



City of Woodland

Meeting Agenda

Sustainability Advisory Committee

Woodland Community & Senior
Center
Banquet Room 1
2001 East Street
Woodland, CA 95776

July 19, 2023 - 6:00 PM

A. CALL TO ORDER

B. ROLL CALL

C. PUBLIC COMMENTS

This is an opportunity for the public to comment on items not on the agenda. Comments may be presented in person or emailed to SACmeetings@cityofwoodland.org and limited to three (3) minutes when read aloud.

D. MEMBER REPORTS

This is an opportunity for members of the Committee to report on relevant activities or topics related to the Committee's charge.

E. STAFF REPORTS

1. RECOMMENDATION FOR ACTION: Staff recommends that the Sustainability Advisory Committee review its remaining 2023 meeting calendar

F. MINUTES

2. RECOMMENDATION FOR ACTION: Staff recommends that the Sustainability Advisory Committee approve its June 21, 2023 meeting minutes.

G. PRESENTATIONS

H. BUSINESS ITEMS

3. SUBJECT: Woodland's Climate Action Plan (CAP) - Continued Discussion

RECOMMENDATION FOR ACTION: Staff recommends that the Sustainability Advisory Committee continue their discussion of the recent CAP analysis and possible steps forward for the City's climate efforts.

I. WORK GROUP UPDATES

J. LONG RANGE CALENDAR

4. RECOMMENDATION FOR ACTION: Staff recommends that the City Council receive the Long Range Calendar for informational purposes only.

K. ADJOURN

NOTICE: Individuals who need special assistance or a disability-related accommodation in order to participate in this meeting should contact Spencer Bowen at least 48 hours in advance of the meeting. Spencer may be reached at (530) 661-5808 or by emailing spencer.bowen@cityofwoodland.org.



Sustainability Advisory Committee
Adopted Committee Meeting Calendar

“Third Wednesday” Schedule:

- January 18
- February 15
- March 15
- April 19
- May 17
- June 21
- July 19
- August 16
- September 20
- October 18
- November 15
- December 20



Sustainability Advisory Committee

Meeting Minutes

June 21, 2023

A. CALL TO ORDER 6:02 PM

B. ROLL CALL

Attendees: Mark, Catalina, Adelita, Robert, Liza, Rolf

Staff: Spencer

C. PUBLIC COMMENTS

Cool Davis representative:

Are hoping to branch out with the county working with the nonprofit Spear Influence especially with our regional transit partners. I'm here to plug our current programming in the pledge. There has been a lot of information around the California Climate Commitment Pledge from the governor. Our pledge is open to everyone in Yolo County. Asking folks to commit between now and next Earth Day for 6 items: energy, transportation, eating thoughtfully, resilience, and getting involved. We have lots of suggested actions in each category or people can choose other for whatever works for them. We have an easy to more difficult progression on the list to make it easy for everyone. We have an electrical moped as our grand prize as well as smaller prizes. We're hoping to partner and run this yearly. The key action is picking the menu that fit the community. I welcome the committee's interests in working with us to expand and to encourage folks to step up. We have a great way of tracking what people are doing and what appeals to others, we're asking questions and hosting gatherings to prove support. The flyer can be found digitally online: cooldavis.org/pledge. We also have specific programming for kids and are looking into making it a school program.

D. MEMBER REPORTS

Mark: We be hearing back from the Green Schoolyards grant by the end of June. The grant has real implications for the Woodland district. If it comes through, that's 5 campuses with \$2 million each plus to

increase tree canopy, create learning centers and many other improvements. 3 years of planning implementation and maintenance included. So, we'll see. I think the footprint of the district is large enough in Woodland that it'll be a significant benefit to Woodland.

Liza: The finalized updates to the integrated pest management policy at the school district. It goes above and beyond the minimum set by the state. So, some of the nuances are that if the district contacts someone with spray, then everyone will be notified. The district has committed to flagging areas in the spring that way people are aware and can be on the lookout. The district commits to cross-referencing on an annual basis and keeping tabs on the information from the European Union, such as pesticides that have been banned abroad, but not here. We are looking to do things beyond the letters of the law to the way the city deals with pesticides

Catalina: We're hopefully going to meet in July because we have not had the chance to. We'll have a report back in July and this is in regards to the Communications Committee.

Adelita: I announced last meeting that we were going to be having a first in-person community info-session. I just wanted to thank you for sending out the information. Thank you all for promoting it and securing that space for us. We had a mix of Woodland and Davis residents, we also had child care. It was good to see parents. We're still synthesizing the feedback given, but it felt very rich and diverse for decisions around county transportation and working heat conditions. It was a very strong start. I think it's a good temperature gate for us moving forward: what we can do better and what is working. There was an info session today and there will be one tomorrow. We strongly advise that you make these next ones. There will be more opportunities. Overall, I bet it went well because we have Supervisor Barajas and others there providing statements. I definitely think we are going to assess the outcomes and prepare for even stronger outreach next time. My next pivot would be to take them to locations where we are missing people from the population. We are open to any feedback or input from anyone.

Rolf: We have a CalFire grant to plant 150 trees, but we planted 160 and additionally we planted 27 trees at the transitional housing in late May. We had a lot of help from our two interns. We visited the more lower income parts of Woodland since that where was the grant required, we planted them. We planted 60 trees in this area and we need to put signs that show that the tree was planted with CalFire California Relief Grant. We put some trees by a development, and currently I'm watering the trees in the meantime. We are getting a couple more interns coming up.

E. STAFF REPORTS

Spencer: Last night on the consent calendar, council approved appointments starting July 1, 2023. Mark, Catalina, Adelita, Robert, Jake, and Liza are all coming back and then we have Richard Peterson here starting July 1 as well as Richard Bellows and Jennifer Greene to new four-year terms. We are looking forward to working with the new fleshed out committee. We had a little bit of a summer pause on our ongoing active transportation plan. My next meeting with those folks is in a week. Our meeting schedule, where we will discuss chair and vice chair appointment. We will need a vice chair to host a July meeting. We will be contacting new members to onboard them. We need to decide when our next meeting will be held and if we will be taking a summer break.

Adelita volunteered to be at least temporary vice-chair for the time being.

F. MINUTES

RECOMMENDATIONS FOR ACTION: Staff recommends that the Sustainability Advisory Committee Approve its meeting minutes from March 15, 2023

RECOMMENDATIONS FOR ACTION: Staff recommends that the Sustainability Advisory Committee Approve its meeting minutes from May 17, 2023

Move to approve both: Catalina, seconded by Rolf. Unanimous approval.

G. PRESENTATIONS

No presentations

H. BUSINESS ITEMS

1. SUBJECT: Bike Friendly Investments

SUMMARY: Committee has decided that the First and Third choices are their preferences

Spencer: At the May meeting, we narrowed in on bike stuff. We discussed timelines. The group largely landed on recommending on more immediate bike-friendly improvements in the general downtown-core area with any remainder of this rescue plan funding reserve target projects identified as part of the active transportation plan, which will be done in December to further bike-friendly improvements. I spoke with multiple people throughout the city including traffic and community development people, city manager, my team in sustainability. We identified these four general pass-forwards, we would love for this committee to coalesce around one of these four this evening so then staff could then actually prepare a recommendation to council to pursue that direction in the near term. The one thing I wanted to call out is this note at the bottom on bike parking. Something I discovered in the month in between meetings is that the outdoor-dining parklet program, which the city partially supports directly with money will include

bike parking at the Gallery location on first street. Both the coffee shop and the city staff preference would be to build that and see how it goes before we fund more. It would be like a pilot program. It will be able to hold at least a dozen bicycles. The owners have committed to checking in on it to see how it goes. There is regular communication between the business owners and the city.

The four would include:

1. Court Street Improvements: This one would basically be doing some signage, striking and stuff. The city has decided that Court Street is the main place for bikes. Instead of doing lanes down main street, you would go down Court Street. This would be continuing these improvements on court. Signs for cyclists such as parklet this way or education signs for drivers. We do not have a list yet, but the general ideas are making it more accessible and usable for bikes as well as increasing safety.
2. Lockers Pilot: Make bike lockers so bikes are safe from weather and theft. Some advantages are bike security and lockers tend to be utilized by employees. This would help get cars off of streets because they would feel safe leaving their bike. We do not know how many bike lockers we would have in this moment.
3. General Signage and Striking: This could include better signage on Main Street as to where to park your bike. A local road safety plan such as identifying unsafe bike/car exits. Signage such as “watch your bike” or “watch the road.” This would benefit bike and car drivers as well as increasing bike friendliness downtown. This could help increase awareness of bike parking downtown.
4. Bike-Friendly Grant Program: The city could help business owners implement bike friendliness such as bike racks, etc. This idea is still in the works and could help target employee-commuter works, educational sites that aren’t schools, apartment buildings, grocery stores, etc. This would be a longer process because there would be an application involved, so the immediate impact would not be as drastic. We would need to make sure that these kinds of things are public, and not restrictive to certain businesses.

Committee landed on the Court Street improvements as their priority and directed staff to keep them updated on its progress.

Committee discussed street options for the some of the potential bike infrastructure and beneficiaries. Also discussed the use of statistics when determining the most adverse situations in the community. This item will be continued in July.

2. SUBJECT: Climate Action Plan

SUMMARY: Committee recommends to continue this discussion in July with the new members

Spencer: We want to bring it back to city council to let them know we are thinking about this. In my perspective, we should be thinking about some things in the short term that we should revisit about next steps? That we want to bring to City Staff's attention.

Although this Climate Action Plan focuses specifically on climate action. Climate action also includes issues such as water and air quality.

Various comments from SAC:

- The only thing that I saw to hang our hats on is doing a new inventory. It would be a good opportunity.
- One of the recommendations is to rename the document that way it can include other issues, such as water and air quality and other broad sustainability issues.
- There needs to be some regular evaluation about progress that has been made and how things have reduced this category of emissions. Right now, there is nobody in charge of that.
- We are looking at the opportunity of hiring someone like that for the county. We will see.
- The final report looks good. I like the community outreach part of it. One of the things I Have a question about Is relating to air quality. Are fire related things considered emergency services? Or is it also considered an environmental issue? I do think we should have a well-formulated response to these kinds of issues.
- These issues are more at the state level in terms of responses.

The committee members discussed ways in which they can assist community members in times of emergency.

I. ADJOURN 7:54 PM



Gap Analysis and Recommendations for Woodland's Climate Action Plan

Rida Fayyaz, Joyce Wei, Quinn Wilson



Executive Summary

This comprehensive report serves as a gap analysis of City of Woodland's Climate Action Plan (CAP) and provides actionable recommendations to enhance its effectiveness and impact. With the climate crisis requiring urgent attention, and advancements in California policy initiatives demanding alignment, a reassessment of Woodland's existing CAP, adopted in 2017, is imperative.

To assess Woodland's CAP, a research team of students from the Goldman School of Public Policy employed a three-pronged approach. First, the team gained a thorough understanding of Woodland's demographics and economy, establishing a contextual foundation for climate action planning. Next, the team conducted a detailed analysis of the current CAP to identify the city's priorities and evaluate its progress. By comparing greenhouse gas (GHG) data from 2005 to 2016, important emission sectors and trends, providing valuable insights into Woodland's evolving emission landscape were uncovered.

To establish a baseline for comparison, the team reviewed CAPs and other climate action resources from neighboring cities, such as Elk Grove, Davis, and West Sacramento. These cities, sharing similar population sizes with Woodland, offered valuable lessons and effective strategies for climate action. Additionally, the team benchmarked against the CAP of San Francisco, known for its strong sustainability focus and abundant resources. This reference point helped set ambitious targets and standards. Understanding Yolo County's CAP was crucial in aligning Woodland's goals with regional objectives and leveraging available resources.

Engaging with stakeholders was a vital component of the assessment. The research team conducted interviews with 13 subject matter experts, community members, and leaders from various organizations, including the Woodland City Government, Woodland Sustainability Advisory Committee, residents of Woodland, Woodland Tree Foundation, Yolo County



Sustainability Office, City of San Francisco, University of California, Davis, University of California, Berkeley, and Valley Clean Energy. This collaborative approach ensured a comprehensive understanding of the improvements and additions required for Woodland's CAP.

Based on this three-pronged methodology **six** major themes were identified with gaps that require attention for Woodland's CAP update. The research team's recommendations are housed under each of these themes.

Three of these are important implementation tools: Accountability, Community Outreach, and Equity. These elements are either absent or inadequately addressed within the actions outlined in the current CAP. Thoroughly integrating them into the upcoming CAP is critical to ensure its effective implementation and desired outcomes.

1. **Accountability** is of utmost importance, as it entails accurately measuring and tracking progress towards climate goals over time. By holding individuals, organizations, and governing bodies accountable, the effectiveness of implemented strategies can be assessed, enabling data-driven adjustments where necessary.
2. **Community Outreach** plays a critical role in fostering a shared understanding of climate change and the required actions to address it. By cultivating necessary support and driving collective action, the city can mobilize the community towards achieving its climate goals.
3. **Equity** has gained increasing focus within the City of Woodland, evident through the 2023 Equity Action Plan. By considering equity in the next CAP, Woodland can create a more just, inclusive, and resilient community, ensuring that the benefits of climate action are equitably enjoyed by all and addressing the unique challenges faced by marginalized groups.



Additionally, given that Transportation and Energy sectors are the primary contributors to GHG emissions in Woodland, the research team identified these as sector-focused themes for the CAP.

4. **Transportation** is one of six focus areas in the current CAP and accounts for 60% of the city's emissions. This section is further broken down into sub-themes of **road transportation, public transit, and biking** to highlight the unique gaps and actions needed in these areas.
5. **Energy** is also a focus area in the existing CAP and produces 27% of the city's emissions. This section includes targeted recommendations under sub-themes of **municipal, commercial, and residential** energy.

Lastly, the emergent theme of Climate Adaptation was included.

6. **Climate Adaptation** needs to be an important consideration moving forward. As the impacts of climate change become increasingly severe, the importance of adapting to the changing climate to mitigate natural hazards and their impacts, and ensure Woodland remains a livable city cannot be overstated.

In total, the team provided 30 actionable recommendations across these areas, guiding Woodland in developing and implementing holistic solutions to mitigate and adapt to climate change. A summary of the recommendations is provided as follows.



THEME	RECOMMENDATION	SUMMARY
Accountability	Update Woodland’s greenhouse gas (GHG) emissions goal and track them regularly	Woodland must revise its carbon emissions goal to align with more ambitious targets set at the state (net zero by 2045), county (net zero by 2030), and neighboring city levels (e.g., Davis: net zero by 2040). Additionally, Woodland did a GHG inventory in 2005 and another in 2016 which is too infrequent to properly measure its progress.
	Assign staff, stakeholders, and metrics to every action on the CAP	Woodland should establish dedicated staff to track CAP implementation and gather data for monitoring progress. Additionally, best practices from the implementation of Equity Action Plan should be applied to foster cross-department collaboration and shared accountability for robust climate action. Finally, the next CAP must include clear metrics (cost, benefits, time frame, etc) to allow better decision-making during future CAP updates.
Community Outreach	Make outreach programming more accessible across language and financial constraints	Woodland can address language and information barriers by providing translated information on programs, rebates, and resources, and further engage with residents by organizing community events for more inclusive and representative participation.
	Establish a centralized resources website	Establishing centralized resources via a website to provide accessible, up-to-date information on energy programs and resources, will make it easier for residents to engage with the city's objectives. A centralized website also allows for efficient maintenance of information and improved accessibility for non-English speakers and users with disabilities.
	Host community climate workshops	The research team proposes community climate workshops through the Sustainability Advisory Committee to increase engagement among diverse population segments. These workshops should address topics like energy efficiency, solar power, and available programs, fostering collaboration between residents and specialists.
	Create a Communications Council	The research team recommends creating a 7-10 member Communications Council, comprising community leaders from various fields and organizations, to disperse climate and sustainability-related communications to otherwise hard-to-reach networks. The Council



THEME	RECOMMENDATION	SUMMARY
		can provide tailored outreach strategies, serve as a channel for residents' feedback, and offer advisory support to the City Council and E4 Office.
Equity	Identify and prioritize areas of greatest impact	The research team suggests using data-driven tools like the CEJS tool to identify vulnerable areas and designate Energy Equity Zones for targeted policy efforts. Developing a program to train low-income and minority community leaders as climate ambassadors can help raise awareness and improve resource access in their neighborhoods.
	Assess the impact of equity programs	Assessing equity program impacts is vital for inclusive and effective clean energy and climate initiatives. The team recommends conducting regular community impact surveys, organizing public forums, and involving minority and underserved communities directly in program development and implementation for long-term success.
Road Transportation	Take advantage of federal and state grants to expand EV use and charging infrastructure	Woodland can facilitate the expansion of EV use by communicating federal and state level incentive programs. It can further encourage EV use by creating an environment conducive to EVs, like through accessible charging infrastructure.
	Encourage EV use through car share programs	To ensure all residents have access to EVs, Woodland should explore options of bringing EV car share programs to the local community. EV car share programs allow for access to EVs without having to bear the costs of owning a vehicle.
Public Transit	Partner with Yolo County on transit improvements	Since Woodland does not have jurisdiction over public transit, Woodland should partner with Yolo County Transportation District to make improvements to the reliability and frequency of transit. Additionally, a partnership could target electrification of transit fleets and expansion of micro-transit programs.
Biking	Improve and build bike infrastructure	Woodland should focus efforts on expanding bike infrastructure, including protected bike lanes, secure bike lockers, and bike paths to make biking around the city safer and more desirable.



THEME	RECOMMENDATION	SUMMARY
	Bolster bike incentive programs	Woodland already has productive bike incentive programs, like provision of bikes and helmets, and education programs within schools, outlined in the current CAP. The team recommends further emphasis and expansion of these programs.
Municipal Energy	Implement energy efficiency and green building policies	The research team advises implementing energy-saving programs for municipal buildings, performing retrofits and energy audits, and establishing green building policies. Collaboration with Yolo County can help align efforts and secure funding for retrofit projects.
	Increase adoption of renewables	To reduce fossil fuel dependency, the authors recommend expanding solar arrays on municipal buildings, exploring other renewable energy sources, and participating in Valley Clean Energy's Community Choice Aggregation program. Partnering with local utilities and the California Solar Initiative can help leverage incentives and rebates for solar installations.
	Implement energy management and benchmarking programs	Implementing energy management and benchmarking programs for municipal buildings can help track and analyze energy consumption data, identify inefficiencies, and prioritize energy-saving measures. The team suggests using the ENERGY STAR Portfolio Manager tool and setting specific energy reduction targets to achieve GHG reduction goals.
Commercial Energy	Implement energy efficiency programs	The city can support businesses by offering incentives, technical assistance, and educational resources for energy efficiency. Connecting businesses to initiatives like the C-PACE Program can help finance energy and water conservation projects, while energy audits and retrofits can identify energy-saving measures.
	Encourage renewable energy incentives	Woodland should foster renewable energy systems in businesses, promote the California Solar Initiative, and facilitate participation in Valley Clean Energy plans. Supporting small businesses facing unique challenges in adopting renewable energy systems is crucial, including tailored assistance and technical guidance.



THEME	RECOMMENDATION	SUMMARY
	Implement energy benchmarking and disclosure	To comply with California's AB 802 and help building owners improve their energy performance, the city should establish energy benchmarking and disclosure programs for commercial buildings. Offering training sessions and resources will enable owners to better understand and interpret energy performance data, while setting achievable targets for energy efficiency improvements. Collaboration with County resources and programs can enhance the capacity for training and outreach initiatives.
	Communicate energy rebate programs	The city should directly engage with commercial building owners about energy rebate programs, developing outreach campaigns and partnering with local utilities and the Yolo County Economic Development Division. Organizing training programs can help businesses navigate the application process for rebates and incentives.
	Encourage demand response programs	Business and commercial participation in demand response programs can help reduce emissions, save energy costs, and contribute to grid stability. Providing resources and training can help businesses understand the benefits and requirements of these programs and support implementation of necessary technologies and processes.
Residential Energy	Expand homeowner education and outreach	By developing tailored education and outreach initiatives, homeowners and renters can be better informed about energy efficiency and renewable adoption. Combining this with campaigns and partnerships, the city can promote retrofit programs, electrification, and utility bill assistance programs to benefit its residents.
	Establish green building policies for the residential sector	As cities across California adopt stricter energy-focused building codes and regulations, Woodland should follow suit by developing building policies for new construction and major renovations, drawing on standards like California's Title 24.
	Implement community energy efficiency initiatives	By implementing neighborhood-energy efficiency initiatives, the city can engage residents in collective actions to improve



THEME	RECOMMENDATION	SUMMARY
		community-level energy performance. Collaborating with local organizations, homeowners associations, and neighborhood groups, the city can promote energy-saving practices and facilitate the adoption of renewable energy systems.
Climate Adaptation	Update the name and contents of the Climate Action plan to become a Climate Action and Adaptation Plan	Cities such as Davis and San Francisco, and Yolo County recognize the need for both mitigation and adaptation in their climate plans. Similarly, to ensure that Woodland remains livable and its economy thrives even in the face of climate hazards, the city must update its Climate Action Plan (CAP) to become a Climate Action and Adaptation Plan (CAAP) and be inclusive of resilience in addition to mitigation efforts which are the baseline.
	Conduct a climate vulnerability assessment to inform adaptation strategies	Adaptation planning in Woodland is crucial due to its vulnerable populations, poverty rate, and threat of hazards such as heat and floods. Thus highlighting the need to follow recommended adaptation planning processes, assess climate vulnerability, and incorporate solutions in the CAP, as mandated by Senate Bill 379, similar to what neighboring cities like West Sacramento and Elk Grove have done.
	Incorporate existing flood risk assessment and solutions within the updated CAP	Woodland is addressing its flood risk through the Woodland Flood Risk Management Project, aimed at protecting industries and disadvantaged residents. These efforts should be integrated into the CAP for a comprehensive approach to climate action in the city.
	Prioritize, reevaluate, and track tree planting	Woodland's CAP aims to increase canopy cover to 25% by 2035 was at 14% in 2017. To address the city's susceptibility to extreme heat and heat islands, as well as air quality concerns, the research team recommends expediting and expanding tree planting efforts. The city should utilize community outreach and accountability measures in the report to encourage tree planting on private property and monitor canopy increase over time.



THEME	RECOMMENDATION	SUMMARY
	Explore the creation of resilience hubs for disaster preparedness	A resilience hub is a community facility that offers essential services during emergencies, fosters community resilience, and can serve as a gathering place for community outreach. The city should consider partnering with neighboring cities or the county to establish a resilience hub that could help its most vulnerable residents.
	Partner with Valley Vision on food hub creation	Partnering with Valley Vision to promote the upcoming food hub in Esparto would contribute to climate resilience by promoting sustainable agriculture practices, reducing greenhouse gas emissions from food transportation, and enhancing community food security, presenting an opportunity for the city to support its agricultural community and foster a localized food system.

With these recommendations, the research team hopes to set up the City of Woodland for successful future efforts at addressing climate change and its adverse impacts, through a new CAP. The research team believes that the updated CAP empowers Woodland to cultivate a sustainable and resilient community, effectively mitigate GHG emissions, and prepare for the challenges posed by a warming planet.

Warmly,

Rida Fayyaz, Joyce Wei, and Quinn Wilson



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Introduction

The climate crisis serves as a powerful motivator for reassessing and updating the City of Woodland's Climate Action Plan (CAP) which was adopted by the city in 2017. As the consequences of climate change become increasingly apparent, the urgency of implementing robust, forward-thinking strategies to mitigate adverse effects on the City of Woodland and its residents is paramount. The escalating climate crisis not only exacerbates existing environmental challenges, but also poses new threats to public health, infrastructure, and local communities. In addition, as the CAP enters its sixth year since adoption, it is essential to reassess it in light of recent updates to California policy initiatives.

Woodland's greenhouse gas (GHG) emissions target, as noted in the CAP, is aligned with Senate Bill (SB) 32, The Global Warming Solutions Act, which calls for reductions of 40% below 1990 levels by 2030. In 2022, California took a more ambitious step by passing SB 1020, laying the ground for interim clean energy targets of 90% and 95% zero-carbon electricity by 2035 and 2040, respectively, to meet 100% renewable energy by 2045.¹ Furthermore, Assembly Bill (AB) 1279 was signed in 2022 to codify California's goal of becoming carbon neutral across all sectors by 2045². The pace of change has been decidedly, and necessarily, rapid.

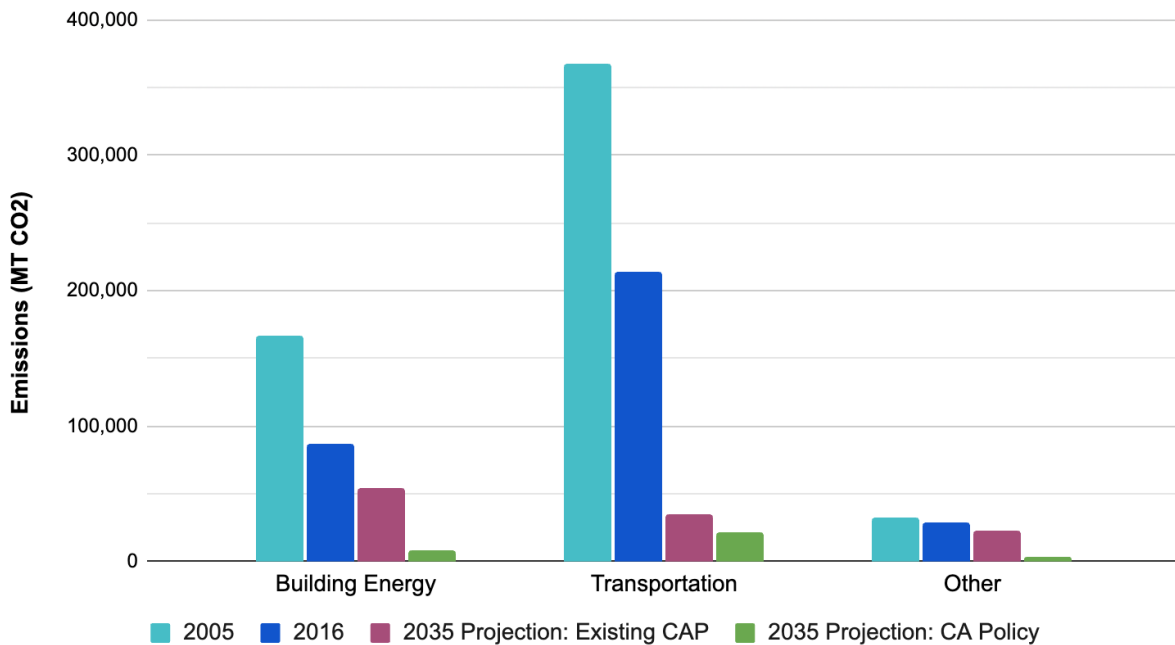
In 2020, Yolo County commissioned Ascent Environmental, a consulting firm, to conduct a GHG inventory based on 2016 levels. A separate firm conducted the original GHG inventory in 2005, but both organizations had similar categories, including Building Energy, On-Road and Off-Road

¹Office of Senator John Laird. 2022. "SB 1020: The Clean Energy, Jobs, and Affordability Act of 2022 to Head to Governor Newsom for Consideration." senate.ca.gov.
<https://sd17.senate.ca.gov/news/sb-1020-clean-energy-jobs-and-affordability-act-2022-head-governor-newsom-consideration>.

²Lopez, Nadia. 2022. "California takes steps to battle climate change." CalMatters.
<https://calmatters.org/environment/2022/09/california-climate-change-legislature/>.

Transportation, Solid Waste, Water Supply, and Wastewater Treatment. According to the data collected, GHG emissions have decreased from 566,389 MT CO₂e in 2005 to 330,594 MT CO₂e in 2016. Although Woodland's transportation and energy sectors still contribute the most to emissions, both have seen a reduction of nearly 50% between 2005 and 2016. The graph below illustrates this decline and presents Woodland's projected emissions in these sectors for 2035, comparing emission levels if the city continued with its plans as outlined in the CAP with emission levels if it were to adopt the State's more ambitious goals. Given the significant difference between the two, it is evident that Woodland's existing CAP needs to be revised and made stronger to face the existential challenge of Climate Change and foster a more sustainable and livable community.

Emissions Profiles





Gaps Analysis & Recommendations

In January of 2023, a research team consisting of Master of Public Policy students from the Goldman School of Public Policy at the University of California, Berkeley partnered with the Woodland City Manager's Office of Equity, Environment, Economy, and Engagement, known as the E4 Office, to evaluate the city's current CAP and provide recommendations to make the next CAP more robust and impactful. This comprehensive report provides a set of recommendations that the City of Woodland can adopt to fortify its CAP and increase the likelihood of sustained success through 2035 and beyond.

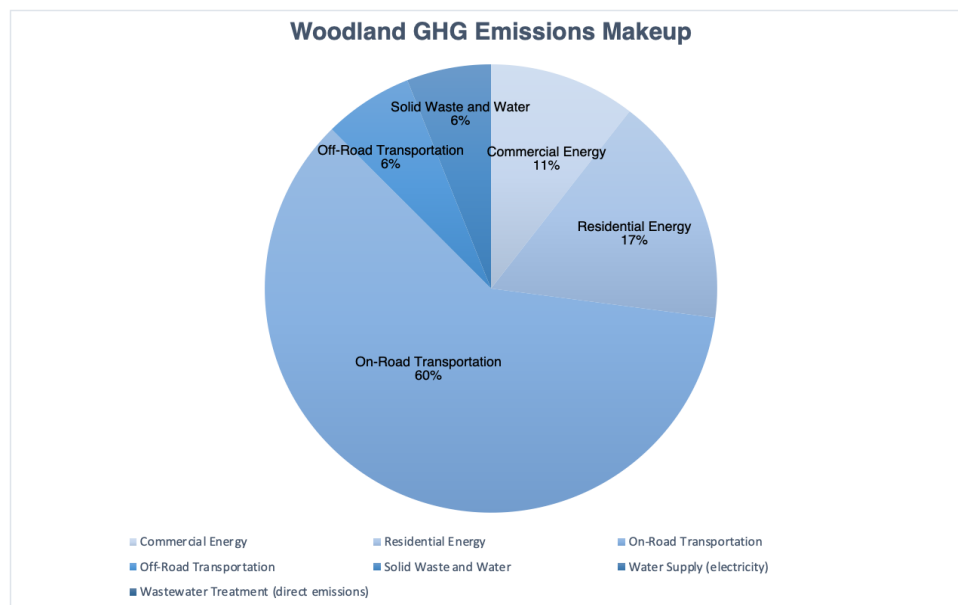
The gaps and recommendations identified in this report are informed by an analysis of the existing Woodland CAP, discussions with the City of Woodland and Yolo County staff and community members, as well as subject matter experts from other cities and academia. The research team identified six critical themes, and for each described the status quo, gaps, and recommendations to consider and include in Woodland's next iteration of the CAP.

Themes include three important implementation tools - Accountability, Community Outreach, and Equity - which are either absent or inadequately addressed within the actions outlined in the current CAP. These elements must be thoroughly integrated into the upcoming CAP to ensure its effective implementation and success.

1. **Accountability:** Progress towards climate goals must be accurately measured and tracked over time. It is also important that individuals, organizations, and governing bodies are held accountable, to assess the effectiveness of implemented strategies and make data-driven adjustments where necessary.

2. **Community Outreach:** By fostering a shared understanding of the problem i.e., climate change, and the actions required to address it, the city can cultivate the necessary support and drive the collective action required to achieve its goals.
3. **Equity:** The City of Woodland has been increasing its focus on equity, as evident through its 2023 Equity Action Plan, and requested that equity be an important aspect of this analysis. By considering equity in the next CAP, the city of Woodland can foster a more just, inclusive, and resilient community, ensuring that the benefits of climate action are enjoyed by all while addressing the unique challenges faced by marginalized groups.

Nextly, considering that Transportation and Energy sectors are the primary contributors to GHG emissions in the city, the research team opted to include these as sector-focused themes. Per the 2016 GHG emissions from Ascent Environmental, transportation, and energy makeup **66%** and **28%** of Woodland’s GHG emissions, respectively.



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4. **Transportation:** This section is further broken down into sub-themes of **road transportation, public transit, and biking** to highlight the unique gaps and actions needed in these areas.
 5. **Energy:** This section includes targeted recommendations under sub-themes of **municipal, commercial, and residential** energy.

Finally, Climate Adaptation was included as it is an emergent theme.

6. **Climate Adaptation:** Over the years, there has been a shift in thinking about climate change adaptation and mitigation. Initially, the focus was primarily on mitigation, to minimize the extent and severity of climate change. However, as the impacts of climate change have become more evident and urgent, the importance of adaptation has gained recognition. The research team highlights the need to adapt to the changing climate to mitigate the impacts of natural hazards and remain a livable city.

Methodology

The following three-pronged approach was used to assess Woodland's CAP and provide recommendations for its improvement:

1. Understand Woodland's demographics and economy; analyze Woodland's CAP and compare 2005 GHG data against 2016 to understand trends and important emission sectors.

The research team's first step was to get a better understanding of Woodland demographics and the economy as that would inform the lens that the team applies to climate action planning in Woodland. Further, the team thoroughly analyzed the existing CAP to get a sense of the city's



priorities and compared 2005 data against 2016's to get insight into the changes in GHG emissions over time.

2. Review CAPs from other cities to develop a baseline and for comparison.

The team looked at CAPs and other climate efforts from the cities of Elk Grove, Davis, West Sacramento, San Francisco, and Yolo County and compared Woodland's plans against them. The first 3 cities are Woodland's neighboring cities within Yolo County and have similar population sizes to Woodland. San Francisco, on the other hand, was chosen as a "gold standard" reference due to its large size, budget, and heavy sustainability focus compared to Woodland. Understanding Yolo County's CAP was important to understand regional goals, dedication, and resources available to Woodland.

3. Conduct interviews with subject matter experts, community members, and leaders.

The team completed 13 interviews which encompassed the following groups and organizations to get a well-rounded understanding of improvements and additions Woodland should make to its CAP:

- Woodland City Government
- Woodland Sustainability Advisory Committee
- Residents of Woodland
- Woodland Tree Foundation
- Yolo County Sustainability Office
- City of San Francisco
- University of California, Davis
- University of California, Berkeley
- Valley Clean Energy



Limitations

This report acknowledges limitations that may have impacted the analysis and recommendations presented:

- 1. Outdated and Inconsistent Data:** Available GHG accounting data extends only up to 2016, which limits the ability to accurately assess more recent trends and progress in emissions reductions. Further, GHG data for 2005 and 2016 were obtained from varying sources and compiled using different methodologies, potentially introducing inconsistencies and hindering more direct comparisons over time. Notably, industrial data could not be obtained due to California's privacy rules, specifically the colloquially known 15/15 rule, which restricts access to certain information to protect the privacy of consumers. This limitation prevents a complete understanding of the industrial sector's contribution to Woodland's overall emissions and precludes the formulation of targeted strategies for this sector. The research team predicts that Woodland's industrial sector, particularly agriculture, may underlie large emissions factors but was unable to compile quantitative evidence.
- 2. Time Constraints:** The research team faced time constraints that limited the scope of stakeholder engagement, particularly in terms of interviewing individuals from all relevant sectors. Consequently, the perspectives and insights of some stakeholders may not be fully represented in the analysis and recommendations. Time constraints also meant that the team could not look at each focus area and action in Woodland's CAP but instead had to pick a few important themes to dive deeper into.

Additionally, this report includes only a relatively limited discussion of funding mechanisms for the proposed climate action strategies. While some funding sources were referenced and encouraged, particularly state grant and tax programs, a more



comprehensive analysis of potential financial resources and incentives will be necessary to provide a clearer understanding of how the city may effectively implement and sustain the recommended initiatives. The authors recommend that future research, therefore, include a broader range of funding opportunities, especially considering the ever-changing field of resources.

Future research efforts should strive to overcome these limitations to provide a more comprehensive and accurate assessment of Woodland's climate action needs and opportunities.

Accountability

Background

Since the CAP was implemented in 2017, Woodland has performed little to no assessment of its progress. As a result, it is unclear how much progress the city has made and whether the actions outlined in the original CAP were effective. Previously, Woodland maintained a dashboard to track progress; however, this effort stalled under thin staffing. Beyond a few minor suggestions, the current CAP does not specifically outline who in the city will be responsible for tracking data, what data must be tracked, and how it will be tracked. With this missing information, it is difficult to conclude whether the city met its 2020 goals or if it is on track with its 2035 goals. It is imperative to draft a CAP that will hold the city accountable but also acknowledges resource and staffing limitations, to ensure goals are and stay on track.

Staying accountable is crucial to the achievement of climate goals. In the current CAP, there are minimal recommendations related to accountability. It makes suggestions on what data should be collected throughout the adaptation of the plan but falls short in that only a select few have actions containing these suggestions. Accountability needs to be consistent throughout the updated CAP to achieve its goals. The current lack of a clear plan for accountability makes it

difficult to keep track of Woodland's progress and decipher which recommendations are working and which are not. The city needs to be consistent in tracking data, hiring staff, and holding offices responsible so that it can be ensured that the data is being tracked. This allows for further analysis of the effectiveness and efficiency of recommended policies.

Recommendations

ACC1: Update Woodland's GHG emissions goal and track them regularly

Issue Addressed: Outdated Goals and Data, and Progress Tracking

As discussed in the background session, Woodland's current carbon emissions goal aligns with California SB 32 of 2016, and calls for reductions of 40% below 1990 levels by 2030. Since then the state has adopted more aggressive goals to reach a net zero economy by 2045. Similarly, Yolo County where Woodland is based, adopted a resolution in 2016 to become carbon neutral by 2030³. Neighboring cities have also established more recent goals than Woodland's e.g., Davis has a 2040 net zero emissions goal as of 2022, and West Sacramento and Sacramento have net zero plans for 2045 as of 2020^{4, 5}. The research team highly recommends that Woodland:

- Updates its carbon emissions goal to meet the need of the hour.
 - It might also be advantageous for the city to align its goal as much as possible with that of Yolo County, as this may help Woodland tap into the county's resources, e.g., they may apply for grants together, strategically do outreach for programs, and develop larger projects such as transit, resilience hubs, and food hubs.

³"Climate Action & Sustainability." n.d. Yolo County. Accessed May 8, 2023.

<https://www.yolocounty.org/government/general-government-departments/community-services/climate-action-sustainability>.

⁴City of Davis. 2022. "Davis 2020-2040 Climate Action and Adaptation Plan."

⁵Local Government Commission. 2020. "Mayors' Commission on Climate Change. Achieving Carbon Zero in Sacramento and West Sacramento by 2045."

- Tracks its emissions more frequently.
 - Woodland did an emissions inventory in 2005 and then the county initiated one in 2016. Setting a cadence for frequent inventory assessments is essential to ensure Woodland progresses towards a lower or zero carbon future. Proposed legislation SB 511 would help with these efforts by compelling the state to perform GHG inventories every 5 years⁶. Whether or not the bill passes, the city should proactively consider if inventory every 5 years is sufficient to monitor its goals.

ACC2: Assign staff, stakeholders, and metrics to every action on the CAP

Issue Addressed: Progress Tracking, Staffing, and Interdepartmental Coordination

Woodland's CAP, unlike that of cities such as Davis, Elk Grove, and San Francisco does not assign stakeholders or city departments for every action on the CAP, and currently does not have staff assigned to manage the CAP's progress overall. Although the CAP notes projected emissions reduction for proposed actions, where appropriate, the city has not measured the progress of implementation or the impacts of actions noted in its plan. The research team recommends that Woodland:

- Dedicates staff to track CAP's implementation and goals.
 - Ideally, the city would set up an office focused on sustainability and GHG reductions; however, due to staff and budget being stretched, the E4 Office may be a good temporary point of contact for gathering all the data and using it to track progress. Previously, the city had a dashboard to easily track progress on the CAP goals, which also was accessible to the public. In conjunction with efforts noted in [Community Outreach](#) recommendation CO2, city staff should create and manage a dashboard to highlight CAP progress, reinforce accountability, and keep residents informed.

⁶"SB 511." 2023. California Legislative Information.

https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=202320240SB511.

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- As shown in the figure below, the City of Davis in its CAP includes for every action who the lead city departments and stakeholders are. It also takes note of the level of staff support required. Woodland can use similar strategies in its next CAP to ensure buy-in and involvement across departments and outside partners.
 - Foster Intra-city collaboration.
 - In interviewing community members and climate planners from other cities, the research team received feedback indicating the importance of cross-departmental collaboration in running successful GHG reduction programs⁷. Rather than segregating the city's climate ambitions into a single office, enhancing cross-department collaboration fosters a culture of climate awareness and responsibility among city staff and officials and encourages them to adopt best practices and innovative solutions for emissions mitigation. As an environmental specialist from San Francisco stated during an interview, "Our office simply served as a mediator and facilitator. We are successful only when the entire city is on board and participating in our ambitions"⁸. Intra-city collaboration facilitates sharing of data, information, and resources among departments, and enables them to monitor better and evaluate the performance and impact of their incentive programs. As more departments become engaged, transparency and accountability of the city's efforts improve, as do their engagement with members of the public.
 - These efforts may be supported by creating incentives and recognition programs for departments that achieve significant energy savings or implementing innovative measures and communication pieces that further the pace of development from the administrative level. Ultimately, improved collaboration

⁷Authors' stakeholders interviews 2023

⁸Authors' stakeholders interviews 2023

reduces barriers to information by ensuring no insight goes unrecognized and increases operational efficiencies.

- Woodland adopted an Equity Action Plan in 2023 which was a city-wide initiative to bolster Diversity, Equity, and Inclusion to improve the quality of life of the city's residents⁹. Considering this precedence Woodland must draw on lessons learned and best practices from this experience and apply them to climate action planning.
- Ensure metrics are assigned to each action and have clear strategies to track them.
 - Metrics may include goals (e.g., number of trees planted, number of community-based organizations educated, or simply the completion status of an action), timeframe, cost, and benefits (such as GHG reductions, reduction in healthcare or insurance costs, or percentage increase in bus ridership). The presence of such data will give Woodland the opportunity to make more informed policy decisions to combat climate change.

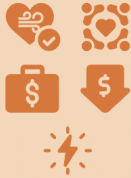
Lead City Department	Key Partners	Time Frame Planning: 0-4 years	Time Frame Implementation: 16 years	Staff Support Required	Municipal Capital Cost	GHG Reduction	Climate Hazards Addressed	Co-Benefits
CD: Building CMO: SSH & Sustainability	Rental property owners							
GHG Reduction Potential: 2030: 8,200 MT CO ₂ e/yr 2040: 16,900 MT CO ₂ e/yr								

Figure 1, Formatting example of a strategy from Davis' CAP, Davis Climate Action and Adaptation Plan, 2023

⁹Zavala, Gerardo. 2022. "Woodland City Council receives update on equity action plan." MSN, August 24, 2022. <https://www.msn.com/en-us/money/news/woodland-city-council-receives-update-on-equity-action-plan/ar-AA113o0g>.



Community Outreach

Background

Woodland's current Climate Action Plan meaningfully calls for the support and communication of initiatives aimed at reducing energy consumption, expanding accessible and low-emissions transit, and improving resilience. However, the Plan falls short of calling for specific strategies that maximize the penetration of information and engagement of historically overlooked communities. Empirical evidence demonstrates the importance of community engagement and outreach in the successful implementation of Climate Action Plans. For instance, a 2017 study by the Urban Sustainability Directors Network found that engaging local communities in CAPs led to better outcomes and increased buy-in from residents¹⁰.

Where the Plan does call for providing information and the promotion of climate programs, the effects will inevitably be muted without objectives focused specifically on the means of communication. Cities that have led strong communication initiatives have reported sustained success and positive feedback from local communities^{11,12}. The research team recommends a series of strategies that directly face the challenges of creating accessible information, reaching vulnerable communities, and maintaining consistency throughout the life of the programs. These actions compile feedback from residents of Woodland's communities, climate experts and city planners in California, and academic literature. The strategies may serve as a reference template throughout many years of implementing Woodland's updated Climate Action Plan.

¹⁰Yuen, Tina, Eric Yurkovich, Lauren Grabowski, and Beth Altshuler. 2017. "Guide to Equitable, Community Driven Climate Preparedness Planning." Urban Sustainability Directors Network. https://www.usdn.org/uploads/cms/documents/usdn_guide_to_equitable_community-driven_climate_preparedness_high_res.pdf.

¹¹Portland Bureau of Planning and Sustainability. 2015. "Local Strategies to Address Climate Change." Portland.gov. <https://www.portland.gov/bps/climate-action/documents/2015-climate-action-plan/download>.

¹²City of Austin Office of Sustainability. 2022. "Community Climate Ambassadors." AustinTexas.gov. <https://www.austintexas.gov/page/community-climate-ambassadors>.



Recommendations

CO1: Make outreach programming more accessible across language and financial constraints

Issue Addressed: Accessible Information for Overlooked Communities

Woodland's demographics are an important consideration in outreach programming. The research team recommends that Woodland:

- Consider language barriers.
 - Given Woodland's large Spanish-speaking community, language barriers must be considered. Translated information on things like rebate programs, bike route maps, and programs to electrify industry-use trucks can remove these barriers.
- Find opportunities to engage with residents.
 - Experts in organizing and community engagement have cited the importance of finding opportunities to engage with residents and community leaders.¹³ In practice, this would be attending events (ex. Honey Festival, cultural events around town) that residents would have already attended, rather than hosting engagement events that families or busy people may have to fit into their schedule. Typically, community engagement events are made up mostly of wealthier, older people that have the time, so meeting residents where they normally would be would help the city get a more representative sample.¹⁴

CO2: Establish a centralized resources website

Issue Addressed: Accessible, Up-to-Date Information

While the City of Woodland does compile information on energy programs, or provides links to further resources, there remains no centrally maintained area of information that residents can

¹³ Authors' stakeholder interviews 2023

¹⁴ Authors' stakeholder interviews 2023



easily access for a variety of insights. The difficulty in finding specific points of information limits residents' ability to meaningfully engage in the objectives promoted by the city. A dedicated page is easier for general users to navigate and provides a single, shareable resource that can more easily be included in communication mediums: flyers, social media, email correspondence, etc. Furthermore, centralizing information reduces inefficiencies in maintaining current information and resources, limiting the chances of misinformation or knowledge gaps.

As a single resource, a centralized webpage can be translated and made accessible (e.g., for visually or dexterously impaired users) more easily than disparate sources of information. Translating web pages directly, rather than linking out to separately translated documents, removes a barrier of access and allows for engagement with digital media that may otherwise be lost. San Francisco reported success after pursuing a similar initiative, and climate-conscious cities across the nation have begun taking this approach, from Seattle to Boston.^{15, 16, 17}

CO3: Create a communications council

Issue Addressed: Reaching Vulnerable, At-Risk, or Overlooked Communities

The authors recommend an advisory Communications Council to more effectively engage residents across the community. The City of San Francisco previously created a Community Climate Council (CCC) to support a similar objective during the writing of San Francisco's Climate Action Plan and was quoted to be helpful and effective at distributing climate and environmental information to the populace.¹⁸ The research team advises creating a 7–10-member Council composed of community leaders across fields and organizations. As with San Francisco's CCC, members may include, but are not limited to, members of the school district leadership and

¹⁵ Authors' stakeholder interviews 2023

¹⁶ City of Seattle Office of Sustainability & Environment. n.d. [Seattle.gov/Environment](https://www.seattle.gov/environment).
<https://www.seattle.gov/environment>.

¹⁷ City of Boston. n.d. Climate Ready Boston. <https://www.boston.gov/environment-and-energy/climate-ready-boston>.

¹⁸ Authors' stakeholder interviews 2023



parent organizations, leaders in faith-based communities, local business owners, Housing Authority leaders, and environmental justice groups. Through a Communications Council, the city may disperse climate and sustainability-related communications to its own networks that may otherwise be difficult to reach. The Council may also explore other methods of community engagement not already undertaken by the city. Furthermore, the research team recommends the Council has advisory capacity to the City Council and E4 Office.

The strength of such a council lies not only in the ability to leverage its constituting community networks but in the ability of the members to know how best to reach certain populations for specific purposes. Additionally, the Council may serve as a receptacle for feedback from residents of Woodland that may otherwise go unaddressed or face significant delays if handled directly by the city.

CO4: Host community climate workshops

Issue Addressed: Limited Community Engagement

Even under the best of scenarios, distributed resources may fail to spur the participation and understanding of programs necessary to reach Woodland's climate objectives. Home or business owners may need assistance in transitioning to electrified appliances, understanding how to participate in transit programs, or may have unforeseen questions altogether. Workshops present a unique format to demonstrate how to utilize energy measurement tools, participate in car-share programs, and install energy-efficient appliances and equipment. Beyond addressing questions, community workshops give the public opportunities to dynamically interact with specialists and collaborate with fellow residents confronting similar questions.

The research team recommends that Woodland use this format through the Sustainability Advisory Committee – specifically to increase awareness and motivation among diverse segments of the population, such as low-income households, renters, landlords, small



businesses, minority language communities, etc. Doing so allows participants to connect directly with programs, rebates, incentives, financing options, and other services that can assist them in implementing green-minded projects. Holding workshops in areas familiar to these target audiences, such as libraries, churches, schools, and community centers increases participation and allows for deeper levels of engagement. The City of San Francisco recently announced grant money to fund climate youth education workshops, and Los Angeles County previously hosted in-person climate workshops to engage private and public leaders in the space^{19,20}.

Other cities in California have used community workshops to address several concerns, including:

- Comprehending home and business energy bills and energy usage rates
- Identifying and prioritizing energy efficiency opportunities in homes or businesses
- How to select and install energy-efficient lighting, heating, cooling, ventilation, water heating, refrigeration, and “smart” energy technologies
- Understanding whether rooftop or community solar may be viable for homes or businesses
- Participating in bike incentive programs
- Which Valley Clean Energy programs are available and suited to specific needs/resources

The research team recommends beginning with some of the following resources:

- Valley Clean Energy (VCE) provides educational resources on the benefits of EVs and assists customers in figuring out which type of vehicle would be best for them²¹.

¹⁹San Francisco Office of the Mayor. 2023. “SF.gov.” San Francisco Awards First-Ever Climate Action Plan Community Grants. <https://sf.gov/news/san-francisco-awards-first-ever-climate-action-plan-community-grants>.

²⁰LA County. n.d. ““Our County Energy & Climate” Public & Private Sector Workshop Summary.” OurCountyLA. https://ourcountyla.lacounty.gov/wp-content/uploads/2019/08/Energy-Climate-Public-Private-Workshop-Summary_For-Web.pdf.

²¹Valley Clean Energy. n.d. “Is an electric vehicle right for you?” Valley Clean Energy. <https://valleycleanenergy.org/electric-vehicles/ev-facts/>.

- The Pacific Gas and Electric Company (PG&E) offers free energy education programs and resources for customers through its Energy Centers²².
- The U.S. Department of Energy (DOE) Solar Energy Technologies Office (SETO) provides professional training and technical assistance on how solar and other distributed energy resources can help build resilient communities²³.
- The Duke Carbon Offsets Initiative (DCOI) has developed an interactive energy efficiency workshop for employers and employees that can be adapted for different settings²⁴.

Equity

Background

Approximately 9.3% of Woodland's population lives below the poverty line, only slightly less than the approximate state level of 11.7%^{25, 26}. A significant portion of the City faces some form of climate or energy-related burden to be considered Disadvantaged by the EJ40 Climate and Economic Justice Screening Tool.²⁷ All census blocks identified by the tool are majority Hispanic or Latino. At least one of these blocks also sits at the 91st percentile of the Housing Cost Burden – households making less than 80% of the area's median income and spending more than 30% of income on housing. This is an important fact to consider as housing expenditures often go hand-in-hand with energy and utility burdens.

²²Pacific Gas & Electric. n.d. "Free energy education programs and resources." PG&E Energy Centers. https://www.pge.com/en_US/small-medium-business/business-resource-center/training-and-education/energy-centers.page.

²³Office of Energy Efficiency and Renewable Energy Solar Technologies Office. n.d. "Solar Workforce Development." Department of Energy. <https://www.energy.gov/eere/solar/solar-workforce-development>.

²⁴Since the time of writing, the website for The Duke Offsets Initiative has been taken down due to the consolidation of multiple Duke energy organizations into The Nicholas Institute for Energy, Environment & Sustainability. A new website is under development and will again host information on energy efficiency workshops at an undisclosed time. Original website: <https://sustainability.duke.edu/offsets/education/eeworkshop>

²⁵U.S. Census Bureau. n.d. City of Woodland, California. N.p.: U.S. Census.

²⁶Danielson, Caroline, Patricia Malagon, and Sarah Bohn. 2022. "Poverty in California." Public Policy Institute of California. <https://www.ppic.org/publication/poverty-in-california/>.

²⁷U.S. Council on Environmental Quality. 2022. Climate & Economic Justice Screening Tool. N.p.: Executive Office of the President.



CalEnviroScreen (CES), a mapping tool developed by the California Office of Environmental Health Hazard Assessment (OEHHA), provides further insight into the environmental and socioeconomic vulnerabilities in Woodland. The CES data reveals that Woodland has three census blocks that are classified by the site as disadvantaged through a combination of energy, climate, and housing related issues, indicating equity in energy and must be prioritized in Woodland's climate planning and initiatives.

The research team also heard directly from community members and advocates that the voices of the most at-risk communities are often left unheard or unable to engage in meaningful planning conversations. Climate advocates and representatives tend towards wealthy and privileged individuals who have the capacity and resources to expend efforts on topics such as energy access and efficiency – a phenomenon not unique to Woodland. While the city, in 2022, commissioned a comprehensive Equity Action Plan, much progress can yet be made both within City operations and the broader community.

Considering the demographic, environmental, and energy-related data available, it is crucial for Woodland's Climate Action Plan to address equity issues to ensure that all community members have access to resources, opportunities, and support in transitioning to more sustainable and energy-efficient practices. An equity lens permeates all recommendations and insights gathered in this report. For efforts related to energy, it is recommended to specifically reach out to low-income households and vulnerable communities, promote energy assistance programs, and develop targeted policies and initiatives that address the unique needs and concerns of these populations.

Recommendations

EQ1: Identify and prioritize areas of greatest impact



Issue Addressed: Confidence of policy outcomes

Focus on these areas when transit programs, resiliency measures, renewable energy installations, and targeted rate programs. Creative solutions must be employed to fully leverage the insights and address the needs of Woodland's vulnerable communities. The below recommendations are an amalgamation of efforts undertaken by other cities and feedback received from Woodland residents/leaders.

- Utilize data-driven tools like the Climate and Economic Justice Screening (CEJS) tool to identify areas with higher energy burdens, poor housing quality, and climate vulnerability.
- Designate Energy Equity Zones in areas facing the greatest energy burden and climate vulnerabilities in order to focus policy efforts, financial incentives, and program implementation for maximum impact.
- Develop a program to train low-income and minority community leaders as climate ambassadors who can help identify areas of high vulnerability and raise awareness about available resources and programs within their neighborhoods. The City of Austin, Texas received high engagement and positive feedback from its Community Climate Ambassadors Program, in which historically disenfranchised individuals learned about climate justice, engaged their communities, and supported the implementation of Austin's Climate Equity Plan²⁸.

EQ2: Assess the impact of equity programs

Issue Addressed: Meeting the needs of disenfranchised and vulnerable populations

Assessing the broader community impacts of equity programs is essential to ensure that clean energy and climate programs are inclusive and benefit all Woodland residents. Evaluating the environmental, social, and economic impacts of these initiatives can provide valuable insights for policymakers to guide continued success and adherence to equity issues.

²⁸City of Austin Office of Sustainability. 2022. "Community Climate Ambassadors." AustinTexas.gov. <https://www.austintexas.gov/page/community-climate-ambassadors>.



As in our impact assessment recommendation, directly involving residents in the evaluation process can lead to a better understanding of the needs and preferences of Woodland. By incorporating these direct approaches, Woodland can foster an inclusive community that addresses the needs of its diverse residents.

- Where resources are available, conducting regular community impact surveys can gather feedback on the effectiveness of equity programs, satisfaction levels, and potential areas for improvement at more frequent intervals than currently possible. The research team recommends following the US Office of Human Services Policy’s 6-step framework for conducting equity assessments, which itself draws heavily from local government programs elsewhere across the country²⁹.
- Organizing public forums and workshops can facilitate engagement and enable residents to share their experiences and provide input on program development and implementation.
- Direct participation by members of minority and underserved communities is paramount to the long-term success of Woodland’s CAP. A pilot program in St. Paul, Minnesota found success by creating neighborhood programs focused on the emotional, social and cultural values and practices that impact public understandings of and responses to climate change. By building environmental and climate understanding among populations historically excluded from decisions, the program successfully increased engagement and long-term involvement³⁰.

²⁹U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. 2022. “Conducting Intensive Equity Assessments of Existing Programs, Policies, and Processes.” ASPE. <https://aspe.hhs.gov/sites/default/files/documents/dd148f52c519a5bcc4fde76b4932f53b/Intensive-Equity-Assessment.pdf>.

³⁰Phadke, Roopali, Christie Manning, and Samantha Burlager. 2015. “Making it personal: Diversity and deliberation in climate adaptation planning.” *Climate Risk Management* 9 (July): 62-76. <https://www.sciencedirect.com/science/article/pii/S2212096315000236#ab005>.



Transportation

An updated CAP should outline a plan prioritizing the reduction of transportation emissions. In both the 2016 and 2005 emissions inventory, on-road transportation and off-road transportation combined for 65% of total GHG emissions in Woodland. According to the California Air Resources Board, in the span of 2000-2020, transportation has made up 38% of GHG emissions in the state of California³¹. Although Woodland was able to reduce transportation emissions by around 42% from 2005 to 2016, a focus on transportation is still crucial to emissions reductions due to the large share the transportation sector makes up. In this sector, there is room for increased focus, especially given the recent innovations in clean energy vehicles and state and federal-level funding allocations. The research team outlines improvements and recommendations on specific focus areas below.

Road Transportation

Background

In this report, road transportation will be defined as automobile transportation, made up mostly of family or individually-owned vehicles. Current GHG-reducing programs in this category surround encouraging EV or ZEV use.

Woodland currently provides free EV charging around the city. There are approximately 14 free chargers downtown, in addition to chargers provided around municipal buildings³². Additionally, Woodland residents have access to several types of EV rebates at the federal, state, and local

³¹California Greenhouse Gas Emission Inventory Program. 2022. "Current California GHG Emission Inventory Data." California Air Resources Board. <https://ww2.arb.ca.gov/ghg-inventory-data>.

³²Authors' stakeholder interviews 2023

levels. Currently, Valley Clean Energy (VCE) outlines these incentives on its website³³. Further, Objective 3, Strategy T/LU-7 in the current Woodland CAP outlines actions diverting from gas and diesel vehicles to alternative-fuel vehicles. This includes the development of EV infrastructure, both for public use and within new residential developments, and increased public education on the benefits and options available.

It is important to consider that not all households can make the switch to an EV. Barriers to acquiring (and maintaining) an EV include³⁴:

- High costs
- Little education on the benefits, uncertainty about the technology
- No charging infrastructure

According to the 2020 census data, Woodland is generally a lower-income area, with close to 50% of the Hispanic population³⁵. Given this, there are several considerations to make when updating the CAP.

Recommendations

TR1: Take advantage of federal and state grants to expand EV use and charging infrastructure

Issue Addressed: Accessibility to EVs and Charging Infrastructure

With new legislation passing redirecting funds towards the clean energy transition, Woodland has several opportunities to encourage EV use amongst its community. The research team recommends that the city:

³³ "Credits & Rebates." n.d. Valley Clean Energy. Accessed May 9, 2023. <https://valleycleanenergy.org/electric-vehicles/credits-rebates/>.

³⁴Egbue, Ona, and Suzanna Long. 2012. "Barriers to widespread adoption of electric vehicles: An analysis of consumer attitudes and perceptions." *Energy Policy* Volume 48, September 2012: 717-720.

³⁵"Woodland, CA." 2020. Data USA. <https://datausa.io/profile/geo/woodland-ca>.

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- Communicate incentive programs.
 - As discussed, there are several incentive programs encouraging people to purchase EVs. Although Woodland itself is not granting these incentives, it still has an important job in educating its community on available incentives. Lower-income households often are not aware of or do not have time to research incentive programs, so it is crucial that the city gets involved in making information on these programs more accessible. Studies have found that incentives have a correlation with increased sales of EVs and that raising consumer awareness is critical to the success of incentive programs³⁶. Methods of raising consumer awareness could include offering translated information and publishing important information over several channels. The city can also partner with the parties that are providing these incentive programs (IRS, CARB, VCE) to increase awareness.
 - Expand EV charging infrastructure.
 - Woodland can assist in making EV charging infrastructure more accessible. People that rent or live in apartment complexes often have little say over where they can park an EV to charge. The provision of EV infrastructure is often correlated with an area's EV market share³⁷. Continued encouragement of EV infrastructure in new developments or incentives for retrofits to accommodate EV infrastructure is highly recommended. The city can also look into curbside charging, or increasing the number of public chargers available, to make owning an EV more convenient.
 - Electrify the municipal fleet.
 - The team recommends transitioning the municipal fleet to electric vehicles in line with California's Executive Order N-79-20, which aims to phase out the sale of new

³⁶Jenn, Alan, Katalin Springel, and Anand R. Gopal. 2018. "Effectiveness of electric vehicle incentives in the United States." *Energy Policy* Volume 119, August 2018: 349-356. ScienceDirect.

³⁷Sierzchula, William, Sjoerd Bakker, Kees Maat, and Bert van Wee. 2014. "The influence of financial incentives and other socio-economic factors on electric vehicle adoption." *Energy Policy* Volume 68, May 2014: 183-194. ScienceDirect.

gasoline-powered vehicles by 2035.³⁸ Further, the city can install Level II – Level III EV charging infrastructure at all municipal facilities and parking lots to support the electrification of the fleet and encourage EV adoption among city employees and public users of the lots. The Clean Transportation Program (formerly the Alternative and Renewable Fuel and Vehicle Technology Program) through the California Energy Commission (CEC) may be leveraged to support the financial burden of the installation of charging infrastructure.³⁹

TR2: Encourage EV use through car share programs

Issue Addressed: Reaching Vulnerable, At-Risk, or Overlooked Communities

For those that cannot afford to purchase EVs, EV car share programs may be a good option for Woodland. According to the California Air Resources Board (CARB), there are several benefits to EV car share programs, including accessibility to an EV without the costs and responsibilities of car ownership⁴⁰. Additionally, CARB, through California's Greenhouse Gas Reduction Fund, sponsors several EV car share programs throughout the state. For example, MioCar⁴¹ has pilot programs around the San Joaquin Valley, specifically focused on reaching disadvantaged communities. Currently, CARB is offering funding for Clean Mobility Option programs, such as car-sharing programs. Woodland could partner with surrounding cities, or partner with Yolo County to monitor CARB's funding opportunities and apply for funding to make EV car-sharing programs possible.

³⁸ "Governor Newsom Announces California Will Phase Out Gasoline-Powered Cars & Drastically Reduce Demand for Fossil Fuel in California's Fight Against Climate Change | California Governor." 2020. Office of Governor, Gavin Newsom.

<https://www.gov.ca.gov/2020/09/23/governor-newsom-announces-california-will-phase-out-gasoline-powered-cars-dra-stically-reduce-demand-for-fossil-fuel-in-californias-fight-against-climate-change/>.

³⁹ "Clean Transportation Program." n.d. California Energy Commission. Accessed May 8, 2023.

<https://www.energy.ca.gov/programs-and-topics/programs/clean-transportation-program>.

⁴⁰ "Carsharing | Clean Mobility Options." n.d. California Air Resources Board. Accessed May 8, 2023.

<https://ww2.arb.ca.gov/sites/default/files/movingca/carsharing.html>.

⁴¹ n.d. Miocar – We shape the future of carshare mobility. Accessed May 9, 2023. <https://miocar.org/>.



As this is a relatively new development, there is little known about its effectiveness. However, it is a potential option for Woodland to explore, especially since it provides alternatives to car ownership. This particularly benefits one-car households and lower-income households that cannot afford car ownership. Participation and involvement in these programs can also be easily tracked to help in GHG accounting.

Public Transit

Background

Woodland's public transit system falls under the *Yolo County Transportation District (YCTD)*. In Woodland, there are currently 2 local routes, 2 intercity routes connecting Woodland to other cities, and 1 express route.⁴²

From interviews with community members, the current transit system has had issues with reliability and frequency, and bus transfer stops are in unsafe locations⁴³.

Recommendations

TR3: Partner with Yolo County on transit improvements

Issue Addressed: Inaccessibility to Transit Options

Public transit is often the cheapest option to get around. Further, encouraging its use is an excellent option to reduce GHGs. Though the transit system does not fall under the City of Woodland's jurisdiction, Woodland can influence the transit system through partnerships with YCTD. The team recommends the following:

- Improving the convenience of public transit.

⁴² "Yolobus Routes." n.d. Yolobus. Accessed May 9, 2023. <https://yolobus.com/routes/>.

⁴³ Authors' stakeholder interviews 2023

- Improvements in accessibility and reliance are crucial to transit use⁴⁴. This includes more convenient bus stop locations around heavily trafficked areas, safer bus stops, and more reliable and efficient bus routes. In interviews with community members, concerns over safety and the importance of benches and shade at bus stops were voiced⁴⁵. Little improvements to bus stops may go a long way in encouraging ridership.
- Electrification of transit.
 - Partnership with YCTD in electrifying bus fleets is another option. Woodland staff specifically dedicated to sustainability could partner with YCTD in seeking out grants to fund this capital-intensive project. Historically, California has seen success in this transition with the help of Clean Truck and Bus Vouchers through the Greenhouse Gas Reduction Fund⁴⁶.
- Expand micro-transit.
 - YCTD has recently started piloting a micro-transit program. Micro-transit is an alternative fit for less traveled bus routes or more inaccessible neighborhoods. As Woodland is a relatively rural and spread-out community, micro-transit may be a good option to reach unreached communities. It is essential that when there is an expansion of micro-transit programs, they are affordable for those that need them. It is also important to note that micro-transit may not be the most efficient solution to reducing GHGs. In speaking with sustainable transportation experts, micro-transit may often end up being used similarly to a private automobile if the fleet is not electrified⁴⁷. Throughout the industry, there are also concerns that even if the fleet is electrified, the infrastructure and energy required to charge up a fleet

⁴⁴Chakrabarti, Sandip, and Genevieve Giuliano. 2012. "Does service reliability determine transit patronage? Insights from the Los Angeles Metro bus system." *Transport Policy* 42, no. August 2015: 12-20. ScienceDirect.

⁴⁵Authors' stakeholder interviews 2023

⁴⁶"Clean Truck and Bus Vouchers (HVIP) — California Climate Investments." 2022. California Climate Investments. <https://www.caclimateinvestments.ca.gov/clean-truck-and-bus-vouchers>.

⁴⁷Authors' stakeholder interviews 2023

may negate what GHGs are being saved. However, Woodland’s energy provider, VCE, provides a clean mix and offers an UltraGreen option that is 100% carbon-free. Opting for this option can ensure clean transit for all.

Biking

Background

In the current CAP, there are several strategies surrounding biking. Strategies T/LU-1, T/LU-2, T/LU-3, and T/LU-5 all mention biking, including suggestions on building additional bike lanes and furthering bike path development. Since implementation, there have been new developments, including a recently approved pedestrian-bike bridge. However, from speaking with community members, there is a need for additional bike infrastructure in Woodland. Those that are wanting to bike have mentioned feeling unsafe doing so around town⁴⁸. Woodland has implemented bike programs such as “May is Bike Month” and incentive programs, but community input has called for more emphasis on these programs⁴⁹.

Recommendations

TR4: Improve and build bike infrastructure

Issue Addressed: Need for Safer and More Expansive Biking Infrastructure

In interviews with community members, biking around Woodland being dangerous was mentioned several times. The research team recommends funding city projects focused on adding protected bike lanes, paved shoulders, and pedestrian overpasses. Adding safe biking infrastructure can not only help reduce bike accidents and encourage increased bike use, but it

⁴⁸Authors’ stakeholder interviews 2023

⁴⁹Woodland Sustainability Advisory Committee. 2022. “Results of the Community Input Forum on Environmental Sustainability.”



also encourages economic activity in the surrounding areas⁵⁰. Additional city projects can include proper and more available infrastructure for parking bikes.

The Final Mile Project⁵¹, launched in 2018, was a project that successfully accelerated the construction of mobility networks in Austin, New Orleans, Pittsburgh, Denver, and Providence. All these cities saw the rapid development of bike lanes, including protected bike lanes, in the span of 24 months. The Final Mile Project cited the importance of building coalitions and collaboration with local leaders.

The research team recommends following these examples during the rollout of improving and building bike infrastructure and making sure there is a continued collaboration between elected officials, advocacy groups, and community leaders. This allows for a more streamlined process that serves the needs of all. One example of this is the use of the Woodland Active Transportation Plan, an initiative currently in progress. During the implementation of the updated CAP, the ATP will be an excellent tool to refer to when determining where bike infrastructure is desired the most and can be a tool in prioritizing projects.

As the city rolls out new infrastructure projects, it must promote new infrastructure so that these resources are properly utilized to expand bike use. The research team recommends following the Community Outreach (CO) recommendations in engaging the community on new infrastructure. This can ensure that all areas of the community, with a special focus on the underserved community, are informed of new benefits that are rolling out.

⁵⁰Fiol, Olivia, Yonah Freemark, and Yipeng Su. 2022. "Why US Cities Are Investing in Safer, More-Connected Cycling Infrastructure." *Urban Wire*, February 2022.

<https://www.urban.org/urban-wire/why-us-cities-are-investing-safer-more-connected-cycling-infrastructure>.

⁵¹Foersterling, Jack. 2022. "A Proven Model for Accelerating Bike Networks." *PeopleForBikes*, May 20, 2022.

<https://www.peopleforbikes.org/news/a-proven-model-for-accelerating-bike-networks>.

TR5: Bolster bike incentive programs

Issue Addressed: Minimal Bike Use

Strategy T/LU-5 in the current CAP focuses on increasing mass transit use, walking, and bicycling. This strategy has excellent ideas in encouraging bike use such as:

- partnering with the Chamber of Commerce to encourage employers to provide amenities and incentives that encourage employees to cycle
- the provision of free or low-cost helmets and renovated bicycles to low-income residents
- partnering with schools and Yolo County to inform residents on the benefits of biking and building bicycle access to schools

From speaking with community members⁵², bike incentive programs encouraging students to bike have been successful. The research team recommends the continuation and bolstering of those programs, as well as those outlined in Strategy T/LU-5.

Energy

Woodland's energy profile and emissions are crucial factors in shaping the city's Climate Action Plan. The research team reviewed GHG metrics from municipal, commercial, and residential sectors and composed recommendations for each respective sector. Analysis of industry emissions and corresponding recommendations are not included in this report given data restrictions due to California's so-called "15/15" data privacy rule.

Although Woodland slashed its energy-related GHG emissions by nearly half between 2005 and 2016, the energy sector still accounts for approximately 27% of all emissions in Woodland, placing it as the second largest source of emissions in the city⁵³. Both California and Yolo County have set ambitious climate targets, with California aiming to achieve a carbon-neutral grid by 2045 and

⁵²Authors' stakeholder interviews 2023

⁵³Ascent Environmental. n.d. Community GHG Inventory -- Woodland.



Yolo County prescribing a net-negative policy by 2030⁵⁴. Woodland's climate action plan must align with these goals, while also taking into consideration the unique needs and circumstances of the local community.

Considering Woodland's demographic and economic context, the city should prioritize energy equity and ensure that all residents, including low-income and minority groups, have access to clean and affordable energy. This involves addressing energy burdens, promoting energy efficiency, and supporting renewable energy programs that cater to the needs of vulnerable populations. Furthermore, the city must set an example by transitioning its own operations to clean and sustainable resources, developing innovative efficiency measures, and fostering a climate-minded environment.

Municipal Sector

Background

The municipal sector encompasses all buildings, transit, and operations undertaken and overseen by the city, and as such presents a degree of overlap with other areas of this report. However, the research team places value on the context in which these recommendations are presented. For example, considering Electric Vehicles (EVs) as a transit intervention versus an energy transition technology alters the use case and specifics of the recommendation. The Municipal sector presented a key focus area for our group given the level of control that may be implemented by the very bodies for whom this report is compiled. The most recent GHG assessment performed by Ascent Environmental did not encompass governmental buildings and thus limited our insights into current progress. However, case studies of other cities and stakeholder interviews provided context for actions the city may undertake. Demonstrating

⁵⁴California Air Resources Board. 2022. "California releases final proposal for world-leading climate action plan that drastically reduces fossil fuel dependence, slashes pollution | California Air Resources Board." CA.gov. <https://ww2.arb.ca.gov/news/california-releases-final-2022-climate-scoping-plan-proposal>.

success at the city and administration level is crucial for the long-term adherence to Woodland's climate and GHG objectives.

Recommendations

EN1: Implement energy efficiency and green building policies

Issue Addressed: Energy-intensive built infrastructure

Engaging in energy efficiency remains a cost-effective and sustainable strategy for reducing emissions. The authors recommend energy-saving programs for municipal buildings that address both immediate and long-term savings.

- Perform retrofits and energy audits in municipal buildings:
 - Prioritizing older, historic buildings that may be less efficient can both minimize energy costs and maximize savings. Similarly, establishing green building policies that require new construction and major renovations of municipal buildings to meet specific energy efficiency and sustainability standards, such as LEED certification or CALGreen building codes/California's Title 24 Building Energy Efficiency Standards, can help ensure long-term sustainability⁵⁵.
- Deepen alignment with county objectives and initiatives:
 - To foster inter-government alignment, the authors encourage collaboration with Yolo County to identify suitable retrofit projects and secure funding paralleling County efforts through the 100% Renewable Electricity Accounts Early Action Project⁵⁶. Further, the city should make note of projects potentially eligible for

⁵⁵California Energy Commission. 2022. "2022 Building Energy Efficiency Standards." <https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency>.

⁵⁶Echiburú, Taro. 2022. "100% RENEWABLE ELECTRICITY ACCOUNTS." YoloCounty.gov. <https://www.yolocounty.org/home/showpublisheddocument/74603/637985886456870000>.

Alternative Path Compliance Pathways (ACP) or streamlined LEED certification through the State of California⁵⁷.

EN2: Increase adoption of renewables

Issue Addressed: Fossil fuel dependency

No amount of electrification will remove emissions resulting from fossil fuel generation. To relieve the dependency on GHG-intensive resources, the authors recommend expanding the city's existing solar arrays on suitable municipal buildings and facilities, including rooftops, parking lots, and viable unused land. The city may also explore opportunities for incorporating other renewable energy sources or Distributed Energy Resources (DERs), such as batteries or wind power, where feasible. The team also identified participating in Valley Clean Energy's (VCE) Community Choice Aggregation (CCA) program as an effective means of procuring 100% clean, renewable energy for municipal operations while supporting California's SB 100 (California Renewable Portfolio Standard Program) and SB 350 (Clean Energy and Pollution Reduction Act) targets^{58, 59}. Given the dispersed nature of municipal utility accounts, the highest-consuming or highest-emitting accounts should be prioritized to maximize cost efficacy. The city should continue coordinating with VCE in order to select high-impact accounts early on. Similarly, the research team recommends partnering with local utilities and the California Solar Initiative (CSI) to leverage incentives and rebates for solar installations⁶⁰.

EN3: Implement energy management and benchmarking programs

⁵⁷Sullens, Wes. 2017. "LEED paperwork streamlined for California projects." USGBC. <https://www.usgbc.org/articles/leed-paperwork-streamlined-california-projects>.

⁵⁸California Energy Commission. n.d. "SB 100 Joint Agency Report." CA.gov. <https://www.energy.ca.gov/sb100>.

⁵⁹California Energy Commission. n.d. "Clean Energy and Pollution Reduction Act - SB 350 - Clean Energy and Pollution Reduction Act - SB 350." <https://www.energy.ca.gov/rules-and-regulations/energy-suppliers-reporting/clean-energy-and-pollution-reduction-act-sb-350>.

⁶⁰California Public Utilities Commission. n.d. "California Solar Initiative (CSI)." <https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/demand-side-management/california-solar-initiative>.



Issue Addressed: Measurable progress

In line with the recommendations described in the [Accountability](#) and [Community Outreach](#) sections, energy management and benchmarking programs offer a means of ensuring continuous progress and fostering cross-department collaboration. The authors recommend the city implement comprehensive energy management and benchmarking programs for municipal buildings to track and analyze energy consumption data, identify inefficiencies, and prioritize energy-saving measures. The city should make use of the ENERGY STAR Portfolio Manager tool, in line with California's Assembly Bill 802 (Energy Efficiency), to assess building performance and compare it to similar buildings nationwide. Lastly, the team encourages setting specific energy reduction targets for municipal buildings and developing action plans to achieve GHG reduction targets.

Commercial Sector

Background

Woodland enjoys a diverse array of businesses, from construction and manufacturing to food processing.⁶¹ As these businesses continue to expand and evolve, it is crucial for Woodland to address their environmental impact, specifically focusing on reducing energy consumption and emissions associated with the commercial sector. Tackling emissions across sectors and business types will be essential for Woodland to achieve its climate action plan goals and contribute to the state's ambitious climate targets.

By implementing energy efficiency measures and promoting the adoption of renewable energy sources, Woodland can not only reduce its carbon footprint but also create a more sustainable

⁶¹Woodland Chamber of Commerce. n.d. "City of Woodland Statistical Info." Accessed May 9, 2023. <https://www.woodlandchamber.org/statistical-info>.

and resilient local economy.⁶² Energy-efficient practices and renewable energy systems often result in cost savings for businesses, making them more competitive in the long run⁶³.

Furthermore, fostering a green business environment can attract innovative and environmentally conscious companies, positioning Woodland as a leader in sustainable development. By prioritizing the reduction of commercial-sector emissions, Woodland can create a healthier, more equitable, and prosperous community for all residents.

Recommendations

EN4: Implement energy efficiency programs

Issue Addressed: Energy-intensive commercial infrastructure

As in the municipal space, energy efficiency measures are a cost-effective means of reducing energy consumption in buildings. The city can support business owners and operators by offering financial incentives, technical assistance, and educational resources tailored to the needs of individual businesses, retail establishments, and office spaces. The authors recommend connecting independent businesses to statewide initiatives like the Commercial Property Assessed Clean Energy (C-PACE) Program, which allows business owners to finance energy and heating efficiency, renewable energy, and water conservation projects through an assessment on their property tax bill⁶⁴. Encouraging businesses to conduct energy audits and retrofits can also facilitate identifying and implementing energy-saving measures. This objective aligns with key actions present in the 2017 CAP but stresses the role of smaller businesses whose resources may be limited.

⁶²Koutra, Sesil, Mireilla Balsells Mondejar, and Vincent Becue. 2021. "The nexus of 'urban resilience' and 'energy efficiency' in cities." *Current Research in Environmental Sustainability* 4 (December). <https://reader.elsevier.com/reader/sd/pii/S2666049021000967?token=3CC19CBCD52C03BBF84787C0A5E59AC22916161714701AC7F3B0620F5520A1B69161373653E965E9CF3EDB3419678665&originRegion=us-east-1&originCreation=20230510055429>.

⁶³Bergmann, Anne, Jan Niklas Rotzek, Martina Wetzel, and Edeltraud Guenther. 2017. "Hang the low-hanging fruit even lower - Evidence that energy efficiency matters for corporate financial performance." *Journal for Cleaner Production* 147 (March): 66-74. <https://www.sciencedirect.com/science/article/abs/pii/S0959652617300811>.

⁶⁴U.S. Department of Energy. n.d. "CPACE | Better Buildings Initiative." <https://betterbuildingsolutioncenter.energy.gov/financing-navigator/option/cpace>.



EN5: Encourage renewable energy incentives

Issue Addressed: Fossil fuel emissions

Mirroring existing CAP Objective 2, the research team recommends the city foster renewable energy systems in businesses, such as solar panels, small wind turbines, and energy storage solutions. The city can also leverage its own renewable energy initiatives by promoting the California Solar Initiative (CSI) for commercial leaders and facilitating participation in VCE renewable energy plans for cleaner and more affordable energy options. Emissions reductions may be maximized by targeting businesses operating in older or less efficient buildings⁶⁵. The authors also recommend additional support for small businesses facing unique challenges in adopting renewable energy systems, such as limited roof space or financial constraints, by offering tailored assistance and technical guidance.

EN6: Implement energy benchmarking and disclosure programs

Issue Addressed: Long-term sustainability

In line with California's Assembly Bill 802 requiring building owners monitor and improve their energy performance, the research team recommends implementing energy benchmarking and disclosure programs for commercial buildings. Providing support for building owners to comply with these requirements and make data-driven decisions to enhance their building's energy performance will be crucial for continued success. Woodland may model other cities' resources such as those compiled by cities of Glendale and Palo Alto^{66, 67}. The authors recommend the city offer training sessions and resources to help building owners understand and interpret energy performance data, enabling them to set achievable targets for energy efficiency improvements.

⁶⁵IEA. 2019. "The Critical Role of Buildings." IEA. <https://www.iea.org/reports/the-critical-role-of-buildings>.

⁶⁶City of Glendale. n.d. "Building Energy Use Benchmarking and Public Disclosure Program." <https://www.glendaleca.gov/government/departments/glendale-water-and-power/business-customers/ab-802-benchmarking>.

⁶⁷City of Palo Alto. 2022. "Benchmarking Your Building." <https://www.cityofpaloalto.org/Departments/Utilities/Business/Ways-to-Save/Benchmarking-Your-Building>.

Where suitable, leverage County resources and programs to assist in the capacity for training and outreach programs.

EN7: Communicate energy rebate programs

Issue Addressed: Access to information

While the city does compile information on energy and utility bill rebates, the research team recommends directly engaging with commercial building owners and operators about energy rebate programs offered by local utilities and the state, such as lighting retrofit rebates, HVAC system rebates, and custom incentives for specific energy-saving measures. See [Community Energy Communications Council](#) for suggestions on methods of effectively conveying information. For example, the city may develop outreach campaigns and partnerships with local utilities and the Yolo County Economic Development Division to raise awareness of these programs and increase participation rates among commercial property owners and businesses. In the research team's interviews, Bay Area cities reported positive feedback of training programs provided by BayREN that provide resources to help businesses navigate the application process for rebates and incentives⁶⁸. Woodland may use these events as a basis for organizing their own training programs.

EN8: Encourage demand response programs

Issue Addressed: Peak load emissions

Although short of regulation, the city may encourage commercial building owners and businesses to participate in demand response programs offered by PG&E to reduce emissions, aligning with recommendations from the CEC.⁶⁹ These programs provide incentives for reducing energy use during periods of high demand and carbon intensity, and may provide eligibility for equipment

⁶⁸Authors' stakeholder interviews 2023

⁶⁹California Energy Commission. 2022. "CEC Adopts Standards to Help Consumers Save Energy at Peak Times." <https://www.energy.ca.gov/news/2022-10/cec-adopts-standards-help-consumers-save-energy-peak-times>.



rebates and incentives⁷⁰. Participation in these programs can help businesses save on energy costs and contribute to grid stability while also reducing the need for additional fossil fuel-based power generation during peak demand periods. Provide resources and training to help businesses understand the benefits and requirements of demand response programs and support them in implementing necessary technologies and processes.

Residential Sector

Background

The residential sector in Woodland is the highest emitting energy sector among the municipal, commercial, and residential spaces, underlining the importance of addressing energy consumption and GHG emissions in this domain. According to the 2016 Woodland Community-Wide Greenhouse Gas Inventory, the residential sector accounted for approximately 29.5% of the city's total GHG emissions (City of Woodland, 2016). With the city's growing population and housing demand, it is crucial to implement measures that can effectively reduce energy consumption and emissions in the residential sector, in line with Woodland's Climate Action Plan goals.

Focusing on the residential sector will not only contribute to the mitigation of climate change impacts but also improve the quality of life for Woodland's residents. Energy-efficient housing can lead to reduced energy costs for households, particularly benefiting low-income and vulnerable communities. As with recommendations throughout this report, promoting energy efficiency and renewable energy adoption in residential areas will align with California's broader energy and climate goals, including the state's ambitious target of achieving carbon neutrality by 2045.

⁷⁰Pacific Gas & Electric. n.d. "Energy incentive programs." PGE.
https://www.pge.com/en_US/large-business/save-energy-and-money/energy-management-programs/energy-incentives.page.

Recommendations

EN9: Expand homeowner education and outreach

Issue Addressed: Engaging residents in energy programs

Education and Outreach issues are addressed in more detail in [Community Outreach](#), yet warrant a dedicated discussion here given specific feedback received from community members throughout the team's qualitative research.

- Develop Tailored Energy Education and Outreach Programs:
 - To increase awareness about energy efficiency, conservation practices, and available resources, the research team proposes creating customized education and outreach initiatives for homeowners and renters. These programs should focus on increasing awareness of available resources and provide guidance on how to conduct home energy audits, select energy-efficient appliances, and implement energy-saving measures⁷¹.
- Support Residential Solar Adoption:
 - The authors emphasize the importance of encouraging solar panel installations on residential buildings. This can be achieved by promoting incentives such as the Residential Clean Energy Credit and California's Low-Income Weatherization Program (LIWP), as well as providing information on financing options like the Property Assessed Clean Energy Program (PACE) through various channels, including workshops, webpages, and targeted notices^{72, 73, 74}. Low-income

⁷¹Iweka, Obiajulu, Shuli Liu, Ashish Shukla, and Da Yan. 2019. "Energy and behavior at home: A review of intervention methods and practices." *Energy Research & Social Science* 57 (November). <https://www.sciencedirect.com/science/article/abs/pii/S2214629619302853>.

⁷²Internal Revenue Service. 2022. "Residential Clean Energy Credit," IRS.gov, <https://www.irs.gov/credits-deductions/residential-clean-energy-credit>.

⁷³California Department of Community Services and Development. n.d. "Low-Income Weatherization Program." CA.gov. <https://www.csd.ca.gov/Pages/Low-Income-Weatherization-Program.aspx>.

⁷⁴Department of Financial Protection & Innovation. 2022. "PACE (Property Assessed Clean Energy): What Homeowners Need to Know." California Department of Financial Protection and Innovation. <https://dfpi.ca.gov/pace-program-administrators/pace/>

residents may be interested in California's Disadvantaged Communities (DAC) solar programs: [DAC-SASH](#), [DAC-GT](#), and [CSGT](#).

- Advance Electrification and Efficiency Retrofit Programs:
 - The city may promote energy efficiency retrofit programs, offering financial incentives, technical assistance, and resources in order to help homeowners upgrade their homes with energy-saving measures⁷⁵. For example, encouraging the transition from natural gas to electric appliances in residential settings can be facilitated by offering resources on the benefits of electrification, such as electric heat pumps for space and water heating or induction cooktops for cooking, and providing access to existing incentive programs^{76, 77}.
- Raise Awareness of Utility Bill Assistance Programs:
 - The authors recommend informing residents about the California Alternate Rates for Energy (CARE) and Family Electric Rate Assistance (FERA) programs, which provide discounted energy rates for eligible low-income households. By developing outreach campaigns and partnerships with PG&E, VCE, and community organizations, the city can raise awareness of these programs, increase participation rates among eligible residents, and provide resources to help them navigate application processes.

EN10: Establish green building policies for the residential sector

Issue Addressed: Updating municipal code/ordinances

⁷⁵ Pacific Gas & Electric. n.d. "Energy efficiency programs for residential customers." https://www.pge.com/en_US/residential/save-energy-money/resources/energy-efficiency-resources/energy-efficiency-programs.page.

⁷⁶Office of State and Community Energy Programs. n.d. "Saving Energy and Money for American Homes, Communities, Businesses, and Industries." Department of Energy.

<https://www.energy.gov/scep/office-state-and-community-energy-programs>.

⁷⁷Valley Clean Energy. n.d. "Energy Efficiency." <https://valleycleanenergy.org/energy-efficiency/>.



Aligning with multiple strategies within the existing CAP's Energy Objective 1, the authors recommend establishing green building policies and incentives specific to residential construction and major renovations. For example, home renovations may be obligated to follow elements of California's Title 24 Building Energy Efficiency Standards or other recognized sustainability certifications. Specific features may include green roofs, appropriate attic and wall insulation materials, high-performance building envelopes, and tree coverings that contribute to energy savings and reduce heat island effects per recommendations of the US EPA^{78, 79}. In California, Solano Beach recently adopted similar measures requiring renovations beyond a certain threshold to adopt electric facilities, while the City of Davis adopted a Reach Code requiring higher energy-efficiency standards and electrification readiness in mixed-fuel residential buildings⁸⁰.

EN11: Implement community energy efficiency initiatives

Issue Addressed: Community buy-in and participation

Building off of elements in the existing CAP's Energy Objective 1, Strategy E-1 actions, the research team recommends implementing neighborhood-based energy efficiency initiatives, engaging residents in collective actions to improve energy performance at the community level. The city should collaborate with local organizations, homeowners associations, and neighborhood groups to promote energy-saving practices, energy-efficient technologies, and collective purchasing of renewable energy systems. The city may even identify neighborhoods that can benefit from potential commercial or municipal shared energy systems.

⁷⁸Nowak, David J., Nathaniel Appleton, Alexis Ellis, and Eric Greenfield. 2017. "Residential building energy conservation and avoided power plant emissions by urban and community trees in the United States." *Urban Forestry & Urban Greening* 21 (January): 158-165.

⁷⁹Woodland Tree Foundation. n.d. "A Tree Selection and Planting Guide For Woodland and Surrounding Areas." WoodlandTree.org. http://www.woodlandtree.org/wp-content/uploads/2017/03/Woodland_Tree_Guide_Web.pdf.

⁸⁰Feeney, Ashley, and Gregory Mahoney. 2019. "Ordinance to Amend the City's Residential Energy Efficiency Reach Code." LPDD. <https://lpdd.org/wp-content/uploads/2020/03/07-Residential-Energy-Efficiency-Reach-Code.pdf>.



Climate Adaptation

Background

Climate adaptation and resilience refer to a city's capacity to persevere, adjust and prosper in response to climate-related disruptions and pressures. When a city adapts to the climate and enhances its resilience, it can endure these difficulties by removing silos, tapping into co-benefits that address the intersectionality of its vulnerabilities, and maximizing the efficacy of each investment made towards lessening and mitigating future disruptions and pressures. Therefore, establishing climate resilience is fundamental to enhancing the general resilience of a city's structures, industries, organizations, communities, and individuals⁸¹.

Climate change is expected to increase the frequency and intensity of extreme weather events such as heatwaves, droughts, floods, and storms, which can result in physical damage, loss of life, and economic disruption. By building resilience, cities can improve their ability to cope with the impacts of climate change and reduce the risk of poverty and inequality. Furthermore, adaptation strategies are more manageable at the city level, while mitigating climate change demands a united, worldwide endeavor⁸².

Climate adaptation and resilience have become prevalent themes in the climate discourse only in the last few years. Considering that most of the CAP was written in 2012 and adopted in 2017, it is not surprising that Woodland's CAP as it stands does not address climate adaptation. However, the city has to start considering these elements, if it wants to be prepared for what a changing climate might mean for the city's population, economy, and infrastructure.

⁸¹"Climate Resilient Cities." 2022. Resilient Cities Network. <https://resilientcitiesnetwork.org/climate-resilient-cities/>.

⁸²Merritt, Annie. 2021. "CLIMATE VULNERABILITY IN THE CITY OF WEST SACRAMENTO." <https://www.cityofwestsacramento.org/home/showpublisheddocument/12742/637710983306530000>.

Recommendation

CA1: Update the name and contents of the Climate Action plan to become a Climate Action and Adaptation Plan

Issue Addressed: Consolidated Climate Action

Cities such as Davis and San Francisco, as well as Yolo County, call their climate plans Climate Action and Adaptation plans as the need for adaptation in addition to mitigation has become clear. Woodland has several adaptation-related projects and actions underway, some of which (e.g., tree planting) are already in its CAP. However, as discussed later in this section Woodland needs to do a lot more to adapt, remain livable, and thrive over the next many years. Thus, the city should update the name and contents of its next iteration of the CAP to include its adaptation plans. Having all climate-related matters in one place will also make tracking, education and outreach, and implementation efforts much smoother.

CA2: Conduct a climate vulnerability assessment to inform adaptation strategies

Issue Addressed: Climate Hazard, Consolidated Climate Action, and State Law Compliance

The importance of resilience and adaptation planning in Woodland cannot be overstated, particularly because the city hosts a significant population of historically underserved minorities, and 9.3% of all its residents live below the poverty line and these populations will be most impacted by a changing climate⁸³. Currently, Woodland's CAP does not directly address resilience and adaptation within any of its proposed measures. Moreover, per SB 379 Californian cities and counties are required to include climate adaptation measures in their general plan. The figure below shows the adaptation planning process Woodland should consider, as recommended by the Office of Emergency Services. Assessing the city's climate vulnerability is essential to creating

⁸³United States Census Bureau. 2022. "Woodland city; California."
<https://data.census.gov/profile?g=160XX00US0686328>.

holistic solutions that will prepare Woodland for a robust future. Various neighboring cities including West Sacramento and Elk Grove are in phase 3 of this process.

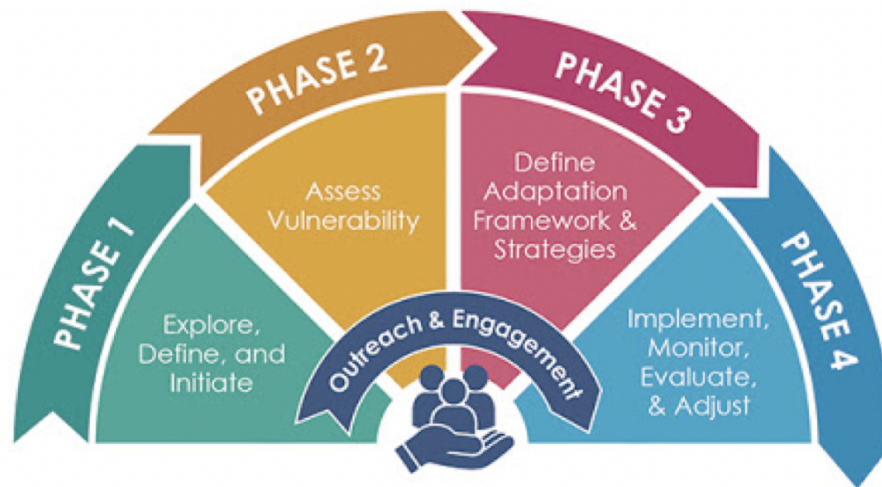


Figure 2, Adaptation Planning Process, California Adaptation Planning Guide, 2020

CA3: Incorporate existing flood risk assessment and solutions within the updated CAP

Issue Addressed: Flood Mitigation, and Consolidated Climate Action

Outside of the CAP, Woodland is taking steps to address its flood risk. The city has launched a regional effort called the Woodland Flood Risk Management Project to protect its industries and the most disadvantaged residents who live in high-risk areas. The plan proposes a new levee and other supportive measures e.g., subsidized flood insurance. The city should incorporate these efforts within the CAP to have a well-rounded action plan that incorporates all aspects of climate action in Woodland⁸⁴.

CA4: Prioritize, reevaluate, and track tree planting

⁸⁴City of Woodland. 2023. *Woodland Flood Management Project*, Keeping Woodland Safe & Affordable.

Issue Addressed: Heat, and Air Quality,

Urban Forest and Open Space is one of six focus areas in Woodland's CAP, and its strategies UF-2 and UF-3 discuss increased tree planting and their maintenance. The CAP includes goals of increasing canopy cover from 8.4% in 2010 to 25% by 2035, and as of a 2017 estimate Woodland's canopy is measured at 14%⁸⁵. While the city has made some progress on expanding overall canopy, the CAP also has goals of a net tree increase of 6,000 by 2020 and 10,500 by 2035 along streets, parking lots, and open spaces, and the city's progress is less clear on these goals.

In the research team's discussions with community members and city and county leaders, Woodland's susceptibility to extreme heat and heat islands came up repeatedly⁸⁶. Neighboring West Sacramento lists urban heat and heat islands as one of its major climate hazards in its climate vulnerability assessment⁸⁷. Additionally, over 25% of Woodland's population lives in areas that are above the 95th percentile for PM2.5 in the air⁸⁸. Thus, to combat the impacts of heat and improve air quality tree planting, protection, and maintenance should remain a high priority in the region and Woodland should consider speeding up and expanding its canopy goals. Woodland should follow relevant [Community Outreach](#) and [Accountability](#) recommendations in this report to encourage tree planting on private property and monitor canopy increase over time.

CA5: Explore the creation of resilience hubs for disaster preparedness

Issue Addressed: Climate Hazard Planning, Regional Collaboration, and Community Outreach

A resilience hub is a community-based facility that provides essential services and support during emergencies and disasters to enhance community resilience. It is designed to offer centralized

⁸⁵Woodland Tree Foundation. n.d. "FAQ." Woodland Tree Foundation. <http://www.woodlandtree.org/resources/692-2/>.

⁸⁶Authors' stakeholder interviews 2023

⁸⁷Merritt, Annie. 2021. "CLIMATE VULNERABILITY IN THE CITY OF WEST SACRAMENTO." <https://www.cityofwestsacramento.org/home/showpublisheddocument/12742/637710983306530000>.

⁸⁸Council on Environmental Quality. 2022. "Climate and Economic Justice Screening Tool." Climate & Economic Justice Screening Tool: Explore the map. <https://screeningtool.geoplatform.gov/en/#13.39/38.68739/-121.76075>.

resources such as electricity, food, water, medical care, communication, and information to community members. Additionally, it serves as a gathering place for community members to come together, share resources and knowledge, and support one another during times of crisis⁸⁹. Given the underserved population in Woodland, including the homeless population of 267, which grew 94% between 2017 and 2022, having a resilience hub can mean more community resilience and better outcomes for all residents of the city in case of a climate emergency⁹⁰.

In recent years there has been some momentum in Davis, among other California cities, to create a resilience hub⁹¹. Woodland could partner with the neighboring cities or with the county to ensure that there is a safe space for its residents to go to in case of climate events, which are becoming more frequent and severe with time. These hubs, which are typically schools or community centers, could also be used as locations to educate the community about climate change, sustainable practices, and government programs and rebates. When Woodland does pursue the creation of a resilience hub it should ensure the use of clean-powered microgrids to power the hub instead of generators that run on fossil fuels.

CA6: Partner with Valley Vision on food hub creation

Issue Addressed: Promotion of Sustainable Agriculture, and Regional Collaboration

A food hub is a regional distribution center that connects producers, processors, and buyers of local food. Food hubs play a critical role in climate resilience by promoting sustainable agriculture

⁸⁹Baja, Kristin. n.d. "RESILIENCE HUBS." Urban Sustainability Directors Network. Accessed May 8, 2023. https://www.usdn.org/uploads/cms/documents/usdn_resiliencehubs_2018.pdf.

⁹⁰ Yolo County Homeless and Poverty Action Coalition. 2022. "Yolo County Homeless Count 2022."

⁹¹Millstein, Roberta L. 2022. "What should Davis's "Resilience Hub" be?" https://www.davisite.org/2022/03/what-should-daviss-resilience-hub-be.html?fbclid=IwAR3NdiWxTAZOb9GrpWyc44dA_coox-dYeLdv7pQmBDHCkYR4srAYBmBsv8c.



practices and reducing greenhouse gas emissions associated with food transportation⁹². By aggregating products from multiple producers and distributing them regionally, food hubs can reduce the distances that food travels from farm to consumer, thereby lowering transportation-related emissions. Additionally, food hubs can provide storage, processing, and distribution services that help reduce food waste, which is a major contributor to greenhouse gas emissions. Food hubs can help build climate resilience by promoting diversified local food systems, supporting regenerative agriculture practices, and fostering community food security.

Given that agriculture is a key component of Woodland's economy, food hubs can be a great way for the city to support its community. USDA is funding a food hub in Esparto, which is located about 14 miles from Woodland⁹³. The city should partner with Valley Vision, a civic leadership organization that is assigned as project manager of the food hub, to support community outreach efforts, and act as a resource for Woodland's farming community that may want to be involved with the hub, and for local food banks, schools, and charities, etc., that will benefit from increased access to fresh and affordable food.

Conclusion

The research team identified six major areas with gaps that need to be addressed in the next CAP: Accountability, Community Outreach, Equity, Transportation, Energy, and Adaptation. A total of 30 recommendations have been made across these areas to help Woodland develop and implement holistic solutions to mitigate and adapt to climate change.

As Woodland considers updating its CAP it must begin with introducing new emissions goals. The state of California, Yolo County, and neighboring cities all have newer goals than Woodland;

⁹²Barham, Jim. 2010. "Getting to Scale with Regional Food Hubs." USDA. <https://www.usda.gov/media/blog/2010/12/14/getting-scale-regional-food-hubs>.

⁹³"Yolo Food Hub Network." 2022. Yolo Food Hub: Home. <https://www.yolofoodhub.com>.



Woodland must develop goals that meet the need of the hour, given the very real impacts of climate change that the region is already experiencing. It is imperative to also remember that goals and actions in a CAP are meaningless without metrics in place and dedicated teams and resources to execute. The city needs to make sure that the government is aligned and that there is cross-departmental sharing of responsibilities.

Furthermore, community outreach is needed to ensure that the entire city, residents, and industry, support and remain involved in the CAP. No policy is made in a vacuum and the city leadership and government must remember their context (demographics, languages, economy, and history) as they develop climate solutions to ensure a just transition.

Moreover, the transportation sector accounts for over 60% of Woodland's emissions and presents a great opportunity for emission reduction. Promoting EVs, car-share, investing in public transit, EV charging infrastructure, and making Woodland's streets more bikeable are all important solutions that have a role to play in getting Woodland to a net-zero future. Energy is the other big emitting sector at 27%. Encouraging energy efficiency programs, retrofits, roof-top solar, demand-response programs, and establishing green building protocols are just some of the ways that Woodland can decarbonize this sector. Another element that is inadequately addressed in Woodland's CAP is climate adaptation. Woodland faces the risk of climate hazards such as flooding and heat waves. The city must do a full vulnerability assessment and take action to become a resilient city that is well-prepared to handle climate events. Woodland flood mitigation plans, planting trees and native plants, and investing in resilience and food hubs can help prepare the city for the changing climate.

Overall, Woodland's existing climate action touches on almost all aspects of its carbon emission landscape but we hope that the recommendations in this report can help make that plan and the city's larger fight against climate change more robust and well-rounded.

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Sustainability Advisory Committee

Long Range Calendar

July 19, 2023

Priority Items

- Update on Electric Vehicle Charging Stations
- Yolo County compost facility
- City's GHG footprint + Valley Clean Energy
- Urban Forest Management Plan

Ongoing Topics

- Ad-hoc committee policy
- Mio Car and similar
- Zoning ordinance review (likely Fall 2023)
- Cool Davis coordination
- Sierra Club and electric homes
- Carpet recycling facility
- Energy efficiency center (Sonoma)
- Woodland Regional Park Preserve updates
- Social justice and equity practices re: sustainability
- Green buildings and healthy environments in existing structures
- Electrification in new construction