

CLIMATE EMERGENCY FRAMEWORK



Draft December 2020



FORWARD

Formation and Duties of Commission

The Climate Action Commission was established by City of Petaluma Ordinance No. 2689 N.C.S. adopted August 5, 2019 and effective September 5, 2019. The Climate Action Commission’s enabling legislation was amended on August 3, 2020 by Ordinance No. 2742 N.C.S., which took effect September 3, 2020 and added two youth members to the Commission, expanding the body to 9 members. In the ordinance amending the Climate Commission’s enabling legislation, the City Council recognized that climate change will have a greater negative impact on younger community members as future severe weather events are expected to intensify and sea levels are expected to rise compared to current and historical levels.

The City Council enacted Ordinance 2689 N.C.S. intending to elevate climate issues to the highest priority in its goal-setting process; to give precedence to climate mitigation and adaption when evaluating policies and purchases, planning projects and allocating resources, and to seek financial and regulatory aid to support those efforts. In adopting the Ordinance the City Council voiced its support for full public participation toward zero net emissions – including input from and participation by disenfranchised communities- and recognized that Petaluma residents, community organizations, labor, business and schools are integral to leading that effort, and called for emergency action at all levels of government to restore a safer climate, safeguard against the result of climate change, and support the just transition to a sustainable economy with good-paying, high-quality jobs, and intending to do

everything in the City’s power to swiftly convert to an ecologically, socially and economically sustainable economy. The ordinance acknowledges that frontline and marginalized communities are already disproportionately negatively affected by climate change, and therefore must be the first to benefit from a just transition to a sustainable and equitable economy.



Ordinance 2689 N.C.S. specifies the Climate Action Commission's duties as follows:

The Climate Action Commission shall perform the duties designated and delegated by the City Council on matters pertaining to climate action policies and their implementation within the City. The Commission shall also serve as a forum for the consideration, analysis and coordination of climate action related City policies, and shall advise the City on matters referred by City departments, and other Council-appointed hearing bodies. The Climate Action Commission shall engage with climate related matters, including but not limited to:

1. Acting as a focal point for community education through workshops where experts can share their expertise.
2. Understanding our impact on the environment, including carbon footprint and greenhouse gas emissions.
3. Suggesting climate change policies to be implemented by City staff.
4. Encouraging community groups to provide additional community involvement and expertise.
5. Examining best practices from other jurisdictions and recommending implementation as appropriate. The Commission's first meeting took place on November 14, 2019, and the primary focus of the meetings has been to develop a Climate Emergency Framework. The Commission established a number of subcommittees to meet and work collaboratively with community participants to create the Framework sections in conjunction with feedback from many members of the broader Petaluma community.



Problem Statement

“ Our Earth is a marvelously interconnected living system that has evolved to its current state across billions of years. Currently, however, the demands of human populations exceed the earth’s biocapacity thereby threatening global ecosystem resilience.”

-Commissioner Orrett

To restore the earth’s biocapacity, the global community will need to quickly reduce fossil fuel-based systems and use of chemicals and products that pollute and are non-recyclable. Active stewardship of working and natural landscapes will be needed to improve ecological health, stabilize ecosystems, and sequester carbon. To meet the goals of the Paris Climate accords, communities around the world must do their part to reduce polluting emissions, develop good models for mitigation and adaptation, and invest in clean energy and stable economies.

By acting decisively, Petaluma hopes to join and inspire others across the Bay Area in doing the same. Working together we can initiate a massive local economic impulse, model 21st century green architecture, landscape design, and engineering, and work to restore ecological balance and economic stability in our community and county.

Values and Considerations

The following are primary values and considerations that informed the Climate Action Commission’s work in developing the Framework. These values and considerations help explain some of the primary imperatives behind the vision of the Framework and set the context for the document as a whole.

1. Acknowledge local Native peoples and communities.

We acknowledge the thousands of years Coast Miwok people lived here in harmony and the effect colonization had on them and their land. We will cultivate respectful and collaborative relationships with local indigenous communities with the intention to understand, highlight, and integrate their community needs, climate action priorities, and ecological insight and values into our climate actions.

2. Advance equity.

There is a moral imperative to prioritize climate-related actions and policies that promote social, racial, environmental, economic, disability, and public health justice in communities disparately impacted by climate change. Frontline and underserved communities are expected to receive a disproportionately higher impact from climate change and have fewer resources available with which to address those impacted. Integration of these communities’ feedback and participation in the City’s climate action programs is crucial.

3. Act with urgency and integrity.

Climate inaction has a compounding effect. The longer emission sources continue unabated, the greater the amount of reduction within a shorter time frame is required to offset the increases. Swift action that is rooted in integrity is necessary to ensure that City actions and policies contribute to improved climate justice, mitigation, sequestration, adaptation, public health, and social resilience outcomes and meet our mandates and targets.

4. Create social resilience and ecosystem resilience together.

Holistic thinking can identify synergies that would be overlooked when examining individual systems or policies. For this reason, preference should be given to actions and policies with multiple benefits that align sustainable economies with thriving ecologies, including; sustainable economic benefits, reduction of pollutants and toxins, restoration of ecosystems, and improvements in public health, community cohesion, and wellbeing.

5. Catalyze inclusion, access, diversity and collaboration.

A community thrives when all members benefit from actions and policies that increase awareness, education, collaboration, and engagement.

6. Fund accessible and effective action.

Some actions will pay for themselves, but many may result in new costs or may require upfront funding which frontline communities may not be able to afford. Sustainable funding sources must be developed to fund participation in measures needed by frontline and disadvantaged communities. For action to be effective, to the extent the information is

available, decision-makers, including the City Council and individual households, need the information to evaluate and balance the cost of implementation with potential cost savings and the avoided costs of inaction.

7. Be accountable and transparent.

Clearly defining why Petaluma must act, what those actions will involve, timelines for when they will take place, and how they will demonstrate the City's commitment to addressing its piece of the climate crisis.

8. Be responsible.

In order to be good stewards of the environment and to ensure the prosperity of future generations, the City must set an example, by acting responsibly to its neighbors, the global community, and all species by eliminating reliance on resources and products that pollute both within and outside our City.

9. Work collectively

with leading regional, statewide, and international bodies, so that Petaluma learns from the successes and failures of other cities and jurisdictions in addressing the myriad challenges and impacts of climate change so that cross-jurisdictional coordination regarding climate action can magnify the effectiveness of the City's efforts.



A scenic view of a river with a bridge and a mill building in the background. The bridge is a wooden truss bridge with a railing. The mill building is a large, multi-story building with a sign that says "FOUNDED MILL 1857". The scene is set during sunset or sunrise, with warm light reflecting on the water. The sky is a mix of orange and blue. There are trees on the left side of the river, and some buildings on the right side.

Acknowledgments

The Commission would like to express gratitude to the many community participants and City staff who helped create this document. The Commission has worked this past year with a sense of urgency and has endeavored to hear many voices in our community in order for this document to reflect community wisdom. Many volunteers participated in the ad hoc committees that wrote the four sections of the framework, many community members and organizations have offered public comment, and many community members responded to the Commission's Climate Emergency Action Survey.



INTRODUCTION

Purpose

The Climate Emergency Action Framework is the result of collaboration of the Petaluma Climate Action Commission with input from city staff and volunteers in the community. Its purpose is to outline principles to guide the City’s ongoing response to and discussion about the climate crisis and to guide and inform subsequent policies and implementation strategies. These principles establish Petaluma’s shared vision of a healthy, sustainable, and equitable community. By setting the shared intention of this framework and working from the framework in subsequent planning efforts to create policy and implementation, the City will actively work to avoid catastrophic climate change and adapt to its expected impacts.



Section Review

The Framework consists of four sections as outlined below.

1. Equity and Climate Justice.

This section explains that it is ethically imperative that the climate crisis must be solved while simultaneously addressing the crisis of inequity in the community which threatens successful climate action and collective empowerments. By leading with a climate justice lens, Petaluma aims to divest from systems that harm public health, the economy, and the environment, and instead invest in community-based solutions that create community stability, greater public health, and economic well-being for all community members.

2. Mitigation and Sequestration.

This section discusses the major sources of greenhouse gas (GHG) pollution and emissions in Petaluma, what can be done to reduce and eliminate them, as well as how Petaluma can remove carbon from the atmosphere.

3. Adaptation and Social Resilience.

This section prepares the community for climate change impacts and to develop the means to withstand the impacts that cannot be avoided.

4. Community Engagement.

This section emphasizes the necessity of a robust community conversation to address the climate crisis in order to work together to set and meet climate action targets and to strengthen the community in the process.

The Framework and Community Participation

This document is a framework—it is the foundation for engagement and further input from the community, City staff, City Council, and the Commission about top concerns and priorities for action in Petaluma. Its intention is to provide a high-level account of Petaluma’s current context and suggest broad goals and targets the community will need to achieve in order to play its part in helping to prevent catastrophic climate change. This document does not and cannot grant the City of Petaluma new regulatory or legislative powers. Where achieving goals identified in this document would exceed the City’s authority, it is recognized that implementation will involve working with residents, businesses, and community groups to achieve the goal and may involve identifying and collaborating with the appropriate jurisdiction and advocating policy change related to that goal. As a framework and goal-setting document, none of the actions proposed commit the City to a specific action prior to further financial, environmental, and feasibility analysis, nor does anything in this Framework purport to amend any existing City legislation or regulations, including, but not limited to, the City’s General Plan and its Implementing Zoning Ordinance.

The Framework was developed by multiple separate ad-hoc committees of the Commission with the assistance of a vast network of community volunteers who helped research, meet, draft, support and shape the ideas and direction of the framework. Commissioners reviewed climate action, adaptation, and environmental justice plans from many cities locally and around the country. The Commission led a community engagement process, including

a town hall meeting, social media posting, regular updates in City emails, and a community survey the results of which are included in Appendix B. A cross-department group of City staff examined the Framework in depth in order to apply staff’s expertise in the creation of effective policies and programs consistent with the City’s authority and powers as a California municipal corporation and charter city.

This framework is being presented to the City Council as a milestone in the Commission’s mission to develop an overall Climate Emergency Action Plan for the community. The Framework will be an important City document of community principles from which future policy and implementation should be developed and analyzed. It sets broad goals as a first step toward creating measurable and attainable action items as part of future planning efforts.

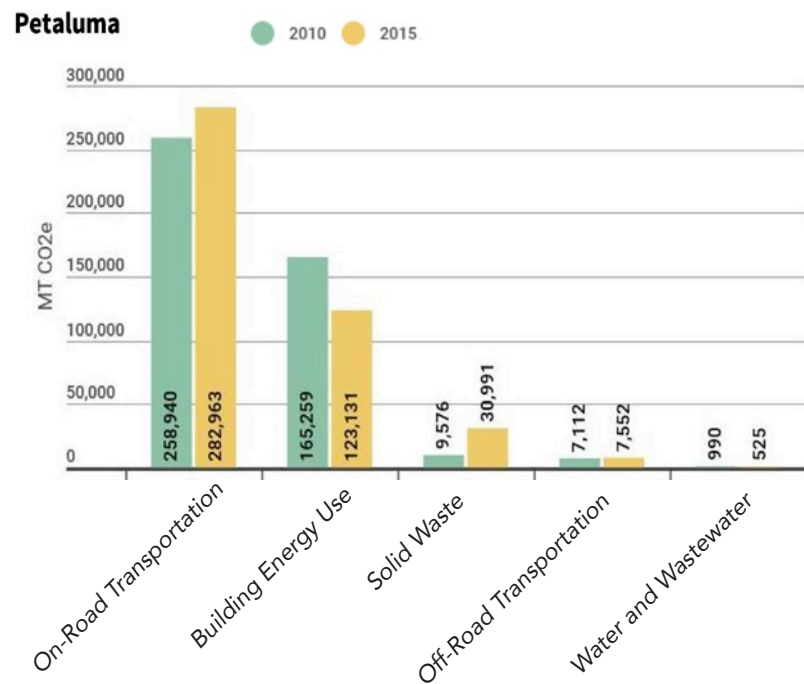


State and City Emission Reduction Goals

In September 2018, then Governor Jerry Brown adopted the goal of achieving a carbon-neutral economy as soon as possible and by 2045 at the latest. On May 6, 2019, the City of Petaluma passed a Climate Emergency Resolution (Resolution 2019-057 N.C.S.) that calls for achieving carbon neutrality no later than 2045. In 2018, a special report from the IPCC indicated the global community may need to reduce greenhouse gas emissions by at least 45% by 2030 (compared to 2010 emissions levels) to prevent a greater than 1.5-degree Celsius increase in global temperatures. As such this Framework recommends the City of Petaluma achieve carbon neutrality by 2030. To meet both the State's, the County's, and the City's climate goals, as a community we will need to:

- Substantially reduce direct GHG emissions from all sectors of the local economy ("direct" emissions, also referred to as sector-, activity-, or territory-based emissions).
- Reduce GHG emissions resulting from goods and services consumed within Petaluma or purchased by Petalumans but produced beyond its borders ("consumption-based emissions" or "indirect emissions").
- Draw down (sequester) GHG emissions from the atmosphere through regenerative land management and other practices to begin to reverse climate-damaging effects already in motion.

The graphic below compares the GHG emission inventories in 2010 to 2015. Emissions associated with Transportation and solid waste have increased, while building energy use and water and wastewater emissions have decreased. These represent direct emissions, as described above and are more easily quantified than are consumptive emissions through examination of amounts of fuel and energy purchased, tons of material disposed, and amount of water and wastewater delivered. These emission categories are generally subject to the regulatory powers of government agencies, such as imposition of limits on Vehicle Miles Traveled, establishment of transit-oriented development, and implementation of building codes related to fuel sources and energy efficient design.



1 <https://www.ca.gov/archive/gov39/wp-content/uploads/2018/09/9.10.18-Executive-Order.pdf>

2 <https://www.ipcc.ch/sr15/>

The chart below illustrates the average amount of consumption-based, or indirect, emissions for an average Bay Area household. This graphic shows that while reduction of direct emissions on a jurisdiction level is important, personal choices at a household level are also a key component in achieving carbon neutrality. There are emissions embedded into the services and products received. The path to carbon neutrality must travel through the impacts of business decisions and household choices, and consumers must become educated to those impacts.

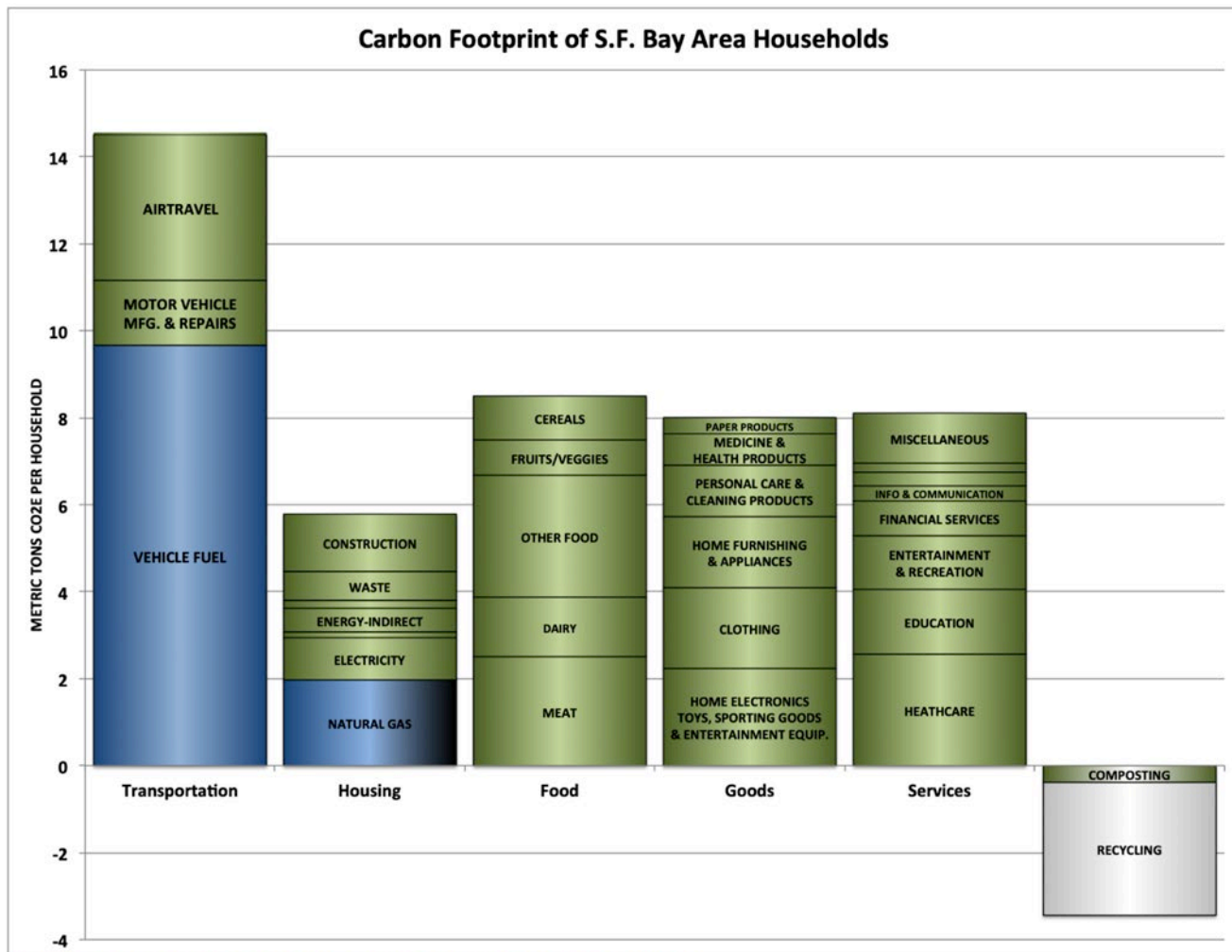


Figure 1. Carbon footprint of typical San Francisco Bay Area household

SECTION 1: EQUITY AND CLIMATE JUSTICE

Definition

In Petaluma, our frontline and underserved communities include, but are not limited to, low-income residents, residents with disabilities, and seniors, indigenous peoples, communities of color, immigrants, as well as residents experiencing food insecurity and lack of shelter.

Problem Statement

Climate change is expected to create a series of shocks and burdens that Petaluma’s underserved communities will experience more negatively due to their limited options and resources for avoiding, recovering from, or adapting to the damage caused by climate change.

Background

“ Frontline communities are those that experience first and worst the consequences of climate change. ”

— *Ecotrust, Portland, OR*

“ Climate equity ensures the just distribution of the benefits of climate protection efforts and alleviates unequal burdens created by climate change. This requires intentional policies and projects that simultaneously address the effects of and the systems that perpetuate climate change and inequity. ”

— *Portland, OR, Climate Action Plan*

Vision for the Future

Climate equity and environmental justice help heal systemic social injustices and ensures all community groups have the resources to use non-polluting energy systems and live in environmentally healthy communities. The City must prioritize climate change-related programs, policies, and actions to achieve equitable outcomes for frontline and underserved communities. Prioritizing the needs of frontline and underserved communities creates the conditions and environment for all Petaluma residents to be healthy and to thrive. Everyone in Petaluma deserves the right to experience a healthy, sustainable future.



Goals

- Identify where climate equity issues exist.
- Develop programs to address, monitor, and report on progress on equity issues.
- Develop benchmarks to guide action and measure progress on equity issues.
- Promote public programs regarding energy efficiency and electrification upgrades that are financially accessible to frontline and underserved communities.
- Improve Petaluma's existing transportation system, including walking, biking, and other forms of active transportation, to promote a low carbon, safe, convenient, and integrated network with reasonable access to all essential goods and services.
- Promote, green-collar jobs, job training, and professional development opportunities.
- Increase the affordability of Petaluma's public transit during the transition to a carbon-free system.
- Maximize opportunities for all residents to live in clean and healthy environments that protect against the impacts of climate change and environmental pollutants, including equitable access to parks and open space.



SECTION 2: MITIGATION AND SEQUESTRATION

Definition

Mitigation

A human intervention to reduce the sources or enhance the sinks of greenhouse gases (GHGs).

– Working Group III,
Intergovernmental Panel on Climate Change

Sequestration

Carbon sequestration is the process of capturing and storing atmospheric carbon dioxide.

– United States Geologic Service

Carbon Neutrality

Carbon neutrality refers to achieving net zero carbon dioxide emissions by balancing carbon dioxide emissions with removal or simply eliminating carbon dioxide emissions altogether

– European Parliament

Background

The target date that Petaluma sets for city-wide “carbon-neutrality” (or “net zero emissions”) is imperative to actively address the climate emergency and minimize climate change.

Current California laws require a 40% reduction in greenhouse gas (GHG) emissions below 1990 levels by 2030 (SB32).

Governor Brown’s more recent (2018) Executive Order B-55-18 establishes a goal of “carbon neutrality as soon as possible and no later than 2045,” with an emphasis on as soon as possible. The City of Petaluma’s May 2019 Climate Emergency Resolution committed the City to this same timeframe.

The 2018 IPCC Special Report² on Global Warming

of 1.5° stated that we had 20 years (until 2038) to reach carbon neutrality in order to have “a two-thirds chance of limiting warming to 1.50C.” The Report adds that “...geophysical uncertainty ... translates into a variation of this timing ... of roughly 15 to 20 years.” Geophysical uncertainty refers to the effect of amplifying feedback loops such as the release of methane due to melting permafrost, the ice albedo effect, and other effects. Thus, according to the IPCC, the target date for zero emissions, and for limiting warming to 1.50C, may already have passed.

It is important to put the IPCC projections into context. IPCC reports represent the consensus opinion of the world’s leading climate scientists and must be reviewed and approved by the governments of over 100 nations prior to publication. In other words, IPCC reports express conservative scientific consensus tempered by political reality. As dire as their warnings may seem, they err on the side of optimism. For example, mounting scientific evidence documents climate effects, such as the melting of ice sheets in Antarctica and Greenland, proceeding far faster than recent climate models had predicted.



The fields of engineering design, insurance underwriting, disaster preparedness, and others, where concern for human health and safety is paramount, don't prepare for "likely" (i.e., high-probability) scenarios. Instead, they identify and prepare for worst-case (i.e., low-probability) scenarios. Those realms seek to reduce the probability of disaster to 0.1% or 0.01% or less. Applying the same level of concern for human health and safety in addressing the climate crisis would result in the elimination of all human-caused GHG emissions as quickly as possible.

Problem Statement

Extreme weather events resulting from climate change are already happening. Without significant reductions in the release of climate pollutants, extreme weather will intensify causing loss of life and damage to property and livelihoods. Swift action must be taken through mitigation – reducing and ultimately eliminating new climate pollution, and sequestration – repairing existing climate pollution.

Vision for the Future

Our vision is to make Petaluma a leader in climate mitigation and sequestration to ensure a stable climate for ourselves and future generations. The City will endeavor to reach climate neutrality no later than 2030.

Goals

- Develop a Climate Action Plan outlining the actions the City will take to achieve its climate goals.
- Eliminate transportation emissions by:
 - Reducing of Vehicle Miles Traveled (VMT) through active transportation, land use policy, infill development and increased density,
 - Increased public transit investment
 - Encouragement of and support for non-combustion vehicles
- Eliminate emissions from the building sector through zero-emission new construction (emissions embedded in materials and those emitted during construction and operation), building retrofits, appliance replacements and use of renewably generated clean electricity.
- Generate zero waste (commonly understood as 90% diversion) by 2030, moving as quickly and closely as possible to 100% diversion.
- Enhance the urban forest and adopt regenerative land-management practices across the Petaluma watershed and regionally in partnership with appropriate parties to maximize exemplary carbon capture and soil restoration.
- Reduce consumption emissions to the level necessary to meet our overall climate goals.

SECTION 3: ADAPTATION & SOCIAL RESILIENCE

Definition

According to the State’s Planning and Investing for a Resilient California guidebook, Adaptation is “an adjustment in natural or human systems to a new or changing environment” (such as the increased frequency and intensity of climate-related hazards or other climate-related conditions).

An adaptation adjustment “moderates harm or exploits beneficial opportunities” brought about by the change.

Resilience is “the capacity of any entity—an individual, a community, an organization, or a natural system—to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience.” A community’s resilience is determined by its ability to survive, adapt, and thrive no matter what acute shock or chronic stressor it experiences.

Background

For the past 40 years, humanity has observed the impacts of climate change in the global context, with the intensity of these impacts steadily increasing over time.

Given the inevitability of these impacts, the City of Petaluma should plan, create policy, and undertake projects to prepare for them. The City has developed a Local Hazard Mitigation Plan, a FEMA-mandated document that assesses current risk potential and will make the City eligible for FEMA funding. Over the next several years, the City also will be updating its General Plan, a key opportunity to include climate change adaptation policies.

Within the context of forecasted population growth, the City of Petaluma should prepare for the following climate change-related impacts:

- Extreme heat
- Sea level rise (flooding and permanent inundation)
- Extreme precipitation, contributing to flooding
- Drought
- Wildfire
- Socio-Cultural impacts
- Food insecurity
- Power outages
- Mental health issues
- Economic transition

Additionally, the City should plan and prepare for these impacts in combination with one another and in combination with other types of global crises, including pandemics and economic instability. Further, this work should be undertaken in collaboration with leading regional, statewide, and international bodies, so that Petaluma learns from the successes and failures of other cities and jurisdictions in climate change adaptation, and so that cross-jurisdictional coordination regarding climate action can magnify the effectiveness of the City’s efforts.



Problem Statement

Global temperatures continue to set record or historic highs, and there is no known upper limit to global temperature increases. The State of California has experienced drought for 19 of the past 20 years and is suffering from increasing frequency and intensity of wildfires statewide. Sea level rise, a slower moving impact of climate change, is expected to cause economic and infrastructure losses in California that are orders of magnitude higher than wildfires. Global warming and its impacts are occurring even as we ramp up mitigation, and many impacts are irreversible. At the same time, the Association of Bay Area Governments is forecasting that the population of the Bay Area will increase by 2.1 million by 2040, creating more pressure on land use, infrastructure, resources, and ecosystems.

Vision for the Future

Petaluma resolves to prepare for the expected impacts and strengthen its infrastructure for a quicker and more complete recovery. Petaluma will stop investing in systems which weaken the health of the community and the ecosystems upon which we depend and invest in systems which better prepare the City for the future.

Goals

- Develop a Climate Change Adaptation and Resilience Plan to:
 - Assess anticipated climate impacts and inform City decisions and investments in infrastructure, land use planning and city form to ameliorate those impacts.
 - Prioritize known climate change risks

(extreme heat, sea level rise - both flooding and permanent inundation, extreme precipitation, socio cultural impacts, food insecurity, drought, wildfire, habitat impacts and losses, power outages, mental health issues, economic shocks) with the greatest anticipated impact on Petaluma residents, environment, and economy into yearly budgets for adaptation and resiliency implementation.

- Address Adaptation and Resilience with whole-system thinking for long-term ecosystem vitality as the basis for community and environmental wellbeing and economic vitality.
- Support the Petaluma environment by such measures as open space and green space preservation, high use/low impact project designs, a healthy urban forest, wildlife corridor preservation and protected habitat areas, and nature-based stormwater management system that contributes to local ecosystem health and protects and enhances existing native habitat areas and natural systems.
- Describe Petaluma's vulnerability to climate change threats related to flooding and sea level rise impacts over a 50-100-year horizon.
- Address and support community mental health challenges brought on by living through existential crises caused by climate change.
- Develop resilient infrastructure and community readiness, including backup sources of water, power, and communications.

- Restore and enhance local ecosystem health and improve their resilience to climate change.
- Facilitate development that minimizes and anticipates impacts from climate change and respects the ecological health of the Petaluma River, wetlands, wet meadow, grasslands, greenbelt, and open space ecosystems.





COMPASS ROSE
PETALUMA, CA

NESTLE

SECTION 4: COMMUNITY ENGAGEMENT

Background

Since 2019, the City of Petaluma has broadly expanded its community communication efforts. The City prioritized community input on City decision-making with expanded communications to address citywide issues, seeking to create proactive, rather than reactive, engagement. Petaluma currently uses community communication platforms including workshops, surveys, social media, newsletters, mailers, and utility bill inserts.

With the recent fires, power shutdowns, and the COVID-19 pandemic, Petaluma community members are experiencing elevated environmental, economic, and social distress. As with most crises, this danger also brings the opportunity for positive change. It's a good time for Petaluma – for the City Council, the Climate Action Commission, and our people and institutions – to focus on what can be done to inform and offer continued support for the entire community in response to the climate crisis.

Problem Statement

Petaluma's most important stakeholders are our community members. All community members are invited to review and respond to the principles and goals described herein and continue to participate in and provide feedback for the development of City climate action policy. Wide public input is a critical foundation for creating a community-supported Climate Action Plan, and subsequent action to implement that plan.

Although the COVID-19 pandemic has created unforeseen difficulties acquiring comprehensive,

representative input, it is essential that the City's engagement process be accessible, inclusive, and effective in eliciting input from diverse stakeholder groups.

Once feedback about the goals the community supports has been received, the City can move forward in developing metrics to assess our progress and provide ongoing accountability.

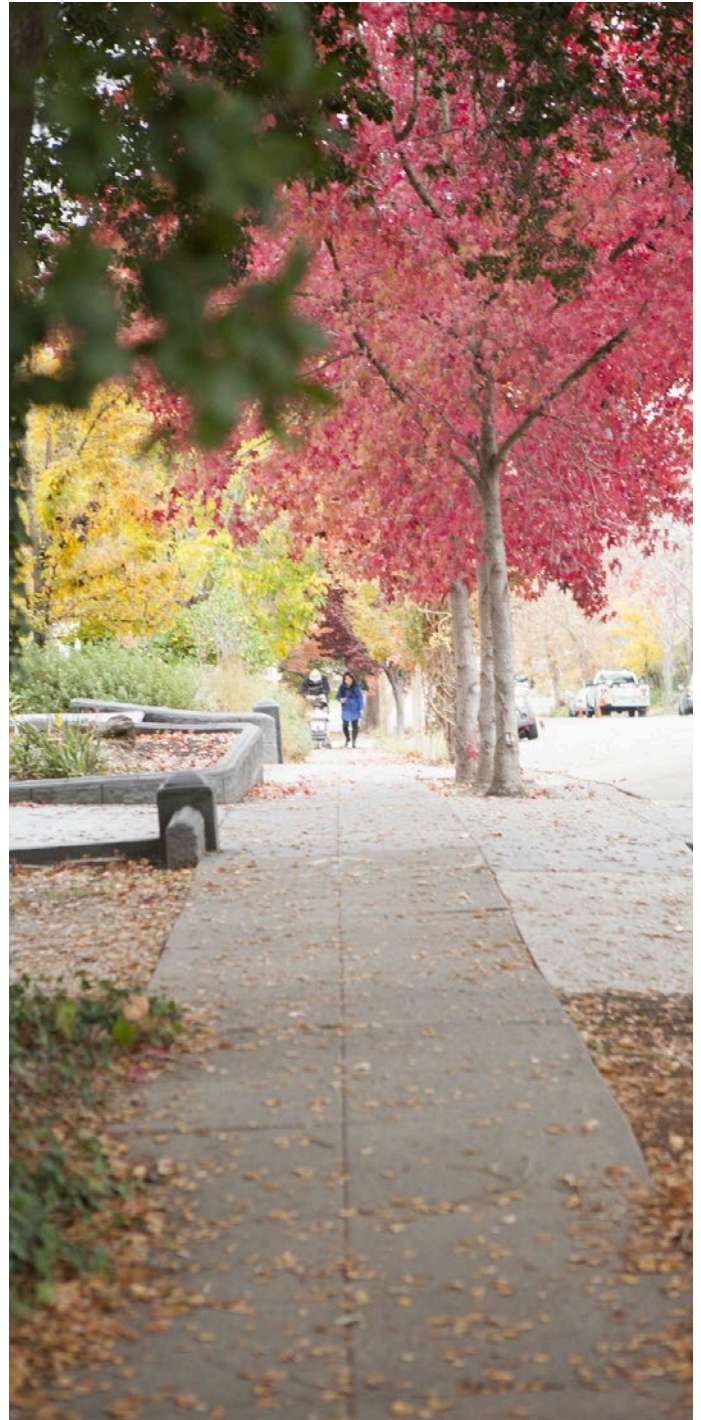
It is vitally important that regular meetings and ongoing dialogue with grassroots community and neighborhood organizations be incorporated in the drafting and execution of the Climate Action Plan and in subsequent updates. These relationships will be essential in meeting the challenges ahead.

Vision for the Future

The Climate Emergency Resolution has elevated community engagement on climate change to a top policy and planning priority. We will need continuing public support to keep climate a top priority and to be efficient, effective, and equitable with our climate action. This support, community sense of ownership, and desire to act ideally must come from every economic, geographic, political, and demographic sector in Petaluma, especially those who have been unable to participate in City governance or who will suffer first and worst from climate-driven problems.

Goals

- Develop a Climate Action Community Engagement and Outreach Plan.
- Promote climate literacy throughout the community.
- Gain widespread community participation, including of frontline and underserved communities in development of City policy and programs to support climate action as a priority, such as the creation of a Petaluma climate action network to create a long-term inclusive community engagement structure.
- Ensure community engagement is incorporated throughout the Climate Action Plan development and implementation processes.



An aerial photograph of two children walking on a sidewalk. The child in the foreground is wearing a black jacket and a colorful backpack, while the child behind is wearing a blue jacket. The sidewalk is made of grey and red bricks, and there are scattered red and white leaves on the ground. A green metal grate is visible in the bottom left corner.

NEXT STEPS:

Upon adoption by the City Council, it is recommended that the framework be used in the following manner:

- As guiding principles for the city's operations, planning and budgeting processes.
- As a guiding document for the General Plan Update
- As a guiding document for future planning efforts, such as a Climate Action Plan, including elements of Climate Mitigation and Sequestration, Climate Action Community Engagement and Outreach, and Climate Change Adaptation and Resilience

Appendix A

Action Items for Future Council Consideration

During the development of the Climate Emergency Framework, many actions were suggested that exceeded the scope of a framework document. The Climate Action Commission and City staff wish to acknowledge the effort and consideration that went into the development of those actions and work plan items by including those items in this appendix. These ideas should be considered as possible actions and programs as part of future planning efforts to implement the guiding principles of the Framework.

These items are included for reference and are not adopted as action items as part of the adoption of this Framework. Further analysis, including evaluation under the California Environmental Quality Act and consideration of financial feasibility and available resources will be required prior to adoption of any of these items.

EQUITY AND SOCIAL JUSTICE

The strategies and actions described in this chapter are organized into these categories:

1. Outreach and Education
2. Employment
3. Accessibility
4. Consumption Resilience, Self-Reliance, and Preparedness
5. Urban Planning and Transportation
6. Building and Energy

Strategies

1. Outreach and Education

1. Overview - An essential part of this process is creating ongoing partnerships characterized by active and continuous engagement among community-based organizations, the City, and the Climate Action Commission. Our implementation efforts all should be guided by community-supported targets, metrics, and strong accountability structures.
2. Co-Benefits
3. Sample Action List
 - a. Conduct outreach to the Coast Miwok community, acknowledging that Petaluma sits on its traditional lands and that this indigenous community brings unique perspectives, knowledge, and concerns.
 - b. Introduce indigenous literacy and perspectives in land stewardship.
 - c. Perform outreach to community groups, including attending events to hear concerns, elicit input, and directly engage on climate issues.
 - d. Encourage equity-focused organizations to identify and train peers to increase outreach.

- e. Encourage community-based organizations that work with frontline and underserved communities to collaborate with the City and facilitate climate equity, mitigation, sequestration, adaptation, and resilience conversations in the community.
- f. Develop training and metrics that guide City staff to lead with an equity focus.

2. Employment

1. Overview - Create targets for local green jobs and workforce training and development programs to provide a just transition for workers into a sustainable local economy.
2. Co-Benefits
 - a. Helps alleviate unemployment caused by the COVID-19 pandemic
3. Sample Action List
 - a. Identify and create new employment opportunities through a “Local and Sustainable Workforce Initiative” to implement the Climate Action Plan across all skill levels, with priority given to low-income residents for job- and career-training opportunities.
 - b. Offer green job training through local organizations and regional programs.
 - c. Promote and provide worker training and programs for local farm workers and food workers on sustainable agriculture methods and safe working environments.

- d. Ensure fair wages and employment practices for agricultural and food service workers.
- e. Create outreach campaigns and events to increase knowledge of energy efficiency and building electrification benefits and ensure that local energy providers or businesses that sell home energy equipment provide up-to-date and climate-smart options.
- f. Create targets for new jobs that will advance various mitigation, sequestration, and adaptation measures; partner with Santa Rosa Junior College (SRJC) and Sonoma State University to identify needed job training; and implement workforce development programs.

3. Accessibility

1. Overview
2. Co-Benefits
3. Sample Action List
 - a. Provide and partner with groups to lead, support and/or assist in outreach to frontline communities and provide non-English language interpretation.
 - b. Ensure that all Climate Action Commission-related events and meetings are ADA accessible.
 - c. Provide free or low-cost childcare for regular and special meetings of the Climate Action Commission.

4. Funding

1. Overview
2. Co-Benefits
3. Sample Action List
 - a. Establish a just and equitable “Petaluma Climate Action Fund” to provide funding for projects such as:
 - Clean energy
 - Clean water
 - Affordable housing
 - Low-carbon building systems
 - Public transportation
 - Food and working landscapes
 - b. Apply for state and federal grants aligned with Climate Action Plan objectives.
 - c. Develop community-based criteria that prioritizes allocation of mitigation and adaptation funds to frontline and underserved communities; establish oversight to ensure that equity criteria are met.
 - d. Support policies that drive demand for building retrofits and programs to support local businesses to train and then hire local workers
 - e. Provide funding to support community partners and companies in developing green job training and conducting home energy retrofits.

5. Resilience, Self-Reliance, and Preparedness

1. Overview

2. Co-Benefits
3. Sample Action List
 - a. Establish an emergency resilience center, focused on generating equitable responses for underserved communities experiencing disruptive climate events.
 - b. Create mechanisms to ensure accountability of City staff in responding equitably to climate-related emergencies, promptly and effectively addressing the needs of frontline and underserved communities.
 - c. Develop housing to protect people without shelters from climate change impacts, including extreme heat conditions.
 - d. Find ways to make local, healthy food more affordable to improve food access and security.
 - e. Create more permanent or pop-up neighborhood outdoor dining areas as hubs for locally grown food.
 - f. Work with schools, businesses, and institutions to adopt food procurement policies that support local farmers and distributors.
 - g. Improve local food sovereignty/ access and decrease dependency on unsustainable food creation and long-distance distribution.
 - h. Promote agriculture, food production, and distribution practices that are climate and worker friendly, with fair wages and safe working environments.

6. Urban Planning and Transportation

1. Overview
2. Co-Benefits
 - a. Align efforts with the City of Petaluma Age Friendly initiative.
 - b. Reduce traffic density and air pollution in underserved communities.
3. Sample Action List
 - a. Collaborate with regional transportation agencies to provide more transit options that are equitable, accessible, frequent, affordable, active, and low-carbon.
 - b. Enact policies and actions to create a City that's safe and enjoyable for pedestrians and bicyclists; create safe and efficient bike and pedestrian routes throughout and across the City and expand the "Slow Street" network; prioritize improvements near frontline and underserved communities.
 - c. Ensure appropriately trained public safety staff on dedicated bike and pedestrian paths to ensure safety and promote public use.
 - d. Engage with commuter groups and stakeholders to survey community perceptions of existing transportation infrastructure and needed improvements.
 - e. Assess existing neighborhoods to map and identify adverse public health impacts.
 - f. Work with the community to remedy public health impacts and/or provide new housing in safe areas.
 - g. Ensure equitable new development by revising the General Plan, building and development codes, and other relevant City policies to apply climate-action equity priorities fairly across the board.
 - h. Prioritize new transit-oriented development (TOD) housing near public transit and jobs.
 - i. Ensure that new housing is disaster resilient and remains permanently affordable.
 - j. Increase the affordable housing percentages required in new developments and distribute affordable housing throughout the community.
 - k. Prioritize environmentally sound infill projects and housing within walking distance of essential services, public transit, and work.
 - l. Implement tenant protections to combat displacement of existing residents in the revitalization of certain areas.

7. Building and Energy

1. Overview
2. Co-Benefits
3. Sample Action List
 - a. Create programs to increase awareness of the benefits and increase the pace of implementation of affordable energy retrofits.
 - b. Support and/or develop programs to assess, incentivize, fund, and/or finance home energy and indoor air quality retrofits for all residents, prioritizing frontline and underserved communities. Conduct fair housing evaluations of existing housing units.
 - c. Explore landlord training and collaborate with affordable housing developers to review funding and code requirements.
 - d. Meet the City's allotted affordable housing goals without creating detrimental climate effects.

MITIGATION AND SEQUESTRATION

The strategies and actions described in this chapter are organized into these categories:

1. Urban planning and transportation
2. Buildings and energy
3. Land management
4. Waste
5. Consumption

Strategies

1. Urban Planning and Transportation

1. Overview
 - a. Emissions - In 2010, 59% of the City's sector-based emissions originated with urban planning and transportation. By 2015, this had increased to 64%.
 - b. Development Patterns - Over the last half century, Petaluma has transformed into a car-dependent population that generates 25% of all trips leaving Sonoma County each morning. The sprawling pattern of suburban growth, particularly in East Petaluma, has resulted in unsafe conditions for pedestrians and bicyclists, inadequate density to support robust public transit, significant traffic congestion, and several pedestrian-unfriendly shopping centers that are struggling due to the rapid expansion of online shopping.
 - c. Housing - For many years, Petaluma was among the best performers in the region at meeting its Regional Housing Needs

Allocation (RHNA) goals. However, since the 2007-2009 recession, Petaluma has not been able to meet its RHNA quota for affordable housing, providing only 5% of its RHNA targets for low-income housing while providing 200% of its market rate goal. Petaluma's affordable housing targets are expected to triple in the next allocation.

- d. Housing vs. Emissions - Over the next five years, the City will be faced with a paradoxical challenge: meeting housing demand while slashing emissions. Achieving both outcomes will be difficult and require new, integrated land use and transportation approaches; historically, they have been at odds with each other. To meet housing demand while slashing emissions, the City must embrace a new land-use and transportation paradigm: instead of mitigating negative impacts, the new paradigm must maximize climate benefits.
- e. Paradigm Shift - Driven largely by vehicle miles traveled (VMT) and congestion, transportation is Petaluma's largest and fastest growing source of GHGs. Thus, achieving carbon neutrality will require Petaluma to make significant reductions to transportation emissions in ways that will fundamentally change the way people move and live in Petaluma. Over time, the changes will be normalized and appreciated, but especially at first, the paradigm shift will seem counterintuitive and drastic. Thus, the City will need to invest heavily in marketing, education, and outreach to build public support.

f. Transit and auto dependency - Petaluma’s public transit system provides a solid foundation from which to build, providing 400,000 low-emission rides annually without any General Fund support. Also, the regional SMART train currently has a stop in downtown Petaluma and is expected to add a second stop on the east side, at the intersection of Corona Road and North McDowell Boulevard. Although Petaluma’s public transit systems present an opportunity to reduce single-occupant vehicles, Petaluma’s citywide Walk Score² of 47 classifies it as a “car-dependent city.” The City’s current land-use patterns do not foster use of public transit, nor do they make walking and biking viable options for many residents. In general, West Petaluma is more walkable than the east side, and the historic downtown is the most walkable area of the City.

2. Co-Benefits

- a. Lower individual transportation expenses
- b. Improved air quality and overall health
- c. Greater sense of connection within the community
- d. Reduction in traffic congestion, frustration, and stress
- e. Creation of green jobs and sustainable economic development

3. Sample Action List

- a. Build majority of new development

close to a SMART station or major public transit stop.

- b. Limit development outside the 2020 Urban Growth Boundary.
- c. Expand and enhance accessibility to low-stress, connected infrastructure for walking and rolling, prioritizing improvements that address specific community and neighborhood needs
- d. Expand and improve transit and shared mobility services to be more accessible, affordable, timely and attractive than single occupancy-vehicle use
- e. Develop a comprehensive package of incentives, disincentives and policies to encourage the adoption of zero emission vehicles (ZEVs)
- f. Increase the number of public electric vehicle charging stations across all parts of Petaluma

2. Building and Energy

1. Overview

- a. Emissions - In 2010, 37% of the City’s sector-based emissions originated with buildings and energy. By 2015, this had decreased to 28%, largely due to the advent of Sonoma Clean Power, the county’s community choice program, which allowed the purchase of more clean and renewable energy.
- b. Five approaches can help us achieve our buildings and energy emission-reduction goals:

² Walk Score is a private company that provides online apartment search tools and a free walkability indexing tool that assigns a numeric score to any address in the US, Canada, and Australia.

- Energy efficiency – to reduce demand for energy
- Energy efficiency – to reduce demand for energy
- Electrification – to eliminate fossil-fuel use in buildings (i.e., switch end uses from natural gas or propane to electricity)
- Renewable electricity – to ensure that 100% of the electricity needed is obtained from clean and renewable sources such as solar, wind, geothermal, tidal, and (some) hydro
- Embodied carbon reduction – to dramatically reduce adverse climate impacts of new construction and retrofitting of buildings in the near term with sustainable design and careful selection of materials with low climate impact
- Resiliency – to enable the City to maintain basic functions and its residents’ safety, health, and well-being during power disruptions and other critical or emergency events

2. Co-Benefits

- a. Building energy efficiency and decarbonization carry numerous benefits above and beyond climate protection. These include improvements in health, safety, comfort, resiliency, community self-reliance, and insulation against future utility rate hikes.
- b. Improved thermal comfort - Many low-income households live in

older residences built under less stringent building codes. As a result, they may suffer from energy poverty – they sacrifice thermal comfort and sometimes even health to avoid unaffordable utility bills. Excess summer heat and winter cold represent elevated health risks for many vulnerable individuals, including the very young, the old, and those with health challenges. Energy efficient construction improves health outcomes by improving “passive survivability.” This is the ability of homes to maintain a stable interior temperature with reduced reliance on mechanical heating and/or cooling.

- c. Improved indoor air quality
- d. Reduced utility bills and reduced increase in future energy costs
- e. Creation of well-paid green jobs in retrofitting and new construction - Retrofitting existing residences with energy efficiency and electrification measures will create local, well-paid jobs. and reduce the cost of maintaining comfort.

3. Sample Action List

- a. Mandate all-electric new construction to eliminate fossil fuel use in new buildings.
- b. Phase out fossil fuel-powered equipment and appliances.
- c. Require all new construction, additions, and major rehab projects to use low-embodied carbon materials, starting with concrete.

3. Land Management

1. Overview

- a. Carbon Storage - Long-term carbon storage in soil, trees, and other biomass (carbon sequestration) is an essential but often overlooked method for addressing climate change and adapting to its effects. Nationwide, forest lands and urban forests offset 11% of US GHG emissions³ annually. Improving local management of trees, soil, and green space can increase sequestration rates and can be done at the city scale. The amount of carbon stored in Petaluma's urban forest and soils is currently unknown. We will use existing tools to estimate carbon storage in trees and soils to establish baseline levels in the near term.
- b. Regenerative Land Management - Incorporate ecological principles and practices that enrich soils and increase carbon storage, while also increasing biodiversity, improving watersheds, and enhancing ecosystem services. By rebuilding rather than degrading soil organic matter of various land systems (wetland, forest, cropland etc.), we can increase soil permeability, aiding water-holding capacity while reducing runoff and the expense of dredging the Petaluma River.
- c. City-owned Property - The City of Petaluma Parks and Recreation Department maintains hundreds of acres – open space, playing fields, landscape assessment districts, and facilities. The City has established a committee to

update the Integrated Pest Management Plan to eliminate the use of synthetic pesticides on City-owned property. The entire parks portfolio will benefit from being assessed through a climate-resilient lens to develop regenerative management practice guidelines.

2. Co-Benefits

- a. Locally grown food reduces transportation emissions and increases food security.
- b. Access to more community gardens, public parks, and green space improves health and social connections.
- c. Less pesticide use equals reduced toxin load in local ecosystem.
- d. Urban trees reduce heat island effect, reduce building cooling needs, make streets more comfortable for walking and biking.
- e. Improved resilience of landscape to drought and flood.
- f. Resistance to disease due to abundance and diversity of soil microbes.
- g. Increase in wildlife habitat and biodiversity.
- h. Improved air quality and temperature moderation.
- i. Creation of local green jobs.

³ https://www.fs.fed.us/nrs/pubs/ru/ru_fs178.pdf

3. Sample Action List

- a. Increase soil carbon sequestration by adopting and implementing a comprehensive regenerative land-management policy for City properties, as well as creating public engagement initiatives to encourage private participation across all land types.
- b. Establish baselines for soil organic matter and increase to a specific percentage across all City-managed lands.
- c. Immediately create supportive conditions to grow and maintain Petaluma's urban forest across all neighborhoods to achieve a baseline canopy of 25% by 2040?
- d. Increase tree canopy to improve air quality, promote walkability, and reduce urban heat island effects in low-income neighborhoods.
- e. Provide accessible urban green spaces and community gardens for healthy outdoor activity and recreation.
- f. Increase the number of viable community gardens throughout the City, especially near existing and future low- and moderate-income residences.

4. Waste

1. Overview

- a. Emissions - In 2010, 2% of the City's sector-based emissions originated with solid waste. By 2015, this had increased to 7%.
- b. Landfill rates - In 2003, Petaluma

landfilled 14.2 lb/per person per day. By 2019, this number was 3.3 lb/per person per day. In July 2019, the City passed a Zero Waste Resolution, adopting zero waste principles and setting a solid waste generation goal of 1.4 lb/per person per day by 2030 – a 90% reduction relative to 2003.

- c. City's Zero Waste Resolution suggests the following strategies:
 - Institute and/or expand cost-effective high diversion and zero waste goals and programs for all government facilities, events, and projects.
 - Educate the public about the environmental and community benefits of reducing wasteful consumption and increase diversion through reuse, repair, composting, and recycling.
 - Strongly encourage all residents, businesses, and agencies to participate in composting and recycling programs, and to reduce production and increase reuse of materials.
 - Update the City's Green Purchasing, Environmentally Preferable Procurement (EPP), and Extended Producer Responsibility (EPR) policies.
 - Support adoption and implementation of the countywide Construction and Demolition Reuse and Recycling Ordinance.

2. Co-Benefits

- a. Increasing composting and recycling reduces demand for landfill.
- b. Compost production can enhance carbon sequestration through soil application, substantially increasing the value of our waste-reduction efforts.
- c. Food recovery can feed the hungry and improve local food security. To both meet City solid waste goals and aid underserved communities, top priority must be given to recovering food for the hungry. In the wake of the COVID-19 pandemic, food recovery and security take on added urgency.
- d. Produces energy through anaerobic digestion of organic materials.
- e. Strengthens the local economy. (How?)

3. Sample Action List

- a. Fully invest in the implementation of the City's Zero Waste Resolution
- b. Provide public recycling and composting cans
- c. Provide community education and awareness starting with schools
- d. Work with schools to institute recycling and composting

5. Consumption

1. Overview

- a. Emissions - Consumption-based emissions for Bay Area households were estimated at 160% of sector-based emissions⁴ in 2015. Although estimates of consumption-based emissions vary widely from city to city and from one analysis to the next, these emissions typically far exceed activity-based emissions for cities such as Petaluma that lack a strong manufacturing base. In the past, sector-based emissions have served as the basis for most cities' climate action planning – including Petaluma's. But to truly mitigate our fair share of global emissions – and set a model for other communities – Petaluma must immediately take responsibility for our consumption-based emissions.
- b. Consumption-based Emissions Defined - We consume many goods and services that originate outside the City, including food, clothing, vehicles, furniture, pharmaceuticals, cosmetics, packaging, electronics, entertainment, software, hardware, transportation services, building materials, tools, and short-lived and single-use plastic and paper commodities by the ton – many of which are ever more difficult to recycle and/or compost. The extraction, processing, transport, distribution, sales, marketing, and disposal of these products represent our largest source of greenhouse gas emissions.

⁴ Jones and Kammen, *A Consumption-Based Greenhouse Gas Inventory of San Francisco Bay Area Neighborhoods, Cities and Counties: Prioritizing Climate Action for Different Locations*: 17 Dec 2015, p. 36, <https://escholarship.org/uc/item/2sn7m83z>.

The more things we buy and the greater their relative amount of embodied emissions (i.e., the emissions resulting from their manufacture, transport, use, and disposal), the greater the adverse effects of those expenditures.

2. Co-Benefits

- a. Buying locally sourced products creates local jobs and strengthens the local economy.
- b. Reduced consumption reduces household expenses.
- c. Reduced consumption conserves water, energy, and other natural resources, preserving the environment and protecting other species.

3. Sample Action List

- a. Provide education, especially for youth, to prepare them for lives as global citizens.
- b. Encourage labeling of goods and services at the appropriate governmental level to identify local goods and disclose lifecycle climate impacts that can inform purchase decisions.
- c. Re-estimate Petaluma's consumption emissions at five-year intervals.
- d. Increase carbon sequestration as needed to compensate for consumption emissions that cannot otherwise be mitigated (e.g., via carbon tax or related global initiatives).

COMMUNITY ENGAGEMENT

1. The strategies and actions described in this chapter are organized into these categories:

1. Community Input
2. Website
3. Outreach and Education
4. Staffing
5. Collaboration and Partnering

2. Near-term Actions

1. Develop Community Engagement Metrics
 - a. Increase the percentage of Petaluma residents who include "addressing climate change" as a "somewhat important" or "very important" part of Petaluma's identity consistently year over year, through 2023.
 - b. Increase engagement in City climate actions consistently year over year, through 2025.
2. Develop Engagement Plan
 - a. By June 2021, adopt a Climate Emergency Engagement Plan that outlines in detail actions and specific commitments for bringing organizations and individuals into the City's climate work. Focus on historically underrepresented individuals and groups.
 - b. Initiate a partnership with Petaluma schools on a comprehensive climate citizenship education program.

- c. Provide a secure funding source to implement this plan as a community-led process.
3. Long-term Actions
1. A shift in culture and consciousness - Although science and data are critical to translating information about climate change, we will need a large community cultural shift in Petaluma to make climate change and climate equity a top priority. Outreach and education efforts also need to support residents in bringing these large conversations into their own daily lives and homes, as well as creating a nuanced understanding about larger systemic issues that cause climate change and associated impacts. This shift also requires that we:
 - a. Build knowledge about climate justice vs. just climate action.
 - b. Learn how the fight for indigenous land stewardship and sovereignty is part of climate action.
 - c. Analyze how climate change affects women, individuals with lower incomes, seniors, and people of color more significantly.
 - d. Redefine who we look to for climate leadership.
 - e. Support community engagement in implementing the longer-term actions identified in preceding sections of this Framework.
 - f. Provide an ongoing climate change education program.
 - g. Provide a hub or community center where people can learn and engage on climate change-related topics (similar to the Tourism Center at the downtown SMART station).
 - h. Regularly update the Climate Engagement Plan.

Strategies

1. Community Input

1. Overview – City workshops and listening sessions, such as the December 2019 community goal-setting workshop, have allowed more widespread input on policy and project design.
2. Co-Benefits
3. Sample Action List
 - a. Conduct a survey in 2020 to set a baseline for understanding and a goal for increasing Petalumans' knowledge of climate change and the role they can play in addressing and adapting to it. Significantly increase this knowledge by January of 2022.
 - b. Consistent, ongoing community listening and report-back sessions offered remotely as well as in various locations, including sessions with children of different ages on how disasters affect their lives, as part education and part mental health service.

2. Website

1. Overview – The City has a web page for the Climate Action Commission and a page to sign up for its agenda, but does not have any other specific communication channel focused on climate change. There are 532 people currently signed up for Climate Action Commission agendas and meeting postings.
2. Co-Benefits
3. Sample Action List
 - a. Add a page on the City’s website dedicated to environmental and climate-change work that the City sponsors and supports.
 - b. Add a public channel dedicated to engaging the community on climate change and ongoing community-wide efforts to address the crisis.
 - c. Enhance the Climate Action Commission landing page. Make this a bright, welcoming, and informative space that makes it easy for residents to quickly understand what the Commission’s purpose is, who the members are, and what we are working on.
 - d. Create a short video. The video should include an introduction by City staff, a council member, or Commission chair to the Climate Emergency Framework process and invite people to contribute. Topics to include:
 - City efforts in prioritizing the climate emergency

- Specific issues we are addressing in Sonoma County
- Social resilience
- Messages that uplift and empower residents

3. Outreach and Education

1. Overview – Do consistent outreach. Before the pandemic, Petaluma only sent out quarterly newsletters to businesses but did not have a citywide newsletter. Since the pandemic’s onset, the City has broadcast a daily citywide communication that has been well-received, with open rates averaging 35 to 40 percent. Once the initial emergency of the pandemic has passed, Petaluma hopes to continue the weekly newsletter. In addition to broadcasts by the Police Department, Fire Department, and Parks and Rec, Petaluma communicates via Facebook – where they put the majority of their efforts – Twitter, Instagram, and Nextdoor.
2. Co-Benefits
 - a. Good for community relationship building
 - b. Helpful for other emergencies
 - c. Helpful for COVID communications
3. Sample Action List
 - a. A monthly, curated City newsletter and/or section from the Climate Action Commission
 - b. The Argus Courier and other local papers
 - c. Newsletters of other local organizations we work with

- d. Mailers to residents, including surveys or information on types of needed engagement
- e. Links or ways to view presentations without having to read a document
- f. Produce a concise, attractive booklet. The booklet should be accessible both online and in print, as well as at the library, and provide public information including:
 - A simplified outline of Petaluma's Climate Action Plan
 - A yearly update of goals the City is working on
 - Actions residents can take in their own life
- g. Speaker series that features nationally-recognized leaders on addressing climate change.
- h. Ongoing educational events that hold the City accountable to prioritizing this climate emergency, e.g., Earth Week, an annual Climate Summit, creative climate challenges, climate-based art and youth projects, community signage and installations with climate themes (see Appendix D for a list of relevant dates).
- i. Climate based art, performance and science projects for Youth and Schools
- j. Partner with local school districts to develop a comprehensive climate education curriculum for adoption throughout our community's schools.

4. Staffing

1. Overview – Two economic development staff members conduct most of the City's communications, also coordinating social media contributions by one or two individuals from each department. An outside firm, The Design Guild, helps with the newsletter, web development, translations, social media, graphic design, and copywriting.
2. Co-Benefits
3. Sample Action List
 - a. Hire a climate outreach staffer. Responsibilities to include:
 - Managing an online platform tracking citywide climate-related events
 - Building communitywide relationship with all stakeholders
 - Prioritizing engagement in schools
 - Reaching out to residents for one-on-one listening and feedback sessions

5. Collaboration and Partnering

1. Overview – The City can collaborate with local organizations that are already doing integral sustainability, environmental, or climate change work within the community.
2. Co-Benefits
3. Sample Action List
 - a. Report on the City's progress in addressing climate change on an annual basis through a report to the Council, widely publicized and posted on the City's website.

- b. Partner with local educational institutions to develop a comprehensive climate education base curriculum for our community’s schools, kindergarten through college level.
- c. Support creation of educational information for caregivers of young children on how to talk to children about climate change.

ADAPTATION & SOCIAL RESILIENCE

- 1. The strategies and actions described in this chapter are organized into these categories:
 - 1. Education and Outreach
 - 2. Resilient Emergency Response Network
 - 3. Climate Change Adaptation and Resilience Plan
 - 4. Local Ecosystem
 - 5. Infrastructure and Development
- 2. Long-term Actions
 - 1. Become a Resilient Town - Develop Petaluma as a resilient town and hub of adaptation and preparedness in Sonoma County. Measures of community resilience include resilience hubs, microgrids, community councils, and the creation and establishment of financial and other support, including:
 - a. Support neighborhood-based organizations.
 - b. Enhance and expand on existing community resilience partnerships.
 - c. Provide energy resilience via back-up energy systems, microgrids, and other measures that serve the community during emergency events, particularly supporting more vulnerable communities and groups.

2. Reduce impervious surfaces and develop green street standards, and stormwater management infrastructure to slow, filter, and cleanse stormwater runoff from impervious surfaces (e.g., streets, sidewalks).
 3. Expand the urban forest and integrate large, primarily native, trees in neighborhoods to provide shade and improve walkability, air quality, heat attenuation, stormwater capture, and carbon sequestration.
 4. Restore and enhance the Petaluma River, re-creating a healthy and accessible waterway and pedestrian-oriented zone along the banks. Address upper watershed impacts, improve water quality and quantity, control erosion, and stabilize banks. Restore floodplains and historic floodplain ecosystem services in the Petaluma valley and hills.
- b. Develop processes to document and widely share these diverse community viewpoints, ensuring that the needs and concerns of the whole community are heard.
 - c. Create a communitywide climate change education program that includes up-to-date climate science and a clear picture of near- and long-term anticipated impacts, and that evaluates opportunities for adaptation.

2. Resilient Emergency Response Network

1. Overview – Facilitate the creation of knowledgeable and capable community groups and organizations that are prepared to respond to climate change-related disasters and support families and neighborhoods.
2. Co-Benefits
3. Sample Action List
 - a. Develop citywide and neighborhood-based emergency systems and supply networks to address residents’ needs for energy, health, food, and shelter.
 - b. Ensure that City emergency services support and collaborate with social resilience groups and neighborhoods.
 - c. Create centers to provide needed services and supplies and continuity for families and businesses during emergency events.

Strategies

1. Education and Outreach

1. Overview – Ensure that citizens feel that their climate concerns are being heard and addressed through the climate adaptation and resilience planning process.
2. Co-Benefits
3. Sample Action List
 - a. Facilitate a robust community conversation in Petaluma regarding residents’ understanding of how the climate is changing, how the changes may affect our community – including specific neighborhoods and cultural groups—what actions should be taken, and their highest concerns and priorities.

- d. Prepare to house people impacted by climate change-related disasters that occur elsewhere.
- e. Develop an understanding of how cultural groups and neighborhoods will be affected by climate change over the near- and long-term scenarios (2025 - 2100).

3. Climate Change Adaptation and Resilience Plan

1. Overview – Identify community-supported, equitable, and cost-effective adaptation measures in appropriate time frames to adapt to climate change impacts.
2. Co-Benefits
3. Sample Action List
 - a. Develop a step-by-step process with specific guidance on prioritizing actions that promote equity and foster community resilience, including establishing baseline data and metrics for analysis of future data.
 - b. Conduct a climate change impacts vulnerability assessment that builds on the Local Hazard Mitigation Plan and projects impacts through to 2100 on different sectors, populations, wildlife, neighborhoods, and infrastructure. Assess sea level rise impacts and analyze costs for a spectrum of response scenarios.
 - c. Integrate current and future climate conditions into all City planning and investment decision-making processes. Adopt State Executive Order B-30-15⁵.

- d. Integrate adaptation principles, goals, and actions into the City’s 2025 General Plan Update, Implementing Zoning Ordinance and other planning documents, building code, green infrastructure development and ecosystem services management, area specific and master plans, Transportation Plan, Local Hazard Mitigation Plan, and other relevant regulatory documents.
- e. Develop staff resources to implement recommended mitigation, adaptation, equity and engagement activities and actions in the key city departments: planning, public works, parks, and communications.
- f. Establish systems and metrics to ensure accountability.

4. Local Ecosystem

1. Overview – Improve adaptation to climate change by restoring and enhancing local ecosystems; identifying, maintaining, and expanding wildlife corridors and wildlife crossings; and sustaining local native biodiversity.
2. Co-Benefits
 - a. Reduced flooding and erosion
 - b. Reduced heat island effect
 - c. Increased recreational open space

⁵ Executive Order B-30-15 directs the Office of Planning and Research to provide guidance for State agencies to integrate current and future climate conditions into all planning and investment decisions.

3. Sample Action List

- a. Support pollinator and bird populations in urban, residential, and open space and park landscapes.
- b. Work with local and regional environmental partners to create a biodiversity assessment and accountability tool, for example, a “Biodiversity Scorecard” or other means, to measure progress restoring and enhancing wildlife populations and native plant habitat for the City.
- c. Enact open space, agricultural area, and green space policies to support habitat connectivity for both wildlife movement and pedestrian trails in balance.
- d. Restore upland grasslands, wet meadows, wetlands, and floodplains to support restoration of Petaluma Valley hydrology and groundwater recharge, and to reduce flooding.
- e. Restore and enhance the Petaluma River, re-creating a healthy and accessible waterway and pedestrian-oriented zone along the banks. Address upper watershed impacts, improve water quality and quantity, control erosion, and stabilize banks.
- f. Restore floodplains and historic floodplain ecosystem services in the Petaluma valley and hills.

- g. Step back future development from the river to allow room for nature-based adaptive responses to sea level rise and high-intensity storm surges, and to preserve riparian

5. Infrastructure and Development

1. Overview – Prioritize “green” infrastructure⁶ to gradually reduce system size and maintenance and replacement cost demands of “gray” infrastructure (including streets, utility systems, storm drainage, and utilities). Create structural resilience by supporting local and regional essential systems along with back-up resources for energy, communications, and water supply.
2. Co-Benefits
 - a. Reduced flooding and erosion
 - b. Reduced heat island effect
 - c. Reduced power outages
3. Sample Action List
 - a. Protect critical built environment and infrastructure resources or move, if needed.
 - b. Reduce impervious road surfaces and develop green street standards, defined by the US EPA as stormwater management that incorporates vegetation, soil, and engineered systems (e.g., permeable pavements) to slow, filter, and cleanse stormwater runoff from impervious surfaces (e.g., streets, sidewalks).

⁶ Section 502 of the Clean Water Act, ‘green’ infrastructure is “...the range of measures that use plant or soil systems, permeable pavement or other permeable surfaces or substrates, stormwater harvest and reuse, or landscaping to store, infiltrate, or evapotranspire stormwater and reduce flows to sewer systems or to surface waters.”

- c. Reduce flooding risks by implementing low impact development (LID) practices in new development and retrofitting existing areas with LID measures to restore pre-development hydrology to the largest extent possible. (LID refers to systems and practices that use or mimic natural processes that result in the infiltration, evapotranspiration, or use of stormwater to protect water quality and aquatic habitat.)
- d. Reduce urban heat island effects by increasing use of high-albedo roofs and paving, pervious paving, and urban forest canopy.
- e. Mandate a displacement and equity analysis for all public and private development plans that includes a “climate smart scorecard.”
- f. Prohibit development in floodplains or with negative impacts on waterways.
- g. Increase energy-efficient, zero-carbon, and green construction and retrofits, incorporating passive strategies and low-carbon equipment.
- h. Protect residents in rental housing from losing their homes due to economic impacts from climate change.

Appendix B Survey Results

From July 21 to September 10, 2020, 1,003 people participated in a Climate Action Survey developed by the Climate Action Commission. The survey included 16 questions including ranking the respondents' Climate Action priorities, what Climate effects they were already experiencing, how heard about the survey, and the respondents' demographic information.

Key results for each question include:

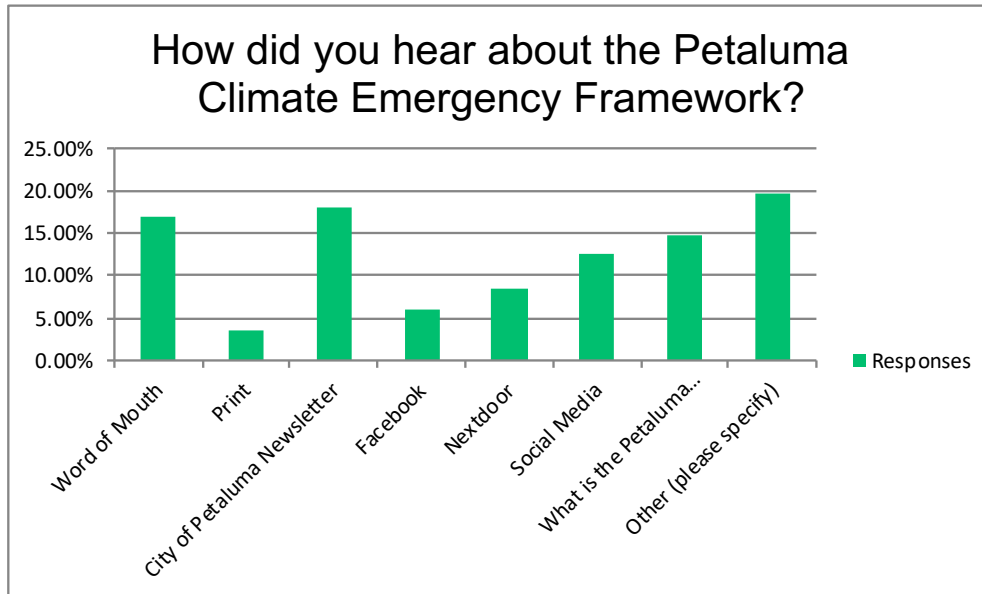
- 1) Of the available options available, the most respondents heard about the survey through the City's email newsletter (18%)
- 2) Respondents overwhelmingly stated they were very concerned about climate change (80%)
- 3) Wildfire was the climate change impact most concerning to respondents
- 4) Wildfire was the type of impact experience by the greatest number of respondents (85%)
- 5) Preventing and responding to climate hazards (fire, sea level rise, severe weather) was the highest priority from the respondents
- 6) 349 respondents provided comments on their priorities
- 7) The highest priority for making it easier to get around Petaluma without a car is to make bicycling and walking safer and more convenient
- 8) 74% of respondents believed the City should prioritize climate change funding in annual budgets
- 9) Most respondents had not experienced impacts from COVID-19 to the extent it affected their responses (60%)
- 10) 895 respondents provided a zip code
- 11) The largest age group responding to the survey was 45-54 (20%)
- 12) 69% of the survey respondents identified their ethnicity as White
- 13) Of those willing to share their household income, those in the \$100,000 - \$149,999 category were represented the most in the survey (21%)
- 14) 80% of respondents wished to receive updates in the Climate Emergency Framework, get directly involved, take their own action, or get their friends or family involved
- 15) 65% of respondents wished to receive updates from the City through the email newsletter
- 16) 298 respondents provided additional comments on the survey

The remainder of Appendix B includes the results of the multiple-choice questions.

Petaluma's Climate Action Survey

How did you hear about the Petaluma Climate Emergency Framework?

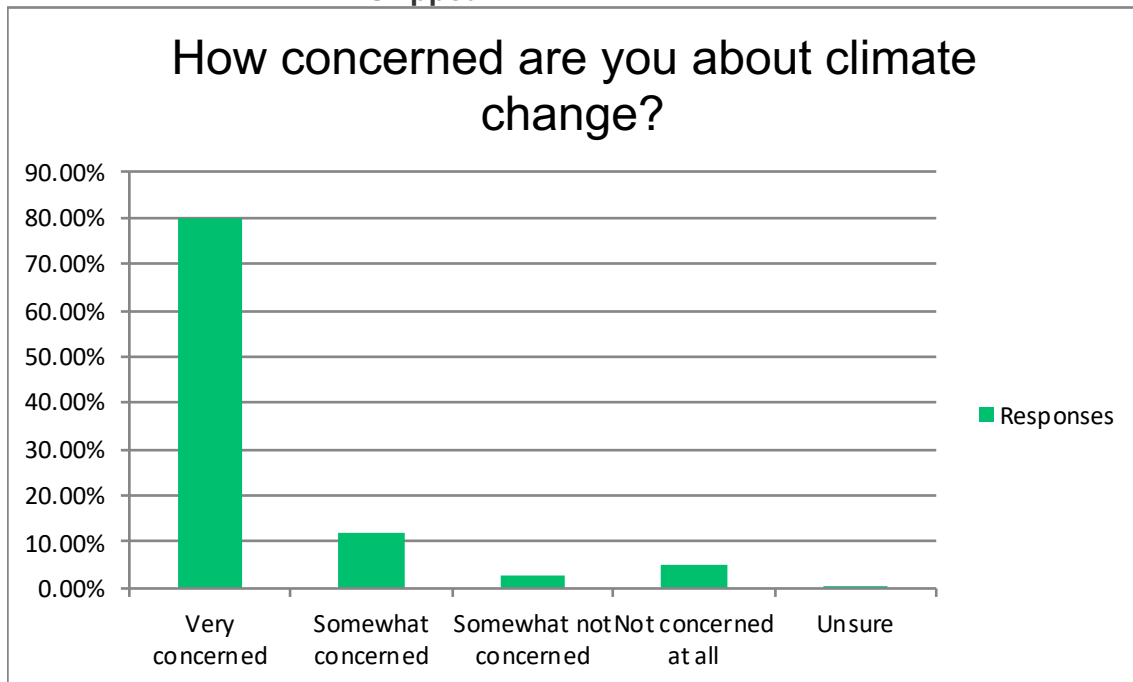
Answer Choices	Responses	
Word of Mouth	16.85%	168
Print	3.61%	36
City of Petaluma Newsletter	18.15%	181
Facebook	5.92%	59
Nextdoor	8.43%	84
Social Media	12.64%	126
What is the Petaluma Climate Emergency Framework?	14.64%	146
Other (please specify)	19.76%	197
	Answered	997
	Skipped	6



Petaluma's Climate Action Survey

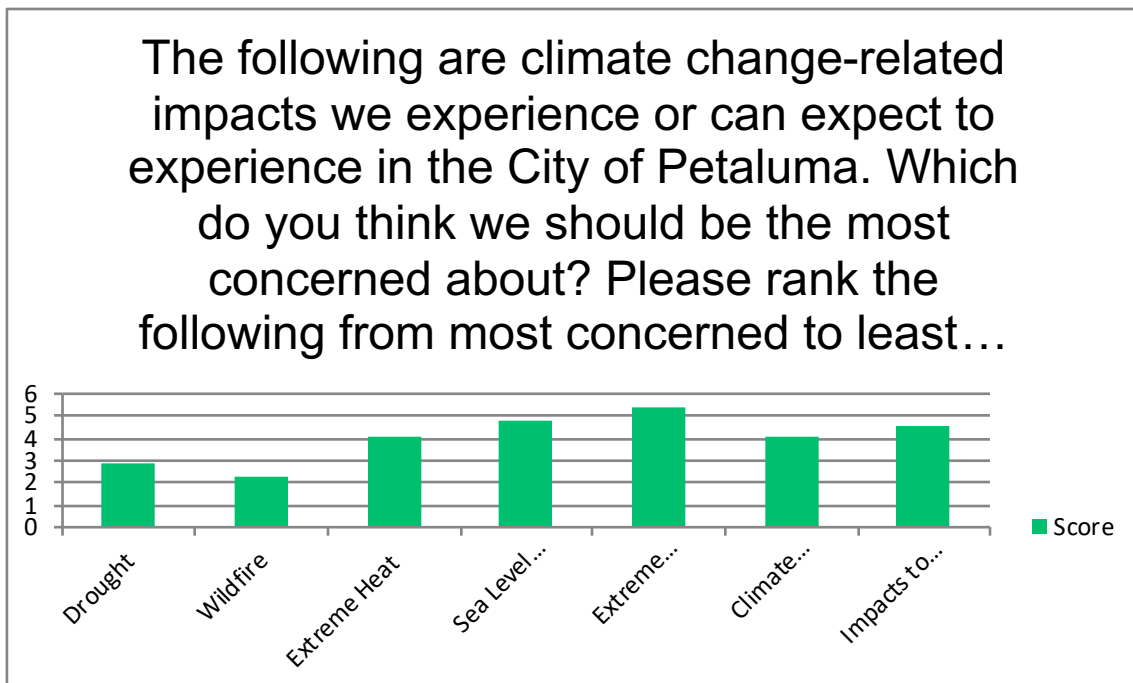
How concerned are you about climate change?

Answer Choices	Responses	
Very concerned	79.72%	798
Somewhat concerned	11.89%	119
Somewhat not concerned	2.70%	27
Not concerned at all	5.00%	50
Unsure	0.70%	7
Answered		1001
Skipped		2



Petaluma's Climate Action Survey

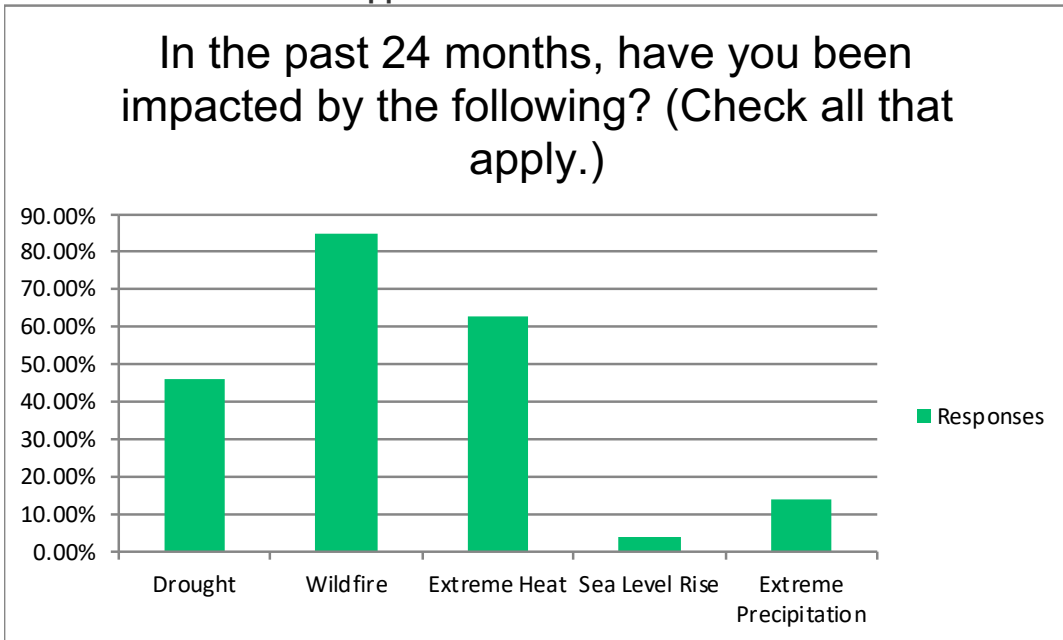
The following are climate change-related impacts we experience or can expect to experience in the City of Petaluma. Which do you think we should be the most concerned about? Please rank the following from most concerned to least concerned.



Petaluma's Climate Action Survey

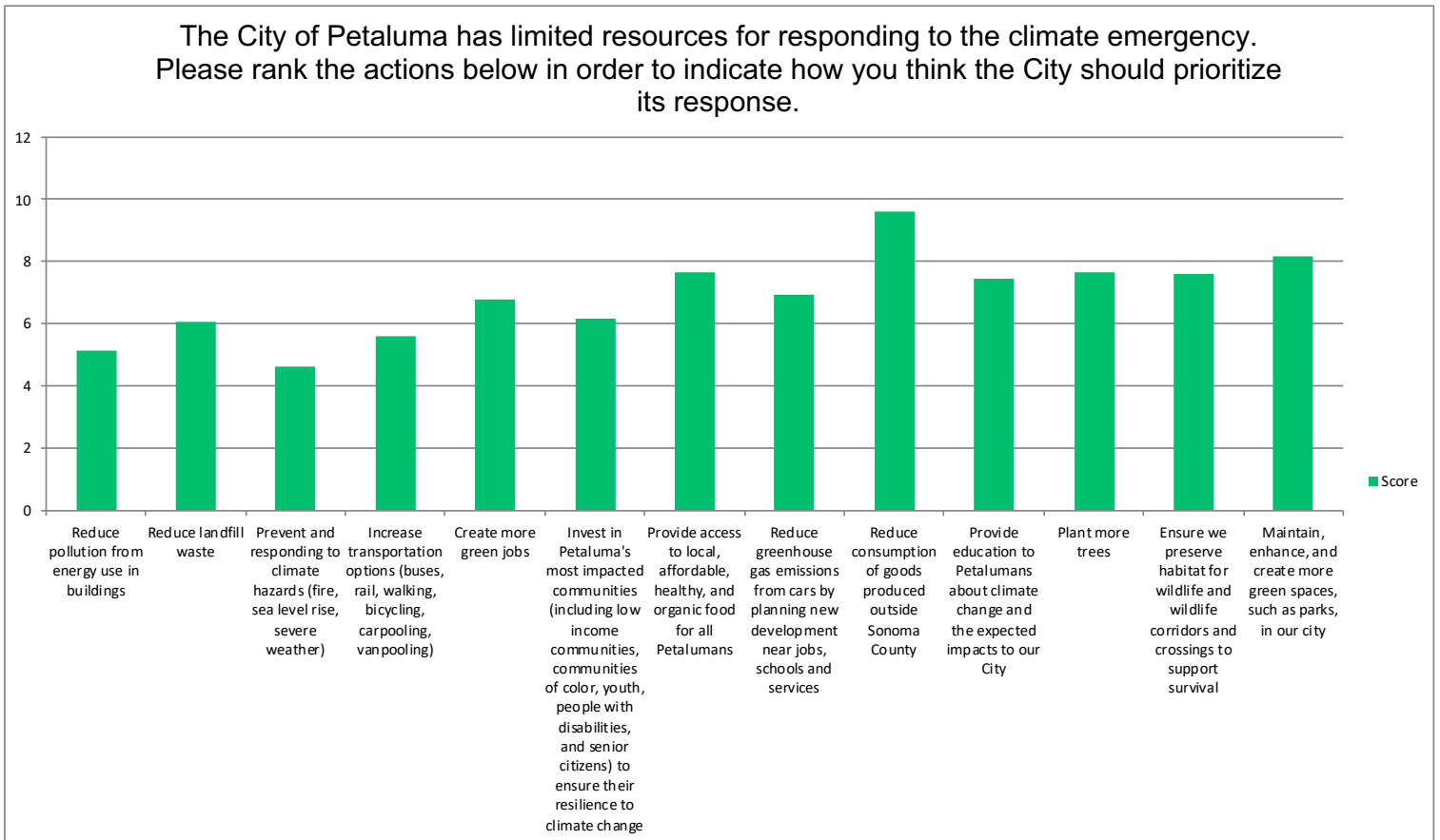
In the past 24 months, have you been impacted by the following? (Check all that apply.)

Answer Choices	Responses	
Drought	46.04%	418
Wildfire	85.02%	772
Extreme Heat	63.11%	573
Sea Level Rise	3.63%	33
Extreme Precipitation	13.99%	127
	Answered	908
	Skipped	95



Petaluma's Climate Action Survey

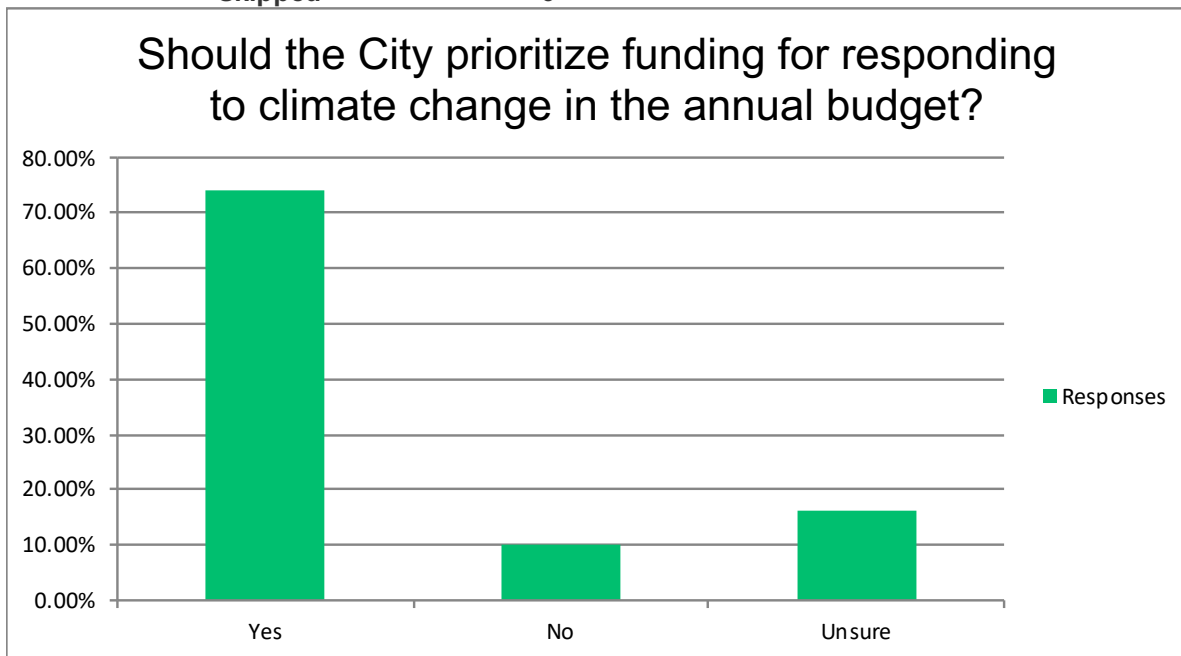
The City of Petaluma has limited resources for responding to the climate emergency. Please rank the actions below in order to indicate how you think the City should prioritize its response.



Petaluma's Climate Action Survey

Should the City prioritize funding for responding to climate change in the annual budget?

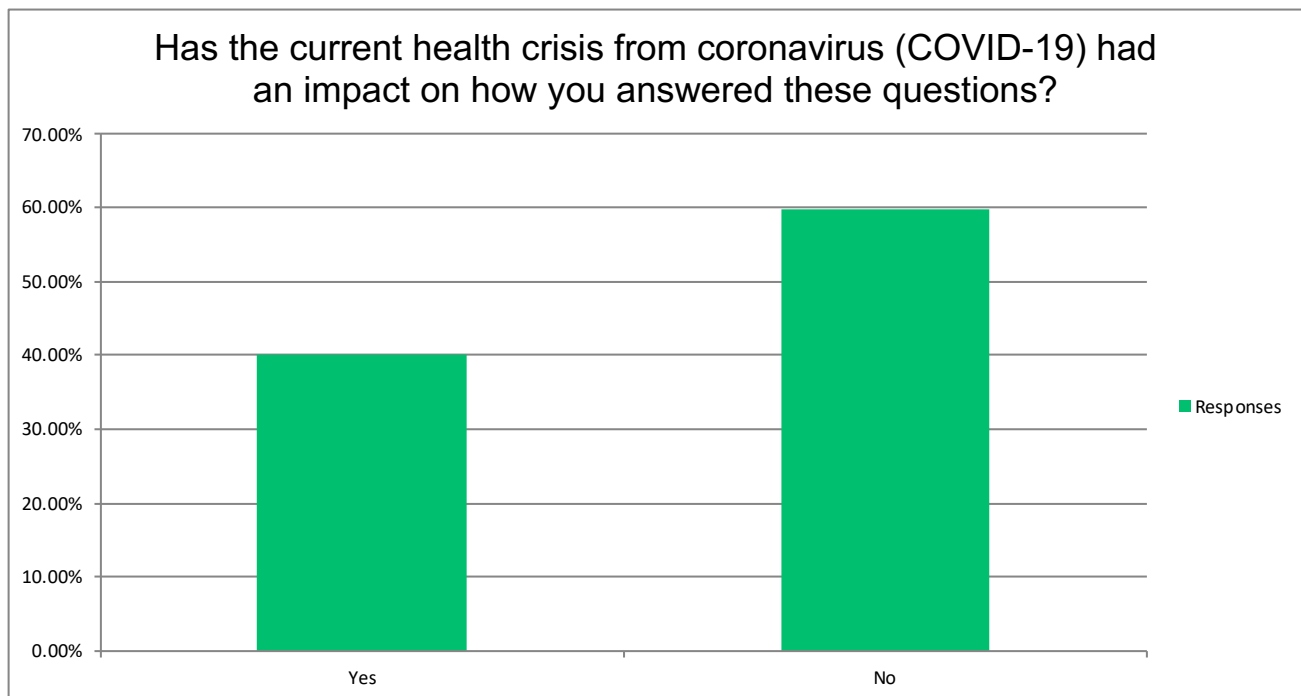
Answer Choices	Responses	
Yes	73.92%	737
No	10.03%	100
Unsure	16.05%	160
Answered		997
Skipped		6



Petaluma's Climate Action Survey

Has the current health crisis from coronavirus (COVID-19) had an impact on how you answered these questions?

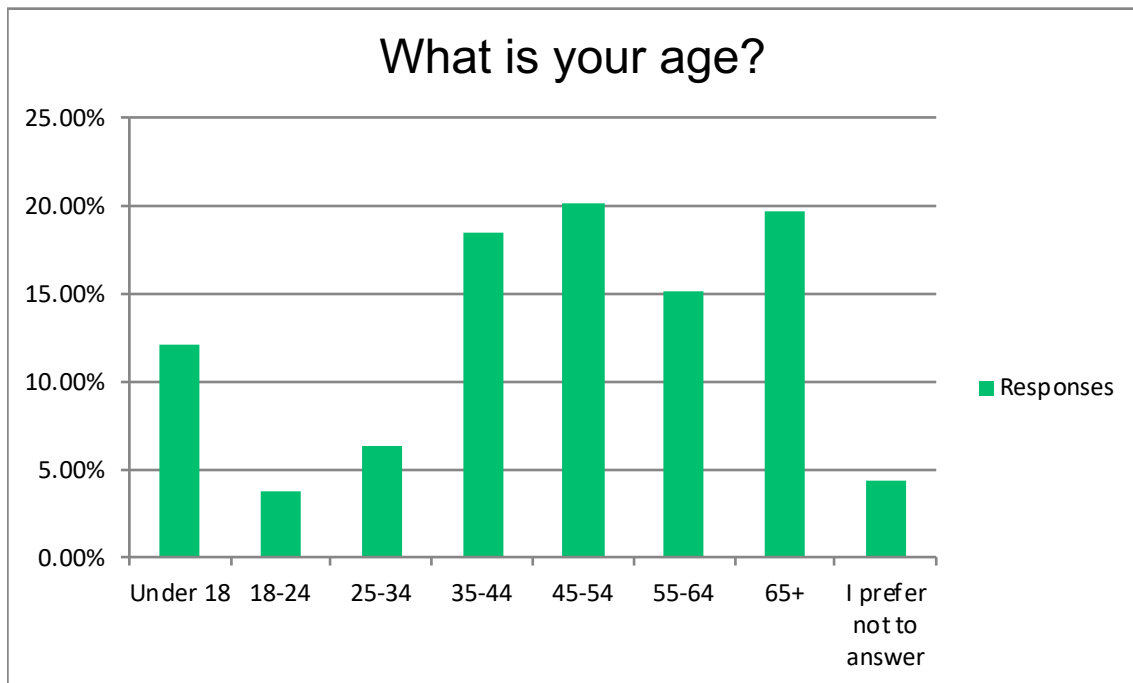
Answer Choices	Responses	
Yes	40.24%	400
No	59.76%	594
Answered		994
Skipped		9



Petaluma's Climate Action Survey

What is your age?

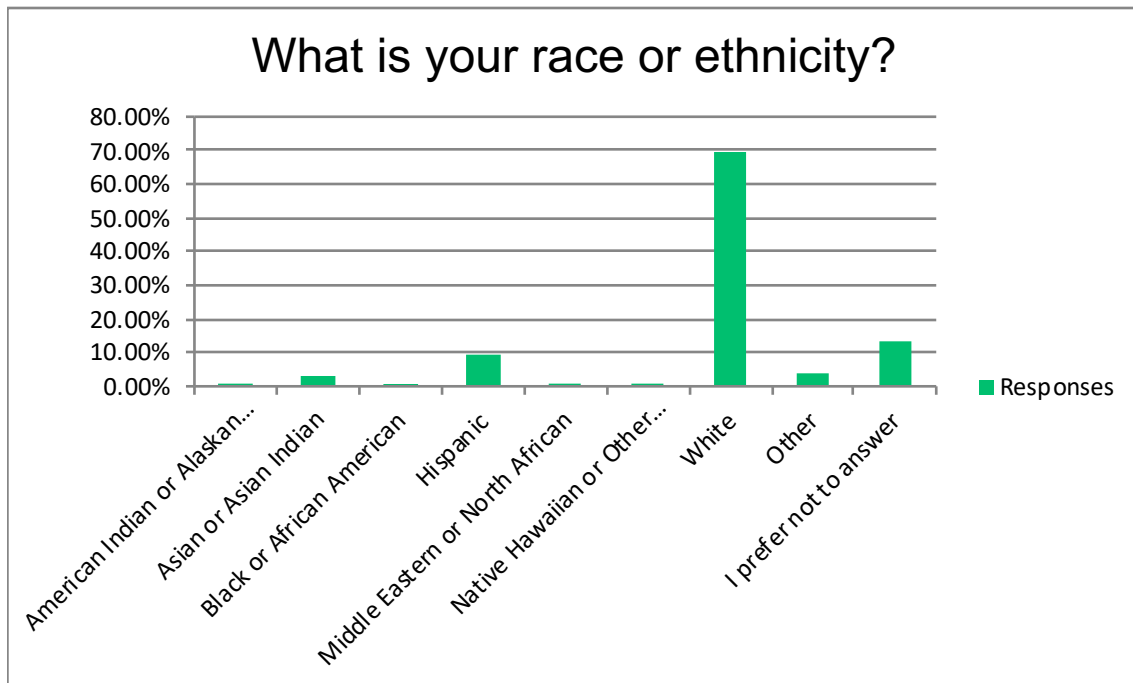
Answer Choices	Responses	
Under 18	12.04%	120
18-24	3.81%	38
25-34	6.32%	63
35-44	18.46%	184
45-54	20.16%	201
55-64	15.15%	151
65+	19.66%	196
I prefer not to answer	4.41%	44
Answered		997
Skipped		6



Petaluma's Climate Action Survey

What is your race or ethnicity?

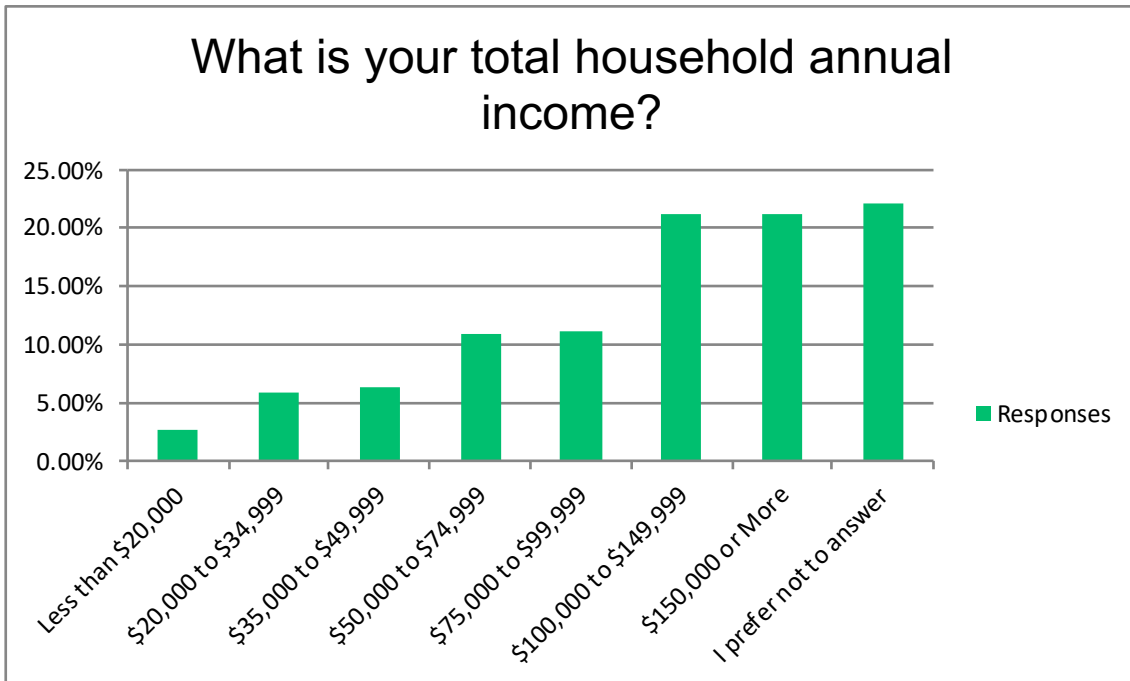
Answer Choices	Responses	
American Indian or Alaskan Native	0.50%	5
Asian or Asian Indian	3.02%	30
Black or African American	0.91%	9
Hispanic	9.05%	90
Middle Eastern or North African	0.30%	3
Native Hawaiian or Other Pacific Islander	0.10%	1
White	69.42%	690
Other	3.52%	35
I prefer not to answer	13.18%	131
Answered		994
Skipped		9



Petaluma's Climate Action Survey

What is your total household annual income?

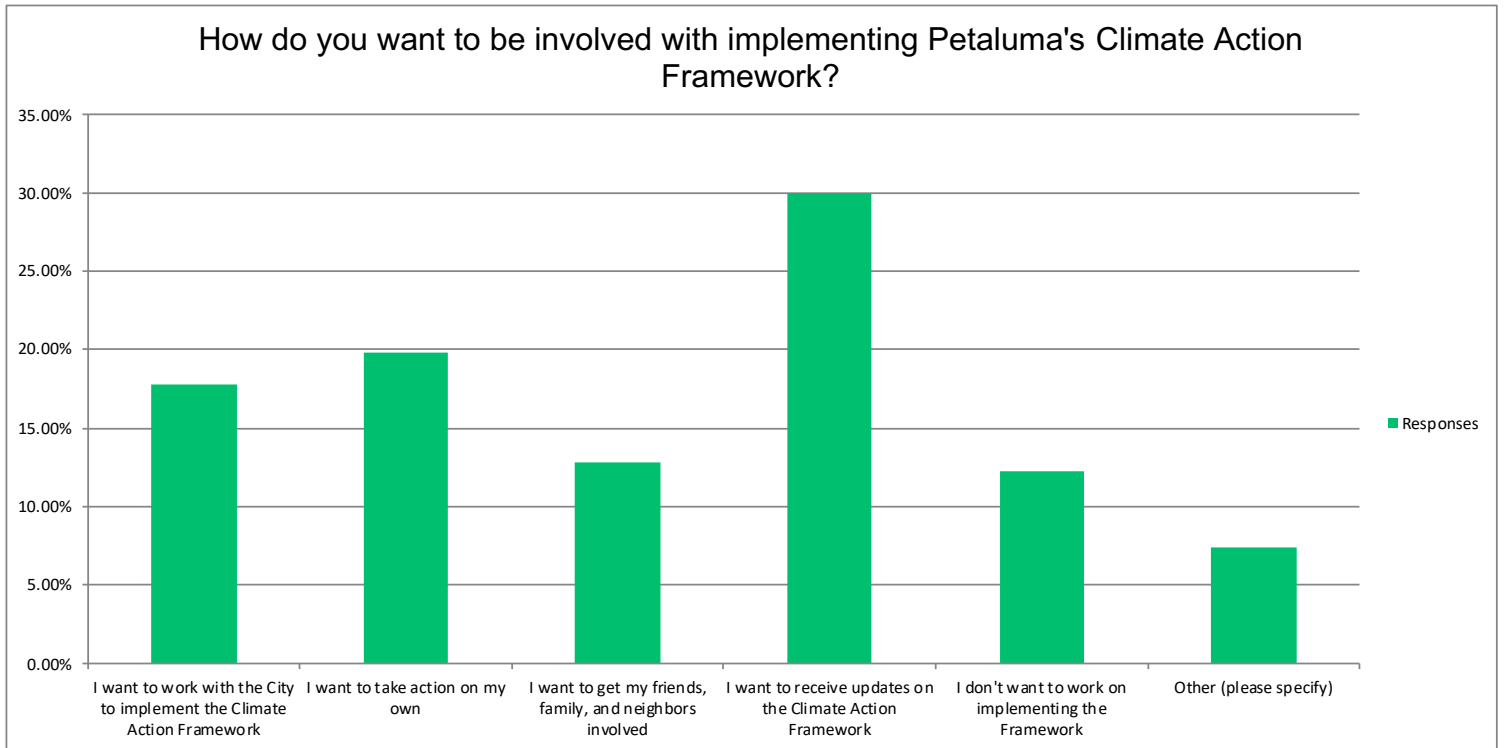
Answer Choices	Responses	
Less than \$20,000	2.66%	26
\$20,000 to \$34,999	5.94%	58
\$35,000 to \$49,999	6.25%	61
\$50,000 to \$74,999	10.96%	107
\$75,000 to \$99,999	11.07%	108
\$100,000 to \$149,999	21.31%	208
\$150,000 or More	21.11%	206
I prefer not to answer	22.23%	217
Answered		976
Skipped		12



Petaluma's Climate Action Survey

How do you want to be involved with implementing Petaluma's Climate Action Framework?

Answer Choices	Responses
I want to work with the City to implement the Climate Action Framework	17.75% 170
I want to take action on my own	19.83% 190
I want to get my friends, family, and neighbors involved	12.84% 123
I want to receive updates on the Climate Action Framework	29.96% 287
I don't want to work on implementing the Framework	12.21% 117
Other (please specify)	7.41% 71
Answered	958
Skipped	45



Petaluma's Climate Action Survey

How do you like to receive updates and information from the city?

Answer Choices	Responses	
The Email Newsletter	64.72%	600
Facebook	7.66%	71
Instagram	6.15%	57
Twitter	1.19%	11
NextDoor	9.17%	85
Mailers	3.02%	28
Text Message	8.09%	75
	Answered	927
	Skipped	76

