

# Climate Element

## Part 2 – Technical Information

### City of Tumwater 2025 Comprehensive Plan

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

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## Acronyms and Abbreviations Used in Document

<b>EV</b> – Electric Vehicle	<b>TRPC</b> – Thurston County Regional Planning Council
<b>GHG</b> – Greenhouse Gas	
<b>RCW</b> – Revised Code of Washington	<b>VMT</b> – Vehicle Miles Traveled

### Key Terms and Definitions

**15-Minute Neighborhood:** An urban planning concept referring to neighborhoods in cities in which most daily necessities, services, and amenities, such as 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 Commitment Act** – The Climate Commitment Act (Chapter 310, Laws of 2021) caps and reduces greenhouse gas emissions from the State’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 the state achieve its commitment to reducing greenhouse gas emissions by 95 percent by 2050.

The Act 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 greenhouse gases. 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.

**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.<sup>1</sup>

**Environmental Justice:** 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 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.

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<sup>1</sup> 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)

<https://www.fs.usda.gov/ccrc/topics/climate-change-refugia>

**Frontline Community<sup>2</sup>:** 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 decision making processes in Tumwater.

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

**Greenhouse Gas:** 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 that are 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.<sup>3</sup>

**Overburdened Community<sup>4</sup>:** 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. It 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.

**Resilience:** the ongoing process of anticipating, preparing for, and adapting to changes in climate and minimizing negative impacts to our natural systems, infrastructure, and communities (RCW 70A.65.010).

**Sustainability:** meeting the needs of the present without compromising the ability of future generations to meet their own needs. Often considered through the “triple bottom line” approach which considers impacts to natural

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<sup>2</sup> 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 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.

<sup>3</sup> United States Department of Agriculture, n.d. “What is a native plant?” <https://www.usda.gov/peoples-garden/gardening-advice/why-native-species-matter>.

<sup>4</sup> Refer to Note 1.



environment, community health, and economic vitality.

**Vulnerable Populations<sup>5</sup>:** 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.

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<sup>5</sup> Refer to Note 1.

# 1. Introduction

## A. Background

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

Part 2 of the Climate Element provides the technical analysis to address the requirements of RCW 36.70A.070(9). The Climate Element addresses:

### 1. Climate Mitigation.

- Building-Scale Emissions Reduction.
- Transportation and Vehicle Miles Traveled 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.

### CLIMATE

State requirements (RCW 36.70A.070(9)(a)) that the Comprehensive Plan must meet:

- A climate change and resiliency element that is designed to result in reductions in overall greenhouse gas emissions and that must enhance resiliency to and avoid the adverse impacts of climate change, which must include efforts to reduce localized greenhouse gas emissions and avoid creating or worsening localized climate impacts to vulnerable populations and overburdened communities.

- Water Resources.

- Zoning & Development.

### 3. Climate Equity.

- Embedded throughout the Climate Element.
- Addressing inequities in climate impacts and access to resources.

The objectives of the Climate Element are found in two sub-elements:

- The **Climate Mitigation Sub-Element** addresses reducing Tumwater's greenhouse gas emissions to achieve net zero by 2050 goals set by the State.
- The **Climate Resilience Sub-Element** focuses on adapting to climate impacts that are already being felt across the

region and aims to address those impacts that cannot be avoided regardless of

whether Tumwater reaches its net zero goals.

## B. How to Read this Part of the Element

Part 2 of the Climate Element consists of the following chapters.

- **Chapter 2 – Equity & Environmental Justice:** Provides a summary of the equity and environmental justice work completed for preparation of the Climate Element.
- **Chapter 3 – Greenhouse Gas Reduction:** Provides background Tumwater’s current greenhouse gas emissions, how they are measured and their sources.

- **Chapter 4 – Climate Resilience:** Provides a discussion of project climate impacts and adaptation strategies that will guide the Climate Element’s goals and policies.
- **Appendices:** The appendices include the following:
  - Summary of foundational documents used to prepare the Climate Element.
  - Summary of engagement results.
  - Index of equity-focused actions.

## C. Growth Management Act Goals

The Growth Management Act requires that Tumwater 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 Tumwater’s Comprehensive Plan and development regulations.

The 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 Greenhouse Gas Reduction and Resilience Sub-Elements.

State Department of 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.



# Climate Element

## Part 2 – Technical Information



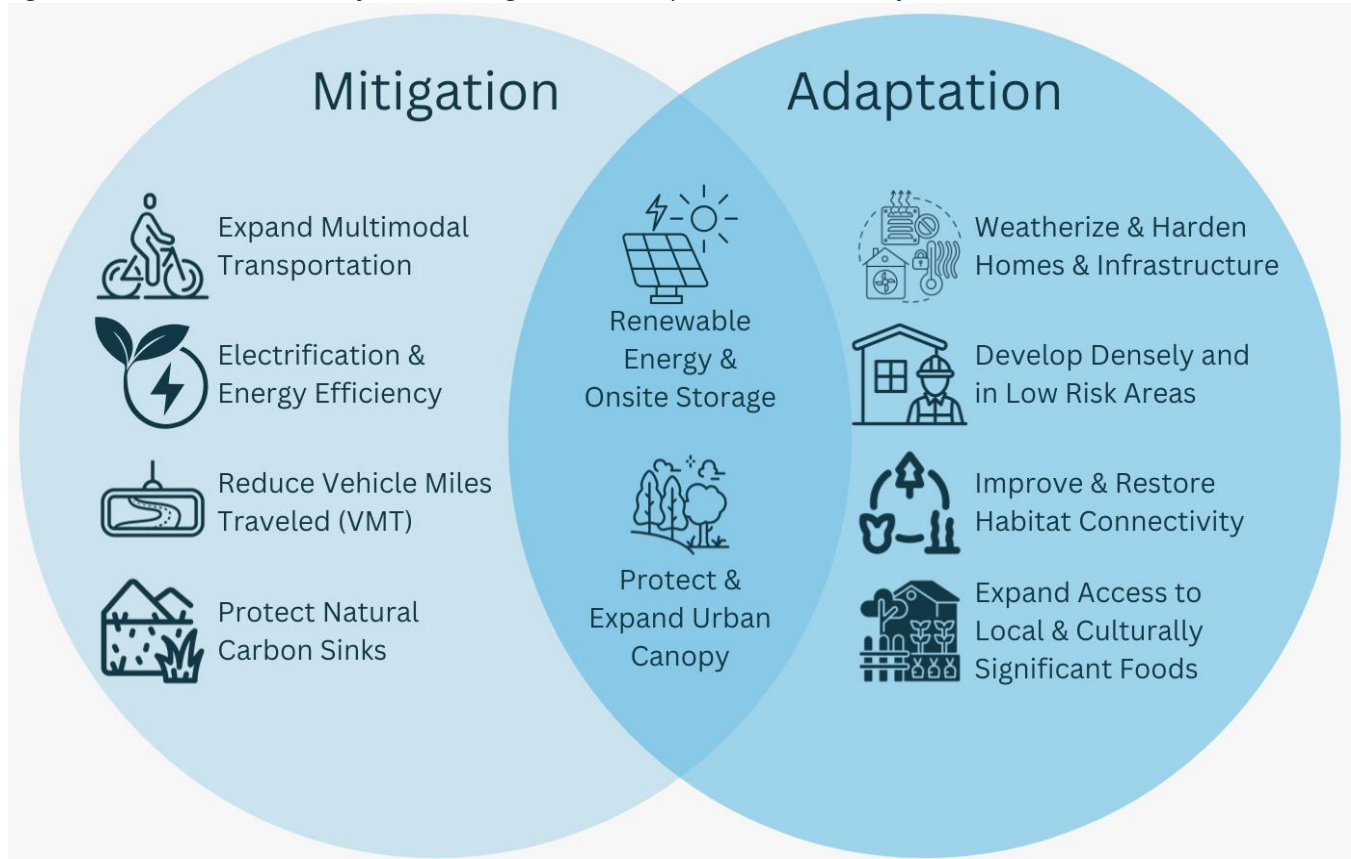
The Climate Element was developed with public input as described in the Public Outreach Plan as required by the Growth Management Act. The Element is also based on the updated list of additional supporting plans, documents, and best available science found in Appendix A.

Tumwater has a long history of pursuing sustainability goals and leading the region on efforts such as working across jurisdictions to advance climate mitigation action. In recent years, however, it has become apparent that some climate impacts cannot be avoided.

Therefore, Tumwater 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, as shown in Figure CL-1. There are several key areas of overlap across the two, such as renewable energy and onsite storage and protecting and expanding the urban canopy.

Figure CL-1. The Distinct Goals of Climate Mitigation and Adaptation with Co-Benefits.



### D. Methodology

The Climate Element was developed through a phased, multilateral process with analytical, public outreach, and regulatory input.

#### 1) Regulatory, Policy, & Planning Drivers

All planning and policy documents for the region that addressed 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, staff identified what the region and Tumwater 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

The State Department of Commerce issued guidance suggesting that Tumwater should create an interdisciplinary group of planners, public works professionals, and community members with a focus on helping to prepare the Climate Element. This interdisciplinary group is the Climate Policy Advisory Team.

The Climate Policy Advisory Team addressed the following:

- Supporting the analysis of climate information.
- Providing recommendations on short- and long-term goals.

- Centering equity in the creation of goals, policies, and draft implementation actions of the Climate Element.
- Representing community voices across the community, particularly overburdened communities.

In creating the Climate Policy Advisory Team, staff invited interested individuals within and outside of Tumwater, aiming to capture a mix of representation including:

- Subject matter experts including academia and research institutions.
- Local businesses.
- Staff from Tumwater and Thurston County.
- Frontline communities.

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

- Vision and Alignment:
  - What is the short- and long-term vision for the Climate Element?
  - How does Tumwater align its Climate Element with other City and regional climate plans and community feedback and priorities?
- Public Engagement:

- How should Tumwater 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?
- Greenhouse Gas 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 are these analyses used effectively and thoughtfully to inform the goals and policies in the Climate Element?
- Policy Development and Planning:
  - What should be the Climate Element goals and policies?
  - Do the Greenhouse Gas Reduction and Resilience Sub-Elements satisfy and align with findings from staff's analyses and with input from community members?

The Climate Policy Advisory Team provided direct input and completed multiple rounds of review on the goals and policies throughout the development of the Climate Element.

The Climate Policy Advisory Team will continue to advise and advocate as needed as Tumwater moves forward with implementing the Climate Element.

### 3) Public Engagement

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

The public engagement strategy for the Climate Element 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.

Tumwater 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. Tumwater 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 greenhouse gas 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 Greenhouse Gas Reduction and Resilience Sub-Elements. The Online



Story Map provided ongoing feedback to Tumwater throughout the initial development of the Climate Element.

## 2. Equity & Environmental Justice

### A. Introduction

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 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. For example, they may not have the capacity to respond to these risks due to inflexible work policies or positions, and some employers may not issue paychecks when work is suspended due to a hazard event.

For these reasons, the Climate Element and the Comprehensive Plan more broadly placed the issues of environmental justice and climate equity at the center of planning efforts by establishing goals related to these core problems.<sup>6</sup> Centering equity principles is essential for the development of a Comprehensive Plan that ensures frontline communities are not adversely impacted further by new plans and policies.

### B. Community Engagement

Effective community engagement is centered around the following attributes:

- Mutually beneficial.
- Recognizes and values the contributions of all participants.
- Focuses on strengths and successes.
- Ensures that all voices are equally respected in shaping decisions whether

based on lived experience or technical knowledge.

Tumwater held an in person public workshop that invited residents to identify priorities and solutions. The 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

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<sup>6</sup> One of the overarching goals (CL-2) that guides policy in both Greenhouse Gas Reduction and Resilience 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.

attended the workshop. They visited three different stations to learn about and share their lived experience and opinions on greenhouse

gas reduction strategies, climate hazards and resilience, and local governance. A full summary is included in Appendix B.

### C. 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, which 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.<sup>7</sup>

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.

- Transgenerational equity, which ensures that decisions made today consider their impact on future generations.

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

The following equity goals were aimed to empower underserved communities, enhance access to resources, and ensure that all voices are represented in decision-making processes. In developing the Climate Element, Tumwater 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 accommodating 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<sup>8</sup>

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<sup>7</sup> In Part 1 of the Climate Element Goals, Policies, and Actions, policies that require community members to meet new, more stringent codes or assessment requirements are supported by draft implementation actions that call for creating subsidy or rebate programs or developing funds to support low-income community members.

<sup>8</sup> All policies and actions that were developed by or with the Climate Policy Advisory Team 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.

of the Climate Element which will lead to more equitable outcomes to benefit frontline communities.

- Seek how best to intentionally allocate resources to overcome the cumulative impacts of institutional racism on historically underserved and under-represented people.

### D. 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 resilience.

To address these disparities, Tumwater 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, Tumwater must:

- Prioritize collaboration with impacted communities.
- Build community capacity.
- Foster meaningful relationships with community members and community-based organizations.

This work ensures support is both impactful and aligned with local priorities.

### E. 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 Tumwater communities, which are 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 proposed Climate Element policy and draft implementation action was assessed in accordance with the Intermediate Planning Guidance’s Equity Criterion Matrix in Table CL-1, which helped determine if the policy or draft implementation action was equitable. The matrix provides questions for co-governance, targeted benefits, just responsibility, and wealth building considerations and sub-considerations



to assess for each Climate Element policy and draft implementation action.

*Table CL-1. Equity Criterion Matrix.*

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

Source: Washington State Department of Commerce.

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

Frequent and multifaceted public engagement also led to Climate Element developing 19 percent of the policies and 18 percent of the actions directly out of requests, input, and ideas generated through the public workshop, virtual open house, and Climate Policy Advisory Team meetings.



### 3. Greenhouse Gas Reduction

#### A. Introduction

Following the requirements of RCW 36.70A.070, Tumwater prepared a sub-element on greenhouse gas emissions reduction as part of Climate Element. The Greenhouse Gas Reduction Sub-Element **dictates Tumwater's**

**approach to eliminating greenhouse gas emissions towards achieving net-zero emissions by 2050**, with interim targets for municipal and community-wide emissions.

#### B. Greenhouse Gas Emissions

Greenhouse gases refer to specific gaseous compounds that trap heat from the sun after it radiates from the Earth's surface. Greenhouse gases include, but are not limited to, carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O).

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 greenhouse gas 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 as is discussed in Chapter 4 Climate Resilience. As a result, it is critical that Tumwater take action to reduce anthropogenic greenhouse gas emissions, and to do so as quickly as possible.

#### C. Measuring & 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 greenhouse gas emissions inventories, providing an accounting of Tumwater's largest sources of greenhouse gas emissions.<sup>9</sup> Tumwater drew upon these

emissions inventories to help determine the specific goals and policies for the Greenhouse Gas 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.

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<sup>9</sup> Greenhouse gas emissions are measured in metric tons of carbon dioxide equivalent (MTCO<sub>2</sub>e).

### D. Greenhouse Gas Emissions Targets

The Greenhouse Gas Reduction Sub-Element dictates Tumwater’s approach to eliminating greenhouse gas emissions towards achieving net-zero emissions by 2045. Tumwater 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 Tumwater, including, but not limited to, residential, commercial, and transportation sectors).

#### 1) Municipal Emissions Goals

Based on its current municipal emissions, Tumwater is **establishing an interim target of reducing emissions by 50 percent from 2023**

**levels by 2030 on its way to net-zero emissions by 2045.** These municipal emissions milestones keep Tumwater ahead of statewide emissions reduction goals through both 2030 and 2045.

#### 2) Community-Wide Emissions Goals

Based on its current community-wide emissions, Tumwater is establishing an interim target of reducing emissions by 45 percent from 2022 levels by 2030, and 70 percent 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.

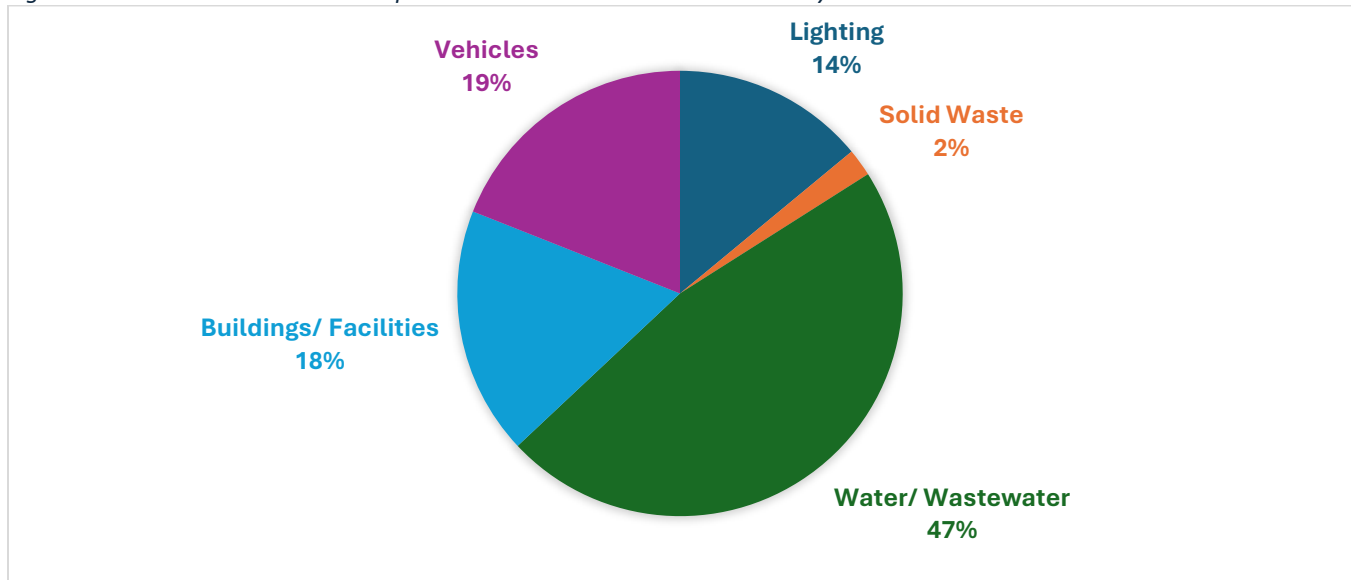
### E. Municipal Operations Greenhouse Gas Emissions

For the Climate Element, Tumwater utilized a municipal inventory of its greenhouse gas emissions from calendar year 2023. Following the State Department of Commerce’s Intermediate Guidance on greenhouse gas Emissions-Reduction Pathways, Tumwater exercised Pathway 3 – Create greenhouse gas 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<sub>2</sub>e, with the leading sources of emissions including electricity used to provide water and wastewater services to residents (47 percent), gasoline, diesel, and electricity used to power city vehicles and equipment (19 percent), and electricity and natural gas used to power municipal buildings and facilities.

Figure CL-2 shows Tumwater’s 2023 Municipal Greenhouse Gas Emissions Inventory.

Figure CL-2. Tumwater 2023 Municipal Greenhouse Gas Emissions Inventory.



### 1) Water & Wastewater Services

Water and wastewater services are critical operations for Tumwater and its residents. The emissions from these operations are 47 percent of Tumwater’s municipal emissions. The emissions from electricity used to provide water and wastewater services to Tumwater largely stem from water wells and wastewater lift stations. Electricity is used to power pumps in water wells and wastewater lift stations.

### 2) Fleet Vehicles

Emissions from Tumwater’s fleet vehicles make up 19 percent of municipal emissions. Of these emissions, 75.5 percent are attributed to gasoline fuel vehicles, while 24.3 percent are attributed to diesel fuel vehicles. Electric vehicle emissions contribute 0.2 percent of vehicle emissions for the fleet.

Municipal lighting makes up approximately 14 percent of municipal greenhouse gas emissions. Municipal lighting includes traffic signals,

streetlights, lights, and other outdoor lighting throughout Tumwater.

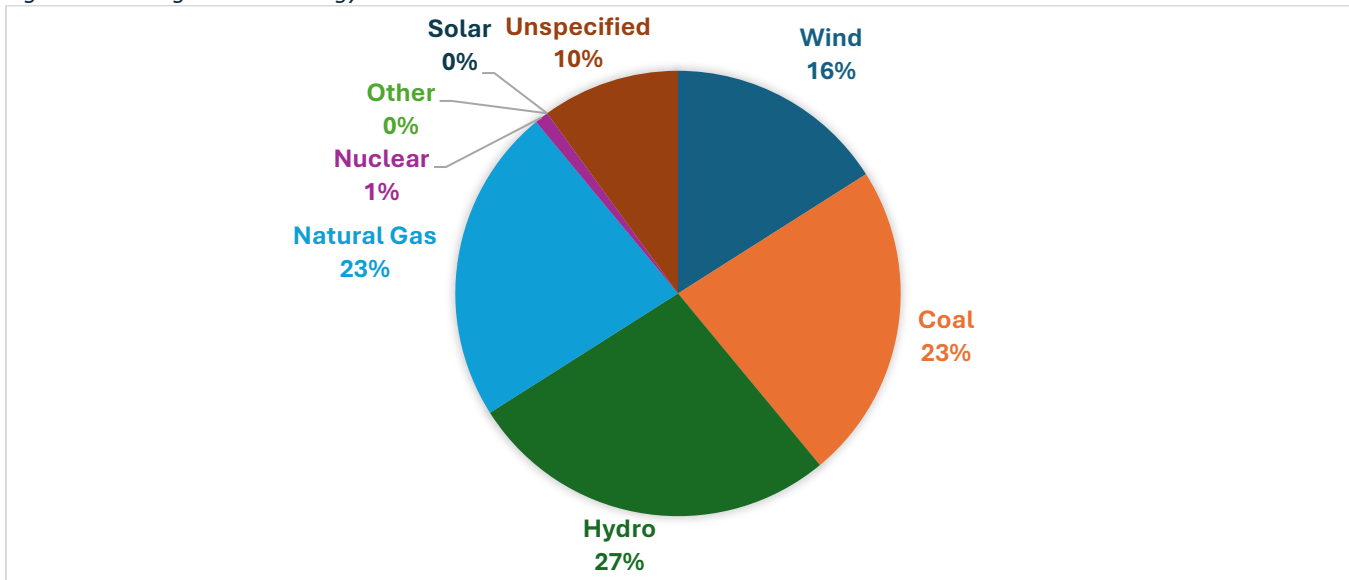
### 3) Electricity & Power Content

Much of Tumwater’s greenhouse gas 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 Tumwater procures from its utility, Puget Sound Energy. Under the State’s Clean Energy Transformation Act, utilities like Puget Sound Energy are required to provide fully clean, renewable energy by 2045

As of 2022, Puget Sound Energy’s electric power content included natural gas (23 percent) and coal (23 percent), which explain much of the emissions coming from Tumwater’s electricity use. As Puget Sound Energy’s power content improves and more clean energy sources are used to power the electric grid, emissions from municipal assets will decline.

Figure CL-3 shows the 2022 Puget Sound Energy Power Content Mix.

Figure CL-3. Puget Sound Energy 2022 Power Content Mix.



Source: Puget Sound Energy, 2023.

## F. Community-Wide Greenhouse Gas Emissions

Tumwater did not conduct its own community-wide greenhouse gas emissions inventory. Instead, Tumwater’s community-wide emissions were derived from the 2022 Thurston County greenhouse gas emissions inventory.<sup>10</sup>

Community emissions include 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.

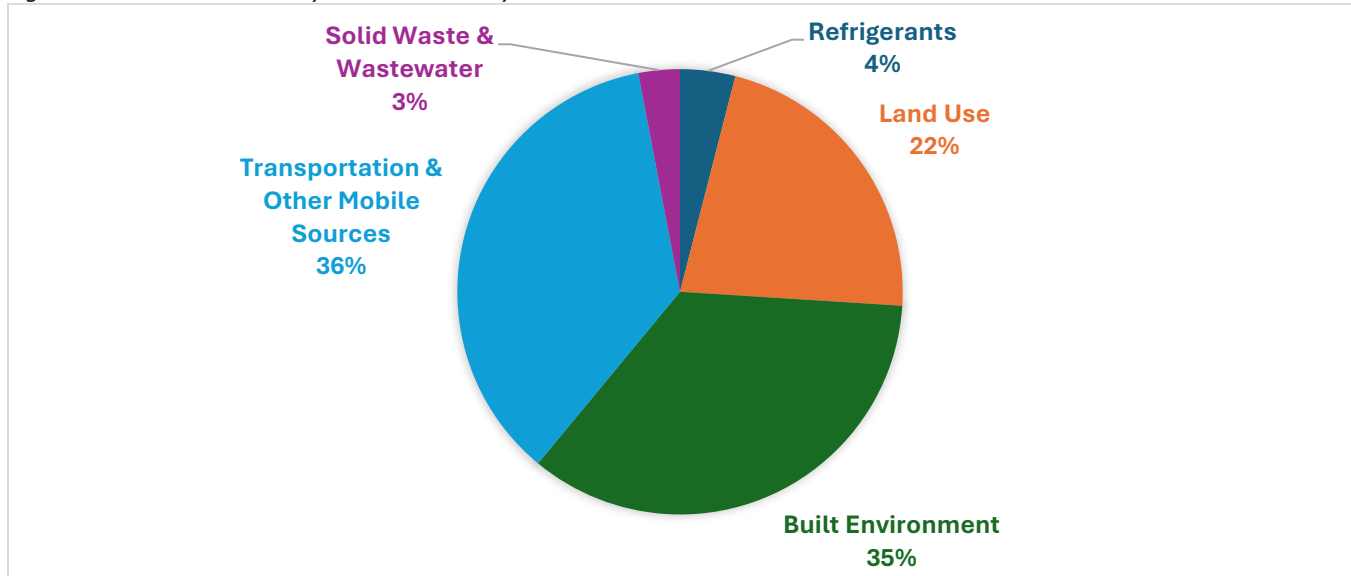
Tumwater exercised Pathway 1 – Conduct greenhouse gas Emissions Estimate – according to the State Department of Commerce’s Intermediate Guidance to derive its community-wide emissions from another source.

Thurston County greenhouse gas emissions in 2022 shown in Figure CL-4 amounted to 4,240,135 MTCO<sub>2</sub>e (or 14.1 MTCO<sub>2</sub>e per capita).

<sup>10</sup> The State Department of Commerce funded the development of greenhouse gas emissions inventories for

the State’s eleven largest counties, including Thurston County.

Figure CL-4. Thurston County 2022 Community-Wide Greenhouse Gas Emissions.



Source: Thurston County, WA: 2022 Inventory of Community-Wide Greenhouse Gas Emissions.

A majority of countywide greenhouse gas emissions are from the transportation sector (36 percent), which largely comprise emissions from on-road vehicles, such as passenger vehicles, freight, and service vehicles. Other transportation emissions can be attributed to:

- Public transit.
- Off-road equipment.
- Aviation.
- Marine and rail.

The built environment makes up the second largest source of emissions in Thurston County (35 percent), 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

percent of greenhouse gas emissions countywide, with nearly half of those emissions stemming from methane production at dairy farms. Land use emissions also include emissions from tree cover loss in the Thurston County.

Smaller sources of greenhouse gas emissions countywide include emissions from:

- Solid waste and wastewater (3 percent), which include generation and disposal of solid waste, commercially processed compost, and wastewater treatment.
- Refrigerants (4 percent), which include use and leakage of hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and CO<sub>2</sub> from ozone depleting substances (ODs) that are used to cool buildings and other assets.

### G. Vehicle Miles Traveled & 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, such as biking or 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 Tumwater 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 Tumwater 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 which provide a variety of ecosystem services.
- Providing educational resources on individual resilience actions.
- Enacting policies that provide legal protections.

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

- Equitable.
- Provide benefits for frontline communities.
- Designed to avoid or mitigate unintended negative consequences.

Building resilience effectively requires acting across all 11 sectors:

1. Agriculture and Food Systems,
2. Buildings & Energy.
3. Cultural Resources
4. Economic Development.
5. Ecosystems.
6. Emergency Management.
7. Health & Well-Being
8. Transportation.
9. Waste Management.
10. Water Resources.
11. Zoning & Development.

Tumwater has combined these 11 sectors into eight 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 Tumwater has laid out mitigation actions for high-risk hazards through the Thurston County Hazards Mitigation Plan, the mitigation actions laid out in the Hazards Mitigation 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 CL-2 shows the expected climate projections for high and low greenhouse gas emissions.

Table CL-2. Tumwater Climate Projections, Low & High Emissions

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°F increase	↑ 9.6°F increase
Number of hot days (humidex over 90 degrees)	↑ 29.1 days	↑ 58.2 days
Total annual precipitation	<i>no data</i>	↑ 5.1% increase
Intensity of extreme rainfall events (change in the magnitude of 2-year storms)	<i>no data</i>	↑ 14% increase
Percent change in the magnitude of 25-year storm	<i>no data</i>	↑ 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 ( <i>by 2040</i> )	↑ 10 days ( <i>by 2040</i> )
Precipitation drought (likelihood of a year with summer precipitation below 75% of historical normal)	<i>no data</i>	↑ 38% increase
Total late summer precipitation July-September	<i>no data</i>	↓ 22% decrease
Percent change in April 1 snowpack	<i>no data</i>	↓ 100% decrease

Source: Climate Impacts Group Climate Mapping for a Resilient Washington Tool.

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.

Tumwater 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, Tumwater could begin to experience impacts on groundwater water quality due to saltwater intrusion or other climate-related impacts. There will likely also be some more direct flooding impacts due to sea level rise, especially at sites like the Historical Park that are adjacent to the tidally influenced Capitol Lake.

All of these projected impacts will lead to more frequent and more intense disaster events in Tumwater, 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.
- 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.

## C. Climate Adaptation Strategies

### 1) Types of Adaptation Strategies

The strategies prepared for the Climate Element include both reactive strategies designed to address the impacts of climate change that are already underway and proactive strategies that work to build long-term resilience.

Adaptation strategies are often classified into four typologies: behavioral changes, infrastructural and technological, institutional, and nature-based solutions.<sup>11</sup> To create a robust

adaptation strategy, Tumwater needs to create a portfolio of actions that includes strategies across all of these adaptation types.

Behavioral adaptation includes strategies such as relocating away from hazards, making substantive changes to property to mitigate the risk of fire, heat, and other hazards, and shifting food and consumption practices. Infrastructural and technological solutions encompass any adaptation that involves building or strengthening physical infrastructure such as

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<sup>11</sup> Berrang-Ford, L., Siders, A.R., Lesnikowski, A. *et al.* A systematic global stocktake of evidence on human adaptation to climate change. *Nature Climate Change*.

11, 989–1000 (2021). <https://doi.org/10.1038/s41558-021-01170-y>

dams, wastewater systems, and capital assets. Institutional adaptation methods include the creation of policies, programs, incentives, and the like to guide and support adaptation action.

Finally, nature-based solutions focus on integrating the benefits and protections offered by natural systems into protection strategies, for instance using seagrass restoration to stabilize eroding shorelines. Nature-based solutions in particular offer co-benefits with mitigation goals, usually through increased carbon sequestration.

## 2) Passive Survivability

Some of the adaptation measures suggested for the Climate Element promote the idea of passive survivability. This involves building or upgrading facilities to be able to maintain a safe temperature for building occupants.

There are many complexities to navigate when building for passive survivability. Tumwater must

first decide on definitions of survivability, specifically setting the lowest and highest allowable temperatures that a space can reach. To protect building occupants from extreme heat, the building must be well-insulated, provide airflow, and may even need to offer cooling using technology like heat pumps. Renewable energy like solar power that is connected to a battery system is also important to provide continuous power for cooling and heating systems in the event of a power outage.

Codifying requirements for passive survivability presents challenges at Tumwater level and would require advocacy for mandating code updates at the State level. Tumwater could also explore the viability of incentive programs to encourage new construction to incorporate recommended strategies for passive survivability. This is especially important for low-income and multifamily housing where residents typically cannot choose to make upgrades themselves.

## Appendix A Foundational Documents

Table CL-3 identifies the foundational planning documents that form the basis for the Climate Element of the Comprehensive Plan.

*Table CL-3. Foundational Documents for the Climate Element.*

Plan	Description
<b>Hazards Mitigation Plan for the Thurston Region (2024)</b>	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. Includes a Tumwater specific appendix.
<b>Thurston Climate Adaptation Plan (2018)</b>	Climate Resilience Actions for Thurston County and South Puget Sound.
<b>Thurston County Climate Mitigation Plan (2020)</b>	Lays out a road map for continuing regional collaboration on reducing local contributions to climate change and actions that can help to achieve greenhouse gas reduction goals.
<b>Clean Energy Transformation Act (2019)</b>	The Clean Energy Transformation Act aims to transition Washington to a clean energy economy by eliminating coal-fired electricity by 2025, achieving 100 percent carbon-neutral electricity by 2030, and 100 percent carbon-free electricity by 2045.
<b>Tumwater Urban Forestry Management Plan (2021)</b>	Lays out goals and recommendations for sustainably managing Tumwater’s urban canopy.
<b>Tumwater Tree Inventory and Maintenance Plan (2024)</b>	Outlines inventoried tree resources (distinct species compositions, age distribution, and condition).
<b>Tumwater Comprehensive Plan – Transportation Plan (2025)</b>	Outlines the transportation goals, policies, and strategies for the community. Aims to improve mobility, safety, and accessibility while promoting sustainable and efficient transportation systems.
<b>Tumwater Comprehensive Plan – Conservation Element (2025)</b>	Outlines natural resource land conservation and critical area protection.

Plan	Description
<b>Tumwater Comprehensive Plan – Land Use Element (2025)</b>	It outlines policies and guidelines for land use planning and development. Aims to promote sustainable growth, protect natural resources, and enhance community livability.
<b>City of Tumwater Shoreline Master Program (2019)</b>	Provides guidance for positive, equitable use and development of shorelines of the state in Tumwater while promoting community well-being, ecological preservation, and compliance with state policy
<b>Tumwater Comprehensive Plan – Lands for Public Purposes Element (2025)</b>	Details the public facilities and services planning for 20 years, including essential public facilities siting and expansion.
<b>City of Tumwater and Thurston County Joint Plan (2021)</b>	Tumwater and Thurston County last amended the joint plan in 2021, and an update is expected in 2026. The Joint Plan guides future development in the unincorporated portion of Tumwater’s urban growth area, ensuring a smooth transition from rural to urban development.
<b>Olympia Climate Action Annual Report (2019)</b>	The goals established a framework for climate-focused decisions, set a foundation for solar and green building community, created city staff culture of climate awareness, green Tumwater's fleet, and facilities, built foundation for climate-friendly infrastructure, and leveraged partnerships.
<b>Puget Sound Energy Green Direct Program</b>	Puget Sound Energy’s Green Direct program allows government and commercial customers the ability to purchase 100 percent of their energy from a local, renewable energy resource that is cost-efficient.
<b>Washington Clean Fuel Standard (2023)</b>	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.

### 1. Policy Analysis

A gap analysis was performed to evaluate the existing policy framework and to identify its strengths and weaknesses. The analysis focused on assessing policies in the areas of environment, economics, and community 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.
- 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 15 plans in Table CL-3.

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.
- 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 as shown in Figure CL-5.

Figure CL-5. Number of Policies by Sector, Policy Gap Analysis.



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

# Climate Element

## Part 2 – Technical Information



development. This indicates a need for more comprehensive strategies that integrate and support these important aspects of the community.

Moreover, while many policies prioritize climate resilience by aiming to safeguard the environment against the impacts of climate change, there is a noticeable gap in policies that address climate equity as shown in Figure CL-6.

Figure CL-6. Policies by Focus Area.



This gap suggests that, although Tumwater is preparing for climate-related challenges, the policies are not addressing the impacts on diverse communities equally and ensuring that all groups benefit from climate resilience efforts. Additionally, nearly all resilience policies originated from County-level.

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



## Appendix B Engagement Results

### 1. 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.

#### a) Greenhouse Gas 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 Electric Vehicle 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.

#### b) Resilience Focus Group

Participants highlighted several key issues they would like to have 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.

#### c) 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 Tumwater in past efforts, particularly highlighting skepticism of long-term residents.



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## Part 2 – Technical Information



- **Improving Communication:** Finding ways to communicate with diverse age groups and demographics continuously and effectively, 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.

## 2. Virtual Open House

The City hosted a virtual open house, in the format of an ArcGIS StoryMap with all the same information and questions that were presented

at the in-person workshop. The virtual open house was open from August 15, 2024, to October 31, 2024. Results are as follows.

### a) Equity

*Figure CL-72. Climate Element Virtual Open House – Equity Map.*

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

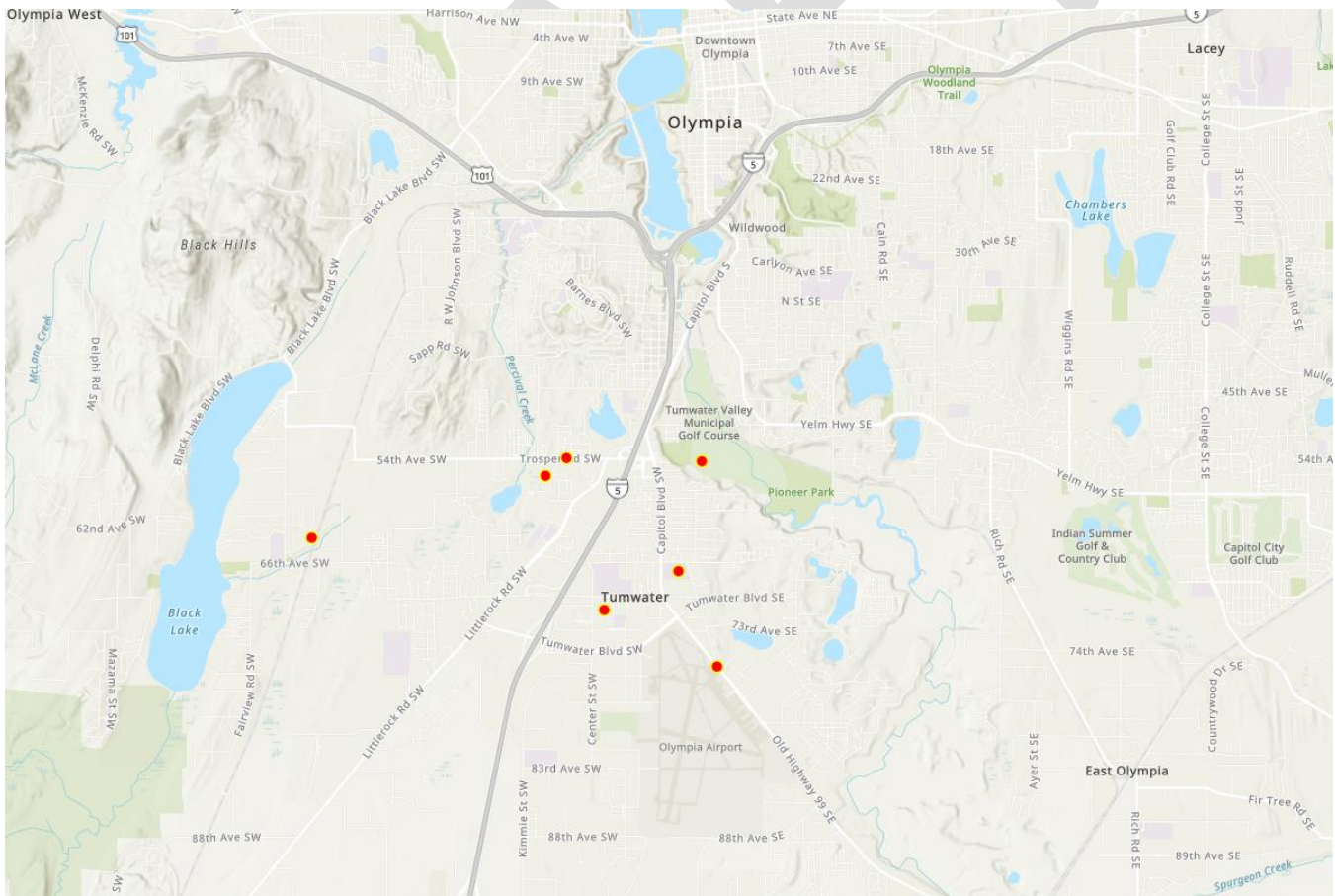


Table CL-4. Climate Element Virtual Open House – Equity Question.

**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 an 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!

## 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?

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 Davis Meeker Garry Oak 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 Davis Meeker Garry Oak as one of the only visible reminders of the Cowlitz Trail, and our shared history. The Davis Meeker Garry Oak 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?

## b) Greenhouse Gas

Table CL-5. Climate Element Virtual Open House – Greenhouse Gas Questions.

### 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 100s of years ago. Tracking temperatures has only been happening for the last 150 years or so.

I am noticing longer hotter and drier summers.

## What is your lived experience with climate change? Does it change seasonally?

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 Puget Sound Energy's community solar and their time of use rate program. We don't eat red meat anymore (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 Greenhouse 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 than 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 percent 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 bikeable. 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.

## c) Resilience Mapping: Flooding

No responses.

## d) Resilience Mapping: Heat

*Table CL-6. Climate Element Virtual Open House – Resilience Mapping: Heat Questions.*

**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.



## What has been your experience with extreme heat in Tumwater?

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. 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 never had air conditioning until we installed our heat pump after this heat event. Many of our friends are in the same position. 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.

## e) Governance

Table CL-7. Climate Element Virtual Open House – Governance Questions.

## 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 there 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 its 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.

## f) Closing Survey

*Table CL-8. Climate Element Virtual Open House – Closing Survey Question.*

**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 Equity-Focused Goals, Policies, & Actions

### 1. Overarching Climate Goals

**Goal CL-2 Advance environmental justice by providing all Tumwater community members with an equitable opportunity to learn about climate impacts, influence policy decisions, and take actions to enhance community resilience.**

#### Policies and Implementation Actions

**CL-2.1 Work with community based organizations and community organizers to conduct intentional outreach with frontline communities to create opportunities for equitable engagement in climate adaptation, mitigation, and education.**

CL-2.1.1 Build and support partnerships with existing community based organizations 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.

CL-2.1.2 Create and implement tailored outreach and education initiatives that will empower frontline communities to respond to climate change threats.

CL-2.1.3 Attend pop-up events with existing community based organizations 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.

CL-2.1.4 Conduct outreach and listening sessions in frontline communities to understand existing needs and opportunities and to educate on projected climate impacts.

**CL-2.2 Prioritize the people of Tumwater and their needs, values, and goals in all future climate planning efforts by developing and implementing all adaptation and mitigation tasks in collaboration with equitable representation from all Tumwater communities.**

CL-2.2.1 Prioritize recruiting frontline community members most impacted by climate change when forming any Tumwater working group, committee, or task force on climate-related issues. Strive to form all working groups and committees with equitable representation.

CL-2.2.2 Plan and conduct community engagement activities to co-create all policies and tasks with the community and to share new plan information upon completion and update throughout implementation.

**CL-2.3 Develop programs and resources to promote equitable financial access to climate resilience and mitigation activities.**

CL-2.3.1 Identify funding sources for subsidies for frontline communities to offset costs associated with climate impacts and mitigation actions, which 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.

**Goal CL-3 Address that changing weather and climate patterns driven by human-generated emissions will affect every aspect of life in Tumwater, and plan for impacts such as increased heat, wildfire, and flooding while working to reduce local emissions.**

## Policies and Implementation Actions

### CL-3.1 Assess Tumwater’s vulnerability to climate change.

CL-3.1.1 Conduct a comprehensive Vulnerability Assessment that considers climate impacts to communities, physical assets, and Tumwater operations and services, including impacts from extreme heat and flooding.

## 2. Greenhouse Gas Reduction Sub-Element Goals

**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.**

## Policies and Implementation Actions

### CL-4.2 Reduce energy use in existing residential buildings.

CL-4.2.2 Explore the feasibility of incorporating Home Energy Score disclosures for all types of rental dwelling units at the time of application to allow prospective tenants to make informed decisions.

CL-4.2.5 Explore the feasibility of requiring 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.**

## Policies and Implementation Actions

### CL-5.1 Increase the production and storage of local renewable energy.

CL-5.1.4 Support existing community solar initiatives from Olympia Community Solar and Puget Sound Energy by providing educational resources, promoting programs, and identifying opportunities for Tumwater residents to participate.

**Goal CL-6 Reduce greenhouse gas emissions by making it easier for people to use and shift to low- or zero-carbon transportation modes through policy, programming, and regional collaborations.**

## Policies and Implementation Actions

### **CL-6.1 Promote increased use of active forms of travel such as bicycling, walking, and other nonmotorized options.**

- CL-6.1.2 Prioritize active transportation in coordination with the Transportation Plan by investing in accessible and attractive street-level elements such as seating, shaded sidewalks, ADA ramps, enhanced signals and crossings, and protected bike lanes.
- CL-6.1.3 Explore developing 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.
- 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.
- CL-6.1.5 Update the Transportation Plan and Capital Facilities Plan to prioritize active transportation. Set goals and plans for shifting to active transportation, like developing car-free corridors in commercial and mixed-use areas to encourage mode shift.

### **CL-6.2 Increase adoption of electric vehicles.**

- CL-6.2.2 Explore providing an incentive and/or technical assistance program to support installing electric vehicle charging at existing rental housing.
- CL-6.2.3 Add free and publicly accessible Level 2 electric vehicle charging at as many Tumwater properties as feasible.

**Goal CL-7 Reduce vehicle miles traveled by using permitting, regulatory, and other land use tools to promote multimodal transportation options and the use of public transit.**

## Policies and Implementation Actions

### **CL-7.1 Continue land use policies that support increased urban density and efficient transportation networks and reduce urban sprawl.**

- CL-7.1.2 Increase the number of 15-minute neighborhoods (i.e., walkable environment, destinations that support a range of basic living needs and a residential density), in coordination with goals outlined in the Land Use Element.

### **CL-7.2 Increase efficiency of the transportation system.**

- CL-7.2.3 Work with Intercity Transit to identify and implement programs that help people move to and from transit, reduce greenhouse gas emissions, and use street-level

## Policies and Implementation Actions

improvements to connect neighborhoods without the population to support fixed routes transit options. Potential programs explored should include an electric vehicle car-share program. Tumwater will engage homeowners' associations for representation and feedback. Expansion of service will include an analysis of climate impacts to prevent the program from resulting in an increase in greenhouse gas emissions.

**Goal CL-8 Strengthen existing policies 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.**

## Policies and Implementation Actions

**CL-8.1 Preserve tree canopy, native prairie habitat, and support habitat restoration and conservation to sequester carbon.**

CL-8.1.1 Develop and implement a coordinated reforestation and afforestation program guided by the Urban Forestry Management Plan 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 frontline communities.

## 3. Resilience Sub-Element Goals

**Goal CL-9 Design, plan, and upgrade buildings and energy infrastructure to accommodate renewable energy opportunities, keep the community safe, and withstand and recover from extreme weather and natural hazards worsened by climate change.**

## Policies and Implementation Actions

**CL-9.1 Require that planned facilities, utilities, and infrastructure projects and existing vulnerable sites be built or hardened to avoid or withstand climate impacts, including extreme heat, extreme precipitation, and sea level rise.**

CL-9.1.3 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.

## Policies and Implementation Actions

### **CL-9.4 Encourage property owners to increase the resilience of existing buildings to natural hazards and extreme weather worsened by climate change.**

- CL-9.4.3 Develop and maintain a rebate program for low-income residents who do not qualify for weatherization assistance through the Community Action Council or whose dwellings are considered vulnerable, such as manufactured homes, to weatherize their homes against extreme weather.

## **Goal CL-10 Increase preparedness for acute climate impacts and improve the resilience of Tumwater’s people and systems against climate hazards.**

### Policies and Implementation Actions

#### **CL-10.1 Improve community outreach on and response capabilities for climate health and hazard issues, prioritizing frontline communities to address economic, social, and health disparities.**

- CL-10.1.1 Collaborate with community based organizations 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.
- CL-10.1.2 Transition management of the vulnerable population database to Tumwater and develop a long-term strategy to keep the database up to date and oversee its use during emergencies.
- CL-10.1.6 Explore developing a neighborhood-scale capacity grant or other assistance program to support neighborhood scale resiliency, disaster preparedness, and/or resource hubs.

#### **CL-10.2 Develop resources to mitigate the risks posed by extreme heat in coordination with regional partners.**

- CL-10.2.1 Implement the Thurston County Extreme Heat, Emergency Response, and Illness Prevention Plan.
- CL-10.2.2 Preserve and expand tree and shade cover to reach the 2040 goal of 40% recommended in the Urban Forestry Management Plan to reduce urban heat.
- CL-10.2.3 Support the work of community based organizations and regional agencies creating and implementing resilience hubs.
- 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.

#### **CL-10.3 Increase regional wildfire resilience, preparedness, and response capabilities in Tumwater.**

- CL-10.3.3 Help facilitate grant funding for low-income community members to follow recommended changes to their homes and properties to lower their wildfire risk.

## Policies and Implementation Actions

### **CL-10.4 Collaborate with regional partners to develop resources that address projected increases in risks and impacts associated with climate change.**

- CL-10.4.1 Develop and share guidance for navigating post-disaster mental health and social resources, translated into multiple languages.

### **CL-10.5 Improve community resilience, health equity, and environmental justice by striving to ensure that all community members can use active transportation to access public green spaces within half a mile and connected by sidewalks or protected walkways.**

- 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.
- 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.

### **CL-10.8 Develop programs that enable and empower community members to protect themselves from poor air quality.**

- 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 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.
- CL-10.8.2 Develop a program to distribute personal protective equipment to populations vulnerable to poor air quality.
- 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.

### **CL-10.9 Work with Thurston County Emergency Management to improve access to the resources needed for community members to shelter in place or to adequately reach temporary shelter.**

- 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 Tumwater, with priority for opening locations near the highest concentrations of heat-vulnerable residents.
- 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.
- CL-10.9.3 Develop outreach programs or materials to increase awareness and education on individual emergency preparedness (e.g., Two Weeks Ready).



## Policies and Implementation Actions

### **CL-10.10 Increase language accessibility of emergency services, plans, and resources.**

- CL-10.10.1 Utilize on-call contracts for language interpretation and translation services, including American sign language, 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.**

### Policies and Implementation Actions

#### **CL-11.1 Enhance partnership between the Tribes and Tumwater, integrating Tribal expertise, opinions, and values into climate planning efforts, projects, and programs.**

- CL-11.1.1 In collaboration with the Tribes, develop guidelines and standards for incorporating Traditional Ecological Knowledge into Tumwater programs and planning efforts to adapt to climate change impacts.
- CL-11.1.2 Integrate the Tribal Stewards Curriculum or an alternative approved by Tribal representatives into regular Tumwater training schedules.

#### **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.**

- CL-11.2.1 Work with local partners, especially representatives of the Tribes, to facilitate a native plant nursery and seed bank to support long-term ecological restoration and foster continued access to culturally significant plants.
- CL-11.2.2 In collaboration with the Tribes, identify consumptive and non-consumptive resources that will be adversely impacted by climate change.
- 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.
- CL-11.2.4 Collaborate with tribes to provide access to foraging opportunities including but not limited to camas, evergreen huckleberry, bog plant species, and cedar.

#### **CL-11.3 Collaborate with the Tribes to prioritize the preservation of archaeological sites and traditional cultural properties that are vulnerable to climate impacts.**

- CL-11.3.1 Request recommendations from the Tribes for actions Tumwater can take to preserve historic sites and cultural properties.
- CL-11.3.2 In collaboration with the Tribes, develop guidelines for protecting, enhancing, and restoring affected historic sites and cultural properties.



**Goal CL-12 With climate, growth, and environmental changes in mind, identify and elevate the protection of key habitats, ecosystem services, and wildlife corridors.**

## Policies and Implementation Actions

**CL-12.1 Manage Tumwater’s urban forest in line with the Urban Forestry Management Plan and current climate projections and guidance.**

CL-12.1.2 Protect and enhance the climate resilience of urban forests by implementing the Urban Forestry Management Plan. Prioritize implementation of Urban Forestry Management Plan actions that provide benefits for frontline communities.

**GOAL CL-13 Promote land use and development decisions that support compact urban development and Tumwater-wide resilience, including a resilient local economy.**

## Policies and Implementation Actions

**CL-13.2 Form a working group to secure Tumwater’s economic resilience regarding climate impacts.**

CL-13.2.4 Form partnerships with workforce development organizations to provide services and resources to Tumwater community members that support workers and local businesses affected by climate change.

**CL-13.5 Encourage the location of new development in areas where exposure to climate hazards is low and ecological impacts are minimized.**

CL-13.5.1 Develop design guidelines for climate-resilient multi-use development. Guidelines should require residential development to be designed for passive survivability under future climate projections.

**Goal CL-14 Strive to create a local transportation system, including infrastructure, routes, and active travel modes, which fosters connectivity and can withstand and recover quickly from climate impacts.**

## Policies and Implementation Actions

**CL-14.1 Improve street connectivity, transit accessibility, and walkability, including sidewalks and street crossings, to ease emergency evacuation.**

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 (CL-10.1.2).

## Policies and Implementation Actions

CL-14.1.4 Assess current transportation network and transit options to identify barriers to accessibility and develop a plan to address gaps for all abilities and accessibility supports.

### **CL-14.4 Facilitate quick recovery of the whole multimodal transportation system after disruption from disasters or extreme weather events.**

CL-14.4.2 Prioritize infrastructure needed for the recovery of Intercity Transit in the aftermath of an extreme weather event.

## **Goal CL-15 Protect and improve water quality and availability.**

## Policies and Implementation Actions

### **CL-15.2 Improve Tumwater’s drought resilience through water reclamation and conservation measures, drought-tolerant landscape design, and advocacy.**

CL-15.2.5 Advocate at state level to prioritize using water resources in alignment with public interests.

### **CL-15.3 Develop and implement a comprehensive drought resilience strategy that factors in projected climate impacts and sets action levels for different drought stages.**

CL-15.3.1 Conduct outreach to understand current water resource needs (i.e., water-reliant livelihoods).

CL-15.3.2 Draft measures to protect access to water availability at a fair rate for low-income residents and residents whose income relies on water.

## **Goal CL-16 Expand local food justice to address climate impacts and increase access to nourishing, affordable, culturally appropriate, and climate-friendly foods while expanding local use of composting.**

## Policies and Implementation Actions

### **CL-16.1 Improve local food justice through collaboration, education, and advocacy.**

CL-16.1.1 Implement the Food System Plan, updating it periodically as necessary.

CL-16.1.2 Identify relevant stakeholders who can further sustainable, climate-adapted, and equitable food distribution in Tumwater.

CL-16.1.3 Explore opportunities for the community to provide and engage in local and sustainable food production and consumption, such as farmers markets and community gardens.

CL-16.1.6 Collaborate with community members to identify culturally important foods and develop strategies to secure access to these, incorporating strategies into an update to the Food System Plan.

## Policies and Implementation Actions

### **CL-16.3 Expand consistent access to food for Tumwater community members.**

CL-16.3.1 Coordinate with the Food Bank to expand access to food assistance services.

CL-16.3.2 Conduct community outreach to find gaps and barriers in consistent access to nutritious food.

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