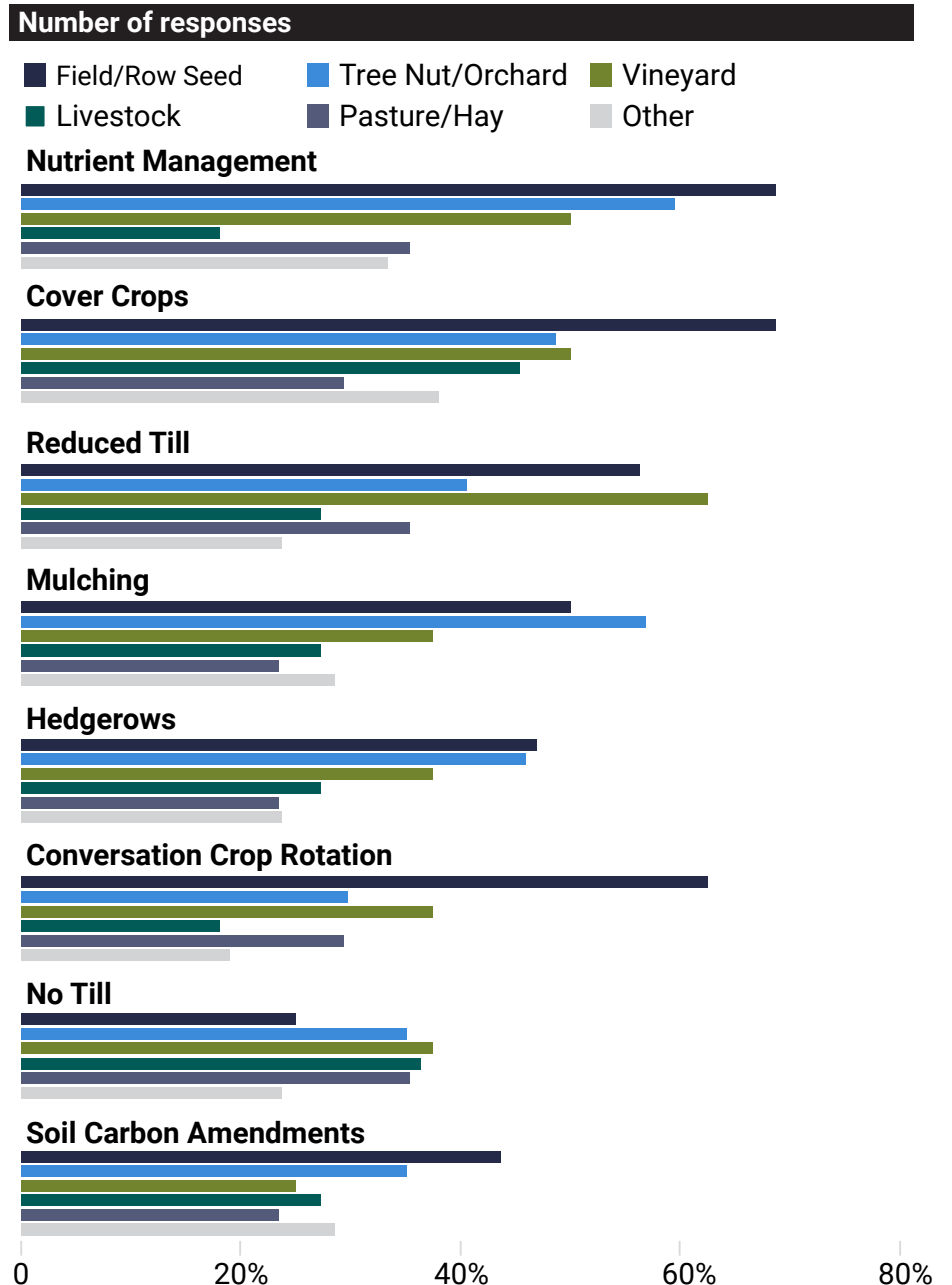
Relevant Community Outreach

Community outreach results are reflective of voluntary County participants, and accordingly, may or may not represent the views of the community as a whole.

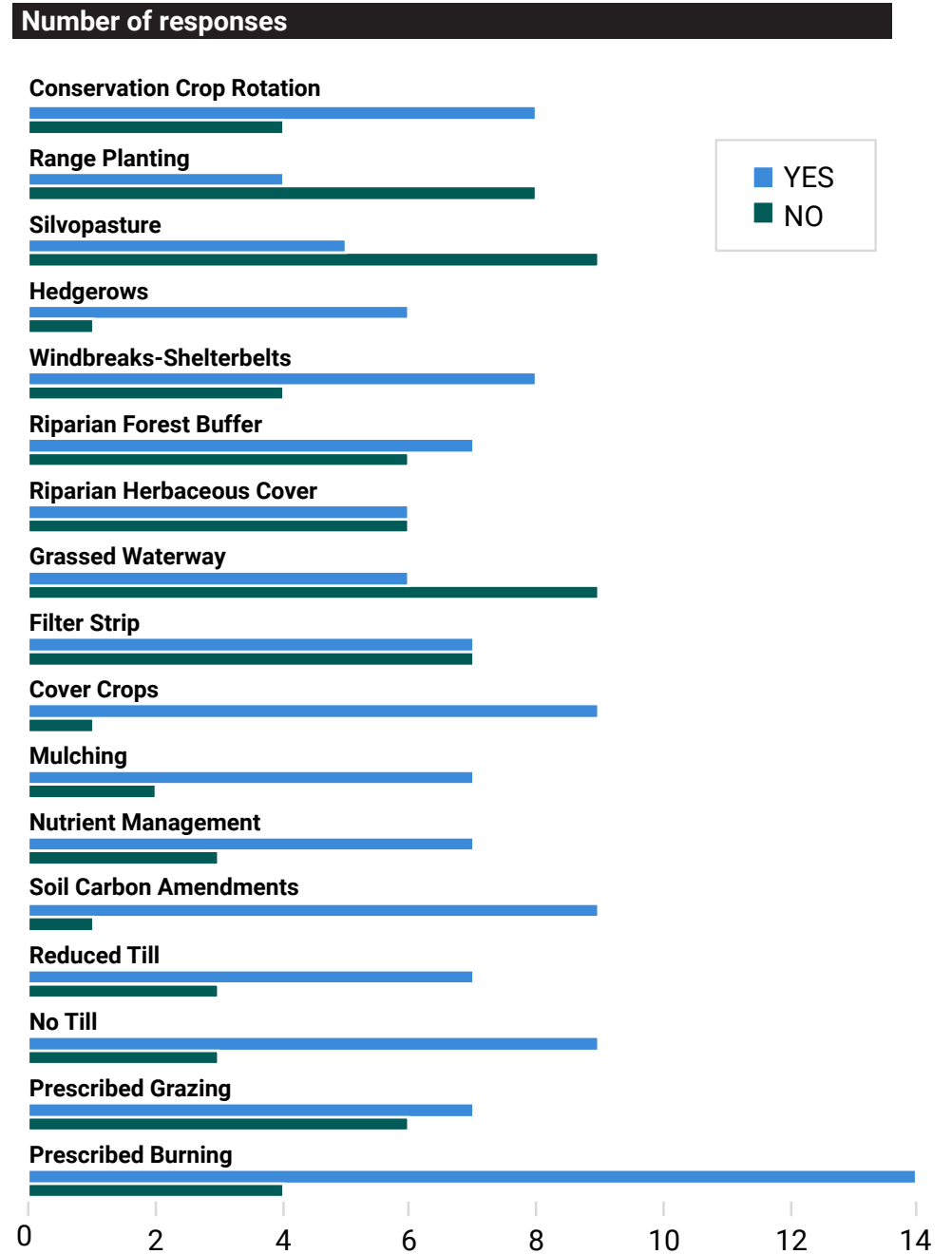
The Yolo County NWL community response related to efforts to sequester and store carbon in NWLs is highlighted in Figure 6-13 and Figure 6-14. As shown, practices that promote carbon sequestration are currently being implemented by producers across Yolo County, and the NWL community is optimistic about the feasibility of implementing additional practices to support the County's goals. Additional detail on the results of the NWL survey is included in Appendix C, Natural and Working Lands.

► Figure 6-13.
Yolo County Community Response
Related to Currently Implemented

Top 8 Currently Implemented Practices, by Operation Type



► Figure 6-14.
Yolo County Community Response
to Practice Feasibility



MEASURE NWL 1:

Encourage Climate-Smart Practices in Working Lands

Includes actions that could be implemented within Yolo County agricultural lands by those within the agricultural community to promote carbon sequestration and storage.

ACTIONS

NWL 1a

Carbon Credit Exchange.

The County shall explore development of a Carbon Credit Exchange to create carbon credits within unincorporated Yolo County through implementation of climate-smart carbon sequestration practices on working lands. For the purposes of the County Carbon Credit Exchange, a carbon credit is defined as “verifiable sequestration of one metric ton of carbon dioxide equivalent not otherwise required by regulation.” The County would administer the Carbon Credit Exchange and would pay farmers that implement climate-smart sequestration practices on working lands. The County could (1) retire the carbon credits purchased to support progress in achieving the County carbon-neutral target by 2030 (and carbon negative post-2030); or (2) sell carbon credits to eligible buyers. Carbon credits sold to eligible buyers would fund the exchange program and the purchase of carbon credits from Yolo County agricultural producers. Carbon credits sold could not be used toward achieving the County’s carbon-negative target.

The County shall assess the feasibility of and, if deemed appropriate, develop a preliminary plan for creating the Carbon Credit Exchange. The plan shall identify challenges and opportunities and recommend next steps for establishing a transparent, accountable, and sustainable Carbon Credit Exchange program. The plan will also identify eligible and priority buyers and the geographic scope of buyers. The pricing of Carbon Credit Exchange carbon credits sold to outside entities would be based on the program’s administrative costs, the cost to farmers to implement climate-smart practices, and the cost to pay back the County for offsets it purchased and retired to achieve the agricultural sector GHG reduction targets.

● ● ● **PHASE I**

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE NWL 1 HIGHLIGHTS

CO-BENEFITS*:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: 412,461

2045: 1,031,154

COST: \$+/-

* Additional co-benefits specific to NWL 1 are discussed in Appendix C

MEASURE NWL 1:

Encourage Climate-Smart Practices in Working Lands

Includes actions that could be implemented within Yolo County agricultural lands by those within the agricultural community to promote carbon sequestration and storage.

ACTIONS

NWL 1b

Farmer Outreach and Education.

Use existing networks and partnerships and build new ones with a diversity of regional academic institutions, centers, environmental organizations, and non-conventional agricultural sustainability and conservation groups to expand knowledge of sustainable practices and develop and expand farmworker outreach and education programs.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING

NWL 1c

Support Climate-Smart Practices that support carbon sequestration on working lands and provide co-benefits such as enhanced soil health, improved soil moisture retention, and/or reduced fertilizer costs. Examples of such practices include the following USDA NRCS conservation practices:

- Conservation Crop Rotation (NRCS CPS 328)
- Cover Crops (NRCS CPS 340)
- Filter Strips (NRCS CPS 393)
- Grassed Waterways (NRCS CPS 412)
- Mulching (NRCS CPS 484)
- Nutrient Management (NRCS CPS 590)
- Residue and Tillage Management, No Till (NRCS CPS 329)
- Residue and Tillage Management, Reduced Till (NRCS CPS 345)
- Soil Carbon Amendments: Compost Application (NRCS CPS 336)
- Soil Carbon Amendments: Whole Orchard Recycling (NRCS CPS 808)
- Stripcropping (NRCS CPS 585)

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE NWL 1 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: 412,461

2045: 1,031,154

COST: \$+/-

* Additional co-benefits specific to NWL 1 are discussed in Appendix C

MEASURE NWL 1:

Encourage Climate-Smart Practices in Working Lands

Includes actions that could be implemented within Yolo County agricultural lands by those within the agricultural community to promote carbon sequestration and storage.

ACTIONS**NWL 1d**

Support Practices to Sequester Carbon on Grazing and Pastureland. Examples include the following USDA NRCS conservation practices:

- Herbaceous Weed Treatment (NRCS CPS 315)
- Prescribed Burning (NRCS CPS 338)
- Prescribed Grazing (NRCS CPS 528)
- Range Planting (NRCS CPS 550)

● ● ● **PHASE I**

MITIGATION | ADAPTATION | CROSSCUTTING

NWL 1e

Support implementation of Agroforestry Practices. Examples include the following USDA NRCS conservation practices:

Examples include the following USDA NRCS conservation practices:

- Alley Cropping (NRCS CPS 311)
- Hedgerow Planting (NRCS CPS 422)
- Riparian Forest Buffer (NRCS CPS 391)
- Riparian Herbaceous Cover (NRCS CPS 390)
- Silvopasture (NRCS CPS 381)
- Windbreaks/Shelterbelt Establishment and Renovation (NRCS CPS 380)

● ● ● **PHASE I**

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE NWL 1 HIGHLIGHTS**CO-BENEFITS:****GHG REDUCTION POTENTIAL (MT CO₂e)**

2030: 412,461

2045: 1,031,154

COST: \$+/-

* Additional co-benefits specific to NWL 1 are discussed in Appendix C

MEASURE NWL 2:

Restore Natural Lands

NWL 2 includes actions that restore landscapes to natural or historical ecological function through alteration of the physical, chemical, or biological characteristics. These actions are largely assumed to involve revegetation with native plantings. The restoration of natural lands can improve the ability of the land to sequester carbon and to support native plant and animal species. Cultivating these native ecosystems, including wetlands, riparian forests, and native grasslands, can provide benefits for local and regional climate.

ACTIONS

NWL 2a

Restore Wetlands.

Prioritize wetland restoration near communities most vulnerable to climate change and where climate-smart land stewardship can improve groundwater and water quantity, protect communities from flooding, and increase access to nature.

Identify opportunities to reconstruct wetlands where possible, for example during construction projects in areas where these nature-based solutions could deliver climate and other beneficial outcomes to communities.

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING

NWL 2b

Restore Riparian Forests.

Restore riparian forests and other ecosystems, where appropriate, to enhance carbon storage, protect biodiversity, and expand wildlife corridors and climate migration pathways for native species. Work with landowners to support restoration efforts on Putah and Cache Creeks and their tributaries as well as the mainstream riparian areas and floodplains of the Sacramento River and Yolo Bypass. Reconnect aquatic habitats within forests to help fish and wildlife endure drought and adapt to climate change.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING

NWL 2c

Restore Native Grasslands.

Restore grasslands in Yolo County public lands to improve carbon storage, biodiversity, and connectivity, where feasible, through grant proposals.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE NWL 2 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: 6,597

2045: 16,492

COST: \$-

MEASURE NWL 2:Restore
Natural Lands

NWL 2 includes actions that restore landscapes to natural or historical ecological function through alteration of the physical, chemical, or biological characteristics. These actions are largely assumed to involve revegetation with native plantings. The restoration of natural lands can improve the ability of the land to sequester carbon and to support native plant and animal species. Cultivating these native ecosystems, including wetlands, riparian forests, and native grasslands, can provide benefits for local and regional climate.

ACTIONS**NWL 2d****Repurpose Fallow Cropland.**

Convert unused or idle agricultural land for alternative purposes. Some common practices for intentionally uncultivated land include reforestation and wildlife habitat conservation.

● ● ● **PHASE II**MITIGATION | **ADAPTATION** | CROSSCUTTING**NWL 2e****Hire a Yolo County Open Space Technician.**

Explore opportunities to hire a technician for restoration and enhancement work within Yolo County's natural lands. The technician would be a permanent position to work in the field with Putah Creek Council, Tuleyome, Yolo County RCD, Yolo Basin Foundation, Putah Creek Trout, Solano County Water Agency, and others who staff or volunteer for efforts on County park grounds. The position would also coordinate with government agencies for regulatory purposes and engage with the community for open space area activities that promote sustainability in the natural environment.

● ● ● **PHASE I**MITIGATION | ADAPTATION | **CROSSCUTTING****MEASURE NWL 2 HIGHLIGHTS****CO-BENEFITS:****GHG REDUCTION POTENTIAL****(MT CO₂e)****2030:** 6,597**2045:** 16,492**COST:** \$-

MEASURE NWL 3:Promote Stewardship
of Natural Lands

NWL 3 includes actions that make stewardship or vegetation changes to the existing landscape to improve ecological function, in this case, to support carbon sequestration. Careful stewardship of natural lands can increase their productivity and climate benefits beyond what would be possible without human intervention. Stewardship can result in healthy and resilient landscapes, thriving natural communities, and increased carbon sequestration.

ACTIONS**NWL 3a****Implement Grassland Stewardship in County Public Lands.**

Grassland practices include:

- Controlled grazing, including implementation of the County's grazing management plan(s)
- Invasive species control and noxious weed management
- Soil health and erosion control
- Prescribed and cultural burning

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING

NWL 3b**Implement Forest and Woodland Stewardship in County Public Lands.**

Forest and woodland practices include:

- Fire and fuel load vegetation management
- Enhancement measures designed to benefit forest and woodland plant communities and wildlife
- Invasive species removal

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE NWL 3 HIGHLIGHTS**CO-BENEFITS:****GHG REDUCTION POTENTIAL**

(MT CO₂e)

2030: N/A

2045: N/A

COST: \$\$-

MEASURE NWL 3:

Promote Stewardship of Natural Lands

NWL 3 includes actions that make stewardship or vegetation changes to the existing landscape to improve ecological function, in this case, to support carbon sequestration. Careful stewardship of natural lands can increase their productivity and climate benefits beyond what would be possible without human intervention. Stewardship can result in healthy and resilient landscapes, thriving natural communities, and increased carbon sequestration.

ACTIONS**NWL 3c****Implement Riparian and Wetland Stewardship in County Public Lands.**

Riparian and wetland practices include:

- Enhancement measures designed to benefit riparian and wetland plant communities and wildlife
- Invasive species removal
- Bank stability and erosion control

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING

NWL 3d**Support Cache Creek Conservancy, Lower Putah Creek Coordinating Committee, Yolo County RCD, Yocha Dehe Wintun Nation, and other entities in their projects and actions aimed at improving habitat in Yolo County.**

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE NWL 3 HIGHLIGHTS**CO-BENEFITS:****GHG REDUCTION POTENTIAL**

(MT CO₂e)

2030: N/A

2045: N/A

COST: \$\$-

MEASURE NWL 4:

Conserve Natural and Working Lands

NWL 4 includes actions that involve land use planning and policy intervention to avoid and minimize the conversion of carbon-sequestering NWL land cover types to those with lower carbon storage and sequestration potential, as these land cover types would likely have higher GHG emissions.

ACTIONS

NWL 4a

Protect Against Wetland Habitat Loss.

Develop and enforce a wetland protection program, including designations for existing wetlands and identification of restoration opportunities.

● ● ● **PHASE II**

MITIGATION | **ADAPTATION** | CROSSCUTTING

NWL 4b

Protect Agricultural Lands from Development.

Continue to designate agricultural zones where land use is restricted or prioritized for agricultural use.

Prioritize agricultural conservation and agricultural land acquisition in areas within 2 miles of urban growth of incorporated cities and the community of Esparto.

Develop program to support the acquisition of conservation easements in collaboration with other public and private entities. Conservation easements should focus on Prime Farmland in areas with the highest pressure of development.

● ● ● **PHASE III**

MITIGATION | **ADAPTATION** | CROSSCUTTING

NWL 4c

Support Willing Landowners.

Provide incentives to landowners who commit to keeping their land in agriculture, such as conservation easements and Williamson Act contracts.

● ● ● **PHASE III**

MITIGATION | **ADAPTATION** | CROSSCUTTING

MEASURE NWL 4 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: N/A

2045: N/A

COST: \$-

MEASURE NWL 4:**Conserve Natural and Working Lands**

NWL 4 includes actions that involve land use planning and policy intervention to avoid and minimize the conversion of carbon-sequestering NWL land cover types to those with lower carbon storage and sequestration potential, as these land cover types would likely have higher GHG emissions.

ACTIONS**NWL 4d****Protect Intact Habitat from Conversion.**

Explore existing County policies and zoning regulations for opportunities to expand preservation of natural lands. Research and develop program to identify Board-approved priority areas for acquisition, particularly those most susceptible to outward expansion. Ensure policies and regulations guide urban development toward infill areas and do not convert “greenfield” land (e.g., green belts, conservation, and wildlife easements) to urban uses.

● ● ● PHASE III

MITIGATION | ADAPTATION | CROSSCUTTING**NWL 4e****Prevent Wildlife Habitat Corridor Fragmentation.**

Develop and enforce a program to prevent wildlife habitat corridor fragmentation to maintain connectivity of land that connects large habitat patches to allow for the movement of wildlife.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING**MEASURE NWL 4 HIGHLIGHTS****CO-BENEFITS:****GHG REDUCTION POTENTIAL****(MT CO₂e)****2030:** N/A**2045:** N/A**COST:** \$-

STRATEGY 9

Reduce Carbon Footprint of Consumption and Production (RCP)

The consumption-based inventory narrative includes the total emissions embedded in the products, services, and activities we purchase, consume, and engage in.

These emissions differ from those quantified within the community and municipal inventory sectors discussed above because they include the entire life cycle of emissions associated with products, consumables, and services. While these emissions are not readily visible at a local scale, the ecological impacts associated with consumption habits significantly affect our natural and urban landscapes. There are many ways to reduce carbon consumption, both at the individual and County level. Encouraging climate-responsible consumption, educating the community about how to consume less, and providing easy access to less-resource-intensive alternatives are all crucial in reducing the carbon footprint of the County.

The measures below will assist residents and communities in reducing the climate and ecological impacts of their consumption habits by focusing on educational programs, such as web-based guides and workshops that inform the public of practices that may decrease their personal GHG emissions from consumption. The

County's efforts are designed to assist and support ongoing efforts, listed in the Local and Regional Background section, to encourage changes in consumption habits.

2030 GHG REDUCTION POTENTIAL

The reduction of the GHG emissions from our collective consumption habits, while not quantified in this CAAP, has significant potential because it considers all upstream and downstream emissions embedded in the products, consumables, and services we engage in. If each household and business in Yolo County makes a concerted effort to reduce their carbon footprint, it could help the County achieve the community-wide emissions goal of carbon negativity by 2030 and could have additional positive impacts beyond the boundaries of Yolo County.





Equity Concerns

- ▲ Differential access to financing and incentive programs, such as rebate programs that require up-front payment or building retrofits for EV chargers, which are unfeasible for renters whose leases prevent them from making alterations to their residences.
- ▲ Differential access to the types of food and other consumables that would reduce GHG emission from a household's consumption habits. If locally produced foods and products are not affordable and easily obtained, this creates a significant hardship for low-income households in reducing their carbon footprint.
- ▲ If equity concerns are not expressly incorporated into the planning process, communities with a greater proportion of low-income and disadvantaged households are often the last to receive infrastructure, products, and consumable necessary to reduce their carbon footprint.
- ▲ Additional impediments to accessing incentives or resources, including language barriers, lack of access to technology (e.g., a steady internet connection), or inability to devote extra time to seek out such information.



Equity Solutions

- ▲ When securing funding for incentive and rebate programs, prioritize access for households in low-income and vulnerable communities.
- ▲ Pilot programs for electrification or energy efficiency grants and incentives should make sure to include low-income and vulnerable communities.
- ▲ Reserve a portion of subsidies or incentives to offset the costs of electrification specifically for low-income households.
- ▲ Prioritize placement of charging infrastructure at or near multifamily buildings in addition to public charging stations to address some of the barriers renters face to easy EV charger access.
- ▲ Encourage farmers markets near local communities that includes the sale of food, locally made durable goods, and other consumables and products at affordable prices.
- ▲ Communications and outreach programs pertaining to County policies should account for any language and resource barriers that present challenges for a subset of the community.

Key Local and Regional Background

Table 6-10. Current Planning Efforts Related to Reducing Carbon Footprint of Consumption and Production

Plan/Program Name	Summary	Coordinating Organization	Implications for CAAP
Local			
Big Blue Barn Thrift Store	Thrift store located at the Yolo County Central Landfill, serving as a hub for affordable used items ranging from bikes, sports equipment, and electronics to paint, furniture, and tools.	Yolo County Central Landfill Department of Integrated Waste	Provides an example space that promotes reuse and encourages sustainable and responsible consumption.
Annual Calendar	Publicly available calendar containing straightforward information on responsible consumption and correct waste disposal habits.	Yolo County Central Landfill Department of Integrated Waste Management	Information presented in the calendar can also be converted into booklets, brochures, pamphlets, or videos to increase reach.
City of Woodland Rain Barrel Rebate Program	Rebate program of up to \$150.00 for rain barrel purchases made by Woodland residential and commercial water customers.	City of Woodland	Rainwater storage ties into conscious water use and can be used to efficiently water gardens and landscapes. Use current program as a model and consider expansion for all Yolo County residents.
Certified Farmers Markets	Provides Yolo County residents with access to fresh produce and establishes relations between consumers and workers.	City of Davis; Sutter Davis; University of California, Davis; City of Woodland	Bolsters economic productivity while supporting local farmers and growers.
Local Produce at Grocery Stores and Restaurants	Various Yolo County farmers and growers (e.g., Full Belly Farms) have organic produce sold at local grocery stores such as Nugget Market and restaurants.	Yolo County Organic Farmers and Growers and Nugget Market	Increase farmer/grower access to partnerships and efforts to provide locally grown produce for grocery stores, markets, and restaurants throughout Yolo County.

Plan/Program Name	Summary	Coordinating Organization	Implications for CAAP
Local			
Community Gardens	Designated areas within Yolo County that are either open and shared or provide an opportunity for residents to rent out plots of land to garden.	City of Davis Health and Human Services Agency City of Winters Numerous Community-Based Organizations	Encourages local food consumption and fosters teamwork and community building. Increases the number of gardens to allow for more community involvement and have master/experienced gardeners serve as mentors/guides. The Integrated Waste Management Division is willing to provide free compost to new and existing community gardens.
Library Workshops	Select library branches have repair/skills workshops and makerspaces where interested guests can learn how to repair and repurpose broken items with guided assistance and access to tools.	Yolo County Library Branches	Community workshops provide a space for residents to learn how to repair/repurpose items rather than dispose of them, contributing to goals of responsible consumption and waste reduction. Workshop themes can be tailored to align with CAAP goals. In addition, the libraries can serve as partners to host other related events and activities for all age groups.
Regional			
Buy Nothing Market	A social group with various regional chapters that hosts free community item swaps, where individuals can get rid of unwanted items (and get new ones) without having to be wasteful.	Buy Nothing Market	Promotes sustainable consumption and reduces waste through free community swap events. Can establish a chapter that hosts frequent events throughout Yolo County.

Relevant Community Outreach

While outreach efforts did not specifically address responsible consumption and production, overall community outreach and education related to the CAAP will support individual community members' efforts to reduce their carbon footprint. As CAAP implementation continues, community engagement with County materials related to responsible choices will be critical to making personal changes that support the goals of this strategy.

MEASURE RCP 1:

Provide Responsible Consumption Guidance

Develop educational programs and outreach materials that promote actions to reduce the carbon intensity of consumption at the individual level and partner with local businesses to increase visibility and engagement with the programs.

ACTIONS

RCP 1a Develop a responsible consumption incentive program that explains the benefits of changing habits that are less carbon intensive including turning off appliances and lights that are not in use; organizing vehicle trips to get the most out of each trip and reduce miles traveled; line-drying clothes instead of using the dryer; reducing single-use plastics and increasing reuse and repair; eating more fruits, vegetables, and locally grown meat, and fewer processed foods; and providing financial incentives (via partnerships with local businesses) for discounted products and other benefits.

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING

RCP 1b Develop and implement a responsible consumption education program and webpage that promotes the benefits of less-carbon-intensive practices including retain and repair instead of replace; off-peak use and turning off appliances and lights not in use; organizing vehicle trips to get the most out of each trip and reduce miles traveled; line-drying clothes rather than using a dryer; eating more locally grown fruits, vegetables, and meat, and fewer processed foods. In addition to summarizing green living practices and their benefits, the webpage will include links to sources of more detailed green and sustainable living information. Staff will also collaborate with the Yolo County Youth Commission to develop educational materials on issues of particular interest to youth such as fast-fashion waste or environmentally friendly beauty and health products and provide businesses and contractors with information on energy-efficient alternatives and less-carbon-intensive practices and products and their benefits to clients and customers.

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING

RCP 1c Collaborate with home repair-related businesses to expand the responsible consumption education program tailored to carbon-reducing building materials at do-it-yourself classes given at these businesses.

● ● ● PHASE III

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE RCP 1 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: N/A

2045: N/A

COST: N/A

MEASURE RCP 1:

Provide Responsible Consumption Guidance

Develop educational programs and outreach materials that promote actions to reduce the carbon intensity of consumption at the individual level and partner with local businesses to increase visibility and engagement with the programs.

ACTIONS

RCP 1d

Maintain and provide a list of businesses in Yolo County that are certified as Green Businesses. These businesses provide the public low-carbon services and products and engage in lower-carbon-intensity business practices. Seek partnerships with chambers of commerce to promote and educate members on green business practices and how to secure Green Business certification.

● ● ● **PHASE III**

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE RCP 1 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: N/A

2045: N/A

COST: N/A

MEASURE RCP 2:

Encourage Neighborhood
Carpool Program

Facilitate the creation and/or expansion of local carpool programs.

ACTIONS

RCP 2a

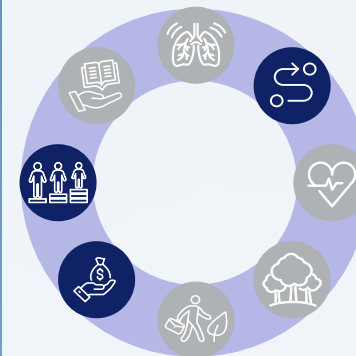
Encourage neighbors to set up a neighborhood carpool program to reduce personal vehicle miles traveled and provide more vehicle equity for families that do not own reliable transportation.

● ● ● **PHASE III**

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE RCP 2 HIGHLIGHTS

CO-BENEFITS:

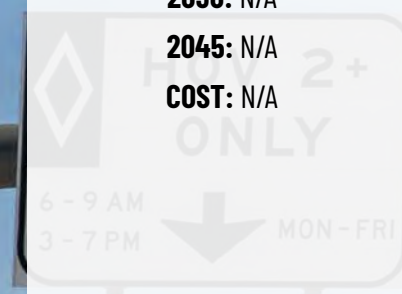


**GHG REDUCTION POTENTIAL
(MT CO₂e)**

2030: N/A

2045: N/A

COST: N/A



MEASURE RCP 3:**Promote Personal Water Efficiency**

Implement programs informing and incentivizing residents for practices that reduce their water consumption or increase graywater and stormwater capture and reuse.

ACTIONS**RCP 3a**

Establish a rain barrel program that would educate the public on the proper use of rain barrels to collect rooftop rainwater and filter it before using it to irrigate family gardens. Coordinate with other rain barrel programs that would allow families to be given a rain barrel or purchase one at a discounted price.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING

RCP 3b

Revise codes and establish a residential graywater system ordinance that safely allows households to retrofit their washing-machine drains to a backyard graywater system for irrigation of gardens.

● ● ● PHASE III

MITIGATION | ADAPTATION | CROSSCUTTING

RCP 3c

Provide instructions on how to safely retrofit a washing-machine drain into a backyard graywater system that is compliant to the new residential graywater system ordinance.

● ● ● PHASE III

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE RCP 3 HIGHLIGHTS**CO-BENEFITS:****GHG REDUCTION POTENTIAL**

(MT CO₂e)

2030: N/A

2045: N/A

COST: N/A

MEASURE RCP 4:

Support Carbon Neutral Travel

Publish informational materials encouraging less emission-intensive alternatives to conventional travel practices.

ACTIONS

RCP 4a

On the responsible consumption webpage, provide guidance on vacation alternatives that do not include air travel and include locations and hotels that are California certified as sustainable businesses and participate in “green visitor” programs.

● ● ● PHASE III

MITIGATION | ADAPTATION | CROSSCUTTING

RCP 4b

Coordinate with other jurisdictions and visitors bureaus that have green visitor programs and highlight these programs on the webpage dedicated to vacation alternatives.

● ● ● PHASE III

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE RCP 4 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: N/A

2045: N/A

COST: N/A

MEASURE RCP 5:

Increase Consumption and Production of Local Agricultural Products

Expand community gardens and farmers markets throughout Yolo County to increase access to locally grown food and publish materials providing guidance on how to purchase local agricultural products.

ACTIONS

RCP 5a On the responsible consumption webpage, provide guidance on local produce and food available and include dates, times, and locations of farmers markets.

● ● ● PHASE III

MITIGATION | ADAPTATION | CROSSCUTTING

RCP 5b Expand local-product marketing efforts, expand the number of businesses and agencies that use local food, and increase opportunities for the direct sale of local food.

● ● ● PHASE III

MITIGATION | ADAPTATION | CROSSCUTTING

RCP 5c Establish or expand year-round local farmers markets to provide residents with a more local source of food.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING

RCP 5d Explore the potential to specifically identify “community gardens” as an allowable use within the County’s zoning code. Explore opportunities to partner with the County’s Public Health Team, the Center for Land-Based Learning, and Yolo Farm to Fork to support community gardens as a tool for supporting locally sourced and culturally relevant food and local food sovereignty.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE RCP 5 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: N/A

2045: N/A

COST: N/A

MEASURE RCP 6:

Require Environmentally Responsible Purchasing

Require local businesses to create and implement environmentally responsible purchasing plans.

ACTIONS

RCP 6a

Require existing and future business operations to implement an environmentally responsible purchasing plan. Examples of environmentally responsible purchases include but are not limited to purchasing products made from recycled materials or with sustainable packaging; purchasing post-consumer recycled paper, paper towels, and stationery; purchasing and stocking communal kitchens with reusable dishes and utensils; choosing sustainable cleaning supplies; purchasing products from restaurants, farms, or ranches that source materials or goods from locations that use soil conservation practices; and leasing equipment from manufacturers who will recycle the components at the end of their life.

● ● ● PHASE III

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE RCP 6 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: N/A

2045: N/A

COST: N/A



Build Resilient Infrastructure and Healthy Communities (HC)

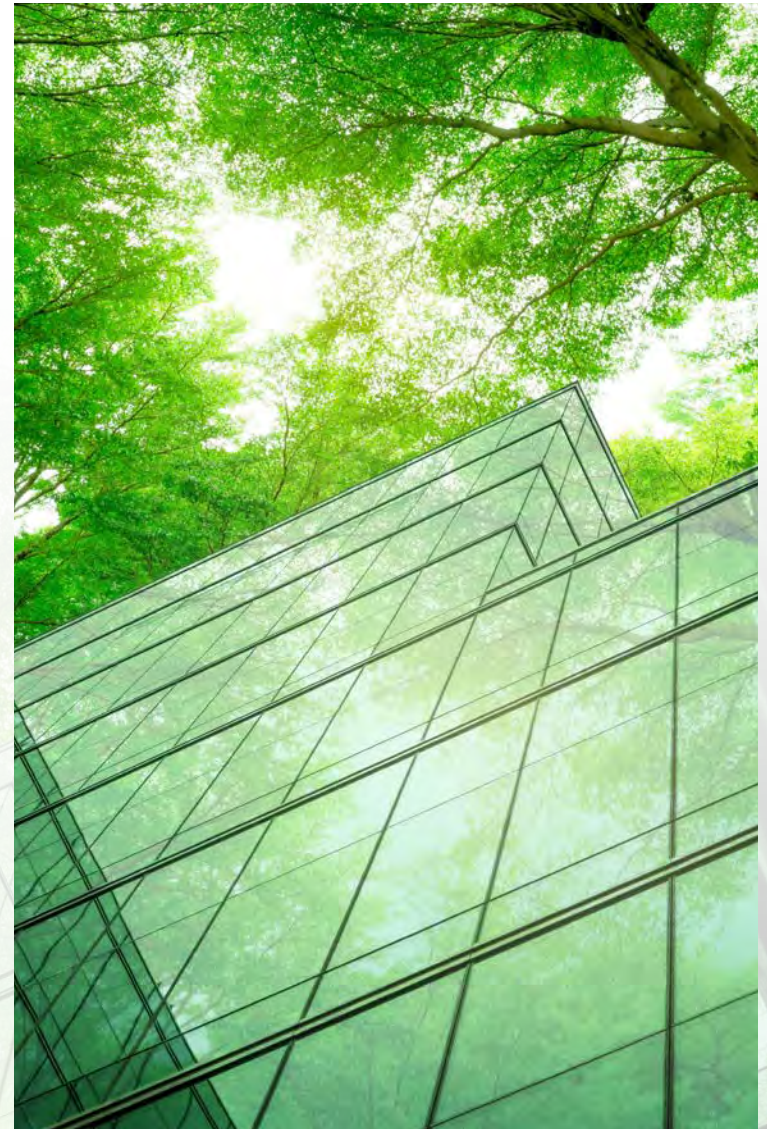
Yolo County has already experienced impacts from climate-driven events including wildfire, drought, flooding, and extreme heat, and every sector is facing an increased risk of some or all of these hazards.

In parallel with efforts to reduce GHG emissions in every sector, adapting infrastructure to better withstand existing and future impacts is crucial to building a sustainable future for current Yolo County residents and for generations to come. To support the health and well-being of Yolo County communities, it is critical to reduce exposure to climate hazards at the workplace, in public facilities, and at home. When taken together, climate action and adaptation measures work holistically to improve equity and create better-prepared, more resilient, and healthier communities.

The measures under this strategy aim to increase the ability of individuals, communities, systems, institutions, and businesses to withstand, recover, and thrive in the face of climate change and chronic stress, prioritizing those who are most vulnerable and/or exposed to the impacts of climate change. Investing in resilience will benefit Yolo County residents immediately and for years to come.

2030 GHG REDUCTION POTENTIAL

Their primary aim is not to yield GHG reductions through implementation. However, resilience measures can offer co-benefits, and several are categorized as crosscutting, meaning they result in GHG reductions and have adaptive value. These reductions are difficult to capture and are therefore not quantified for the purposes of the CAAP. For example, increasing tree canopy in developed areas reduces communities' exposure to urban heat, while also improving air quality and sequestering carbon.





Equity Concerns

- ▲ Low-income and vulnerable populations may face economic, technological, and logistical barriers that limit their ability to engage with or access new and existing programs.
- ▲ Actions could increase the cost of construction or housing, which will disproportionately impact those with lower incomes.
- ▲ Without attention to equity, investing in infrastructure and increasing canopy may systematically occur in higher-income areas.



Equity Solutions

- ▲ When securing funding for incentive and rebate programs, prioritize access for households in disadvantaged and vulnerable communities and account for the specific needs of renters.
- ▲ When resources are distributed in the community, program design and implementation should consider barriers to access and prioritize those with the highest need or exposure.
- ▲ When investing in infrastructure and canopy increase, ensure that it occurs in areas with vulnerable populations and/or high exposure to hazards.

Key Local and Regional Background

Table 6-11. Current Planning Efforts Related to Build Resilient Infrastructure and Healthy Communities

Plan/Program Name	Summary	Coordinating Organization	Implications for CAAP
Regional			
Yolo County Regional Resilience Collaborative	The Yolo County Regional Resilience Collaborative (YCRRC) aims to build the County's first formal climate collaborative. YCRRC will engage vulnerable communities to identify shared climate priorities, establish a governance structure, and develop a funding and implementation strategy for implementing resilience projects.	Yolo County Sustainability Division; Cities of Davis, Winters, Woodland, and West Sacramento; University of California, Davis; Yocha Dehe Wintun Nation; Cool Davis; and Valley Vision	YCRRC may serve as a critical partner in implementing CAAP priorities and advancing adaptation and resilience goals.
Yolo County Improvement Standards Section 4: Transportation Improvements	Improvement Standards are the minimum standards for improvements to be built within County rights-of-way, easements, and private works that encounter County entitlements. Section 4 specifically presents policy related to the development of street/road type and design within Yolo County.	Yolo County Planning Division	Speaks to the construction of roads associated with current development. The current zoning code can be amended to support CAAP efforts to reduce the urban heat island effect.
Yolo County Zoning Code (Title 8) Chapter 1: Subdivision and Related Regulations of the County	This chapter governs the safe and orderly development of infrastructure and land use within Yolo County.	Yolo County Planning Division	Revise the zoning code to specifically address tree canopy guidelines for residential subdivisions and promote the installation of cool pavements.
Yolo County Zoning Code (Title 8) Chapter 4: Flood Protection	This chapter documents floodplain management regulations within Yolo County.	Yolo County Planning Division	Existing code helps achieve efforts to minimize hazard exposure. Can be amended to encourage permeable pavement and bioswales in the 100- and 500-year flood zones.

Plan/Program Name	Summary	Coordinating Organization	Implications for CAAP
Regional			
Yolo County 2030 General Plan Land Use and Community Character Element	Comprehensive list of policies developed to protect, preserve, and maintain Yolo County land, including tree canopies and green spaces.	Yolo County Planning Division	Current policy in the General Plan supports efforts to reduce the urban heat island effect. Existing policy can be amended as necessary to align with CAAP goals.
Yolo County 2030 General Plan Health and Safety Element	Provides information on the potential risks, hazards, and emergency preparedness policies in Yolo County. By mitigating risk, it promotes community resilience.	Yolo County Planning Division	Coordinate CAAP and General Plan initiatives to complement, supplement, and support goals.
Yolo County 2023 Community Health Improvement Plan (CHIP)	The Yolo County 2023 CHIP is a long-term systematic plan of efforts to address public health problems and inform policies and actions that promote health.	Yolo County Health and Human Services Agency	There is overlap between the goals of the 2023 CHIP and CAAP; forming a partnership/collaborating with respect to certain initiatives can provide an opportunity for the plans to support and complement each other and ultimately achieve projected goals.
Yolo County Hazard Mitigation Plan (2023)	The County's Hazard Mitigation Plan is a multi-jurisdictional effort that aims to reduce the risk to life and property in Yolo County by decreasing the long-term vulnerability from hazards through coordinated planning and risk reduction measures.	Yolo County Office of Emergency Services	There is overlap between the goals of the HMP and CAAP, forming a partnership/collaborating with respect to certain initiatives can provide an opportunity for the plans to support and complement each other and ultimately achieve projected goals.

Plan/Program Name	Summary	Coordinating Organization	Implications for CAAP
Regional			
<p>Yolo County Emergency Operations Plan</p>	<p>A comprehensive plan outlines the structure and processes expected of partner agencies within Yolo County to use in response to, and recover from, emergency or disaster events.</p> <p>The plan is centered around four primary components:</p> <p>Assign responsibility for carrying out specific actions in an emergency.</p> <p>Set forth lines of authority and organizational relationships.</p> <p>Specify procedures and systems to alert and notify staff and the public, protect residents and property, and request support when needed.</p> <p>Identify personnel, equipment, facilities, supplies, and other resources available for use during response and recovery operations</p>	<p>Yolo County Office of Emergency Services</p>	<p>Community resiliency is a CAAP priority, making it well suited to align with current County emergency and mitigation strategies and protocols.</p>
<p>2020–2024 Yolo County Strategic Plan</p>	<p>A guidance document developed to unite Yolo County organizations in support of a healthy and prosperous community. It has five focus areas: thriving residents, safe communities, sustainable environment, flourishing agriculture, and robust economy.</p>	<p>Yolo County</p>	<p>The Yolo County Strategic Plan has made much progress since its adoption and ensuing implementation and continues to achieve.</p> <p>Outlined goals overlap with CAAP initiatives, making coordination between the two important, especially considering the amount of progress achieved in a short period of time.</p>

Plan/Program Name	Summary	Coordinating Organization	Implications for CAAP
Regional			
Yolo County Rural Community Investment Program	Annual County investment plan that aims to assist rural communities by promoting economic development, infrastructure, and the health and safety of residents. Common goals include improving roads, expanding pedestrian mobility networks (and safety), effective groundwater management, improving broadband access and reliability, and more.	Yolo County Natural Resources Division	Understanding the priority of investment sectors in rural communities can help guide CAAP strategy planning.



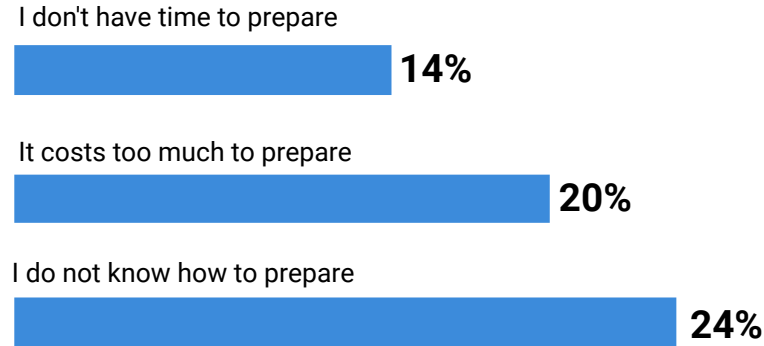
Relevant Community Outreach

Community outreach results are reflective of voluntary County participants, and accordingly, may or may not represent the views of the community as a whole.

The Yolo County community response related to actions that increase resilience are summarized in Figures 6-15 through 6-17. As shown, Yolo County residents face barriers when it comes to preparing for extreme weather events, including 25% of respondents who say they don't know how to prepare. Additionally, there is a strong desire of existing community members to see adaptation strategies implemented in their community, including strong (over 75%) support of tree planting, cool roofs and pavements, prescribed burning, and additional community centers. There is also strong (over 75%) support for equity strategies that reduce hazard exposure and improve quality of life in low-income communities, as well as for those that reduce barriers to housing, employment, and adaptations like solar and rainwater harvesting.

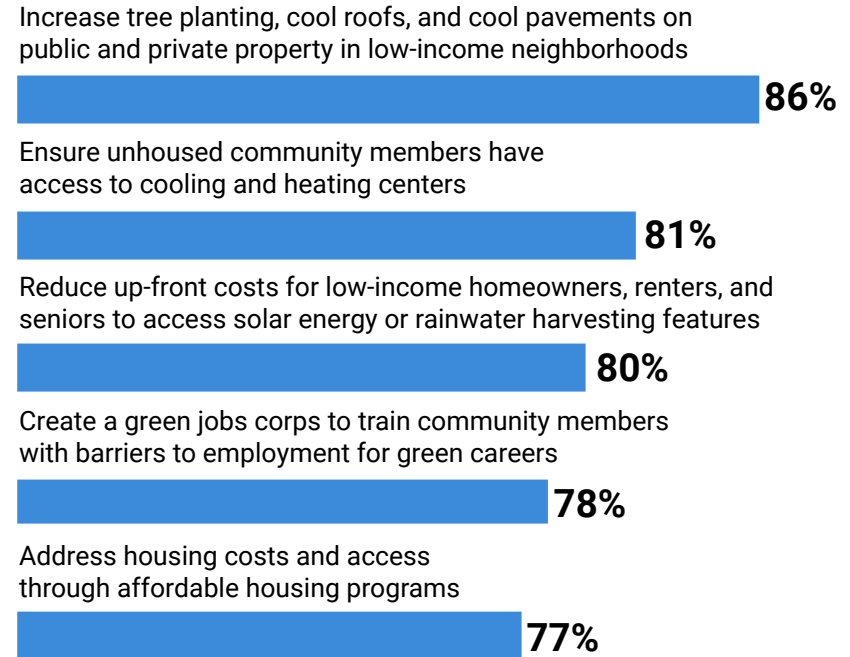
▼ Figure 6-15

Barriers to preparing for/handling extreme weather



▼ Figure 6-16

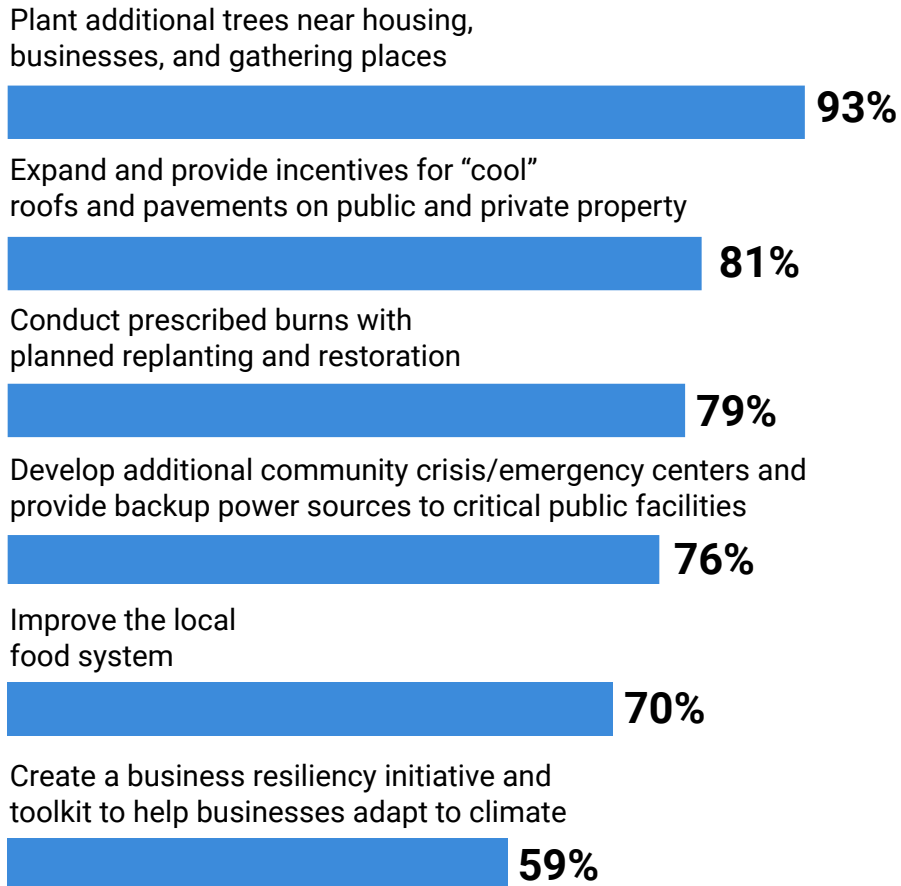
Community Support for Equity Strategies



▼ Figure 6-17

Community Support for Adaptation Strategies

Percent of responses



QUESTION:

What prevents you from preparing for extreme weather events?

ANSWER QUOTES:

“Being a renter in an apartment building with very poor cooling and heating. Since I’m a renter, I have more limited control of the physical environment.”

“Feeling of overwhelm in what to prepare for between fire, flood, and drought.”

“Not enough information on where to go.”

MEASURE HC 1:

Create Resilience Centers

Fund and develop a network of community hubs that increase resilience and reduce hazard exposure in vulnerable communities.

ACTIONS

- HC 1a** Develop a network of community resilience centers based in existing community hubs such as libraries, community centers, schools, nonprofits, and spaces of worship to support and coordinate resource distribution and services before, during, and after a hazardous event.

● ● ● PHASE I MITIGATION | ADAPTATION | CROSSCUTTING
- HC 1b** Seek grant funding to retrofit existing community hubs with climate-resilient improvements.

● ● ● PHASE I MITIGATION | ADAPTATION | CROSSCUTTING
- HC 1c** Seek grant funding to support current Cooling Center program, and to develop checklist for centers and transport plans for those most vulnerable and those with mobility issues.

● ● ● PHASE I MITIGATION | ADAPTATION | CROSSCUTTING
- HC 1d** Explore architectural and engineering design requirements needed to expand hours of community centers on hot days that do not meet the extreme heat threshold.

● ● ● PHASE II MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE HC 1 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)
 2030: N/A
 2045: N/A
 COST: N/A

MEASURE HC 2:

Improve Neighborhood Response

Develop programming to increase community-level adaptive capacity through education, outreach, and coordination with existing groups.

ACTIONS**HC 2a**

Coordinate with local CERT (fire), VIP (sheriff), Citizens Advisory Committees (CACs), Disaster Service Worker Volunteer Program, and Resilience Center partners to build local capacity for response and recovery.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING**HC 2b**

Build community awareness and engagement with CAAP strategies through participation in local events (e.g., the County Fair), using libraries and other County facilities as resource centers.

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING**HC 2c**

In partnership with local organizations, develop arts programming around the CAAP, centered at the resilience hubs.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING**MEASURE HC 2 HIGHLIGHTS****CO-BENEFITS:****GHG REDUCTION POTENTIAL****(MT CO₂e)****2030:** N/A**2045:** N/A**COST:** N/A

MEASURE HC 3:

Prepare Vulnerable Communities

Develop a systematic approach to protecting vulnerable communities from climate impacts.

ACTIONS

- HC 3a** Coordinate with relevant agencies and organizations that provide homeless services in Yolo County to provide shelter during hazardous conditions and severe weather events.

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING
- HC 3b** Inform and assist at-risk community members, including providing culturally relevant preparedness education and notification.

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING
- HC 3c** Partner with Yolo County Office of Education, local schools, and fire districts, including school staff that facilitate outdoor education and sports, to create age-appropriate preparedness classes and identify long-term strategies to safely conduct seasonal activities. A focus on low-income/ disadvantaged communities will be identified in this effort.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING
- HC 3d** Partner with Citizens Advisory Committees and other local community groups to educate vulnerable communities on disaster preparedness and climate hazards.

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE HC 3 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: N/A

2045: N/A

COST: N/A

MEASURE HC 3:

Prepare Vulnerable Communities

Develop a systematic approach to protecting vulnerable communities from climate impacts.

ACTIONS

- HC 3e** Continue to invest in existing programs that help to identify and reach vulnerable populations to help first responders provide services and meet their needs during hazardous events. Utilize the findings of the Access and Functional Needs (AFN) working group to identify and address service and outreach gaps. Partner with local community groups to gather feedback and share information.

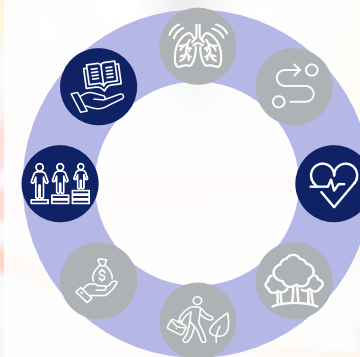
● ● ● PHASE I MITIGATION | ADAPTATION | CROSSCUTTING

- HC 3f** Identify opportunities and pursue grant funding to install touchless water refill stations at public facilities and parks. Create a small allocation of funds for Yolo County Parks to develop conceptual plans with architecture and engineering to make proposals more tangible.

● ● ● PHASE II MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE HC 3 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: N/A

2045: N/A

COST: N/A

MEASURE HC 4:

Improve Equitable Distribution of Resources

Ensure that climate action and adaptation resources and investments reach vulnerable populations and those with the highest exposure to hazards.

ACTIONS

- HC 4a** Work with YoloBus to make improvements to bus stations and stops, including enhanced shade structures and water stations.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING
- HC 4b** Partner with local CBOs to connect vulnerable residents to weatherization resources. Advertise weatherization programs in public spaces, such as the library, community center, senior center, parks, and public events.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING
- HC 4c** Support OES preparedness programs by partnering with local community groups, schools, and libraries to create disaster kits for families in low-income/disadvantaged communities.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING
- HC 4d** Partner with YoloBus and other countywide transport organizations in the private sector to meet the unique needs of residents who may be unable to self-evacuate in a hazard.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING
- HC 4e** Partner with Citizens Advisory Committees and other local community groups and centers to coordinate a Know Your Neighbor Program where community leaders and neighbors provide resources and check in on vulnerable populations during hazard events where people shelter at home.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE HC 4 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: N/A

2045: N/A

COST: N/A

MEASURE HC 4:

Improve Equitable Distribution of Resources

Ensure that climate action and adaptation resources and investments reach vulnerable populations and those with the highest exposure to hazards.

ACTIONS

- HC 4f** Partner with local CBOs to connect residents to resilience funding mechanisms.

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING

- HC 4g** Investigate the potential for the County to complete reliable broadband internet access across unincorporated Yolo County.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE HC 4 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)
 2030: N/A
 2045: N/A
 COST: N/A

MEASURE HC 5:

Minimize Hazard Exposure

Protect community and infrastructure by reducing exposure to climate hazards through education, planning, and investment.

ACTIONS

- HC 5a** Incentivize and educate residents in CAL FIRE wildfire severity zones on the adoption of fire smart construction, renovations, and landscaping.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING
- HC 5b** Pursue grant funding to install and maintain permeable pavement and bioswales in flood zones, areas with less than 50% permeable area, and on streets that flood regularly.

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING
- HC 5c** Maintain emergency evacuation routes. Ensure that street widths, paving, and grades can accommodate emergency vehicles.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING
- HC 5d** Repair/upgrade parklands culverts with fire-resistant materials. Consider adding reinforced concrete culvert pipe as a required culvert material in High Fire Severity Zones in the County Improvement Standards.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING
- HC 5e** Develop a green streets program to support a sustainable approach to stormwater, drainage, groundwater recharge, and landscaping and incorporate green streets standards and guidelines in all streetscape improvements. Ensure program considers applicable soil types and requirements needed to ensure proper water infiltration.

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE HC 5 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: N/A

2045: N/A

COST: N/A



MEASURE HC 5:

Minimize Hazard Exposure

Protect community and infrastructure by reducing exposure to climate hazards through education, planning, and investment.

ACTIONS**HC 5f**

Update critical facilities to increase climate resilience. Such facilities include those that provide emergency service and response in the areas of health and medical; food, water, and shelter; communications; energy; transportation; and hazardous materials. Facilities that cater to large numbers should also be considered for updates, such as schools, theatres, and other public assemblies.

● ● ● PHASE I

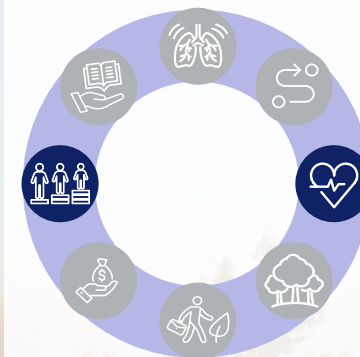
MITIGATION | ADAPTATION | CROSSCUTTING

HC 5g

Adopt Climate Resilience Checklist for new buildings or renovated critical facilities. This checklist should evaluate if the project is within a hazard zone, how the asset would respond to damage during and after a hazard event, and equity considerations. This evaluation will support the development of adaptation measures to mitigate the identified risks.

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE HC 5 HIGHLIGHTS**CO-BENEFITS:****GHG REDUCTION POTENTIAL**

(MT CO₂e)

2030: N/A

2045: N/A

COST: N/A

CAL
FIRE

MEASURE HC 6:

Minimize Workplace Hazard Exposure

Protect workers by reducing exposure to climate hazards with programs and policies that ensure safe working conditions for workers regardless of immigration or economic status.

ACTIONS

- HC 6a** Build relationships with farmworker organizations in order identify opportunities to decrease exposure to extreme heat and establish a farmworker advisory council to provide workers with a formal role in County government and access to decision makers countywide.

● ● ● PHASE I MITIGATION | ADAPTATION | CROSSCUTTING
- HC 6b** Require Cal/OSHA training on indoor and outdoor heat safety prior to the issuance of pesticide permits.

● ● ● PHASE I MITIGATION | ADAPTATION | CROSSCUTTING
- HC 6c** Develop a farmworker resource program (through partnership with local organizations) focused on connecting farmworkers to rent and utility assistance, weatherization and resilience programs, and hazard safety trainings and healthcare.

● ● ● PHASE I MITIGATION | ADAPTATION | CROSSCUTTING
- HC 6d** Coordinate with farmworker organizations to identify education opportunities and enforcement strategies to ensure Cal/OSHA standards on indoor and outdoor heat safety are met.

● ● ● PHASE II MITIGATION | ADAPTATION | CROSSCUTTING
- HC 6e** Conduct targeted monitoring of outdoor workplaces during periods of high heat to ensure compliance with established outdoor worker heat-illness prevention regulations.

● ● ● PHASE II MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE HC 6 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: N/A

2045: N/A

COST: N/A

MEASURE HC 7:

Reduce Urban Heat Island Effect

Cool off developed areas with more canopy, green space, and the use of cool building materials.

ACTIONS

- HC 7a** Amend the County municipal code to address urban heat island effect (UHIE).
 ● ● ● PHASE I MITIGATION | ADAPTATION | CROSSCUTTING
- HC 7b** Pursue grant funding to reduce UHIE by replacing dark pavement with cool pavement in residential areas.
 ● ● ● PHASE II MITIGATION | ADAPTATION | CROSSCUTTING
- HC 7c** Pursue grant funding to install cool pavements in place of dark pavements on County property.
 ● ● ● PHASE II MITIGATION | ADAPTATION | CROSSCUTTING
- HC 7d** Pursue grant funding to replace roofs on County and service provider facilities with reflective materials that meet or exceed current code or with green roofs.
 ● ● ● PHASE II MITIGATION | ADAPTATION | CROSSCUTTING
- HC 7e** Connect low-income homeowners with programs and grants to replace roofs with reflective materials that meet or exceed current code or with green roofs.
 ● ● ● PHASE I MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE HC 7 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL (MT CO₂e)

2030: N/A
2045: N/A
COST: N/A

MEASURE HC 7:

Reduce Urban Heat Island Effect

Cool off developed areas with more canopy, green space, and the use of cool building materials.

ACTIONS

- HC 7f** Support parks acquisition and conservation strategies to enable park climate and equity goals and establish greenbelts. Seek opportunities to enhance groundwater recharge where possible.

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING
- HC 7g** Develop community canopy program to expand tree planting, prioritizing areas experiencing the urban heat island effect and ensuring tree species diversity to increase resilience to pest, disease, and drought.

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING
- HC 7h** Adopt and regularly update County Development Improvement Standards with solar reflective index (SRI) guidelines for new roads.

● ● ● PHASE I

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE HC 7 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: N/A

2045: N/A

COST: N/A

MEASURE HC 8:

Prioritize Sustainable Economic Development

Enhance local economy and job creation efforts while expanding opportunities for residents.

ACTIONS

HC 8a Develop green jobs program to provide employment opportunities for local youth and adults including job training in EVs, electric equipment, building electrification, and other climate-related sectors.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING

HC 8b Investigate and implement program for the County to maximize local financing for green technologies and businesses. Green technologies include energy-efficient and zero-emission vehicle fleets and off-road equipment, building electrification upgrades, low-flow fixtures in buildings, or energy-efficient stationary sources. Recipients of financing could include neighborhood developers, home and commercial space builders, homeowners, and utilities.

● ● ● PHASE II

MITIGATION | ADAPTATION | CROSSCUTTING

MEASURE HC 8 HIGHLIGHTS

CO-BENEFITS:



GHG REDUCTION POTENTIAL

(MT CO₂e)

2030: N/A

2045: N/A

COST: N/A

Summary

Yolo County's community-wide GHG emissions gap of 641,073 MT CO₂e by 2030 will be achieved through substantial GHG emission reductions, as well as sequestration within NWLs.

Table 6-12 presents the estimated GHG emission reduction or carbon sequestration by quantified measure for 2027, 2030, and 2045, along with the performance criteria assumed for the calculations.

Table 6-12. Community-Wide GHG Emission Reductions and Carbon Sequestration by Measure

Measure	Performance Criteria	2027 Reductions MT CO ₂ e	2030 Reductions MT CO ₂ e	2045 Reductions MT CO ₂ e
Strategy 1 - Decarbonize Transportation				
DT 3 Encourage Transition to Electric Vehicles	Targeted battery-electric vehicle /plug-in hybrid electric vehicle population 2027: 20% 2030: 30% 2045: 90%	32,955	57,279	156,739
Strategy 3 - Decarbonize Energy and Buildings and Increase Energy Efficiency				
EB 1 Increase Energy Efficiency in Buildings	Green roof participation 2027: 20% 2030: 30% 2045: 40% Green building or energy efficiency program / California Solar Initiative/ Property Assessed Clean Energy participation 2027: 10% 2030: 15% 2045: 25%	876	1,207	2,011

Measure	Performance Criteria	2027 Reductions MT CO ₂ e	2030 Reductions MT CO ₂ e	2045 Reductions MT CO ₂ e
EB 2 Decarbonize and Electrify Buildings	Percent of Buildings 100% Electric 2027: 35% 2030: 75% 2045: 100%	30,959	67,082	100,032
EB 3 Increase Renewable Energy Generation and Storage	New Residential Photovoltaic (PV) Solar Participation 2027: 70% 2030: 80% 2045: 90% New Commercial PV Solar Participation 2027: 20% 2030: 40% 2045: 70% Existing Residential PV Solar Participation 2027: 15% 2030: 20% 2045: 35% Existing Residential PV Solar Participation 2027: 10% 2030: 15% 2045: 32%	3,861	66	0

Measure	Performance Criteria	2027 Reductions MT CO ₂ e	2030 Reductions MT CO ₂ e	2045 Reductions MT CO ₂ e
EB 4 Procure Zero-Carbon Electricity	Residential Valley Clean Energy (VCE) UltraGreen program 2027: 50% 2030: 75% 2045: 100% Commercial VCE UltraGreen program 2027: 25% 2030: 50% 2045: 75%	6,741	146	0
Strategy 4 - Optimize Water Use				
W 2 Encourage Efficient Water Use in Agricultural Operations	Reduction in diesel/propane agricultural pump use 2027: 0% 2030: 15% 2045: 30%	0	4,041	8,082
W 4 Reduce Water Consumption	Reduction in community-wide water consumption 2027: 0% 2030: 15% 2045: 30%	0	1	0
Strategy 5 - Minimize Waste				
SW 3 Reduce Emissions from Waste Management	Percent improvement in landfill gas capture 2027: 5% 2030: 9% 2045: 14%	1,978	3,640	6,280

Measure	Performance Criteria	2027 Reductions MT CO ₂ e	2030 Reductions MT CO ₂ e	2045 Reductions MT CO ₂ e
Strategy 6 - Reduce Off-Road Equipment Emissions				
OFR 1 Increase Electric and Zero-Emission Off-Road and Landscaping Equipment Adoption	Targeted electric or zero-emission off-road equipment population 2027: 25% 2030: 75% 2045: 100%	6,134	62,682	102,287
OFR 2 Decarbonize Agricultural Equipment	Targeted electric or zero-emission off-road agricultural equipment population 2027: 25% 2030: 75% 2045: 100%	4,776	38,117	44,439
Strategy 8 - Sequester and Store Carbon in Natural and Working Lands				
NWL 1 Encourage Climate-Smart Practices in Working Lands	Adoption of climate-smart working lands practices 2027: 5% 2030: 20% 2045: 50%	103,115	412,461	1,031,154
NWL 2 Restore Natural Lands	Adoption of natural lands restoration practices 2027: 5% 2030: 20% 2045: 50%	1,649	6,597	16,492
Total		193,046	653,319	1,467,515

Notes: MT CO₂e = metric tons of carbon dioxide equivalent.

As shown in Table 6-12, there are 12 key measures within the CAAP that account for 100% of the quantified GHG emission reductions. All strategies, measures, and actions are important, and many are supporting efforts that promote measures that are quantified. Some measures are anticipated to result in GHG reductions that could be quantified but are not quantified herein, and other measures were not quantified due to data availability and calculation methodology constraints, but quantification methods and data may be available in the future to quantify associated GHG emission reductions.

Table 6-13 presents the community-wide GHG emission reduction and carbon sequestration by strategy in 2030 and the corresponding percent of the local gap, as well as a comparison of the total GHG reductions to the County's GHG emissions target.

Table 6-13. 2030 Community-Wide GHG Emission Reductions and Carbon Sequestration by Strategy

Strategy	2030 Reductions MT CO ₂ e	2030 Percent of Local Gap Emissions
Strategy 1 Decarbonize Transportation	57,279	9%
Strategy 2 Reduce Vehicle Miles Traveled	0	0%
Strategy 3 Decarbonize Energy and Buildings and Increase Energy Efficiency	68,501	11%
Strategy 4 Optimize Water Use	4,042	1%
Strategy 5 Minimize Waste	3,640	1%
Strategy 6 Reduce Off-Road Equipment Emissions	100,799	16%
Strategy 7 Support Climate-Smart Agriculture	0	0%
Strategy 8 Sequester and Store Carbon in Natural and Working Lands	419,058	65%
Strategy 9 Reduce Carbon Footprint of Consumption and Production	0	0%
Strategy 10 Build Resilient Infrastructure and Healthy Communities	0	0%
Total Reductions	653,319	102%
GHG Emissions Target	-1	N/A
Local GHG Emissions Gap	641,073	N/A
Local GHG Emissions Gap Achieved?	Yes	N/A

Notes: MT CO₂e = metric tons of carbon dioxide equivalent.

Percentages may not total due to rounding.

As shown in Table 6-13, the County will achieve its GHG emissions target of net-negative GHG emissions, which for mathematical purposes is assumed to be -1 MT CO₂e, in 2030 through implementation of all 10 CAAP strategies. Approximately 37% of the local gap is achieved through GHG reduction measures (Strategies 1, 3, 4, 5, and 6), and the remaining gap is achieved through carbon sequestering actions within Strategy 8. With the substantial opportunity to sequester carbon within NWL, the County has the ability to sequester GHG emissions beyond the mathematical target of -1 MT CO₂e and provide opportunities to fund NWL operations that implement climate-smart working land practices.

As noted previously, the municipal inventory includes substantial overlap with the community-wide inventory—they are two different ways of illustrating Yolo County's GHG emissions. The purpose of the municipal inventory is to baseline government operations to develop specific reduction measures to allow County government to lead by example. For this reason, many of the community-wide measure reductions are mirrored by the municipal measures and associated reductions (e.g., electrifying buildings and vehicles). For the municipal inventory, seven measures were quantified that account for approximately 5,298 MT CO₂e reduction in 2030 (3,620 MT CO₂e attributed to Strategy 5, Minimize Waste, and the remaining 1,678 MT CO₂e associated with Strategies 1, Decarbonize Transportation; 3, Decarbonize Energy and Buildings and Increase Energy Efficiency; and 6, Reduce Off-Road Equipment Emissions). The County's municipal inventory would reduce from the 2030 ABAU forecast of 41,841 MT CO₂e in 2030 to 36,543 MT CO₂e, and the remainder (i.e., 36,543 MT CO₂e primarily associated with legacy landfill gas waste-in-place GHG emissions) would be met through carbon sequestration measures within Strategy 8, Sequester and Store Carbon in Natural and Working Lands.

The consumption-based inventory narrative, which is the third way of illustrating Yolo County's GHG emissions as evaluated in this CAAP, was included to provide individuals, families, and businesses an understanding of the wholistic (e.g., life cycle) GHG emissions from all their actions. The consumption-based inventory narrative

is not quantified in the same way as the community-wide and municipal GHG emission inventories; the associated measures and actions within Strategy 9, Reduce Carbon Footprint of Consumption and Production, are therefore not quantified. Strategy 9 directs the County to provide information on how Yolo County's community members can reduce their carbon footprint (i.e., total GHG emissions associated with the actions of an individual, family, or business). While not quantified herein, if community members modify their actions and behaviors to reduce their carbon footprint associated with consumption and production, there is a potential for substantial GHG emission reduction both within Yolo County and beyond County jurisdictional borders. In addition, as the County implements all 10 strategies of the CAAP, it is anticipated that individual community members' carbon footprints would also reduce.

While many adaptation-focused actions may not be quantifiable from a GHG emission reduction perspective, they are critical to meeting the County's adaptation and resiliency goals. While all adaptation and crosscutting actions collectively serve as an essential component of the CAAP, key adaptation measures include creating resilience centers and increasing neighborhood response to ensure the community, including its most vulnerable members, is prepared for the adverse effects of climate change.

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Chapter **7**

FUNDING AND FINANCING

Chapter 7 includes estimates of costs and savings for the actions identified within Chapter 6. This includes considerations for both the County, residents, and businesses. This chapter also contains a funding and financing roadmap, which identifies funding sources and gaps, as well as mechanisms to finance the CAAP's planned activities.

Cost and Savings Estimates

Costs to County Government

This is an estimated 2025/2026 fiscal year budget for implementation of CAAP Phase 1 actions in its first year. This budget is for planning purposes only. Adoption of the CAAP does not obligate funding as outlined below. Future budget years will include expanded implementation including greater expenditures for municipal and community capital investments and incentives for community programs. Estimates were developed using information

garnered from other counties that have prepared climate action plans. As Yolo County departments scope out more detailed implementation programs for each action, these initial estimates will likely be revised.

Table 7-1 presents the estimated budget by division and overall strategy. The estimated total budget requirement is \$2.40 million. The Department of General Services has the largest share, at \$1.18 million. Among strategies, Strategy 1, Decarbonize Transportation, requires the largest expenditure, at \$1.36 million.

Table 7-1. Yolo County CAAP Budget – Fiscal Year 2025/2026 by Department and Strategy

Division	Strategy				Total Budget by Division
	1-Decarbonize Transportation	3-Decarbonize Energy and Buildings and Increase Energy Efficiency	6-Reduce Off-Road Equipment Emissions	8-Sequester and Store Carbon in Natural and Working Lands	
Public Works/Fleet Management	\$14,000	\$0	\$0	\$0	\$14,000
Department of General Services	\$1,176,000	\$0	\$0	\$0	\$1,176,000
Sustainability Division	\$116,000	\$25,000	\$0	\$239,000	\$380,000
Planning Division	\$45,000	\$0	\$85,000	\$0	\$130,000
Building Division	\$6,000	\$75,000	\$0	\$0	\$81,000
Facilities Division	\$0	\$595,000	\$13,000	\$0	\$608,000
Department of Agriculture	\$0	\$0	\$0	\$10,000	\$10,000
Total Expenditure by Strategy	\$1,357,000	\$695,000	\$98,000	\$249,000	\$2,399,000

Note: Totals do not reflect the sum of each value due to rounding.

Table 7-2 shows the preliminary budget by division and type of expenditure. Capital investment by the Department of General Services, at \$1.17 million, is the largest single expenditure.

Table 7-2. Yolo County CAAP Budget – 2025/2026 by Department and Expenditure Type

Division	Total	Municipal Capital	Community Ongoing	Consultants	Labor
Public Works/Fleet Management	\$14,000	\$0	\$0	\$0	\$14,000
Department of General Services	\$1,176,000	\$0	\$1,169,000	\$0	\$7,000
Sustainability Division	\$380,000	\$0	\$0	\$114,000	\$267,000
Planning Division	\$130,000	\$0	\$36,000	\$40,000	\$54,000
Building Division	\$81,000	\$0	\$0	\$0	\$81,000
Facilities Division	\$608,000	\$581,000	\$0	\$0	\$27,000
Department of Agriculture	\$10,000	\$0	\$0	\$0	\$10,000
Total	\$2,399,000	\$581,000	\$1,205,000	\$153,000	\$460,000

Note: Totals do not reflect the sum of each value due to rounding.

Table 7-3 shows the preliminary budget by action segmented to expenditure type.

Table 7-3. Yolo County CAAP Budget – 2025/2026 by Action and Expenditure Type

Measure	Action	Measure/ Action Type	County Division	Total Budget	Capital/ Ongoing	Consultants	Labor
Electrify County Fleet	Replace County light-duty gasoline and diesel-fueled vehicles with ZEVs.	Municipal Action	Fleet Management	\$10,000	\$0	\$0	\$10,000
	Develop and implement a countywide EV shuttle plan.	Community-Wide Action and Adaptation	Sustainability Division	\$116,000	\$0	\$0	\$116,000
Install Electric Vehicle Charging Infrastructure	Install EV charging stations at nonresidential public parking areas.	Municipal Action	Department of General Services* and Sustainability Division	\$1,176,000	\$1,169,000	\$0	\$7,000
	Develop an incentive program to encourage building owners to install EV charging stations.	Community-Wide Action	Planning Division* and Building Division	\$35,000	\$0	\$0	\$35,000
Decarbonize and Increase Efficiency of County Facilities	Require all natural gas appliances within County buildings be replaced with electric appliances.	Municipal Action	Facilities Division	\$298,000	\$286,000	\$0	\$12,000
	Implement energy efficiency retrofits across County facilities and installation of onsite renewable energy systems.	Municipal Action	Facilities Division	\$298,000	\$286,000	\$0	\$12,000
Decarbonize and Electrify Buildings	Create incentive programs to electrify all appliances and equipment in existing buildings.	Community-Wide Action	Sustainability Division	\$21,000	\$0	\$0	\$21,000
	Require installation of more-efficient alternatives in new developments.	Community-Wide Action	Planning Division*, Building Division	\$75,000	\$0	\$0	\$75,000

Measure	Action	Measure/ Action Type	County Division	Total Budget	Capital/ Ongoing	Consultants	Labor
Increase Electric and Zero-Emission Off-Road and Landscaping Equipment Adoption	Identify types of electric and zero-emission equipment that are commercially available or County-owned/operated equipment by 2030.	Municipal Action	General Services*, Public Works, Integrated Waste Management Division	\$9,000	\$0	\$0	\$9,000
	Adopt an ordinance that would require industrial land uses such as warehouses, logistics, and distribution centers to phase out fossil fuel equipment and replace with electric equipment or zero-GHG-emission equipment by 2030.	Community-Wide Action	Planning Division*, Building Division, Sustainability Division	\$1,000	\$0	\$0	\$1,000
	Adopt an ordinance requiring use of only electric or zero-emission off-road equipment where commercially available for all new development.	Community-Wide Action	Planning Division*, Building Division, Sustainability Division	\$46,000	\$0	\$40,000	\$6,000
	Replace gas-powered landscape equipment with zero-emission landscaping equipment at County facilities.	Municipal Action	Facilities Division*, Parks Division	\$13,000	\$9,000	\$0	\$4,000
	Adopt an ordinance that would require phaseout of gas-powered landscape equipment and replace with zero-GHG-emission equipment by 2030.	Community-Wide Action	Planning Division	\$6,000	\$0	\$0	\$6,000
	Develop and fund a yard equipment exchange program.	Community-Wide Action	Sustainability Division	\$45,000	\$36,000	\$0	\$9,000

Measure	Action	Measure/ Action Type	County Division	Total Budget	Capital/ Ongoing	Consultants	Labor
Encourage Climate-Smart Practices in Working Lands	Carbon Credit Exchange. Develop a Carbon Credit Exchange to create carbon credits within unincorporated Yolo County through implementation of climate-smart practices on working lands that sequester carbon.	Community-Wide Action	Sustainability Division*, Yolo County Resource Conservation District, Department of Agriculture	\$121,000	\$0	\$57,000	\$64,000
	Support Climate-Smart Practices that support carbon sequestration on working lands and provide co-benefits such as enhanced soil health, improved soil moisture retention, and/or reduced fertilizer costs.	Community-Wide Action	Sustainability Division*, Yolo County Resource Conservation District, Department of Agriculture	\$129,000	\$0	\$57,000	\$72,000

Notes: EV = electric vehicle; ZEV = zero-emission vehicle; GHG = greenhouse gas; NWL = natural and working lands; USDA NRCS= U.S. Department of Agriculture Natural Resources Conservation Service.

When more than one division is listed for an action, the "*" indicates the divisions where the budget was allocated.



Costs and Savings for Yolo County Residents and Businesses

Cost-effectiveness analysis measures the net costs (i.e., gross costs minus gross benefits) per unit of provided service or benefit. In this case, it measures the cost per ton of GHG emission reductions. Cost-benefit analysis goes one step further to weigh benefits and costs against each other, which involves placing a monetary value on GHG reductions instead of using them as a quantified metric. Costs include initial investments, ongoing expenditures, and non-market costs such as environmental and transaction costs, when available. Benefits can include air quality and other environmental quality improvements that are savings compared to the presumed baseline activity. Monetary values can also be included where sufficient information is available. The County can compare the relative net costs of its portfolio of actions using these values.

This analysis does not address the benefits of actions for climate adaptation and improved resilience. These are equally important objectives, but a benefit metric has not yet been developed that allows for a commensurate comparison with emission reductions. Thus, the cost-effectiveness measure is a useful but incomplete tool for assessing whether an action is appropriate for the CAAP.

Table 7-4 presents the direction and degree of cost-effectiveness for the actions included in Phase 1 of the CAAP. These characterizations are based on underlying calculations, which have significant uncertainty, from energy price and technology cost forecasts. The actions are categorized across five levels, ranging from net benefits greater than \$1,000 per ton of CO₂e reduction to neutral on balance to net costs greater than \$1,000 per ton.

Table 7-4. Yolo CAAP Cost Effectiveness for Phase 1 Community Actions

Strategy/Measure/Action	Net Cost or Benefit
Strategy 1 Decarbonize Transportation	
DT 2 Install Electric Vehicle Charging Infrastructure	\$-
Strategy 3 Decarbonize Energy and Buildings and Increase Energy Efficiency	
EB 1 Increase Energy Efficiency in Existing Buildings	
EB 1b Cool Roofs	\$\$-
EB 1d SF Energy Efficiency	\$-
EB 1d MF Energy Efficiency	\$-
EB 2 Decarbonize and Electrify Buildings	
EB 2b Existing SF Residential	\$-
EB 2b Existing MF Residential	\$+/-
EB 2c New SF Residential	\$-
EB 2c New MF Residential	\$+
EB 2c New Commercial	\$+
EB 3 Increase Renewable Energy Generation and Storage	\$\$+
EB 4 Procure Zero-Carbon Electricity	\$+/-
Strategy 4 Optimize Water Use	
W 2 Encourage Efficient Water Use in Agricultural Operations	\$-
Strategy 5 Minimize Waste	
SW 3 Reduce Emissions from Waste Management	\$\$+
Strategy 6 Reduce Off-Road Equipment Emissions	
OFR 1 Increase Electric and Zero-Emission Off-Road and Landscaping Equipment Adoption	\$\$+
OFR 2 Decarbonize Agricultural Equipment	\$\$+

Strategy/Measure/Action	Net Cost or Benefit
Strategy 8 Sequester and Store Carbon in Natural and Working Lands	
NWL 1 Encourage Climate-Smart Practices in Working Lands	\$+/-
Definition	Key
Large Net Benefit >\$1,000/ton	\$\$-
Small Net Benefit \$100–\$1,000/ton	\$-
Neutral Costs/Benefits	\$+/-
Small Net Cost \$100–\$1,000/ton	\$+
Large Net Cost >\$1,000/ton	\$\$+

Notes: SF = single-family; MF = multifamily.



Many key actions deliver net benefits over the life of the technology used. These often have higher up-front costs than the current conventional option, which has been a deterrent to their adoption. Installing cool or green roofs is most likely to deliver the largest net benefit. Smaller net benefits accrue to installing a public EV charging network and upgrading building envelopes and appliances. A number of actions have uncertain net benefits or break-even net costs that are dependent on projections of electric and natural gas rates and evolving technology costs. These include decarbonization of existing and new residences and buildings, encouraging adoption of zero-carbon electricity from VCE, switching agricultural water pumps from diesel to electric, and implementing a program to sequester carbon in working lands. More expensive actions include increasing the number of facilities with renewable generation supplemented with energy storage, capturing more landfill gas, and electrifying off-road and agricultural equipment.

Funding and Financing Roadmap

GHG emission reduction strategies and climate adaptation measures, though they produce net economic benefits over time, require significant up-front investment. The amount is often unaffordable for small businesses and low-income households. Fortunately, there are Federal and State programs that can help governments, businesses, and low-income families and individuals make these initial investments.

Yolo County already benefited from American Rescue Plan of 2020 distributions to expand the Sustainability Program and fund early-action emissions reduction programs. Two subsequent Federal laws now support climate change mitigation and adaptation, the Inflation Reduction Act (IRA) of 2022 and the Bipartisan Infrastructure Law (BIL) of 2021, summarized in Table 7-5 below. The IRA will direct between \$390 billion (Committee for a Responsible Federal Budget 2022) and \$1 trillion (Bistline et al. 2023) to clean energy assets, primarily through tax credits and grants, through at least 2035¹. The IRA's tax credit provisions expire or start to phase out in 2033, and grant funding will mostly expire before then. The BIL acts as a cash infusion, funding the existing Federal apparatus to build climate-friendly infrastructure within the United States by 2030 (Bistline et al. 2021).

The largest source of IRA funding is offered via tax credits, primarily the Investment Tax Credit (ITC). The ITC typically provides a baseline 30% tax write-off for installing green technologies and allows non-tax-paying entities to opt for direct pay in lieu of tax credits. In general, IRA-funded grants are dispersed through a few Federal agencies. The most relevant IRA agencies are the Department of Energy (DOE), which offers grants for energy efficiency; the Department of Agriculture (USDA), which offers agriculture grants; the Department of the Interior (DOI), which provides funding for Federal and tribal land; and the Environmental Protection Agency (EPA), which funds renewable energy projects.

The Department of Transportation (DOT) plays a critical role in grant dispersal under the BIL. Other relevant agencies are the DOE, which focuses on grid modernization, and the EPA, which specializes in water infrastructure. Details on BIL- and IRA-specific grants are listed in Appendix F, Funding and Financing.

¹ Substantial uncertainty exists about the potential uptake of opportunities and the synergy among the extensive provisions, leading to a wide potential range of expenditures.



Table 7-5. Federal Climate Change Solutions Funding

FEDERAL CLIMATE CHANGE SOLUTIONS FUNDING			
Law	Purpose	Funding	Federal Agencies
Inflation Reduction Act of 2022	<ul style="list-style-type: none"> • Renewable energy • Energy efficiency • Sustainable agriculture 	<ul style="list-style-type: none"> • Tax credits • Grants • Payment in lieu of taxes 	<ul style="list-style-type: none"> • Department of Energy • Department of Agriculture • Department of the Interior • Environmental Protection Agency
Bipartisan Infrastructure Law of 2021	<ul style="list-style-type: none"> • Climate-friendly infrastructure 	<ul style="list-style-type: none"> • Grid modification • Water infrastructure • Transportation infrastructure 	<ul style="list-style-type: none"> • Department of Energy • Department of Transportation • Department of the Interior



The IRA and BIL provide historic funding levels for underserved communities because of the Justice40 mandate, which states that “40% of the overall benefits of certain Federal investments flow to disadvantaged communities that are marginalized, underserved, and overburdened by pollution” (The White House 2023). Projects that prioritize disadvantaged and tribal communities receive greater tax credits and priority for grant funding.

State grants can work in tandem with Federal grants and tax breaks to significantly ease the up-front financial burden of environmentally related projects. The fiscal year 2023/2024 State of California budget allocated \$36 billion over 5 years toward climate resilience and integrated climate, equity, and economic opportunities (Legislative Analyst's Office 2024). However, the current State budget deficit portends significant cuts to funding programs for climate change solutions for the 2024/2025 fiscal year. Nonetheless, more than 80 California Climate Investments programs administered by over 20 State agencies, departments, and offices direct billions of dollars into State and community transitions to a low-carbon and more equitable future. The program is briefly summarized in Table 7-6.

Table 7-6. California Climate Change Solutions Funding

CALIFORNIA CLIMATE CHANGE SOLUTIONS FUNDING			
Law/Programs	Purpose	Funding	State/Regional Agencies
Assembly Bill 32, Global Warming Solutions Act California Climate Investments	<ul style="list-style-type: none"> • Transportation and mobile-source emissions reduction • Active transportation • Affordable housing • Renewable energy • Public transportation • Zero-emission vehicles • Sustainable agriculture • Waste management • Community planning and empowerment • Regional coordination • Climate change solutions research • Wildfire prevention • Land conservation and restoration 	<ul style="list-style-type: none"> • Grants • Financial incentives • Tax credits, rebates • Low-interest loans • Cost-sharing 	<ul style="list-style-type: none"> • California Air Resources Board • California Energy Commission • California Strategic Growth Council • California Public Utilities Commission • Department of Agriculture • Environmental Protection Agency • Natural Resources Agency • Yolo-Solano Air Quality Management District

A majority of California Climate Investments benefit disadvantaged communities and low-income communities and households.

Another important source of financing is from private sources that leverage homeowner or business equity to gain a loan that is repaid with energy cost savings. One example is the Federal Housing Administration’s Energy Efficient Mortgage Program (HUD 2024).

It is challenging to isolate the most promising funding opportunities, as processes vary and some have yet to be finalized. Appendices F-1 and F-2 provide details on climate change-related funds and financing. Appendix F-1 focuses on Federal and State funding opportunities, but local funding sources are also included. Chief among them are Yolo County gas and electricity provider Pacific Gas & Electric Company and Community Choice Aggregator Valley Clean Energy Alliance.

County's Role in Funding

Funding County Operations and Community Improvements

Securing State and Federal governments grants can provide support for pilot projects and initial startups, but ongoing investments and operations will require sustained internal financing from taxes, fees, or charges. The County may consider a climate resilience district (CRD) for physical infrastructure, such as a public EV charging network, a utilities tax for municipal and community energy efficiency and transformation investments, and/or a sales tax for a transit or transportation district. The requirements and limitations for these and other revenue-raising options are discussed further below in the Identify Available Local Financing Mechanism Options section, along with two other options for funding particular actions with potentially large emission reductions. One is for incentivizing carbon sequestration by growers in Yolo County by offering surplus GHG credits to other communities in exchange for funding a portion of the program. The other is to incentivize installation of electric appliances and heating, ventilation, and air conditioning (HVAC) by local contractors using funds collected from developers of certain types of projects.

To manage the funding process, the County should consider hiring a full-time grant manager dedicated solely to implementing the CAAP. The County may share some of this cost with cities within Yolo County, as these grants often have overlap across jurisdictions. The likely return on investment from this expense will be multiples of the cost, with a significant increase in the likelihood of success and the ability to access more opportunities.

County's Role in Facilitating Community Funding

Engaging residents, businesses, and organizations to make energy-efficient choices, change behaviors, and replace legacy infrastructure with different technologies as set forth in the CAAP strategies can be supported by financial incentives provided via Federal and State programs. The County can increase public awareness and facilitate use of these incentives by establishing a trusted navigator and liaison program.

Volunteer "community liaisons" trained to proactively reach out to residents, business owners, and facility managers with information on the benefits of audit, retrofit, and electrification programs would also provide technical support in applying for Federal and State incentives. The liaison program would begin with a focus on supporting access to these benefits for lower-resourced communities. The County has already funded, planned, and developed a concierge program in partnership with Valley Clean Energy and the concierge provider, SMUD; the program is on schedule to launch in summer 2024, ahead of the CAAP adoption by the Yolo County Board of Supervisors.

Process for Identifying and Pursuing Funding Opportunities

Funding opportunities available from Federal and State governments are too numerous to summarize in a simple table. Likewise, the CAAP contains more than 180 individual actions, each of which may be eligible for funding opportunities from various sources. Parsing the most promising opportunities with the potentially largest impacts will require a dedicated research effort by staff familiar with the grant application processes, including the unwritten rules and pathways to success.

The process begins with a focus on those measures and actions that create the greatest reductions but require the largest up-front investment. At the same time, it will be important to remain vigilant for opportunities to fund "low-hanging fruit" actions as they become available through Federal and State grant offerings. Though they may not yield the greatest volume of emission reduction or carbon sequestration, such projects could provide models and momentum for CAAP implementation. The County has started phasing this with its Early Actions and ranking of potential mitigation measures for achieving multiple objectives.

Establishing a local source of funds to use as matching funds for State and Federal grants would maximize County access to these funds for CAAP implementation. Using County reserve funds that are currently earning low yields as matching funds would increase the return on investment to the County, residents, and businesses as they benefit from emissions reduction, energy efficiency, and resilience.

New sources of matching funds, such as a levy on GHG emissions from waste haulers outside of Yolo County using County services, can also be created.

Identify Sources of Potential Funding and Match to Eligible Actions

Appendix F-1 describes the Federal and State fiscal resources that can assist in overcoming economic and financial barriers to improve the environment, prepare for climate change, and strengthen the economy.

Identify Available Local Financing Mechanism Options

State and Federal funding sources, even leveraged to the maximum by local match, cannot fully fund CAAP implementation.

This section identifies incremental financing mechanisms available to cover the adaptation funding needs projected in this plan and summarizes the State and local revenue generation mechanisms commonly used in California to finance infrastructure. It is noted that Propositions 13, 218, and 26 have imposed significant limitations and procedural requirements on State and local governments' ability to raise revenue; these limitations are discussed further in Appendix G, Implementation and Monitoring.

Different constraints apply to each of these mechanisms, depending on whether they are employed by State, regional, or local government agencies. Consequently, each type of funding varies in how it may be applied to different infrastructure needs².

The following financing mechanisms are available to State and local agencies:

- ▲ General taxes
- ▲ Special Taxes
- ▲ Assessments
- ▲ Property-related fees and charges
- ▲ Impact fees
- ▲ User fees
- ▲ Regulatory charges

Applications and limits for these financing mechanisms are discussed in more depth in Appendix F-2.

As an important note, bonds are not incremental new funding—they are usually increased obligations on the existing general fund³. This situation means that bond repayment must be taken from another expenditure category in the County budget unless a new tax is levied or an existing one increased to offset the bond payment. However, bond financing can be an especially useful tool when there is a need to pay for projects with high up-front costs, and the long-term project benefits will accrue over time as the debt is repaid.

Working Lands Carbon Credit Exchange

Much of Yolo County's expansive agricultural lands are intensively farmed and irrigated. This presents the opportunity to sequester large, quantifiable amounts of carbon. Sequestered carbon has the potential to offset more GHG emissions (not eliminated via CAAP actions) than needed for the County to achieve its carbon-negative goal. The County, therefore, may have a surplus of GHG emissions offset via carbon sequestration to share "credits" with other jurisdictions, particularly those in Yolo County, working to fulfill their own climate action plan goals.

² See Appendix F-2, Options for New Local Fees, Taxes, Assessments, and Charges, for a summary of specific legal issues and constraints for each category.

³ Revenue bonds that rely on new fees or charges for repayment are another means of funding a large up-front investment with a future fiscal stream.

Yolo County has a strong incentive to ensure that its credits are of sufficient quality to meet its own targets. They will be real, additional, and verifiable, meeting the gold standard for use as credits by other jurisdictions and possibly superior to other credits available in the marketplace. Sequestration in working lands can be

achieved at a lower cost than most carbon drawdown and storage alternatives. Revenue generated by selling credits can finance much of the County's sequestration program if the credits are priced at a reasonable margin above the implementation cost.





I

Love

Animals

Chapter 8

IMPLEMENTATION AND MONITORING

Chapter 8 describes how the CAAP will be implemented and monitored, including identification of responsible parties, categorization of county actions, and more. After describing these important implementation components, a matrix presents the information in a succinct, clear format for ease of use and understanding by County staff and the public. Ongoing monitoring is included in this matrix in the form of identified performance metrics that track assumptions and benchmark success. The chapter concludes with the method for annual progress reporting.

Implementation and Monitoring

The following chapter provides information to aid County staff in implementation, facilitating more efficient and effective actions. Information is also provided on the monitoring process, which will generate accountability and track progress over time. Both implementation and monitoring are key to ensure the County is able to meet their climate goals.

Category

One component of implementation involves understanding the category of action, which helps to explain the role of the County. Categories include the following:

- **County Initiative:** When the County implements an action internally, primarily relating to municipal actions.
- **Education/Outreach:** When the County provides information or solicits input from members of the public or from interest groups.
- **Grant:** When the County provides grant funding to incentivize a desired outcome.
- **Infrastructure:** When the County makes improvements to existing infrastructure or facilities or develops new infrastructure or facilities.
- **Ordinance:** When the County updates the municipal code to require or incentivize a desired outcome.
- **Plan:** When the County develops a plan to identify next steps toward a desired outcome.
- **Program:** When the County provides a service, good, or offering of some kind.
- **Research:** When County staff research a given topic to understand applicability for Yolo County implementation.
- **Subsidy:** When the County provides a subsidy to reduce or offset the cost of a desired outcome.

Responsible Party

After adoption, the CAAP will be maintained by Yolo County's Sustainability Division. Sustainability Division staff will support CAAP implementation and will coordinate with other County departments to facilitate implementation. Staff from responsible departments will track progress on implementation and report identified performance metrics on a quarterly basis. Some actions will require interdepartmental or interagency cooperation, and partnerships will be established accordingly.

It is also important to note that the Yolo County Climate Action Commission is another body that will support CAAP implementation and monitoring. This group is composed of community leaders who provide guidance and support for sustainability plans, policies, and programs across Yolo County.

Tracking Metrics and Performance Criteria for Quantified Measures

Tracking metrics allow staff to document implementation and provide members of the public and decision makers transparency and an understanding of the progress that has been made. Tracking metrics are identified for each action. In addition to the tracking metrics for actions, there are also performance criteria that have been developed and relate back to how effective the County is with quantified GHG emission reductions. All metrics were developed with staff capacity in mind and ideally limit additional effort while maximizing accountability and celebrating success.

Additionally, subsequent community inventories will further track progress and will be updated at regular intervals (e.g., every 3 years).

Phasing

As explained in Chapter 6, Strategies, Measures, and Actions, each action is assigned a phase to help the County strategically approach the implementation of actions. Three phases were identified, corresponding to the following years:

- **Phase 1:** 2024–2027
- **Phase 2:** 2027–2030
- **Phase 3:** 2030–2045

Further details on phasing are provided in Chapter 6, and phasing methodology is found in Appendix E.

Implementation Matrix

The implementation matrix is a comprehensive table that will be referenced by County staff to facilitate implementation of actions. This matrix is organized by sector and measure similarly to the Chapter 6. After stating the action, it includes the following columns:

- Category (see above)
- Enforcement type (Requirement, Incentive, or N/A)
- Responsible party (see above)
- Quantitative (GHG emission reductions were calculated in the CAAP) or supportive (no quantitative reduction credit was included in the CAAP, and/or actions do not have a quantifiable methodology or GHG reduction benefit)
- Performance metrics (see above)
- Funding opportunities (see Chapter 7)
- Existing policy/plan/operation that the action is tied to
- Potential community partners
- Phase (see above)

See Appendix G to review the full implementation matrix.

Reporting Progress

For each action, responsible departments will report implementation progress and outcomes to the County's Sustainability Division staff, who will compile these results in an accessible CAAP Tracking Dashboard and regular progress reports. The County's Sustainability Division staff will use this information to provide an annual staff report for the County Board of Supervisors.

Plan Evolution

The process for annual plan monitoring and emission inventory updates every 3 years will allow the County to stay on track and adjust, as needed, based on the realities of implementation, local conditions, state regulation and support, and technological advancements. A new CAAP may be needed by the mid-2030s, though drastic changes in conditions could necessitate earlier development of a new CAAP.

Practice



Love the Earth as you would
yourself



ACRONYMS AND GLOSSARY

Acronyms

AB	Assembly Bill	DOE	U.S. Department of Energy
ADA	Americans with Disabilities Act	DOI	U.S. Department of the Interior
ABAU	adjusted business-as-usual	DOT	U.S. Department of Transportation
BAU	business-as-usual	E&E TAC	Equity and Engagement Technical Advisory Committee
BIL	Bipartisan Infrastructure Law	EIFD	Enhanced Infrastructure Financing District
Board	Yolo County Board of Supervisors	EMFAC	CARB's On-Road Mobile Source Emission Factor Model
CAAP	Climate Action and Adaptation Plan	EO	Executive Order
CAC	Citizens Advisory Committees	EPA	U.S. Environmental Protection Agency
CARB	California Air Resources Board	ERRO	Electrification Retrofit Rebate Outreach Program
CBO	Community-Based Organization	EV	electric vehicle
CBP	Community-Based Partner	GHG	greenhouse gas
CCA	Community Choice Aggregation	GSP	Groundwater Sustainability Plan
CEC	California Energy Commission	GWP	global warming potential
CFA	Mello-Roos Community Facilities Act of 1982	HHSA	Health and Human Services Agency
CFD	Mello-Roos Community Facilities District	HRSP	Housing Relocation-Subsidy Program
CH₄	methane	HVAC	heating, ventilating, and air conditioning
CO₂	carbon dioxide	IOUs	investor-owned utilities
CO₂e	carbon dioxide equivalent	IPCC	Intergovernmental Panel on Climate Change
County	Yolo County	IRA	Inflation Reduction Act
CNRA	California Natural Resources Agency	ITC	Investment Tax Credit
CRD	climate resilience district	LEP	Limited English Proficiency

MT	metric tons	UHIE	urban heat island effect
MTP/SCS	Metropolitan Transportation Plan/Sustainable Communities Strategy	USDA	U.S. Department of Agriculture
MWh	megawatt-hour	VCE	Valley Clean Energy
NWL	natural and working lands	VMT	vehicle miles traveled
NWL TAC	Natural and Working Lands Technical Advisory Committee	WWTPs	wastewater treatment plants
N₂O	nitrous dioxide	YATC	Yolo Active Transportation Corridors
NRCS	Natural Resource Conservation Service	YCCAC	Yolo County Climate Action Commission
OFFROAD	CARB Off-Road Mobile-Source Emission Factor Model	YCFCWCB	Yolo County Flood Control and Water Conservation Board
OSHA	Occupational Safety and Health Administration	YCFCWCD	Yolo County Flood Control and Water Conservation District
PACE	Property Assessed Clean Energy	YCRCD	Yolo County Resource Conservation District
PG&E	Pacific Gas and Electric Company	YSAQMD	Yolo-Solano Air Quality Management District
PV	photovoltaic	ZEV	zero-emission vehicle
RCD	Resource Conservation District	ZNC	zero net carbon
REAP	Regional Early Action Planning Grants	ZNE	zero net energy
SACOG	Sacramento Area Council of Governments		
SB	Senate Bill		
TIF	Tax Increment Financing		
TOD	transit-oriented development		
TOU	time-of-use		
UC	University of California		

Glossary

Americans with Disabilities Act (ADA)

The ADA is a federal law in the United States that prohibits discrimination against individuals with disabilities in various areas of public life, including employment, transportation, public accommodations, communications, and governmental activities. The ADA was passed in 1990 with the goals of ensuring that individuals with disabilities have equal access and opportunities in society, protecting their rights, and promoting their full participation in all aspects of community life. The ADA requires covered entities, such as employers and government agencies, to make reasonable accommodations for individuals with disabilities to enable them to perform essential functions of their jobs or to access services and programs. The ADA also sets accessibility standards for new construction and modifications of existing buildings, as well as requirements for accessible transportation and communication.

California Air Resources Board (CARB)

CARB is a department of the California Environmental Protection Agency. It is responsible for regulating air quality in California. CARB develops and enforces regulations to reduce air pollution and protect public health and the environment. It also conducts research, monitors air quality, and promotes sustainable transportation and energy policies to improve air quality and reduce greenhouse gas emissions. The ARB plays a crucial role in California's efforts to combat climate change and improve air quality for its residents.

Asset Framing

Asset framing is an approach developed by social entrepreneur Trabian Shorters to guide organizations in their efforts to assist communities without stigmatization. This communication strategy emphasizes the strengths, capacities, aspirations, and positive attributes of individuals and communities, rather than focusing solely on their challenges or deficits. The Yolo County Climate Action and Adaptation Plan (CAAP) utilizes this framing throughout, but especially in Chapter 2, Communication, Engagement, and Equity.

California Green Building Code (CALGreen)

The California Green Building Standards Code, also known as CALGreen, is a code that sets the minimum requirements for green building practices for new construction and renovations in California. It was established to reduce the environmental impact of buildings and promote sustainable design and construction practices. CALGreen covers various aspects of building design, construction, and operation, including energy efficiency, water conservation, indoor air quality, and material selection. The code requires builders to meet certain green building standards, such as using energy-efficient lighting and appliances, installing low-flow plumbing fixtures, and using environmentally friendly building materials.

Climate Action and Adaptation Plan (CAAP)

A CAAP is a comprehensive road map that outlines the activities and informs the decisions that an agency will undertake to achieve reductions in greenhouse gas (GHG) emissions; it also develops comprehensive adaptation and resilience strategies to respond to the impacts of climate change. A CAAP typically includes a range of actions aimed at reducing GHG emissions, such as promoting renewable energy, improving energy efficiency, and enhancing transportation options. It also includes measures to build resilience to climate change, such as upgrading infrastructure, managing water resources, and protecting natural ecosystems.

In 2011, Yolo County (County) created its first climate action plan, which served as the County's first roadmap toward reducing GHG emissions. For its current plan—the Yolo County CAAP—the County has expanded the lens of its climate change planning and has begun focusing on both climate action and adaptation. The new CAAP outlines how the County will meet its ambitious goal of achieving carbon negativity by 2030. Climate adaptation was included in this iteration of climate road mapping because adaptation encompasses a broader set of changes that must be made to achieve this net-negative goal. While climate actions refer to active ventures that instate new policies and projects, climate adaptation addresses the modifications

that need to be made to the existing operations and procedures. The Yolo County Climate Action Commission (YCCAC) is charged with guiding the development and implementation of the 2030 CAAP.

Community Choice Aggregation (CCA)

A CCA program allows local governments to procure electricity on behalf of their residents, businesses, and municipal accounts from an alternative supplier while still receiving transmission and distribution services from their existing utility provider. CCAs are formed to provide energy options that are more local, renewable, and/or cost-effective than those offered by the incumbent utility. Valley Clean Energy (VCE) is an existing CCA that serves Yolo County.

Community-Based Partners (CBPs) and Community-Based Organizations (CBOs)

CBPs and CBOs are groups that work on local issues and causes, including within the Yolo County community. These groups include nonprofits, religious centers, local businesses, research centers or universities, culture- and ethnicity-oriented groups, immigrant groups, and others.

Communication and Engagement Plan (CEP)

The CEP details how the County will source and include diverse perspectives during the CAAP development and implementation process. Without intentional, proactive strategizing, communication and engagement efforts often fail to promote inclusivity. In turn, policy creation falls to a homogenous, default group of voices. This lack of diversity in policy development leads to unbalanced, inequitable implementations that fail to meet diverse needs. The creation and enactment of the CEP is an effort to highlight diverse community perspectives and make sure the CAAP addresses them.

Critical Facilities and Community Lifelines

Many of the buildings in unincorporated Yolo County are essential to the health and safety of the community and include critical facilities utilized in response and recovery (such as fire stations and hospitals) as well as assets known as “community lifelines” that enable human well-being and security (such as churches, grocery stores, and gas stations). For the purposes of the CAAP, it is important to know where

these buildings are located and if they are resilient to climate hazards in their current state.

Carbon Dioxide (CO₂)

CO₂ is a colorless, odorless gas that is naturally present in the Earth's atmosphere. It is produced by the combustion of fossil fuels, such as coal, oil, and natural gas, and by other industrial processes and activities. CO₂ is a greenhouse gas, meaning that it contributes to the trapping of heat in the Earth's atmosphere, leading to global warming and climate change.

Carbon Dioxide Equivalent (CO₂e)

CO₂e is a unit of measurement that is used to compare the emissions of various greenhouse gases based on their global warming potential (GWP). It represents the amount of CO₂ that would have the same global warming impact as a given quantity of another greenhouse gas over a specified period of time.

Carbon Footprint

A carbon footprint is the total amount of carbon dioxide emitted directly or indirectly by human activities, usually expressed in equivalent tons of carbon dioxide (CO₂e) per year, and includes emissions associated with the entire life cycle of a product, consumable, or service. It is a measure of the impact human activities have on the environment in terms of their contribution to climate change.

Carbon Sequestration

Carbon sequestration is the process by which carbon dioxide is removed from the atmosphere and stored in natural or artificial reservoirs, or “carbon pools.” There are three types of carbon sequestration: biological, geological, and technological. Biological carbon sequestration is the storage of CO₂ in vegetation such as crops, forests, and grasslands, as well as in soils and oceans. Geologic carbon sequestration involves injecting carbon into underground geologic formations. Technological carbon sequestration captures and stores carbon from the atmosphere in engineered materials or devices.

Conservation

Conservation involves land use planning and policy intervention to avoid and minimize the conversion of natural land cover types (i.e., natural and working lands) that store large amounts of carbon to those with less carbon storage and sequestration potential and greater emissions potential. Strategies for conservation may include conservation easements, mitigation opportunities, and tax incentives, among others.

Decarbonization

Decarbonization is a strategic approach to reduce or entirely remove carbon-emitting energy sources, fuels, industrial processes, and other products and activities to mitigate the impacts of climate change by lowering carbon emissions. This process involves transitioning to cleaner, renewable energy sources, improving energy efficiency, and promoting carbon sequestration, among other measures.

Disadvantaged Communities

In California, the U.S. Environmental Protection Agency designates some census tracts as “disadvantaged communities.” These communities are determined by a statewide mapping system, CalEnviroScreen, that analyzes socioeconomic and pollution exposure data to identify those census tracts with the highest pollution burden and highest vulnerability to climate change.

Emission Reduction Potential

Emission reduction potential is the capacity for reducing the emission of GHGs from a particular source, sector, or activity. It quantifies the maximum amount of emissions that could be avoided or reduced through the implementation of specific measures or actions.

Energy Savings Company (ESCO)

An ESCO is a company that specializes in implementing energy efficiency and renewable energy projects for businesses, institutions, and government agencies. ESCOs typically offer a range of services, including energy audits, design and implementation of energy-saving measures, financing, and ongoing monitoring and maintenance.

Equity

Equity is a state in which all individuals experience identical access to opportunities, independent of socioeconomic status. Often, individuals experiencing inequity lack socioeconomic status due to their race, age, citizenship status, indigeneity, disability, gender, sexual orientation, and/or other socioeconomic factors impacting their power and privilege. Equity is a similar but distinct term from equality. With equality, all individuals have equal access to opportunities, but adjustments are not made for those who lack socioeconomic power. Under an equitable framework, the perspectives and opinions of marginalized individuals are amplified, largely because these voices have historically been suppressed.

Equity is a central focus of the Yolo County CAAP for a multitude of reasons. First, Yolo County has a diverse population, with many individuals who have limited English proficiency, live in rural areas, and/or experience another unique circumstance that marginalizes their opinions in public discourse. Amplifying the voices of these individuals is essential for creating an inclusive, all-encompassing CAAP. Additionally, marginalized communities often experience climate impacts more intensely than other communities. The CAAP must focus principally on the individuals who are most often confronted with the damaging consequences of climate change. Finally, equity was a key tenet of the Climate Emergency Resolution that Yolo County passed in 2020. Championing equity in the CAAP's framework and materials is a key component of its success.

Equity and Engagement Technical Advisory Committee (E&E TAC)

The E&E TAC serves to ensure that communication and engagement efforts center around promoting marginalized voices within the Yolo County community. The E&E TAC advises County staff and consultants on strategies and language to use when communicating with various Yolo County groups.

Frontline Communities

Frontline communities are groups of people that have disproportionately carried the burden of harm from the exploitation of natural resources, economic disinvestment, under-investment, and/or

social and political disenfranchisement. As a result, these are the same under-resourced communities that bear the disproportionate impacts of disaster (Community Powered Resilience 2023). For the purposes of the CAAP, in addition to the designated disadvantaged communities, any community that is expected to experience climate change first and with greater adverse effects as a result of having less capacity to respond to climate change (e.g., fewer economic resources to run air conditioners on hot days) is referred to as a “frontline community.”

Groundwater Sustainability Plan (GSP)

GSPs are required by the California Department of Water Resources, and once approved, provide roadmaps for how groundwater basins will reach long-term sustainability within 20 years of beginning plan implementation. The Yolo Subbasin GSP was adopted in 2022 and describes how groundwater sustainability will be achieved by 2042.

Global Warming Potential (GWP)

GWP is a measure of how much heat a greenhouse gas traps in the Earth's atmosphere over a specified time period relative to the same amount of CO₂. It is used to compare the relative impact of different greenhouse gases on global warming and climate change. For example, methane has a GWP that is 21 times that of CO₂. Recognizing the potency of methane, the CAAP includes mitigation efforts at the Yolo County Central Landfill to destroy the methane component of landfill gas through combustion to reduce methane emissions, generating electricity in the process.

Just Transition

A Just Transition is a vision-led, unifying, and place-based set of principles, processes, and practices that empower and build social and economic opportunity and wellbeing among historically disadvantaged populations. This transition balances the urgency of necessary changes with the commitment to sustainable and just realignments. This transition incorporates the perspectives of all individuals and groups, particularly marginalized groups, to ensure that climate solutions meet the needs of the community at large. A Just Transition strikes a balance between the speed of necessary changes while still promoting necessary, sustainable, and just realignments.

The term “Just Transition” was coined by union laborers and environmental justice advocates who recognized that reductions in GHG emissions (i.e., deindustrialization processes) often exacerbated the socioeconomic inequities experienced by low-income communities and communities of color because these communities were frequently employed by high-carbon-emitting industries. The County used the term “Just Transition” in its 2020 Climate Emergency Declaration to describe the rapid mobilization of resources directed at climate change action and adaptation.

Land Enhancement

Land enhancement is the manipulation of the physical, chemical, or biological characteristics of a land cover type to heighten, intensify, or improve one or more specific existing ecological function(s). While often accompanied with land stewardship, agricultural practices that support carbon storage in soils are examples of land enhancement strategies that support sequestration.

Land Stewardship/Management

Land stewardship, or management, is the maintenance of ecological conditions and values within a natural community to prevent its degradation. An example of a land stewardship strategy that supports sequestration is livestock grazing to prevent the spread of invasive plant species. The term “management” has been replaced with the term “stewardship” throughout the plan to describe a thoughtful, conservation-focused approach to actions to maintain or enhance natural communities to support carbon sequestration.

Life Cycle“Life cycle” refers to the comprehensive assessment of all the carbon emissions associated with a product, process, or activity from its inception to its end of life. This includes:

- 1. Extraction and Production:** Emissions from the extraction of raw materials and the production processes used to create the product or provide the service.
- 2. Transportation and Distribution:** Emissions from transporting raw materials to production sites and finished products to consumers.

3. **Use Phase:** Emissions generated during the actual use of the product or the provision of the service.
4. **End of Life:** Emissions from the disposal, recycling, or decomposition of the product after its useful life has ended.

By analyzing the life cycle of carbon emissions, stakeholders can identify the stages where emissions are highest and develop strategies to reduce those emissions. This approach ensures a more accurate and comprehensive understanding of a product or service's environmental impact.

Low Carbon Fuel Standard (LCFS)

An LCFS is a regulatory program that requires a reduction in the carbon intensity of transportation fuels, such as gasoline and diesel. The goal of an LCFS is to reduce GHG emissions from the transportation sector by promoting the use of low-carbon and renewable fuels. California's LCFS law requires changes to the types of fuels used in vehicles.

Low-Income Home Energy Assistance Program (LIHEAP)

LIHEAP is a federally funded program that helps low-income households with their home energy costs, including heating, cooling, and weatherization. The program provides financial assistance to eligible households to help them pay their energy bills and make energy-saving improvements to their homes. The Yolo County CAAP includes an action to work with Community Action Agencies to increase participation among eligible community members in the LIHEAP program.

Other Language Proficiency

"Other language proficiency" refers to individuals and communities who speak a primary language other than English and that as a result may experience limited access to services and programs when these are solely provided in English. Expanding multilingual communication so speakers of languages other than English have access to information and resources is important because it gives them better access to essential services, resources, representation, and opportunities.

Paratransit

Paratransit refers to a shared-ride public service that supplements fixed-route service to accommodate individuals with special needs.

Power Purchase Agreement (PPA)

A PPA is a contract between a renewable energy developer and a utility or energy consumer. The private company or third party installs the renewable energy technology, such as solar panels, at no upfront cost to the consumer. The company maintains ownership of the installed panels and sells the power produced to customers at a predetermined rate per kilowatt-hour. PPAs can be used to offset the initial capital cost of installing a solar photovoltaic system.

Natural and Working Lands Technical Advisory Committee (NWL TAC)

The NWL TAC serves to ensure that the CAAP processes and commitments are inclusive of Yolo County's agricultural community. NWL TAC members work in agriculture or agriculture-adjacent roles. The NWL TAC is tasked with ensuring that these perspectives are included in the CAAP discourse.

Renewables Portfolio Standard (RPS)

An RPS is a regulatory policy that requires utilities to obtain a certain percentage of their electricity from renewable sources, such as wind, solar, and geothermal energy. RPS policies are intended to promote the development of renewable energy and reduce GHG emissions from the electricity sector. California's RPS requires Pacific Gas and Electric to generate 33% of their retail electricity using qualified renewable energy technologies by the end of 2020; 44% by 2024; 52% by 2027; 60% by 2030; and 100% by 2045.

Regional Target Advisory Committee (RTAC)

RTAC is a committee that provides advice and recommendations to CARB on the development and implementation of regional GHG emission reduction targets. RTAC helps to ensure that regional targets are achievable, cost-effective, and consistent with state climate goals.

Resilience Center

A resilience center is a community-focused facility designed to enhance the ability of individuals and communities to withstand, respond to, and recover from various disruptions, including natural disasters, climate change impacts, economic shocks, and other emergencies. These centers typically provide a range of services and resources aimed at building community resilience. They commonly provide information to help individuals prepare for and respond to emergencies; distribute resources such as food, water, and medical supplies; and can serve as a community gathering space for events, meetings, and activities.

Restoration

Restoration refers to restoration of a natural community through actions to alter the physical, chemical, or biological characteristics of a site with the intent to return natural or historical functions that have been lost due to the loss of one or more necessary ecological factors or the result of past disturbance. To support carbon sequestration, degraded lands can be appropriately restored and managed to provide ecosystem services, including increased carbon storage.

Unincorporated Community

Unincorporated communities possess a common social identity and name but often lack a governing body or political designation as a city. The U.S. Census Bureau refers to these communities as census-designated places and provides approximate boundaries to organize and analyze local census results. In Yolo County, there are 15 unincorporated communities that fall under the jurisdiction of the County.

Urban Heat Island Effect

The urban heat island effect refers to a phenomenon where cities experience higher air temperatures than the surrounding countryside due to the accumulation of heat in developed areas, primarily caused by impervious surfaces and/or buildings, roads, and infrastructure.

Yolo-Solano Air Quality Management District

The Yolo-Solano Air Quality Management District is a regional agency responsible for regulating air quality in Yolo and Solano Counties in California. The district develops and enforces air quality regulations, monitors air pollution levels, and implements programs to improve air quality and protect public health.

Yolo County Climate Action Commission (YCCAC)

The YCCAC is an 11-member public advisory body that was assembled to guide the County toward its goal of achieving net-negative emissions by 2030 while centering equity and ensuring a Just Transition. YCCAC meetings are currently held once a month, and the public is invited to attend and participate.

Yolo County Flood Control and Water Conservation Board

The Yolo County Flood Control and Water Conservation Board is a local government agency responsible for managing flood control and water conservation efforts in the Yolo County. The board works to reduce the risk of flooding, protect natural resources, and promote sustainable water use in the region.

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