Attachment C

Climate Element

Technical Information

City of Tumwater 2025 Comprehensive Plan

Balancing Nature and Community: Tumwater's Path to Sustainable Growth

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CITY OF TUMWATER

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Acronyms and Abbreviations Used in Document

ASD – Administrative Services Department.

CBO – Community Based Organization

CCA – The Climate Commitment Act (CCA) (Chapter 310, Laws of 2021) caps and reduces GHG emissions from Washington's largest emitting sources and industries, allowing businesses to find the most efficient path to lower carbon emissions. This program works alongside other critical climate laws and policies to help Washington achieve its commitment to reducing GHG emissions by 95% by 2050. The CCA also puts environmental justice and equity at the center of climate policy, making sure communities that bear the greatest burdens from air pollution today breathe cleaner, healthier air as the state cuts GHGs. Finally, funds from the auction of emission allowances support new investments in climate-resiliency programs, fund clean transportation, and address health disparities across the state.

CDD – Tumwater Community Development Department

City – City of Tumwater

Commerce - Washington State Department of Commerce

County – Thurston County

CPAT – Climate Policy Advisory Team

DAHP – Washington State Department of Archaeology and Historic Preservation

EDC – Thurston Economic Development Council

EV – Electric Vehicle

EXD – Tumwater Executive Department

Fire & EMS – Fire and Emergency Medical Services Department.

FIN – Tumwater Finance Department

GHG – Greenhouse Gas

LID – Low Impact Development

PRFD – Tumwater Parks, Recreation, & Facilities Department

RCW – Revised Code of Washington

TCAT – Thurston Climate Action Team

TED – Tumwater Transportation & Engineering Department

TMC – Tumwater Municipal Code

Tribes – Nisqually Indian Tribe, Squaxin Island Tribe, and the Confederated Tribes of the Chehalis Reservation

TRPC – Thurston County Regional Planning Council

UFMP – Urban Forestry Management Plan

WRS – Tumwater Water Resources & Sustainability Department

WSDOT - Washington State Department of Transportation

Key Terms and Definitions

15-minute neighborhood: An urban planning concept referring to neighborhoods in cities in which most daily necessities, services, and amenities (e.g., work, education, health care, shopping, recreational opportunities) can be reached by a 15-minute walk, bicycle ride, or public transportation trip. These neighborhoods tend to be relatively walkable and support a greater baseline of residential density.

Climate: The "average weather" generally over a period of three decades. Measures of climate include temperature, precipitation, and wind.

Climate change: Any significant change in the average climate of a region lasting for decades or longer. Can be measured through substantial changes in temperature, precipitation, or wind. Climate change may result from natural factors and from human activities that change the atmosphere's composition and land surface.

Climate refugia: Areas that continue to resist the impacts of anthropogenic climate change, allowing valued and culturally significant physical, ecological, and socio-cultural resources to continue to survive and even thrive amidst a changing landscape.[1]

Environmental Justice (EJ): The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to environmental laws, rules, and policies (RCW)

[1] Morelli, T.L.; Millar, C. 2018. Climate Change Refugia. USDA Forest Service Climate Change Resource Center. https://www.fs.usda.gov/ccrc/topics/climate-change-refugia

70A.02.010(8). Environmental justice includes addressing unfair environmental and health impacts in all laws, rules, and policies by:

- prioritizing vulnerable populations and overburdened communities,
- the equitable distribution of resources and benefits, and
- eliminating harm.

Food Justice: Assumes consistent access to nutritious, affordable, and culturally relevant food to be a human right that should be secured and protected.

Frontline Community[2]: Those communities that experience the effects of climate change "first and worst" while also having significantly lower capacity to adapt and reduced access to resources and political power to respond to those risks. Though not limited to these groups, frontline communities generally include communities of color, Indigenous peoples, and low-income communities. These communities have also not historically had access to City decision making processes.

Gray-green infrastructure: stormwater management systems used in places where gray infrastructure cannot be entirely phased out without losing functionality, but some green elements can be introduced to increase the resilience of the system and improve the local ecology.

Green infrastructure: Stormwater management systems that mimic natural systems, capturing and absorbing or diverting rainwater where it falls.

Greenhouse gas (GHG): Any gas that absorbs heat in the atmosphere; examples include carbon dioxide, methane, nitrous oxide, ozone, and water vapor.

Managed retreat: The voluntary movement and transition of communities away from regions likely to become unsustainable for life due to climate change impacts. Primarily a tool used in coastal regions to move communities away from sea level rise impacts, but increasingly a tool used in planning for other climate hazards.

Native species: Any plant, fungus, or animal species native to our area. In the US, this only includes species present in the region prior to the arrival of European settlers.[3]

[2] *In the Climate Element the term "frontline community" is preferred as it does not carry the disempowering and othering connotations of the terms "overburdened community" and "vulnerable population." However, the latter terms carry legislative meaning, with precise definitions in Washington State law and policies that direct funding for and engagement with these groups. All three terms will be used throughout the goals, policies, and implementation actions contained in this Element. "Frontline communities" will be the preferred term where the legislative context is not relevant, while "overburdened community" and "vulnerable population" will be used where the precise definitions are key to enacting the policy*

[3] United States Department of Agriculture, n.d. "What is a native plant?" https://www.usda.gov/peoples-garden/gardening-advice/why-native-species-matter

Overburdened Community[4]**:** According to RCW 70A.02.010 (11), denotes a geographic area where vulnerable populations face combined, multiple environmental harms and health impacts, and includes, but is not limited to, highly impacted communities as defined in RCW 19.405.020.

Passive survivability: Building to ensure that residences will remain at a safe temperature for occupants if the power goes out and that they will overall require less power to keep at a regulated temperature. Can also entail building single-family residences with one room designed to maintain comfortable temperatures or multifamily residences with a designated common area designed to serve this same function. Building for passive survivability also reduces demand on local energy infrastructure.

Vulnerable Populations[5]**:** According to RCW 70A.02.010 (14), includes population groups that are more likely to be at higher risk for poor health outcomes in response to environmental harms, due to: adverse socioeconomic factors, high housing and transportation costs relative to income, limited access to nutritious food and adequate health care, linguistic isolation, and other factors that negatively affect health outcomes and increase vulnerability to the effects of environmental harms; and sensitivity factors, such as low birth weight and higher rates of hospitalization. Vulnerable populations can include but are not limited to: racial or ethnic minorities, low-income populations, populations disproportionately impacted by environmental harm, and populations of workers experiencing environmental harm.

[4] See Note 1
[5] See Note 1

1. Introduction

A. Background

The Climate Element is part of Tumwater's Comprehensive Plan. It was created to meet the new state Growth Management Act (Chapter 36.70A RCW) requirements laid out in HB 1181 to adapt to and mitigate the effects of a changing climate.

The objectives of this climate element are twofold. The first sub-element addresses reducing Tumwater's greenhouse gas emissions to achieve net zero goals set by the State of Washington. The second sub-element focuses on adapting to climate impacts that are already being felt across the region. This climate resilience sub element aims to address those impacts that cannot be avoided regardless of whether the City reaches its net zero goals.

The Element addresses:

1. **Climate Mitigation**
    - Building-Scale Emissions Reduction
    - Transportation and VMT reduction
    - Carbon Sequestration
2. **Climate Resilience**
    - Adaption strategies across 11 key sectors
        - Agriculture and Food Systems
        - Buildings & Energy
        - Cultural Resources
        - Economic Development
        - Ecosystems
        - Emergency Management
        - Health & Well-being
        - Transportation
        - Waste Management
        - Water Resources
        - Zoning & Development
3. **Climate Equity**
    - Embedded throughout both sub-elements
    - Addressing inequities in climate impacts and access to resources

The Growth Management Act requires that the City demonstrate that each Element in its Comprehensive Plan meets the relevant fifteen planning goals contained within the Act. The fifteen goals in turn guide the development and adoption of the City's Comprehensive Plan and development regulations.

The new Climate Element addresses the Growth Management Act goal related to Climate:

> 14. ***Climate change and resiliency***. *Ensure that comprehensive plans, development regulations, and regional policies, plans, and strategies under RCW 36.70A.210 and chapter 47.80 RCW adapt to and mitigate the effects of a changing climate; support reductions in greenhouse gas emissions and per capita vehicle miles traveled; prepare for climate impact scenarios; foster resiliency to climate impacts and natural hazards; protect and enhance environmental, economic, and human health and safety; and advance environmental justice.*

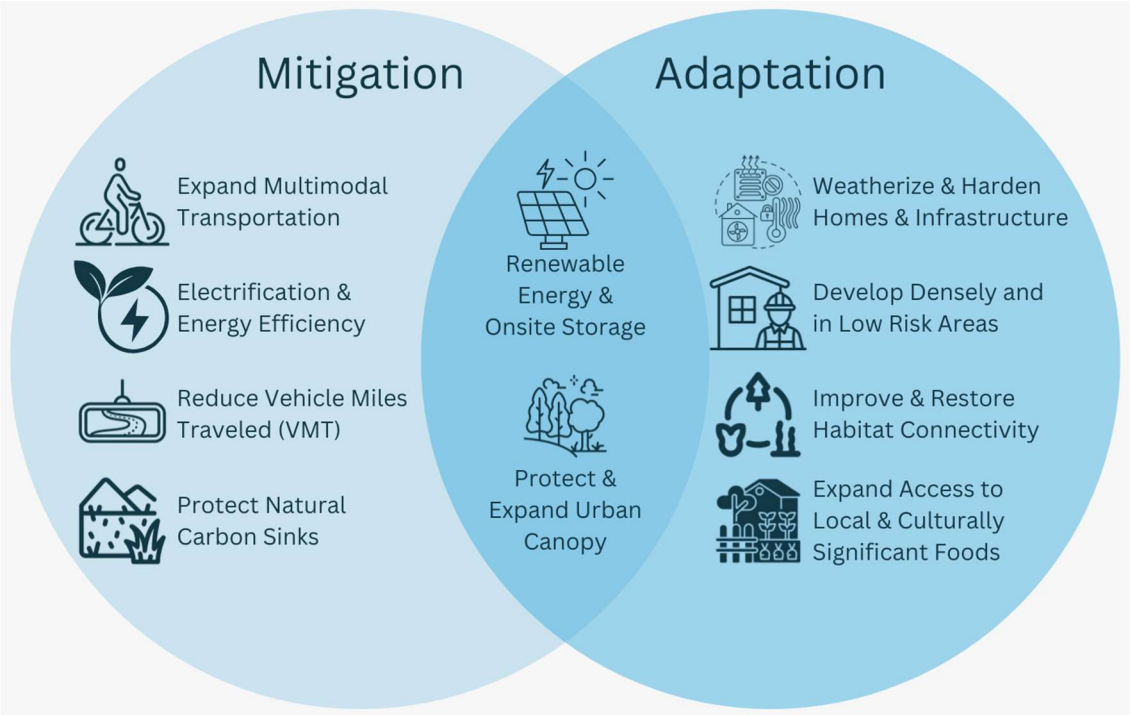
The Climate Element has specific guidelines and policies that delineate what must be covered across the two sub-elements.

The state legislature added the Growth Management Act climate change and resiliency goal in 2023. The Climate Element is made of two sub-elements: a GHG Emissions Reduction sub-element and a Resilience sub-element. The GHG Emissions Reduction sub-element contains specific policies designed to guide the City towards Washington State's goal of net-zero by 2050. The Resilience sub-element policies direct climate adaptation measures.

This Element and implementing ordinances were developed with public input as described in the Public Outreach Plan required by the Growth Management Act. This chapter is also based on the updated list of additional supporting plans, documents, and best available science found in Appendix A.

Tumwater has a long history of pursuing sustainability goals and leading the region on efforts like tree canopy preservation and expansion and working across jurisdictions to advance climate mitigation action. In recent years, however, it has become apparent that some climate impacts cannot be avoided. Therefore, the City must pursue climate resilience or adaptation measures as well to ensure Tumwater residents can survive and thrive while continuing to push for global climate mitigation. Resilience and mitigation actions are not discrete categories. There are several key areas of overlap across the two. For instance, preserving and expanding tree canopy cover provides both resilience and mitigation benefits. This provides shade and cooling benefits that protect residents from heat waves while sequestering carbon. When Tumwater preserves and expands tree canopy we get closer to our new goal of Net Zero by 2050.

Figure 1. Climate Mitigation and Adaptation have distinct goals, but there are many co-benefits for pursuing these actions.



Commerce requires two separate sub-elements addressing these two focus areas. At times there are actions that appear to be missing but are instead addressed in the other sub-element. Throughout the Climate Element, policies and goals were prioritized where they provided co-benefits with environmental justice and climate equity goals.

B. Methodology

Tumwater's Climate Element was established through a phased, multilateral process with analytical, public outreach, and regulatory inputs.

1. Regulatory, policy, and planning drivers

All planning and policy documents for the region that addressed any aspect of climate mitigation or resilience were gathered and reviewed for relevance to the development of the Climate Element. The documents that were determined to be the most relevant based on recency, policy robustness and focus on climate mitigation or resilience, were reviewed more thoroughly. Through this review, the City identified what Tumwater and the region have accomplished and what gaps remain. The details of this policy gap analysis, including the documents reviewed and breakdown of policies by sector and focus area can be found in Appendix A.

2. Climate Policy Advisory Team

Commerce issued guidance that suggests jurisdictions should create an interdisciplinary group of planners, public works professionals, and community members with a focus on helping to prepare the Climate Element, otherwise referred to as a Climate Policy Advisory Team (CPAT). CPATs are intended to do the following:

- support the analysis of climate information;
- provide recommendations on short- and long-term goals;
- center equity in the creation of policy and the implementation of the Climate Element; and
- represent community voices across the community, particularly overburdened communities.

The City of Tumwater issued invitations to interested individuals within and outside of the city, aiming to capture a mix of representation including:

- subject matter experts including academia and research institutions
- local businesses,
- public officials from the City and the County, and
- frontline communities.

The resulting 11 member CPAT was engaged continuously and substantively throughout the Climate Element Planning process, providing feedback and advice with respect to the following issues and questions:

- <u>Vision and Alignment</u>:
  - What is the short- and long-term vision for this Climate Element?
  - How does the City align its Element with other city and regional climate plans and community feedback and priorities?

- Public Engagement:
  - How should the City engage with residents on the issue of climate change?
  - Who are the priority groups and individuals to engage?
  - What are the appropriate times and venues for engagement?

- GHG Reduction and Resilience Analyses:
  - Do the findings of the emissions inventory and climate vulnerability and risk analyses align with the community's lived experience?
  - How do we effectively and thoughtfully use these analyses to inform the goals and policies in the Climate Element?

- Policy Development and Planning:
  - What should the goals and measures be in this Climate Element?
  - Do the respective sub-elements satisfy and align with findings from our analyses and with input from community members?

The CPAT provided direct input and completed multiple rounds of review on the goals and policies throughout the Climate Element. The City expects that CPAT will continue to provide advisory on an as-needed basis to the City of Tumwater as it moves forward with implementing the Climate Element.

3. Public Engagement

Public outreach and engagement were critical components of the Climate Element planning process. The City of Tumwater presented its Public Engagement Strategy on the City's Comprehensive Plan Update in July 2023. The City developed an addendum to this strategy specific to the Climate Element in June 2024. This addendum detailed the City's approach to engaging community members on the GHG Reduction and Climate Resilience sub-elements.

The City's public engagement strategy for the Climate Element was focused on providing community members with equitable and ongoing access to the planning process. This entailed direct engagement with City staff, as well as multiple in-person and virtual opportunities to provide input on the Climate Element. The City also considered planning fatigue as a limitation, since other elements of the Comprehensive Plan Update were being developed at the same time as the Climate Element. The City utilized two key approaches to engagement for all chapters of the Comprehensive plan including the Climate Element:

- Public workshop: An in-person workshop where participants reviewed GHG reduction and climate resilience analyses, with the intent to learn more about the community's lived experience and vision for the Climate Element;

- Online Story Map: An online platform that provides all relevant analytical and qualitative information pertaining to the two sub-elements. The Story Map set up for the Climate Element provided ongoing feedback to the City throughout the initial development of the Climate Element.

2. Equity and Environmental Justice

A. Introduction

The City of Tumwater recognizes that climate change, inequity, social justice, and environmental justice are inextricably intertwined. The root causes of climate change and environmental justice are the same – they are systemic outcomes of the exploitative extraction of natural and human resources. Communities across the world, including Tumwater, have suffered from the inequitable distribution of benefits and burdens that are especially relevant to the issue of climate change.

Frontline communities are groups of people that typically experience the impacts of climate change 'first and worst.' They are often made up of marginalized populations, such as Black and Indigenous communities of color and low-income individual and households. Frontline communities are often located in areas that are more exposed to certain climate hazards. They have historically had less political power and fewer resources. They may not have the capacity to respond to these risks due to inflexible work policies or positions. For example, some employers may not pay work is suspended due to a hazard event.

For these reasons, the Climate Element and the Comprehensive Plan more broadly will place the issues of environmental justice and climate equity at the center of planning efforts by establishing goals related to these core problems.[6] Centering equity principles is essential for the development of a plan that ensures frontline communities aren't adversely impacted further by new plans and policies.

1. Community Engagement

Effective community engagement is centered around the following traits:

- mutually beneficial;
- recognizes and values the contributions of all participants;
- focuses on strengths and successes; and
- ensures that all voices are equally respected in shaping decisions whether based on lived experience or technical knowledge.

Tumwater held a public workshop that invited residents to identify priorities and solutions. The in-person workshop was designed to encourage community members who might not always feel welcome or choose to attend public forums to participate. The workshop was held in the ASHHO Cultural Community Center and advertised extensively by City Staff. Over 60 community members attended the workshop. They visited three different stations to learn about and share their lived experience and opinions on GHG reduction strategies, climate hazards and resilience, and local governance. A full summary is included in Appendix B.

[6] One of the overarching goals (CL-1) that guides policy in both sub-elements focuses exclusively on equity and environmental justice, while both sub-elements contain specific policies and actions that further equity. A full list of equity-focused policies and actions can be found in Appendix C.

2. Equity Goals

All community members, regardless of their background, have an opportunity to benefit from policies and programs. Equity in this strategy is essential to ensure that all communities can participate in and benefit from policies in a fair and inclusive way. Tumwater developed a series of goals and policies to address these concerns using targeted universalism. This means that universal goals are set for everyone, but the targeted approaches are tailored to meet the unique needs of different groups. Using this approach ensures that all communities can achieve the same outcomes, even if the methods differ.[7] This approach integrates various forms of equity, including:

- procedural equity, which ensures that everyone can participate in decision-making;
- distributional equity, which ensures that benefits and burdens are shared fairly;
- structural equity, which addresses historical and systemic inequalities; and
- transgenerational equity, which ensures that decisions made today consider their impact on future generations.

Together, these principles create a more inclusive, fair, and sustainable approach to community engagement and policy development.

The following equity goals aim to empower underserved communities, enhance access to resources, and ensure that all voices are represented in decision-making processes. In developing the Climate Element, the City made sure to:

- Develop an accessible, equitable, and engaging Element;
- Meet people where they are and ensure that all engagement efforts are accessible and equitable. This means not excluding anyone with certain health, physical, or working conditions, and it requires that needs around language, mobility, or family care are thoughtfully addressed;
- Focus on reducing inequalities and fostering greater community ownership[8] of the Climate Element which will lead to more equitable outcomes to benefit frontline communities; and
- Seek how best to intentionally allocate resources to overcome the cumulative impacts of institutional racism on historically underserved and under-represented people.

3. Frontline Communities

In Tumwater, frontline communities face disproportionate challenges related to housing affordability, environmental stressors, and access to essential resources. Since these challenges are disproportionate they require targeted interventions to center equity and

[7] Throughout the Climate Element, policies that require community members to meet new, more stringent codes or assessment requirements are supported by implementation actions that call for creating subsidy or rebate programs or developing funds to support low-income community members (see: CL-10.1, CL-10.1.2).

[8] All policies and actions that were developed by or with the CPAT or originated from a suggestion from the public workshop or virtual open house are flagged as Community-Identified Priorities so that community members can see their input in action.

resilience. To address these disparities, the city must identify overburdened communities and vulnerable populations within its jurisdiction. Tumwater is making intentional efforts to understand the cumulative threats these communities face.

Tumwater has aligned with the motto, “no data without stories and no stories without data.” Data confirmed by lived experience can inform how land use planning and policy adjustments may alleviate these issues in ways that align with community needs. To get those stories, the City must:

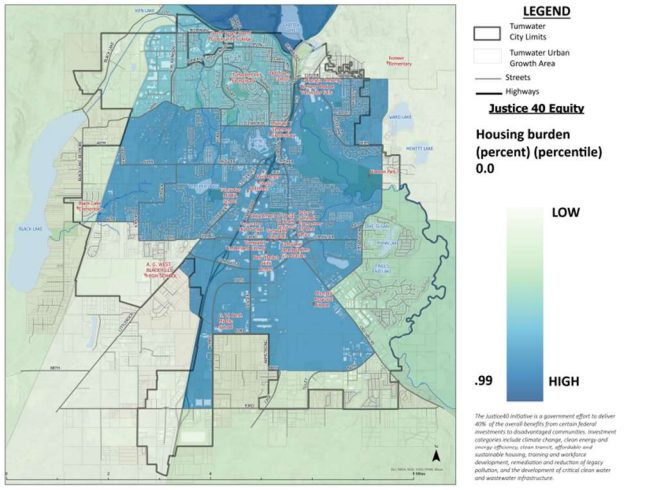
- prioritize collaboration with impacted communities;
- build community capacity; and
- foster meaningful relationships with community members and community-based organizations.

This work ensures support is both impactful and aligned with local priorities. Tumwater's equity goals align closely with the Justice40 Initiative. The Justice40 Initiative aims to ensure historically disadvantaged communities receive benefits from infrastructure investments, including clean transit investments. Throughout this project, Justice40 and other equity-related data were used to inform decisions and guide resource allocation.

Housing Burden

The Justice40 Equity framework is applied in Tumwater to address housing affordability. This focuses attention on areas where communities are disproportionately burdened by high housing costs. The city can identify where resources and support should be allocated to reduce financial strain on households. This approach aligns with federal initiatives aimed at directing 40% of benefits from federal investments to underserved and overburdened populations. Reducing housing burdens contributes to broader goals of increasing housing equity, improving affordability, and fostering resilient communities.

Map 2. Map of Tumwater with a Justice40 overlay that displays the differences in Housing Burden across the City.



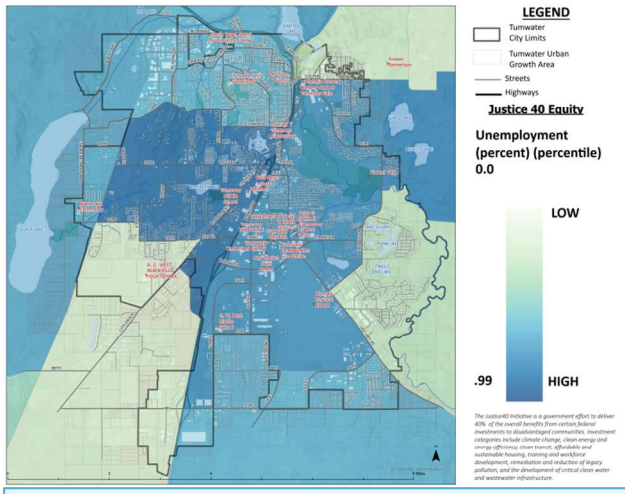
> *“Most of us senior citizens do not have the money to add insulation, although we are exposed to the increase in temperatures more rapidly than most stick-built homes. Help us upgrade the mobile homes we live in. Our rent is being increased annually and on a reduced fixed income leaves little money for improvements.”*

Unemployment Rates

Applying the Justice40 Equity framework to unemployment rates aims to address disparities in employment opportunities, particularly in areas with higher rates of joblessness. Identifying regions with elevated unemployment levels allows the city to prioritize economic development initiatives, job

training programs, and workforce support services for communities most in need. This data-driven approach is critical for fostering economic resilience and reducing inequities.

Map 2. Map of Tumwater with a Justice40 overlay that displays the differences in Equity across the City.



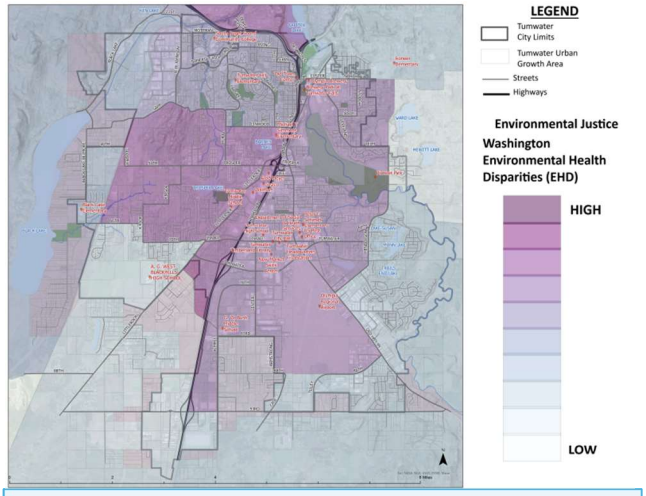
"Something that improves the lives of poor and working class people. More bike and ped infrastructure in Tumwater - make it not only safe, but inviting for people to get out of their cars.."

Environmental Health Disparities

The Environmental Health Disparities (EHD) analysis in Tumwater highlights areas with higher environmental justice concerns. This analysis shows where communities may be more vulnerable to pollution, health risks, and other environmental hazards. By identifying regions with elevated environmental health disparities, Tumwater can target these areas for interventions to:

- mitigate health risks,
- improve air and water quality, and
- enhance access to green spaces.

Map 3. Map of Tumwater with an Environmental Justice overlay that displays environmental health disparities.



"During the June 2021 heat wave, I experienced heavy sweating, heart racing and flushing. It felt like my brain was in a fog and I felt weak and fatigued. I recognized these symptoms as the symptoms of heat exhaustion and went to the mall to escape the heat for a while. We did not have air conditioning in our home, and as there was almost no wind, opening the windows couldn't help. Our house got hotter than it was outside. I am 71 years old, so such heat is especially dangerous for my health"

This approach aligns with the principles of environmental justice, ensuring that communities disproportionately affected by environmental and health challenges receive focused support, resources, and protections to improve overall public health and quality of life.

4. Evaluating Equity within Strategies

When communities can actively participate in decision-making, policies are more likely to reflect local realities and provide meaningful,

sustainable impacts. Collaborative governance empowers the communities most affected by social and environmental challenges, fostering self-determination and reducing systemic inequities. Targeted benefits emphasize the right to healthy environments. This approach also explicitly prioritizes support for those experiencing the highest cumulative risks.

Each measure is assessed in accordance with the Intermediate Planning Guidance's Equity Criterion Matrix which helps determine if the measure is deemed equitable in its respective jurisdiction. The matrix, as shown in Table 1 provides questions for co-governance, targeted benefits, just responsibility, and wealth building considerations/sub-considerations to assess for each climate measure.

Table 1: Washington Department of Commerce's Equity Criterion Matrix

Co-Governance	
Consideration: Does the measure show potential to build self-determination for frontline communities of color and/or low-income communities?	**Sub-considerations:** Are communities' most impacted identifying their needs and solutions? Do they have the ability to meaningfully shape the decisions in implementation?
Targeted Benefits	
Consideration: Is the measure clear about rights to healthy communities, and explicit in targeting interventions to communities furthest from achieving those rights?	**Sub-considerations:** Do the goals and targets recognize our fundamental rights to healthy environments and communities? Do the strategies prioritize those most at risk from highest cumulative impacts?
Just Responsibility	
Consideration: Does the measure show potential to directly limit harm and hold offenders responsible? Does it prioritize effectiveness?	**Sub-considerations:** Is the solution directly stopping the problem? Is it making anything worse? Are those causing the greatest harm held most accountable?
Wealth Building	
Consideration: Does the measure show potential to invest in and sustain local livelihoods, starting with communities with the greatest barriers to meeting their needs?	**Sub-considerations:** Are we supporting production by local communities for local communities, based on a principle of using local resources and living wage labor?

Using this system of continuous engagement and evaluation of equity criteria throughout plan development, 24% of the policies and 27% of the actions in the Climate Element directly address issues of equity. Additionally, 10 of the plan's 16 goals contain equity considerations.

Frequent and multifaceted public engagement also led to a plan in which 19% of the policies and 18% of the actions were developed directly out of requests, input, and ideas generated through the public workshop, virtual open house, and CPAT meetings.

3. Greenhouse Gas Reduction

A. Introduction

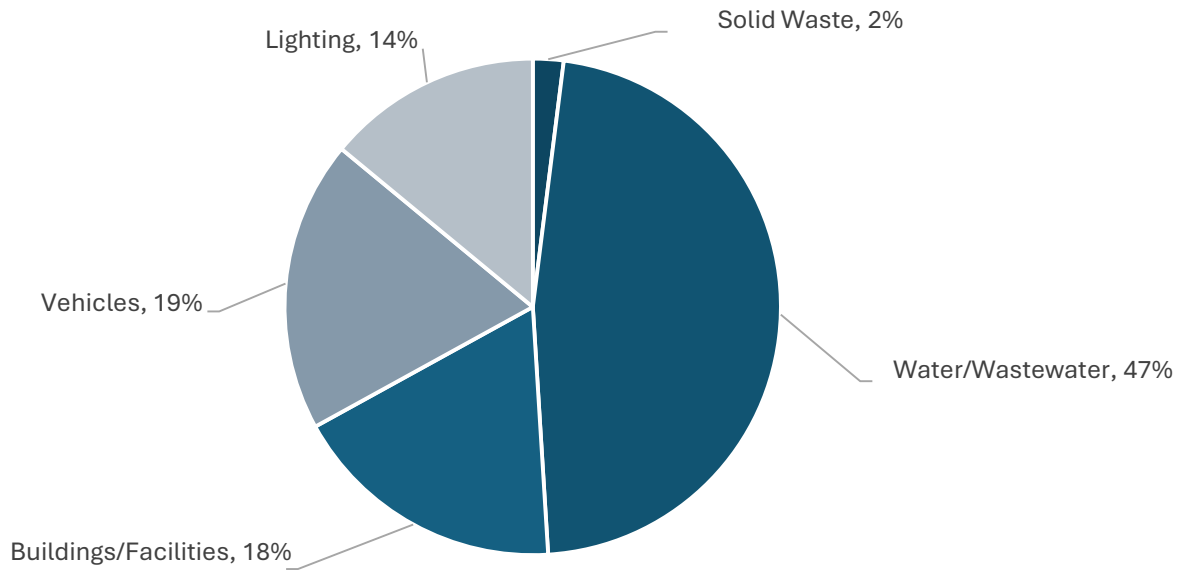
Under HB 1181, cities and counties that are required to prepare Climate Elements as part of their Comprehensive Plans must include a sub-element on greenhouse gas (GHG) emissions reduction. The City of Tumwater's GHG Reduction Sub-Element **dictates the City's approach to eliminating GHG emissions towards achieving net-zero emissions by 2050**, with interim targets for municipal and community-wide emissions**.**

1. Greenhouse Gas Emissions

Greenhouse gases refer to specific gaseous compounds that trap heat from the sun after it radiates from the Earth's surface. GHGs include, but are not limited to, carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Some greenhouse gases are naturally occurring, or 'biogenic,' whereas others are produced by human activity, or are 'anthropogenic.' Greenhouse gases are essential to life on earth: they prevent heat from escaping Earth's atmosphere.

However, increased anthropogenic emissions from burning fossil fuels and land use changes like deforestation, have rapidly and significantly increased the concentration of GHGs in the Earth's atmosphere. This increased volume has resulted in a global warming effect that is shifting climate and weather patterns across the world. This phenomenon has far-reaching impacts on communities, infrastructure, ecosystems, and wildlife (see Section 4 on "Climate Resilience"). As a result, it is critical that cities like Tumwater take action to reduce anthropogenic GHG emissions, and to do so as quickly as possible.

Figure 2. City of Tumwater 2023 Municipal GHG Emissions Inventory



2. Measuring and Reducing Emissions

Tumwater developed a series of goals and policies to reduce greenhouse gas emissions across the city. These were informed by municipal and community-wide GHG emissions inventories, providing an accounting of the city's largest sources of GHG emissions.[9] The City drew upon these emissions inventories to help determine the specific goals and policies for the GHG Reduction Sub-Element. These goals and policies align with feedback from community members, the Thurston County Climate Mitigation Plan, and statewide regulations and climate goals.

3. Greenhouse Gas Emissions Targets

The City of Tumwater's GHG Reduction Sub-Element dictates the City's approach to eliminating GHG emissions towards achieving net-zero emissions by 2045. The City has identified specific interim targets for municipal emissions (i.e., emissions from City-owned assets, operations, and services) and community-wide emissions (i.e., emissions from various sectors across the city of Tumwater, including but not limited to residential, commercial, and transportation sectors).

Municipal emissions goals

Based on the City's current municipal emissions, Tumwater is **establishing an interim target of reducing emissions by 50% from 2023 levels by 2030 on its way to net-zero emissions by 2045.** These municipal emissions milestones keep the City ahead of statewide emissions reduction goals through both 2030 and 2045.

Community-wide emissions goals

Based on the City's current community-wide emissions, Tumwater is establishing an interim target of reducing emissions by 45% from 2023 levels by 2030, and 70% by 2040 on its way to net-zero emissions by 2045. These milestones align with statewide emissions goals through 2040, while exceeding the State's requirements by 2045.

4. Municipal Operations Greenhouse Gas Emissions

For this Climate Element, the City of Tumwater is utilizing a municipal inventory of its GHG emissions from calendar year 2023. Per the Washington State Department of Commerce's Intermediate Guidance on GHG Emissions-Reduction Pathways, the City exercised Pathway 3 – Create GHG Emissions Inventory, coordinating with an external expert to prepare a comprehensive municipal emissions inventory for 2023.

In that year, Tumwater's municipal emissions totaled 3,821 $MTCO_2e$, with the leading sources of emissions including electricity used to provide water and wastewater services to residents (47%), gasoline, diesel, and electricity used to power city vehicles and equipment (19%), and electricity and natural gas used to power the City's municipal buildings and facilities (see Figure 2).

Water and wastewater services

Water and wastewater services are critical operations for the City of Tumwater and residents. The emissions from these operations

[9] Greenhouse gas emissions are measured in metric tons of carbon dioxide equivalent ($MTCO_2e$).

are 47% of the City of Tumwater's municipal emissions. The emissions from electricity used to provide water and wastewater services to the city largely stem from water wells and wastewater lift stations. Electricity is used to power pumps in water wells and wastewater lift stations.

Fleet vehicles

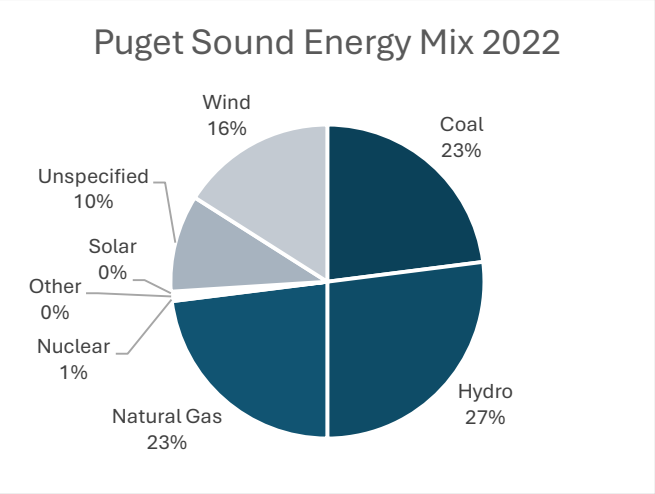
Emissions from the City's fleet vehicles make up 19% of municipal emissions. Of these emissions, 75.5% are attributed to gasoline fuel vehicles, while 24.3% are attributed to diesel fuel vehicles. Electric vehicle (EV) emissions contribute 0.2% of vehicle emissions for the City of Tumwater's fleet.

Municipal lighting makes up approximately 14% of the city's municipal GHG emissions. Municipal lighting includes traffic signals, streetlights, lights, and other outdoor lighting throughout the city.

Electricity and power content

Much of the City's GHG emissions can be attributed to the electricity used to power its assets. Emissions from this source are directly attributed to the power content of the electricity that the City procures from its utility, Puget Sound Energy (PSE). Under the State's Clean Energy Transformation Act, utilities like PSE are required to provide fully clean, renewable energy by 2045. As of 2022, PSE's electric power content (see Figure 3) includes natural gas (23%) and coal (23%), which explain much of the emissions coming from the City's electricity use. As PSE's power content improves and more clean energy sources are used to power the electric grid, emissions from municipal assets will decline.

Figure 3. Puget Sound Energy 2022 Power Content Mix



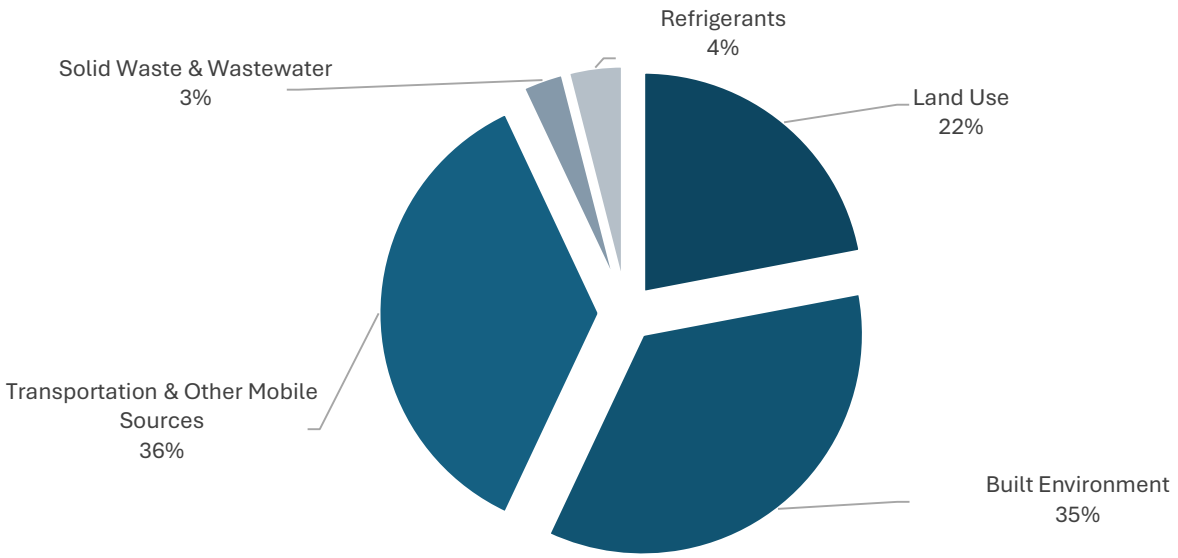
5. Community-Wide Greenhouse Gas Emissions

The City did not conduct its own community-wide GHG emissions inventory. Instead, Tumwater's community-wide emissions were derived from the 2022 Thurston County GHG emissions inventory.[10] Community emissions includes those produced by residential, commercial, industrial and agricultural and other activities outside municipally owned assets and operations. While this emissions inventory accounts for jurisdictions and land area that falls outside of the jurisdiction of Tumwater, it still provides key insights into emissions across different sectors. , Tumwater exercised Pathway 1 – Conduct GHG Emissions Estimate – according to Commerce's Intermediate Guidance to derive its community-wide emissions from another source.

Thurston County GHG emissions in 2022 (see Figure 4) amounted to 4,240,135 $MTCO_2e$ (or 14.1 $MTCO_2e$ per capita). A majority of

[10] The Washington State Department of Commerce funded the development of GHG emissions inventories for the State's eleven largest counties, including Thurston County.

Figure 4. Thurston County 2022 Community-wide GHG Emissions



countywide GHG emissions are from the transportation sector (36%), which largely comprise emissions from on-road vehicles (e.g., passenger vehicles, freight and service vehicles etc.). Other transportation emissions can be attributed to:

- public transit,
- off-road equipment,
- aviation, and
- marine and rail.

The built environment makes up the second largest source of emissions in Thurston County (35%), largely stemming from natural gas and electricity to power buildings.

In 2022, Thurston County had approximately 19,518 acres of agricultural cropland. Land use from agricultural activities contributed 22% of GHG emissions countywide, with nearly half of those emission stemming from methane production at dairy farms. Land use emissions also include emissions from tree cover loss in the county.

Smaller sources of GHG emissions countywide include:

- emissions from solid waste and wastewater (3%), which include generation and disposal of solid waste, commercially processed compost, and wastewater treatment, and
- emissions from refrigerants (4%), which include use and leakage of hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and CO_2 from ozone depleting substances (ODs) that are used to cool buildings and other assets.

Vehicle Miles Traveled and Land Use

Vehicle Miles Traveled (VMT) is a measure of the number of miles traveled by vehicles in a geographic area. In 2023, the Thurston County VMT was 2,404,917,000 total, and 7,927 per

capita. Increasing public transit ridership, carpooling, and increasing modes of active transit (biking, walking) all reduce VMT, and emissions from transportation.

VMT can also be reduced through land use and urban planning. Urban sprawl increases the number of miles for daily trips such as commuting to work, or running errands. Denser city development reduces VMT by reducing the distance of these trips. Additionally, planning public transit routes, bike lanes, and micro mobility between denser areas of housing and commercial centers contributes to lowering VMT.

4. Climate Resilience

A. Introduction

Climate adaptation aims to prepare a community for the inevitable impacts of climate change. These impacts are already being felt and can no longer be lessened by climate mitigation activities alone. At the core of climate adaptation is community resilience. The goal of resilience is that a community not only recovers after a climate-related disaster but bounces back better. Effective resilience requires policies that support a mix of disaster preparedness, response, and recovery activities. Policies should also address systemic underlying issues. Climate adaptation can include:

- repairing and enhancing existing infrastructure,
- restoring natural systems that provide a variety of ecosystem services,
- providing educational resources on individual resilience actions, and
- enacting policies that provide legal protections.

During implementation it is important to continuously engage broadly across the entire community to ensure adaptation actions are:

- equitable,
- provide benefits for frontline communities, and
- designed to avoid or mitigate unintended negative consequences.

Effectively building resilience requires acting across all sectors:

- Agriculture and Food Systems,
- Buildings & Energy, Cultural Resources,
- Economic Development,
- Ecosystems,
- Emergency Management,
- Health & Well-being,
- Transportation,
- Waste Management,
- Water Resources, &
- Zoning & Development.

Tumwater has combined these 11 sectors into 8 focus areas:

1. Buildings & Energy
2. Community Well-being & Preparedness
3. Cultural Resources
4. Ecosystems
5. Local Economy, Zoning & Development
6. Transportation
7. Water Resources
8. Agriculture, Food Systems, & Waste Management

B. Projected Climate Impacts

Tumwater is exposed to many natural hazards, several of which are projected to be exacerbated by climate change in the coming decades. Although the city has laid out mitigation actions for high-risk hazards through the County's Hazard Mitigation Plan (HMP), the mitigation actions laid out in the HMP plan were not created through a climate lens. Further,

traditional hazard mitigation tends to focus on infrastructure upgrades alone, neglecting social, behavioral, and institutional adaptation actions. All of these must be implemented in conjunction with infrastructure to effectively build resilience to climate change impacts.

Table 2: Tumwater Climate Projections, Low & High Emissions (Data Source: Climate Impacts Group Climate Mapping for a Resilient Washington Tool)

Climate Projection	By 2100	
	Low emissions scenario	High emissions scenario
Average summer temperature in June-August	↑ 5.4°F increase	↑ 9.5°F increase
Summer maximum temperature	↑ 4.7	↑ 9.6
Number of hot days (humidex over 90 degrees)	↑ 29.1 days	↑ 58.2 days
Total annual precipitation	*no data*	↑ 5.1% increase
Intensity of extreme rainfall events (change in the magnitude of 2-year storms)	*no data*	↑ 14% increase
Percent change in the magnitude of 25-year storm	*no data*	↑ 25% increase
Peak streamflow	↑ 15% increase	↑ 14% increase
Return interval of 25-year peak streamflow	↓ 9.6 years	↓ 13.8 years
Likely sea level rise	↑ 2.17 ft. increase	↑ 2.67 ft. increase
Change in high fire danger days	↑ 7 days *(by 2040)*	↑ 10 days *(by 2040)*
Precipitation drought (likelihood of a year with summer precipitation below 75% of historical normal)	*no data*	↑ 38% increase
Total late summer precipitation July-September	*no data*	↓ 22% decrease
Percent change in April 1 snowpack	*no data*	↓ 100% decrease

By 2050, Tumwater is projected to experience hotter temperatures, especially during the summer months, with higher average temperatures and a greater number of days each year that are considered extremely hot. The City will also experience more frequent and more intense precipitation events, with no projected change in annual rainfall but less precipitation falling during the summer months. There will also be a reduction in winter snowpack and an earlier start to seasonal snowmelt, resulting in altered streamflow regimes. Although Tumwater is not projected to experience drastic sea level rise in this period, the city could begin to experience impacts on groundwater water quality due to saltwater intrusion or other climate-related impacts.

All of these projected impacts will lead to more frequent and more intense disaster events in the City, including:

- more extreme heat waves,
- more frequent and severe urban and riverine flooding,
- a higher likelihood of wildfires and the accompanying risk of smoke,
- a higher likelihood of drought due to high temperatures and lack of summer rain, and

- a higher risk of landslide activity due to heavier rainfall, saturating soils and wildfires removing supportive root structures.

Tumwater is also projected to experience an increase in vector-borne illnesses, pollen-related air quality issues, and other public health hazards.

Appendix A Foundational Documents

The purpose of this gap analysis was to evaluate the existing policy framework to identify both its strengths and weaknesses. The analysis focused on assessing policies in the areas environmental, economic, and community aspects, while also evaluating responses to various risks such as climate change impacts and natural disasters.

-The analysis aimed to provide a comprehensive understanding of the current policy landscape, highlighting both effective areas and critical gaps and shortcomings in policies. The overall goal was to develop a more comprehensive and inclusive policy framework that effectively addresses diverse needs and challenges, thereby enhancing community well-being and ensuring long-term sustainability.

An extensive literature review compiled a total of 107 resources to explore climate planning and mitigation strategies. These resources covered a wide range of topics including:

- forestry and urban green spaces,
- transportation and air quality,
- equity and community involvement,
- regulatory and policy frameworks, as well as
- hazard and risk management.

From this comprehensive collection, a detailed policy analysis focused on key plans to assess their content and relevance. 362 relevant policies were extracted from the 16 plans shown in the table below.

Table 3: Data Gap Analysis Documents

Plan	Description
Thurston County Hazard Mitigation Plan (2023)	Outlines a multi-jurisdictional strategy to reduce the risks of the most destructive natural hazards such as floods, earthquakes, and wildfires that threaten communities in Thurston County.
Thurston Climate Adaptation Plan (2018)	Climate Resilience Actions for Thurston County and South Puget Sound.
Thurston County Climate Mitigation Plan (2020)	Lays out a roadmap for continuing regional collaboration on reducing local contributions to climate change and actions that can help to achieve GHG reduction goals.
Clean Energy Transformation Act (CETA) (2019)	CETA aims to transition Washington to a clean energy economy by eliminating coal-fired electricity by 2025, achieving 100% carbon-neutral electricity by 2030, and 100% carbon-free electricity by 2045.

Tumwater Urban Forestry Management Plan (2021)	Lays out goals and recommendations for sustainably managing Tumwater's urban canopy.
Tumwater Tree Inventory and Maintenance Plan (2024)	Outlines inventoried tree resources (distinct species compositions, age distribution and condition).
Tumwater City Plan 2036 - Transportation Master Plan (2016)	It outlines the transportation goals, policies, and strategies for the community. Aims to improve mobility, safety, and accessibility while promoting sustainable and efficient transportation systems.
Tumwater City Plan 2036 - Conservation Element (2016)	Outlines natural resource land conservation and critical area protection.
Tumwater City Plan 2036 - Land Use Element (2016)	It outlines policies and guidelines for land use planning and development. Aims to promote sustainable growth, protect natural resources, and enhance community livability.
City of Tumwater Shoreline Master Program (2014)	Provides guidance for positive, equitable use and development of the shoreline while promoting community well-being, ecological preservation and compliance with state policy
Tumwater City Plan 2036 - Lands for Public Purposes Element (2016)	Details the public facilities and services planning for 20 years (after 2016), including essential public facilities siting and expansion.
City of Tumwater and Thurston County Joint Plan (2021)	Cities of Lacey, Olympia, and Tumwater and Thurston Country initially agreed upon the process of joint plan. It aims to guide future development in the unincorporated portion of Tumwater's urban growth area, ensuring a smooth transition from rural to urban development.
Olympia Climate Action Annual Report (2019)	The goals are establishing framework for climate-focused decisions, set foundation for solar and green building community, create city staff culture of climate awareness, green the city's fleet and facilities, build foundation for climate-friendly infrastructure, and build and leverage partnerships.

Puget Sound Energy (PSE) Green Direct Program	PSE's Green Direct program allows government and commercial customers the ability to purchase 100% of their energy from a local, renewable energy resource that is cost-efficient.
Washington Clean Fuel Standard (2023)	The standard will reduce carbon pollution from transportation by decreasing emissions from the production and supply of transportation fuels. It will also provide an increasing range of low-carbon and renewable alternatives to improve air quality and decrease dependency.

The detailed policy analysis involved categorizing the reviewed resources into sectors, focus areas, and climate hazards to systematically evaluate their coverage and identify gaps. The categorization was as follows:

Sectors:

- Agriculture & Food Systems
- Buildings & Energy
- Cultural Resources & Practices
- Economic Development
- Ecosystems
- Emergency Management
- Health & Well-being
- Transportation
- Waste Management
- Water Resources
- Zoning & Development

Focus Areas:

- Climate Resilience
- Climate Mitigation
- Climate Equity

Hazards:

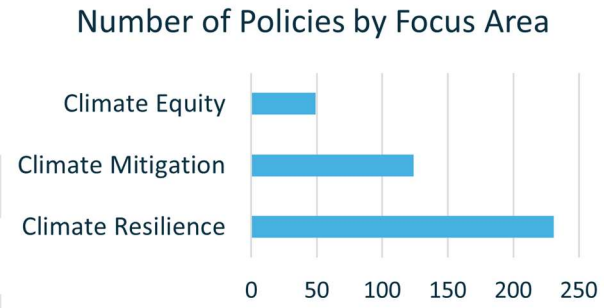
- Drought
- Extreme Heat
- Flooding, Extreme Precipitation, & Sea Level Rise (SLR)
- Wildfire
- Earthquake
- Landslide
- Snowpack Reduction/Snowstorms

Conducting a thorough policy analysis was essential to understand the current stance on various policy areas. This detailed inquiry revealed several important findings. Firstly, there is a robust framework of policies addressing ecosystems, zoning, and development. These existing policies underline a strong commitment to natural resource management and land use governance. However, the analysis has also revealed notable gaps in other areas. Specifically, there is a gap in policies related to cultural resources, practices, and economic development. This indicates a need for more comprehensive strategies that integrate and support these important aspects of the community.

Figure 5. Policies by sector, policy gap analysis

Moreover, while many policies prioritize climate resilience—aiming to safeguard the environment against the impacts of climate change—there is a noticeable gap in policies that address climate equity. This gap suggests that, although the city is preparing for climate-related challenges, they are not equally addressing the impacts on diverse communities and ensuring that all groups benefit from climate resilience efforts. Additionally, nearly all resilience policies originated from County-level

Figure 6. Policies by focus area



Thus, this policy analysis underscores the importance of developing a more balanced and inclusive approach that not only fortifies the city's climate resilience but also promotes equitable outcomes for all stakeholders.

Appendix B Engagement Results

Community input was collected in three ways: the CPAT, the in-person public workshop, and the Virtual Open House. The CPAT provided feedback on each draft of the Climate Element and worked with City Staff in small working groups to develop specific policy and implementation action language and review language recommended by the City. Community input from the in-person public workshop was collected via notes taken during each breakout session, sticky notes left on posterboards and maps, and anonymous comment cards. Finally, the Virtual Open House included multiple surveys to collect public opinions on preferred climate mitigation methods, equity, and lived experiences with climate change in Tumwater.

Policies and implementation actions driven by community input through one of these three channels are marked as Community-Identified Priorities within the Climate Element. The responses to Virtual Open House Surveys and a high-level summary of input received at the in-person workshop, both of which informed policy development, are found below.

In-Person Workshop

Across all focus groups, participants called for greater collaboration and engagement citywide, as well as a need to identify funding sources and provide financial incentive, safeguards, and subsidies to ensure equitable climate adaptation and mitigation.

GHG Reduction Focus Group

Key discussion themes included:

- Multimodal Transportation System Improvements: requested actions ranged from expanding public transit access, enhancing bike accessibility and walkability, reducing car dependence, and increasing EV charging capabilities.
- Sustainable Land Use: participants urged for preservation of green spaces and urban canopies, denser urban development, and elimination of minimum parking requirements.
- Energy: participants suggested measures that would improve energy efficiency in buildings and encourage renewable energy generation and use.

Resilience Focus Group

Participants highlighted several key issues they would like to see addressed in Climate Element policies:

- Equity & Environmental Justice: Building resilience in low-income, historically disadvantaged areas that are disproportionately impacted by climate change.
- Climate Hazards: Actions that will address issues like wildfire smoke, power grid interruptions, and drought.
- Sustainable Practices: Managing water resources for Tumwater's future communities through water conservation methods and integrating and expanding use of renewable energy sources.
- Urban and Land Use Planning: Improving connectivity, walkability, and bike infrastructure, implementing strategies to increase shade and mitigate urban heat islands, and managing Tumwater's projected population growth and housing needs sustainably and equitably.
- Wise Resource Management: Reducing reliance on resource-intensive industries and promoting and supporting sustainable businesses.

Governance Focus Group

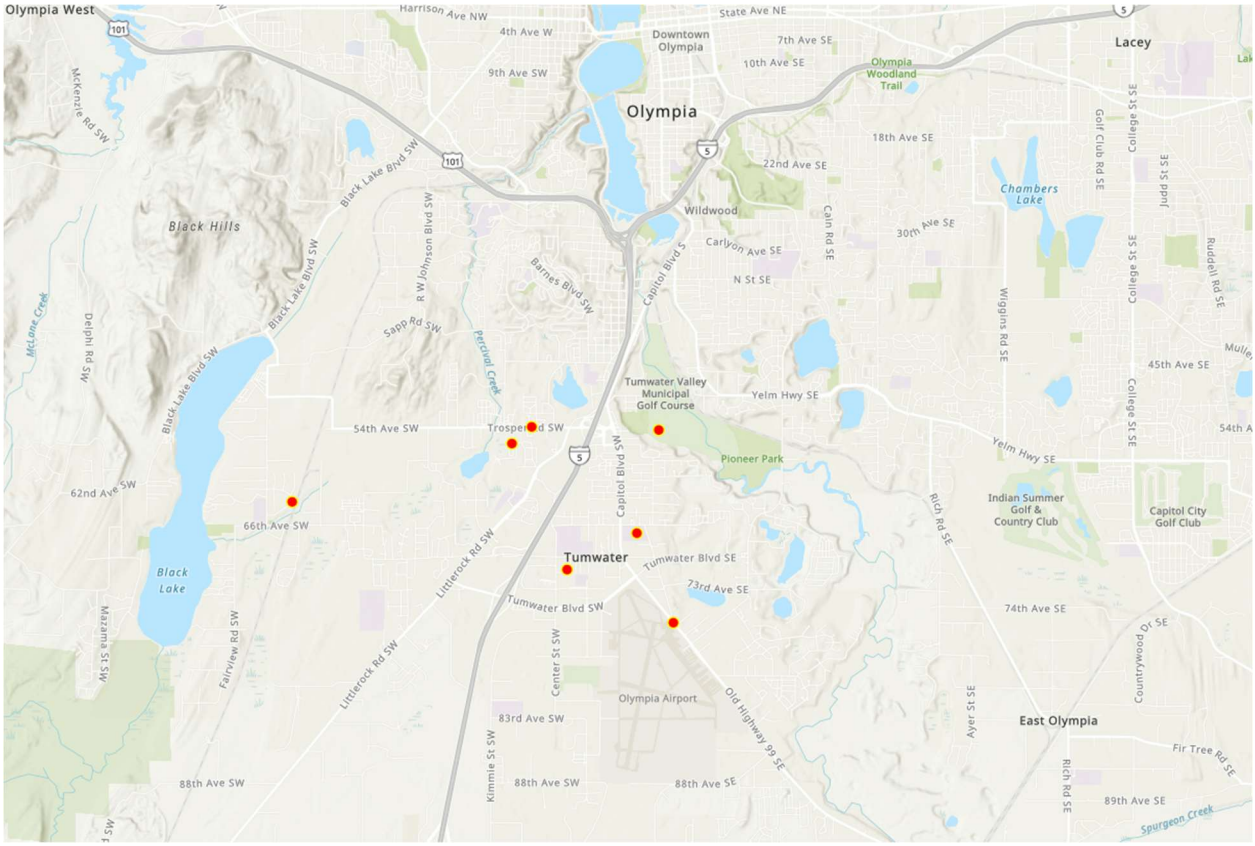
Participants voiced several areas of concern and opportunity regarding City governance:

- Building Public Trust: Participants noted some wariness due to previous perceived failures to address community needs by the City in past efforts, particularly highlighting skepticism of long-term residents.
- Improving Communication: Finding ways to continuously and effectively communicate with diverse age groups and demographics, including targeted outreach to youth and underrepresented groups
- Clarity and Transparency: Present community members with clear cost-benefit analyses of proposed actions and ensure Climate Element development is transparent and accessible.

Virtual Open House

Equity

Click on the map to place a pin on areas you're concerned about in terms of pollution, contamination, and/or inequitable benefits (like tree canopy cover).



What would you like Tumwater to do to address environmental justice issues and ensure that all residents have equal quality of life both before and after climate disasters?
Create programs and incentives that support resident access to clean energy, such as heat pumps, solar, and EV chargers. Include specific carveouts for low-income and elderly populations.
The ability to walk or roll around our community is a transportation method not dependent on income or on the presence of fuels or electricity. Having a fully accessible, walkable community will be resilient as well.
Sidewalks along Trosper Road and nearby streets are incomplete. Many older residents live in this area and need safe walking routes to get to the commercial area to the east.
Provide safe walking and cycling throughout the city. This is important to reduce emissions and pollution. It is also important so that people can move around if fuel becomes scarce or some services are not accessible by car. It is also important that people who need to get to transit can walk safely to reach a bus stop. Transit cannot go everywhere, so that means that people need safe walking routes to and from their home and services and destinations.

I believe the City is in need of more cooling & heating centers for community members. This summer was relatively cool but investing in at least one other area in a different part of Tumwater to support heating & cooling for community members would be a great idea. I also really liked an idea I heard at the ASHHO event, which was to find a way to repurpose abandoned parking lots that become heat islands during extreme weather events. If these lots cannot be repurposed right away, maybe trees can be planted in the sidewalk areas that border these lots, to help shade the parking lots somewhat when it's really hot outside. Or, maybe we could consider building simple structures that could provide shade over parts of certain heat islands. An empty parking lot on a busy road that had some sort of shade structure with a bench or two underneath it could help a severity of heat coming from that asphalt and also give passerby a place to sit in the shade on hot days.
My concern is putting warehouses near schools. The Tumwater planning dept. should not allow this. Schools need better air quality nearby, not trucks going to and from large Port of OLY. warehouses. My concern is water quality. The Port allowed a Coca Cola plant to lease a parcel in Tumwater. My concern is allowing a industrial plant to bottle our water to be shipped out of state. I do not think we have enough scientific evidence that Tumwater has enough available water for the next 20-25 years to do this. The town of Lacey has water restrictions. This is a big deal. Do we have enough water for the next 40 years of growth? We should not allow industry to take our water!
Protect the Davis Meeker Garry Oak! The Davis Meeker Garry Oak is sacred to several Coastal Salish Tribes, as well as many Tumwater residents. The DMGO is located on the historic Cowlitz Trail (parts of which became Old Highway 99), and is fairly close to the site of the Bush Family Farm. The City of Tumwater needs to protect the DMGO as one of the only visible reminders of the Cowlitz Trail, and our shared history. The DMGO provides important habitat for birds, as well as sequestration of atmospheric carbon. Too many large trees have been removed in Tumwater already.
There are many mobile home parks in Tumwater.Most of us senior citizens do not have the money to add insulation, although we are exposed to the increase in temperatures more rapidly than most stick-built homes. Help us upgrade the mobile homes we live in. Our rent is being increased annually and on a reduced fixed income leaves little money for improvements.
In a wildfire or incident, how would large numbers be able to exit on the present two- lane roads? Are there enough fire stations, equipment & responders? Would the city be able to expedite building permits to rebuild?

GHG

What is your lived experience with climate change? Does it change seasonally?
I don't really know - I try to rely on data.
I wonder, when it gets hot in the summer, or wet in the winter, whether climate change is showing up, or whether it's just local variation.
I have experienced the heat events but fortunately my health has not been impacted. I also have noted the increase in smoke events.
Summer wildfires are much more frequent in this area compared to when I was a kid growing up here. Summers are hotter.
Our rivers and streams are low. We have less rain. Our thick forests are super dry in the summer. We could have a massive forest fire (my sister went through this in another town, her area was wiped out by fire). We must be aware of how much water we remove from the water table. We must not allow industry into our area that will contribute to lowering the water table.
I purchased a portable a/c for my apartment about 4 years ago to help with the heat. But I am not convinced still that it is related to climate change. I believe the earth goes through cycles like this, it just wasn't tracked 100's of years ago. Tracking temperatures has only been happening for the last 150 years or so.
I am noticing longer hotter and drier summers.
Aware of increased heat in summer & more snow days in winter. We are less active in summer due to heat and more careful of road conditions in winter. Have been impacted by smoke from fires in other areas.

Have you made any changes to your home or routine due to climate change or its effects?
I haven't made any changes, but I was pleased to buy a home with a heat pump since it gets pretty warm during the summer.
We installed a single split heat pump in the back of our house; replaced our old gas water heater with a new heat pump water heater; went from our plug-in hybrid to a full battery electric; put in a 240 charger; and signed up for PSE's community solar and their time of use rate program. We don't eat red meat any more (except for occasional bacon and for meat on pizza); We don't fly for vacations.
Went to ductless system from burning wood for heating house. Electric bill has gone up but overall less work/time to heat house.
Yes, we purchased a window-install AC unit. (heat pump) to prepare for heat events. This was the best choice for us since retrofitting our entire home would be expensive. We also have air filters now.
Yes, I've made many changes, but I've also not been able to make all the changes i'd like to because of budget constraints. I drive an EV, I bike to work in the warmer months, I eat a mostly plant-based diet, I've taken my investments out of fossil fuels, and I'm active in local climate groups.
Air conditioning is more necessary for quality of life than it used to be in this area. I try to commute by bike as much as I can to reduce my personal carbon emissions.
We bought 23 solar panels to our house. Our electric bill is lower now. We travel less,so less Green house gas (GHG) emissions.
I try to recycle as much as possible....but because it is a good thing to do. Not because of climate change.
In the fourteen years I have lived here, I have had to add AC to my home due to summer heat in the last five years. I am sensitive to heat and have to abstain from participating in outdoor activities or un-airconditioned locations on hot days. In my work, I am required to work outdoors but have the flexibility to choose when I can work outdoors. My schedule has had to change due to high heat days.
Have added a portable air conditioner. Have had to adapt a homemade window screen to deter smoke and wear masks outside.

What greenhouse gas mitigation would you like to see improved, enhanced, or created if it doesn't exist now?
Require landlords to implement pollution reduction and safety upgrades on their rental housing. Prevent them from undue increases in rental fees. Prevent new development in tree areas - protect trees from removal.
I would like to talk more about the buildings portion - how can that be reduced?
More community education and outreach about the issues, and opportunities for individual action, available incentives, household planning for gradual electrification. Education and outreach about consumption emissions. Add building recommissioning to the actions in the regional climate plan. EV group purchasing program.
Time limits on car charging stations, some public stations (city parking lot) have cars parked in them all day even though they are fully charged in less then 2 hours. This leaves limited charging space for others to use.
Stop allowing building of homes and services that are not near already established services and transit. We need to grow with density in order to support efficient transit and allow for non-motorized travel. This is an action in the regional Climate Plan. Spreading out beyond existing services is going to increase emissions and miles driven. It also creates inequitable and unaffordable housing which requires ownership of a car. Lowering emissions means we live closer together and drive much less.
Something that improves the lives of poor and working class people. More bike and ped infrastructure in Tumwater - make it not only safe, but inviting for people to get out of their cars.
Better community planning that reduce sprawl and car-dependency; improved non-motorized transportation options/infrastructure; increased public transit reliability and awareness; higher cost to GHG-emitting modes

Do we have enough electric charging stations? I doubt it. We bought an electric vehicle. WE NEED MORE ELECTRIC CHARGING STATIONS!
Any improved mitigation would be appreciated.

Take a look at the committed goals and actions identified in the Thurston County Climate Mitigation Plan. Do you feel there are goals and actions missing? Are the goals and actions identified in the TCMP still what the community wants to commit to?
We continue to float along about the 50% of local reductions that the plan says are supposed to come from afforestation. Creating 37,000 acres of new forest seems totally unrealistic. This requirement doubles if we use the estimates for sequestration TRPC adopted in its white paper, even though the ICLEI methodology they said they were using actually recommends using local sequestration estimates when those are available, which is what the plan does. We're also going to get a significantly larger reduction from recent State legislation that the plan estimates). We ought to have a plan that's based on facts and realistic estimates, even if that means we have to recognize that we can't make the reductions we need with our local capacities alone.
I feel like there definitely could have been a goal for increasing the amount of space available for walking and biking. I feel like we should invest more money into improving areas of town to be more walkable and bike-able. Improve spaces to be used by modes of transportation that don't burn fossil fuels. I also don't see anything mentioned about improving the structures of our buildings to waste less energy.
Yes - please continue to commit to the TCMP! And take the actions in the Plan. There are plenty of actions to take. Don't think that doing a handful is enough. We need to do almost all of the actions in order to save our planet.
Regulating large polluters in whatever ways the City can
YES, we want to commit to lowering our GHG emissions. Do we have enough electric vehicle charging stations in Tumwater? NO! We have an electric car. We need more charging stations.

Resilience Mapping: Flooding

No responses

Resilience Mapping: Heat

What has been your experience with extreme heat in Tumwater?
Living here during heat waves and/or heat domes. Many housing units don't have air conditioning, especially rentals.
Duuring the June 2021 heat wave I experienced heavy sweating, heart racing and flushing. It felt like my brain was in a fog and I felt weak and fatigued. I recognized these symptoms as the symptoms of heat exaustion, and went to the mall to escape the heat for a while. We did not have air conditioning in our home, and as there was almost no wind, opening the windows couldn't help. Our house got hotter than it was outside. I am 71 years old, so such heat is especially dangerous for my health. After this heat wave we contracted to install a heat pump in our house. This has made our life much more comfortable in the last few years, and when the next heat wave comes we will be protected. I was very concerned for my neighbor who lives alone and is much older and quite frail and does not have air conditioning. I have told him that we will check on him in future heat wave, and he can shelter with us. I worry about the health of so many other people who are similarly at risk.

Have you had access to all of the resources you needed during an extreme heat event? Is there anything you would like to have available to you in the future?
Portable a/c units or heat pumps that I could rent or borrow during heat events
We did not have any air conditioning for the June 2021 heat wave, and suffered for not having what we now consider essential with our changing climate. We have lived in Thurston County for 36 years and nevver had air conditioning until we installed our heat pump after this heat event. Many of our friends are in the same postion. We need a robust program to help our residents have a safe home. I would not want to go to a cooling shelter, and Tumwater's shelter is only available during the daytime and would be very crowded. People need to be able to protect themselves at home.

Governance

What does a resilient Tumwater look like to you?
Great looking plan.
People can walk and cycle safely without needing to own a car. Homes and services are located so that people can access services and schools without driving. There are no homes or businesses in the areas where flooding will happen. A transit system is in place along major corridors. That transit provides access to other communities and helps move people along Tumwater corridors.
Improved transit and non-motorized connectivity; emphasis on density and mixed-use zoning; protection and restoration of our precious natural resources; restoration of derelict properties
A resilient Tumwater would protect the basic needs of the community, including clean water; available housing with limited restrictions for homeowners who want to add ADUs to assist in that effort; encouragement of business growth; and clean and repaired streets.

What do you hope will be true about Tumwater in the future?
I would like to see all the warehouse roofs covered with solar panels. I recommend that be a requirement for all new warehouse construction, otherwise, that is just wasted real estate, missing the opportunity for developing the backbone of a distributive electric grid. Better to do it there than on agricultural land or forested land. More stringent building codes for renewable electrification across the board. ... EV-ready, etc.
People have their basic needs met and they are happy to live in Tumwater. There are electric vehicles on our streets, but there is not congestion and people who walk and cycle can do so safely.
Improved transit and non-motorized transportation; significant decrease in per capita vehicle miles traveled; higher density housing and mixed-use zoning
That it will be a city that is proud of it's beauty and inclusion.

Are there areas within the city you are most concerned about regarding climate change impacts? If so, what are those areas?
Areas near Deschutes River and creeks... all vulnerable to heavier rainfall amounts as the climate changes.
not so much areas, but income-levels

How would you like the city to engage with you around climate change?
Having staff out in the community is good.

What could the City do to improve your trust in it/them?
The City will improve my trust in them by following through to actually take the actions in the Climate Plan. Moving forward with many actions, not just a few. Be open about challenges.

How would you like to see equity addressed in the climate element?
It is not equitable to zone areas for housing or to place low income housing where the people who live there cannot walk or cycle for their needs. Denser areas of housing mean that fire, utilities, mail, deliveries, police, etc. cost less to provide and can respond more efficiently. Schools need to be located amongst the population who will attend the school. And those students should be able to walk to school. This all points to stopping sprawl and developing as a close-knit denser community. That actually is more equitable for everyone.
Reduce future harm

What could the City do to improve your trust in it/them?

No responses

Have you felt distrust or a lack of transparency in any of your interactions with the City?

No responses

Are there current community equity efforts you know about that can be built upon for climate action?

No responses

Are there communities in the city you are particularly concerned about regarding climate change impacts? If so, who are those communities?
Young people who will inherit the world in the condition we leave it.
Poor and working class folks
Tumwater has a significant elderly population who are vulnerable to heat-related illness and many of whom depend on transit or pedestrian routes. Tumwater needs a complete non-motorized network with good tree canopies.

Closing Survey

If you have any questions or comments related to the Comprehensive Plan Update and/or Climate Element for City staff, please provide them below.
What is going to happen to the old brewery project when the Deschutes returns to an estuary, tides reach up the river, and sea level continues to rise?
What are you doing to change business as usual to reduce GHG's, increase HOV's reduce water usage, replant forests that are burning up releasing more carbon into the air?

Appendix C Index of Equity-Focused Actions

Overarching Goals

Goal	**CL-1**	**Ensure environmental justice by providing all members of the Tumwater community with an equitable opportunity to learn about climate impacts, influence policy decisions, and take actions to enhance community resilience.**

Policy	**CL-1.1**	**Conduct intentional outreach with frontline communities to create opportunities for equitable engagement in climate adaptation, mitigation, and education.**
Action	CL-1.1.1	Build and support partnerships with existing organizations (i.e. CBOs) that have the capacity and existing relationships needed to convene diverse coalitions of community members and collaboratively empower their communities to develop and implement climate resilience and mitigation actions and work to address underlying disparities that impact these communities.
Action	CL-1.1.2	Create and implement tailored outreach and education initiatives that will empower frontline communities to respond to climate change threats.
Action	CL-1.1.3	Attend pop-up events with existing CBOs and hold focus groups, office hours, and other events to build trust in both group settings and one-on-one with Tumwater's frontline community members.
Action	CL-1.1.4	Conduct outreach and listening sessions in frontline communities to understand existing needs and opportunities and to educate on projected climate impacts.
Policy	**CL-1.2**	**Prioritize the people of Tumwater and their needs, values, and goals in all future planning efforts by developing and implementing all climate-related adaptation and mitigation tasks in collaboration with equitable representation from all Tumwater communities.**
Action	CL-1.2.1	Prioritize recruiting frontline community members most impacted by climate change when forming any City of Tumwater working group, committee, or task force on climate-related issues. Strive to form all working groups and committees with equitable representation.
Action	CL-1.2.2	Plan and conduct community engagement activities to ensure all policies and tasks are co-created with the community and to share new plan information upon completion and update throughout implementation.
Policy	**CL-1.3**	**Develop programs and resources to promote equitable financial access to climate resilience and mitigation activities.**
Action	CL-1.3.1	Identify funding sources for subsidies for overburdened communities to offset costs associated with climate impacts and mitigation actions. Covered funding could include potential cost increases associated with changing to non-fossil-fuel energy sources, increased energy usage to maintain livable indoor temperatures, and home hardening projects.
Action	CL-1.3.2	Establish and initiate a process to consult with frontline communities to identify ways to equitably distribute climate funding.
Policy	**CL-2.2**	**Develop a program funding strategy to support equitable access to climate mitigation and adaptation programs developed by the City.**
Action	CL-3.1.1	Conduct a comprehensive Vulnerability Assessment that considers climate impacts to communities, physical assets, and City operations and services, including impacts from extreme heat and flooding.

Action	CL-3.1.2	Utilize community outreach efforts (see policies CL-1.1, CL-1.2) to discuss community climate impacts and work with any community groups that desire additional adaptation or mitigation planning beyond existing city efforts.

GHG Sub-Element

Goal	**CL-4**	**Reduce greenhouse gas emissions from all building types through energy conservation measures prioritizing the deployment of financial resources and programs that help finance or subsidize improvements across Tumwater.**
Action	CL-4.2.2	Require energy performance ratings and disclosures for rental dwelling units at times of application so that tenants are informed before making rental decisions.
Action	CL-4.2.6	Require baseline levels of energy efficiency as part of building permit review.
Goal	**CL-5**	**Expand the use of on-site renewable energy technology (e.g., solar photovoltaics, battery storage, etc.) across all building types through providing funds, code changes, and educational programs.**
Action	CL-6.1.2	Promote biking, walking, and rolling by investing in accessible and attractive street-level elements per goals included in the Transportation Plan like seating, shaded sidewalks, ADA ramps, enhanced signals and crossings, and protected bike lanes.
Action	CL-6.1.3	Develop a rebate program for community members who wish to buy a bicycle or electric bicycle, with priority for low-income residents or households with greater barriers to vehicles.
Action	CL-6.1.4	Continue support for InterCity Transit's Walk N Roll program that focuses on a walking and bicycling incentive program with safety education for families, in coordination with Tumwater School District.
Action	CL-6.1.5	Reevaluate long term plans, such as the Transportation Plan and Capital Facilities Plan, and update to prioritize non-motorized transportation. Set goals and plans for shifting to non- motorized transportation, like developing car-free corridors in commercial and mixed-use areas to encourage mode shift.
Action	CL-6.2.2	Provide educational resources for community members seeking to install EV chargers at home, with specific incentive support for smaller-scale and multi-family property owners.
Action	CL-6.2.3	Explore more opportunities to expand the city's publicly available EV charging network.
Policy	**CL-7.2**	**Increase efficiency of the transportation system.**
Action	CL-7.2.4	Work with Intercity Transit to identify and implement programs that help people move to and from transit, reduce GHG emissions, and use street-level improvements to connect neighborhoods without the population to support fixed routes transit options. Tumwater will engage homeowners' associations

		for representation and feedback. Expansion of service will include an analysis of climate impacts to ensure the program does not result in an increase in GHG emissions.
Goal	**CL-8**	**Strengthen existing policy and regulations to deploy and enhance natural carbon solutions that are ecosystem-appropriate, store carbon, and offer co-benefits such as pollution reduction, wildlife habitat, and climate resilience.**
Action	CL-8.1.1	Adopt and implement a coordinated reforestation and afforestation program guided by the UFMP with goals and policies to support stormwater management. Consider how existing or future tree canopy can support stormwater management and water quality improvements in receiving waters. Include goals for maintaining or increasing canopy in overburdened communities.

Resilience Sub-Element

Goal	**CL-9**	**Ensure that buildings and energy infrastructure can accommodate renewable energy opportunities, keep the community safe, and can withstand and recover from extreme weather and natural hazards worsened by climate change.**
Action	CL-9.1.2	Identify potential funding sources to develop and maintain a grant program that will enable affordable housing development projects to bury new power lines and associated infrastructure as required, or to make more resilient to climate impacts where burial is not feasible.
Action	CL-9.5.1	Establish partnerships with all regional energy utilities and develop short- and long-range plans to assess and mitigate the risk of climate hazard impacts on energy generation and transmission infrastructure.
Goal	**CL-10**	**Increase preparedness for acute climate impacts and improve the resilience of Tumwater's people and systems against climate hazards.**
Action	CL-10.1.1	Partner with a philanthropic organization or a CBO to build a volunteer network to develop and manage a vulnerable population database that includes community members who require aid and/or check-in calls during and after emergencies. This database can be built on the existing Lifeline Program members.
Action	CL-10.1.2	Transition management of the vulnerable population database to the City and secure long-term funding and staffing to keep the database up to date and oversee its use during emergencies.
Action	CL-10.2.1	Implement the Thurston County Extreme Heat, Emergency Response, and Illness Prevention Plan.

Action	CL-10.2.3	Assess potential partnerships with CBOs and regional agencies that can serve as resilience hubs that provide resources such as heat pumps and emergency supplies for community members to check out during emergencies.
Action	CL-10.2.4	Explore feasibility of implementing and maintaining a program to distribute portable cooling units and install heat pumps, prioritizing households with residents most vulnerable to extreme temperature events such as renters and low-income seniors.
Policy	**CL-10.5**	**Improve community resilience, health equity, and environmental justice by ensuring that all community members can walk or roll to public green spaces within ½ a mile and connected by sidewalks or protected walkways.**
Action	CL-10.5.1	Utilize data from the Trust for Public Land and from community outreach efforts to find any gaps in equitable access to public green spaces.
Action	CL-10.5.2	Engage community members who lack equitable access to green spaces to determine how they would like to improve their access. Options can include better transportation options, addition of new green space, and improved safety of active transportation routes, among others.
Policy	**CL-10.8**	**Develop programs that enable and empower community members to protect themselves from poor air quality.**
Action	CL-10.8.1	Collect data to determine how many Tumwater community members are vulnerable to poor air quality and the neighborhoods in which these residents live, using both quantitative and qualitative data from tools like EJScreen and from community outreach efforts. Use collected data to set target thresholds for shelter occupancy and locations and air conditioner/heat pump and air filtration distribution programs.
Action	CL-10.8.2	Establish and maintain a stable funding source to distribute personal protective equipment to populations vulnerable to poor air quality.
Action	CL-10.8.3	Identify facilities that serve high-risk populations to create incentive programs encouraging infrastructure updates for clean indoor air. Updates should include HVAC system improvements.
Policy	**CL-10.9**	**Ensure community members have resources to shelter in place or to adequately reach temporary shelter.**
Action	CL-10.9.1	Coordinate with other agencies and jurisdictions to provide more cooling centers with 24-hour capacity. Offer 24-hour capacity for all of Tumwater's heat-vulnerable residents including seniors, low-income, and houseless individuals. Shelter locations should be sited equitably throughout the city, with priority for opening locations near the highest concentrations of heat-vulnerable residents.
Action	CL-10.9.2	Coordinate with local businesses, community centers, and other neighborhood hubs to assess the potential of using these spaces as cooling centers. Provide sites that agree to participate in this program with resources detailing how to set up an equitable and functional cooling center.
Policy	**CL-10.10**	**Increase language accessibility of emergency services, plans, and resources.**

Action	CL-10.10.1	Establish on-call contracts for language interpretation and translation services, including ASL.
Action	CL-10.10.2	Utilize on-call contracts for language services to translate all emergency resources and plans.
Goal	**CL-11**	**Preserve, protect, and sustain cultural sites and resources in alignment with the values and needs of Tribes, traditional stewards, and frontline communities.**
Policy	**CL-11.1**	**Enhance partnership between the Tribes and the City, integrating Tribal expertise, opinions, and values into climate planning efforts, projects, and programs.**
Action	CL-11.1.1	In collaboration with the Tribes, establish guidelines and standards for incorporating Traditional Ecological Knowledge into City programs and planning efforts to adapt to climate change impacts.
Action	CL-11.1.2	Integrate the Tribal Stewards Curriculum or an alternative approved by Tribal representatives into regular City training schedules.
Policy	**CL-11.2**	**In accordance with Tribal treaty rights, protect, enhance, and restore ecosystems and culturally important consumptive and non-consumptive resources including foods, medicinal plants, places, and materials that could be adversely impacted by climate change.**
Action	CL-11.2.1	Work with local partners, especially representatives of the Tribes, to establish and sustain a native plant nursery and seed bank to support long-term ecological restoration and ensure continued access to culturally significant plants.
Action	CL-11.2.2	In collaboration with the Tribes, identify consumptive and non-consumptive resources that will be adversely impacted by climate change.
Action	CL-11.2.3	In collaboration with the Tribes, develop and implement a plan to protect, enhance, restore, and/or preserve cultural resources that have been identified as threatened by climate change.
Policy	**CL-11.3**	**Collaborate with the Tribes to ensure the preservation of archaeological sites and traditional cultural properties that are vulnerable to climate impacts.**
Action	CL-11.3.1	Request recommendations from the Tribes for actions the City can take to preserve historic sites and cultural properties.
Action	CL-11.3.2	In collaboration with the Tribes, develop guidelines for protecting, enhancing, and restoring affected historic sites and cultural properties.
Action	CL-12.1.2	Protect and enhance the climate resilience of urban forests by implementing the most recent UFMP. Prioritize implementation of UFMP actions that provide benefits for frontline communities.
Goal	**CL-13**	**Ensure that zoning and development decisions support compact urban development, prevent displacement, and foster system-wide resilience, including a resilient local economy.**
Policy	**CL-13.1**	**Develop anti-displacement programs in overburdened communities when increasing densities.**

Action	CL-13.1.1	Review existing anti-displacement and equity decision-making tools and use these to develop guidance specific to Tumwater for future housing and zoning decisions.
Action	CL-13.1.2	Conduct extensive outreach activities in frontline communities at risk of displacement to collaboratively develop a set of anti-displacement strategies.
Action	CL-13.1.3	Review land use maps and Comprehensive Vulnerability Assessment findings to identify regions at high-risk of disaster displacement such as barriers to rebuilding housing in high-risk areas and develop strategies in collaboration with impacted communities to develop solutions.
Action	CL-13.2.4	Form partnerships with organizations that aid workers affected by climate change who are transitioning to new fields of employment to share their services with Tumwater community members.
Policy	**CL-13.3**	**Embed environmental justice in City land use decisions.**
Action	CL-13.3.1	Develop an Environmental Justice Audit process, using the State Department of Ecology guidance as well as US EPA guidance to inform Tumwater's audit process.
Action	CL-13.3.2	Conduct a city-wide environmental justice audit prior to amending land use designations.
Goal	**CL-14**	**Ensure that the local transportation system, including infrastructure, routes, and non-motorized travel modes, fosters connectivity and can withstand and recover quickly from climate impacts.**
Action	CL-14.1.3	Work with Intercity Transit to expand their transit program that provides evacuation aid to community members who do not or cannot drive, utilizing the vulnerable population database established by CL-10.1.2.
Goal	**CL-15**	**Protect and improve water quality and availability.**
Action	CL-16.1.2	Identify relevant stakeholders who can further sustainable, climate-adapted, and equitable food distribution in Tumwater.
Policy	**CL-16.3**	**Expand consistent access to food for Tumwater community members.**
Action	CL-16.3.1	Coordinate with the County to expand access to food bank services.
Action	CL-16.3.2	Conduct community outreach to find gaps and barriers in consistent access to nutritious food.