



Washington State
Department of
Commerce

We strengthen communities

Climate Element Planning Guidance

December 2023 — Intermediate Version

**GROWTH
MANAGEMENT
SERVICES**

The Washington State Department of Commerce published this December 2023 "intermediate" climate element planning guidance for local governments planning under the Growth Management Act. In 2025, the agency will publish on its [website](#) "full" guidance that reflects the results of a rulemaking process for 2023 legislation ([E2SHB 1181](#)).

This guidance and related grants are supported with funding from Washington's Climate Commitment Act. The CCA supports Washington's climate action efforts by putting cap-and-invest dollars to work reducing climate pollution, creating jobs, and improving public health. Information about the CCA is available at www.climate.wa.gov.



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For people with disabilities, this report is available on request in other formats. To submit a request, please call 360.725.4000 (TTY 360.586.0772).

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Table of Contents

Washington's Climate Planning Law	3
Section 1: Introduction	6
1.1: Planning Guidance Overview	6
1.2: Climate Planning Concepts	7
1.3: Who Must Create a Climate Element	8
1.4: Climate Planning and Shoreline Master Programs	9
Section 2: Planning & Engagement	10
2.1: Form Climate Policy Advisory Team	10
2.2: Establish Public Engagement Strategy	12
2.3: Establish Tribal Engagement Strategy	13
2.4: Develop Vision Statement	14
Section 3: Resilience Sub-element	15
3.1: Overview	15
3.2: Resilience Guidance	17
Step 1 – Explore Climate Impacts	17
Step 2 – Audit Plans & Policies	25
Step 3 – Assess Vulnerability & Risk	30
Step 4 – Pursue Pathways	37
Step 5 – Integrate Goals & Policies	41
Section 4: GHG Emissions Reduction Sub-element	42
4.1: Overview	42
4.2: GHG Reduction Guidance	42
4.3: Choose Pathways	44
Pathway 1: Conduct GHG Emissions Estimate	46
Pathway 2: Conduct VMT Study or Evaluation	51
Pathway 3: Create Emissions Inventory	54
Section 5: Climate Measures	62
5.1: How to Select Goals and Policies from the Menu of Measures	62
5.2: Multi-criteria Prioritization Analysis	64
5.3: Organize Climate Element for Integration and Consistency	67
Demonstrated Approach: Model Climate Element	67
5.4: Take Legislative Action	70

5.5: Measure Implementation Progress	70
Appendices	71
A. Summary Report: Climate Justice in Growth Management:	72
B. Climate Element Workbook.....	88
C. Best Practices for Integrating Climate into Hazard Mitigation Plan	89
FEMA Planning Framework for Hazard Mitigation Plans	89
FEMA Requirements for Assessing Climate in Hazard Mitigation Plans	89
Integrating a Hazard Mitigation Plan into a Comprehensive Plan	90
D. Crosswalk Comparison of FEMA and Commerce Guidance.....	92
E. Climate Change Resources	93
F. Sample RFP for Greenhouse Gas Inventory	94
G. Summary Report: Climate Resilience Pilot Program.....	99
H. Examples of Guiding Principles for Climate Planning.....	125
I. Multi-criteria Analysis Examples.....	127
J. Summary: Handbook for Analyzing Greenhouse Gas Emission Reductions	132
K. Glossary of Terms	135
L. Menu of Measures	146

Washington's Climate Planning Law

Washington's social, economic, and environmental sectors and systems face serious climate risks, which require a dynamic mix of measures to reduce emissions and build resilience. Burning fossil fuels and other human activities are increasing emissions of carbon dioxide and other greenhouse gases (GHGs) that are trapping heat in the atmosphere and changing the climate. Even as Washington encourages residents to drive electric cars, install rooftop solar panels, and take other actions to mitigate greenhouse gas emissions, The Evergreen State faces unavoidable climate impacts.

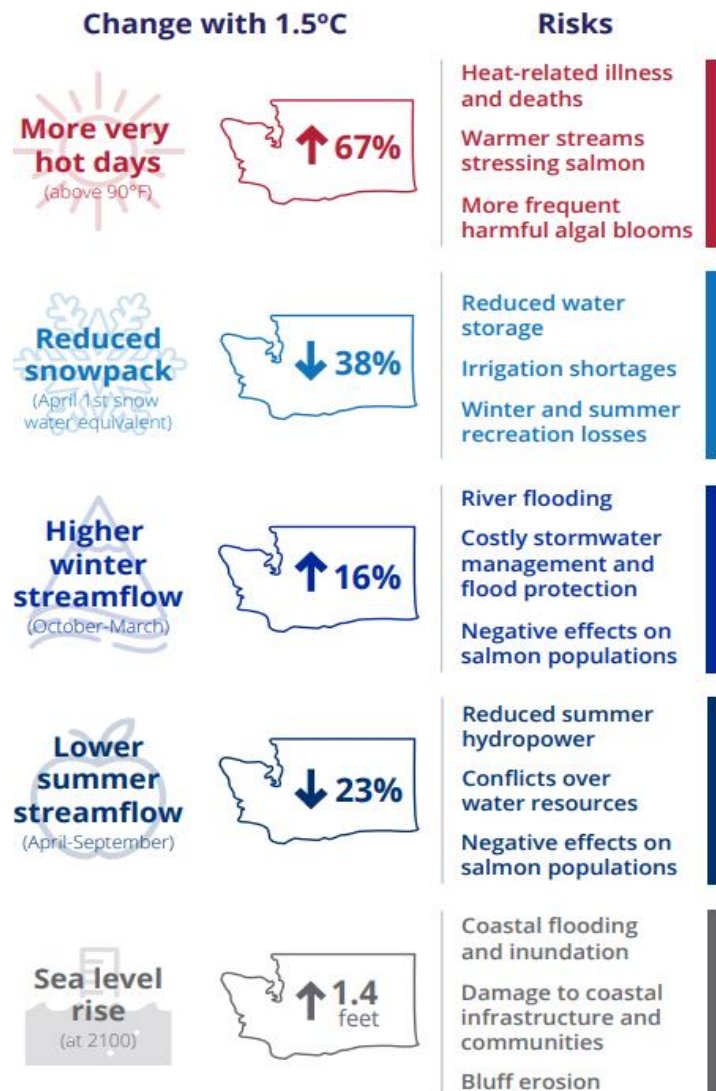
A Changing Climate

Our diverse landscape of snowy peaks, rolling fields, verdant forests, and rocky shores is already witnessing the effects of a warming world in the form of devastating wildfires, deadly heat events, rising seas, and other hazards. Many of the climate consequences we're seeing today will become more severe over the 21st century, absent mitigation and adaptation measures.

Human activities (anthropogenic) are estimated to have caused 1.1°C of global warming above pre-industrial (1850-1900) levels, and most emissions scenarios assessed project that global warming is likely to reach 1.5°C by the early 2030s.¹ Here in Washington, that would make the average year warmer than the hottest year of the 20th century.² Warming of 1.5°C would raise risks for the economy, environment, and human health and well-being [Figure 1]. For example, just one year of heat-related activity losses equates to more than \$426.1 million in direct losses to industry sales, \$178.3 million in lost gross state product, and 1,481 full-time-equivalent jobs.³

Climate change also impacts residents within Washington differently. Overburdened and vulnerable communities, such as ones with higher rates of poverty and limited English proficiency, are more vulnerable to climate change due to historical trends, including the impact of redlining. These practices and other forms of discrimination concentrated people of color in communities that

Figure 1: Washington Climate Impacts Associated with a 1.5°C Temperature Increase



SOURCE: University of Washington Climate Impacts Group

¹ IPCC report (2023), [Synthesis Report of the IPCC Sixth Assessment Report \(AR6\), Summary for Policymakers](#)

² UW CIG report (2019), [No Time to Waste. The Intergovernmental Panel on Climate Change's Special Report on Global Warming of 1.5°C and Implications for Washington State](#)

³ UW CIG and Washington State University report (2022), [Biophysical Climate Risks and Economic Impacts for Washington State](#)

also experience disproportionately negative health impacts that can be exacerbated by climate change. There is a more than five-year difference in life expectancy between communities ranked at highest risk versus those at lowest risk in the Washington Department of Health's Environmental Health Disparities Map.⁴

Thinking Globally, Planning Locally

Washingtonians know effective ways to mitigate our carbon emissions, reduce our risks, and build a more resilient and equitable state. From Port Angeles to Pullman, Woodland to Whatcom County, many of Washington's local jurisdictions are already implementing replicable policies to foster sustainable communities in the face of a changing climate.⁵

"Every Washingtonian deserves to live in a healthy environment, regardless of their ZIP Code or socioeconomic status," Governor Jay Inslee remarked after signing the landmark [Climate Commitment Act](#) and [HEAL Act](#) into law in 2021. *"We've studied the issue long enough. Now is the time to get to work and create a more just, healthy, and equitable future for all Washingtonians."*

[E2SHB 1181](#), signed into law in 2023,⁶ requires Washington's cities and counties to use their principal planning document – the comprehensive plan – to build community resilience and reduce greenhouse gas emissions that contribute to global climate change. The new law (referred to henceforth as HB 1181) integrates climate planning into Washington's landmark Growth Management Act (GMA)⁷ and includes the following provisions [*HB 1181 sections referenced in text, statutes referenced in footnotes*]:

"Comprehensive plans are more than just visioning documents for the future. They tend to be legally adopted by the local decision-making body, can require alignment with existing regulations and clear linkages with future infrastructure investments, and can spur the community to rewrite codes and regulations. Embedding climate science and information into plans can therefore be a trigger for more in-depth analysis as plan recommendations become a reality."

– American Planning Association, [Using Climate Information in Local Planning](#)

- Adds a GMA climate change and resiliency goal to: "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 resiliency⁸ to climate impacts and natural hazards; protect and enhance environmental, economic, and human health and safety; and advance environmental justice" [Sec. 1(14)].⁹
- Adds a climate change and resiliency element that is designed to result in reductions in overall greenhouse gas emissions and that must enhance resilience to and avoid the adverse impacts of climate change, which must include efforts to reduce localized GHGs and avoid creating or worsening localized

⁴ Washington State Department of Health [Environmental Health Disparities Map](#) (accessed June 1, 2023)

⁵ MRSC website (2022), [Local Government Climate Change Planning Documents](#)

⁶ <https://lawfilesext.leg.wa.gov/biennium/2023-24/Pdf/Bills/Session%20Laws/House/1181-S2.SL.pdf?q=20231006104601>

⁷ [RCW 36.70A](#)

⁸ HB 1181 uses the term resiliency, which is most often used today in academic contexts. This planning guidance generally uses the term resilience, which is more widely used by planners, emergency managers, and other practitioners. The terms are variations of the same word.

⁹ [RCW 36.70A.020\(14\)](#)

climate impacts to vulnerable populations and overburdened communities [Sec. 3(9)].¹⁰ The new climate element includes two sub-elements:

- A GHG emissions reduction sub-element¹¹ that is mandatory for 11 counties and their cities and requires actions to reduce overall emissions and per capita vehicle miles traveled (VMT) [Sec. 4(1)].¹²
 - A resilience sub-element that is mandatory for all jurisdictions planning under RCW 36.70A.040 [Sec 3(9c)].¹³ A natural hazard mitigation plan in substantial conformance with the guidance could be adopted, by reference, to satisfy the resilience sub-element requirements.
- Took effect on July 23, 2023 and applies first to the jurisdictions with 2025 comprehensive plan periodic update deadlines [See guidance's Sec. 1.3: Who Must Create a Climate Element].
 - Directs the Washington Department of Commerce (Commerce) to create this climate planning guidance to support jurisdictions updating their comprehensive plans. Cities and counties with a 2025 comprehensive plan update deadline should use this intermediate planning guidance to develop their climate element [Sec. 5(3)]. Commerce must update the guidance at least every five years [Secs. 5(3) and 9(8)].
 - Directs Commerce to adopt rules setting minimum standards for compliance with state law and publish full guidance by Dec. 31, 2025.
 - Considers environmental justice to avoid worsening environmental health disparities [Sec. 5(1)].

Changes to Other GMA Goals and Elements

HB 1181 makes the following changes to other GMA goals and comprehensive plan elements:

- Amends the transportation goal to state: Encourage efficient multimodal transportation systems that "will reduce greenhouse gas emissions and per capita VMT, and" are based on regional priorities and coordinated with county or city comprehensive plans [Sec. 1(3)].¹⁴
- Amends the open space and recreation goal to state: Retain open space "and green space," enhance recreational opportunities, "enhance" fish and wildlife habitat, increase access to natural resource lands and water, and develop parks and recreation facilities [Sec. 1(9)].¹⁵
- Amends the environment goal to state: Protect "and enhance" the environment and enhance the state's quality of life, including air and water quality, and the availability of water [Sec. 1(10)].¹⁶
- Amends the citizen participation and coordination goal to state: Encourage involvement of citizens in the planning process, "including the participation of vulnerable populations and overburdened communities," and ensure coordination between communities and jurisdictions to reconcile conflicts [Sec. 1(11)].¹⁷
- Lists the shorelines of the state goal: For shorelines of the state, the goals and policies of the Shoreline Management Act as set forth in RCW 90.58.020 shall be considered an element of the county's or city's comprehensive plan [Sec. 1(15)].¹⁸
- Amends the land use element to include the following: element should designate "green spaces, urban and community forests within the urban growth area"; element must "give special consideration to achieving environmental justice in its goals and policies, including efforts to avoid creating or worsening environmental health disparities"; element must reduce per capita vehicle miles traveled within the

¹⁰ [RCW 37.70A.070\(9\)\(a\)](#)

¹¹ Referred to as the "GHG reduction sub-element" in this guidance.

¹² [RCW 37.70A.070\(9\)\(c\)](#)

¹³ [RCW 37.70A.070\(9\)\(c\)](#)

¹⁴ [RCW 36.70A.020\(3\)](#)

¹⁵ [RCW 36.70A.020\(9\)](#)

¹⁶ [RCW 36.70A.020\(10\)](#)

¹⁷ [RCW 36.70A.020\(11\)](#)

¹⁸ [RCW 36.70A.020\(15\)](#)

jurisdiction, but without increasing greenhouse gas emissions elsewhere in the state"; element must "reduce and mitigate the risk to lives and property posed by wildfires by using land use planning tools" (lists Firewise USA program, International Wildland-Urban Interface Code, and other practices) [3(1)].¹⁹

- Amends the capital facilities element to state that a capital facilities plan must include an inventory of existing capital facilities owned by public entities, "including green infrastructure." Additionally, requires that the city or county shall "identify all public entities that own capital facilities and endeavor in good faith to work with other public entities (for example, special purpose districts) to gather and include within its element the information required. A good faith effort must, at a minimum, include consulting the public entity's capital facility or system plans and emailing and calling the staff of the public entity" [3(3)].²⁰
- Amends the utilities element to include the location and capacity of "telecommunications" and natural gas "systems." Additionally, requires that the jurisdiction "identify all public entities that own utility systems and endeavor in good faith to work with other public entities" to gather and include within its element the information required [3(4)].²¹
- Amends the transportation element to require the following: estimated "multimodal level of service" impacts on state-owned transportation facilities; an inventory of "active transportation facilities"; "multimodal level" of service standards for all locally owned arterials, "locally and regionally operated transit routes that serve urban growth areas, state-owned or operated transit routes that serve urban areas if the department of transportation has prepared such standards, and active transportation facilities" to serve as a gauge to judge performance of the system "and success in helping to achieve the goals of this chapter consistent with environmental justice"; forecasts of "multimodal transportation demand and needs within cities and urban growth areas, and forecasts of multimodal transportation demand and needs outside of cities and urban growth areas"; identification of state and local system needs to "equitably" meet current and future demands; and, other miscellaneous changes [3(6)].²²
- Amends the park and recreation element to require an "evaluation of tree canopy coverage within the urban growth area" [3(8)].²³
- Adds a requirement that county comprehensive flood control management plans include "consideration of climate change impacts, including the impact of sea level rise and increased storm severity on people, property, natural resources, and the environment." A county may incorporate the portion of its flood control management plan relating to land use restrictions in its comprehensive plan and development regulations adopted pursuant to chapter 36.70A RCW [12(6)].

Climate planning requirements for other state agencies

- Requires that the Department of Transportation maintain a summary of the per capita VMT for cities and unincorporated portions of counties; and, adds multimodal concurrency [Sec. 10].
- Requires that the Department of Ecology "update its shoreline master program (SMP) guidelines to require that SMPs address the impact of sea level rise and increased storm severity on people, property, and shoreline natural resources and the environment" [Sec. 11].
- Requires that the Department of Health ensure that Group A water system plans that serve 1,000 or more connections and are initiated after June 30, 2025 include a climate resilience element at the time of approval. The department shall also provide financial assistance for such planning and projects. [Sections 17 and 18].

¹⁹ [RCW 36.70A.070\(1\)](#)

²⁰ [RCW 36.70A.070\(3\)](#)

²¹ [RCW 36.70A.070\(4\)](#)

²² [RCW 36.70A.070\(6\)](#)

²³ [RCW 36.70A.070\(8\)](#)

Section 1: Introduction

1.1: Planning Guidance Overview

Climate change does not impact everyone equally.²⁴ To support environmental justice and equity, this planning guidance begins with recommendations for how cities and counties can develop a climate policy advisory team and ensure that historically overburdened and underrepresented communities are included in early and ongoing efforts to develop and implement a comprehensive plan climate element [Section 2].

Next, the guidance provides flexible pathways to develop scientifically supported goals and policies to enhance community preparedness, response, and recovery efforts that build resilience to the impacts of wildfires, floods, and other hazards worsened by global climate change [Section 3]. The next section of the guidance [Section 4] includes pathways toward developing goals and policies that reduce greenhouse gas emissions from land use, transportation, and other sectors.

All pathways conclude with instructions regarding how to integrate a climate element into a comprehensive plan. This could look different depending on a jurisdiction's preferences. A mix of resilience and GHG reduction goals and policies could be consolidated into a single chapter or spread across multiple chapters associated with other GMA elements (housing, transportation, land use, etc.). This flexible planning and implementation approach recognizes that climate change is a cross-cutting issue that affects many sectors and communities in different ways.

The guidance is intended to be followed in order, with the last step resulting in the selection and customization of goals and policies [Section 5], which should be brought forward to decision-makers for adoption in a local comprehensive plan [Figure 2]. To help with this work, the guidance links to a "menu" of model climate goals and policies, dubbed the [Menu of Measures](#). The guidance's appendix includes additional tools, including: a workbook for capturing the analysis completed with development of the sub-elements [Appendix B] and a resource library of climate planning, policy design, funding, and implementation tools [Appendix E].

Figure 2: Climate Element Guidance



²⁴ United Nations Department of Economic and Social Affairs working paper (2017), [Climate Change and Social Inequality](#).

1.2: Climate Planning Concepts

Whether you're creating or updating your comprehensive plan's climate element or talking with community members about climate change, it's important to understand the interrelatedness of key concepts, including climate resilience, adaptation, GHG emissions reduction, hazard mitigation and environmental justice. A glossary of the terms used throughout this guidance and its Menu of Measures can be found Appendix K. Appendix E also includes a curated list of climate planning articles, videos, spatial planning tools, and other resources to assist with deeper learning at any level.

GHG emissions reduction (climate mitigation) means taking action to reduce or eliminate carbon dioxide and other heat-trapping emissions, the quantity of which can determine the extent and severity of climate change over time. This guidance's GHG emissions-reduction strategies [Section 4] recommend principally targeting emissions in the buildings & energy, transportation, and zoning & development sectors, which are Washington's biggest sources of emissions.

Climate resilience is "the ongoing process of anticipating, preparing for, and adapting to changes in climate and minimizing negative impacts to our natural systems, infrastructure, and communities," as defined by state law.²⁵ Cities and counties can build their resilience capacity by implementing a mix of climate preparedness, response, and recovery policies, including mitigating natural hazards, adapting to unavoidable impacts, and restoring degraded natural areas that provide key ecosystem services — all with an equity lens to account for how climate impacts may vary based on localized experiences of environmental injustice.

The terms hazard mitigation and adaptation both relate to climate change, as discussed in this guidance. The Federal Emergency Management Agency (FEMA) defines hazard mitigation as "any sustained action to reduce or eliminate long-term risk to people and property from natural hazards and their effects." The related concept of adaptation is "the process of adjusting to new (climate) conditions in order to reduce risks to valued assets," which can include everything from roads and buildings, to health and well-being, to forests and streams.²⁶ These terms are expanded upon within the resilience sub-element guidance [Section 3].

Acknowledging the relationships between these concepts, this guidance and its companion model goals and policies aim to promote co-benefits — the additional social, economic, and environmental benefits of a climate policy. Jurisdictions can support potential co-benefits through robust collaboration with communities, especially overburdened and vulnerable communities, that center climate and environmental justice as guiding principles.

For example, a GHG reduction policy that supports increasing compact, mixed-use development near transit, helps to reduce building energy consumption and vehicle miles traveled and also makes housing more plentiful and potentially affordable. This also improves access to public transportation and improves employment and health outcomes for transit-dependent residents who might otherwise be unable to access these opportunities. A resilience policy that supports planting drought-tolerant street trees to adapt to hotter, drier summers also has GHG reduction co-benefits; such trees store carbon and reduce energy demand in adjacent buildings. Collaborating with community partners early in the process can help refine where planting trees should occur first and how this adaptation activity might create shade for neighborhoods without air-conditioning and potentially prevent heat-related illness and death.

²⁵ [RCW 70A.65.010](#)

²⁶ NOAA website (2022), [U.S. Climate Resilience Toolkit glossary](#)

1.3: Who Must Create a Climate Element

All fully planning cities and counties must adopt a climate change element. For 11 of the state's largest and fastest-growing counties [see *table below*] and their cities with a population greater than 6,000, as of April 1, 2021,²⁷ the full scope of new requirements includes adoption of a climate element with both a GHG emissions reduction sub-element and a resilience sub-element. Depending on their population and location, these local jurisdictions may have to update other mandatory comprehensive plan elements, such as transportation and land use.²⁸

For those fully planning jurisdictions not listed below, only the resilience sub-element is mandatory.

Counties (and cities within) required to develop a resilience sub-element and a GHG emissions reduction sub-element	2025	2026	2029* Progress Report	
○ Benton		X		<p>*Note: The jurisdictions with the first implementation progress reports due in 2029 are only required to update two elements – the transportation element and add a climate element (greenhouse gas emissions reductions sub-element and a resilience sub-element).</p>
○ Clark	X			
○ Franklin		X		
○ King			X	
○ Kitsap			X	
○ Pierce			X	
○ Skagit	X			
○ Snohomish			X	
○ Spokane		X		
○ Thurston	X			
○ Whatcom	X			

Resources:

- Commerce provides a complete collection of training and guidance on the Growth Management Act. The following Commerce resources are available online: [Periodic Updates](#); [GMA regulations](#); and an overview of Washington [local land use](#) planning.

²⁷ 2021 population is reported by the Office of Financial Management

²⁸ [RCW 36.70A.095](#)

1.4: Climate Planning and Shoreline Master Programs

As local governments undertake climate planning, they must ensure that the climate resilience provisions within their comprehensive plans and shoreline master programs (SMPs) align. The Department of Commerce will coordinate with the Department of Ecology when conducting rulemaking under HB 1181 to ensure that new requirements are aligned.

Shorelines and shorelands are managed under the city, town, or county's SMP. Shorelines are a planning goal of the GMA, which means that the goals and policies of a local government's SMP are considered an element of their comprehensive plan.²⁹ SMPs, like comprehensive plans, provide a key lever for implementing climate planning across a jurisdiction's land use policies.

Climate resilience and mitigation provisions developed following this guidance are not automatically applicable within the shoreline jurisdiction governed under the Shoreline Management Act (SMA). Local SMPs regulate new shoreline uses and developments under SMA goals, policies, purpose, and intent. SMPs are developed by local governments and reviewed and approved by Ecology. SMPs are locally tailored policies and use and development regulations that implement the SMA. The SMA has three broad policies: protecting the shoreline environment, promoting public access and enjoyment opportunities, and giving priority to uses that require a shoreline location.³⁰ Each SMP contains standards that ensure allowed uses and development remain compatible with the shoreline environment and SMP and prevent net loss of shoreline ecological function. Climate resilience provisions intended to apply within the shoreline jurisdiction must be added through an SMP amendment and approved by Ecology prior to being effective. SMP goals, policies, and regulations must be developed consistent with the SMA, and applicable guidelines and are subject to internal consistency requirements for comprehensive plans.³¹

Local governments developing a climate element should consider their SMP alongside their comprehensive plan to improve efficiency and consistency. For example, jurisdictions should consider climate impacts to shorelines and shorelands [Section 3, Step 1] and review their SMP during their policy audit [Section 3, Step 2]. Ecology recommends that local governments ensure that shoreline jurisdictional area and SMP provisions are considered at each step of the resilience sub-element planning process [Figure 3] so that outputs can inform future SMP periodic review or amendment processes. Periodic review of an SMP is required every ten years. Jurisdictions may choose to incorporate climate provisions into their SMP during an SMP periodic review or through a locally initiated amendment.³²

HB 1181 requires Ecology to update SMP Guidelines³³ and guidance describing how SMPs address the impact of sea level rise and increased storm severity on people, property, and shoreline natural resources and the environment. Local governments addressing climate change under the authorities of their SMP should consult Ecology guidance³⁴ and work closely with their Ecology shoreline planner.³⁵

²⁹ [RCW 36.70A.020](#) and [36.70A.480](#)

³⁰ [RCW 90.58.020](#)

³¹ [RCW 36.70A.480](#)(2) and (3)(a)

³² [WAC 173-26-090](#)

³³ [WAC 173-26](#)

³⁴ <https://ecology.wa.gov/Water-Shorelines/Shoreline-coastal-management/Shoreline-coastal-planning/Shoreline-planners-toolbox>

³⁵ <https://ecology.wa.gov/Water-Shorelines/Shoreline-coastal-management/Shoreline-coastal-planning/Contacts>

Section 2: Planning & Engagement

County and city staff should establish a work plan at the outset of the project that outlines the entire periodic update process – including any new elements, such as climate. The work plan should include approximately two years to develop and adopt a new climate element (one year per sub-element) concurrent with your broader comprehensive plan update. The work plan should also include a public participation plan that should be adjusted throughout the project.³⁶

See Commerce's Periodic Update [webpage](#) for an example work plan that identifies a procedure and schedule for the public to participate in the periodic update. Communication to the public regarding the work plan should clearly identify the scope of the review and identify when legislative action on the review and update of the component are proposed to occur. The work plan must provide for early and continuous public participation. The best way for a county or city to fulfill this requirement is to schedule public engagement at the beginning of the update process and iteratively review and adjust the plan throughout all the key steps.

County and city staff should also provide for early and continuous public engagement. They should work with community partner organizations to the fullest extent possible to anticipate barriers to public engagement and to make engagement more accessible. Identifying barriers to engagement – and gaps in engagement activities and outcomes – is also an iterative process. Such factors impacting meaningful notice and engagement may include the use of written and verbal materials, day and night opportunities, multiple language options (without community members having to request them), and in-person and virtual engagement.

2.1: Form Climate Policy Advisory Team

Typically, a jurisdiction forms an internal staff team to manage the entire update process and will include at least one advisory committee composed of community volunteers and other stakeholders as its primary advisory committee for the comprehensive plan.

If there is capacity, consider including a climate-focused interdisciplinary team, in addition to the primary advisory committee, to focus on developing and revising the comprehensive plan's climate goals and policies. This team, hereafter referred to as the "climate policy advisory team," would coordinate with the primary planning and public-engagement efforts associated with updating housing, land use, transportation, and other comprehensive plan elements. If capacity is constrained, and only a singular advisory committee is possible, then consider recruiting individuals with expertise as described in this section to fill dual roles.

The main focus of the climate policy advisors is to analyze climate information gathered through periodic update engagement processes and provide recommendations on areas of focus. Such advisors could also provide recommendations on the following: goals with near-term due dates; actions that can be implemented readily; strategies for longer-term actions; and, a structure to update the plan.

Members of a climate policy advisory team should generally include planners and public works professionals, plus a diverse group of community members with the goal of collaboratively creating a climate element that centers equity in policy development and implementation. Such partners should include:

- advisory board members with experience reviewing and developing zoning and land use policy;

³⁶ [RCW 36.70A.035](#) and [130\(2\)\(2\)](#)

- experts in hazard mitigation, public health, transportation, fish and wildlife habitat, forests, and other areas with a climate nexus;
- community engagement specialists;
- representatives from regional clean air agencies and metropolitan planning organizations (MPOs);
- legal advisors to make sure goals and policies are consistent with state and local laws; and,
- elected officials who will provide oversight and can champion the project from beginning to end.

***NOTE:** You may also want to ask Commerce and other state agencies to provide periodic technical assistance as your team develops or updates its climate element. As a best practice, partnerships with state agencies should be initiated early in the process of updating your comprehensive plan.³⁷*

Commerce recommends that your jurisdiction's team include leaders within overburdened communities that are most impacted by the changing climate conditions and whose insight will lead to the most equitable outcomes for your jurisdiction. Use this guidance's companion Climate Element Workbook [Appendix B] to list your climate policy advisory team members. The workbook could be adapted to suit your jurisdiction's needs and is designed for your internal use.

Support Community Participants: Regardless of whether there is one or multiple advisory bodies, building an effective and inclusive advisory team will take significant time and trust. The Municipal Research and Services Center (MRSC) advises local jurisdictions to: *“Create a foundation for an ongoing relationship, not a one-off transaction designed to extract information and leave. Once a frontline community has provided input, follow up and show them how their participation has led to tangible results. Community members can also be invited to serve on an advisory or implementation task force.”³⁸*

Consider the following ways to support people who serve on your advisory team, namely those whose participation is not a paid position within an organization:

- Pay a stipend for participation in and travel to meetings;
- Host meetings in the evenings, and provide food and childcare;
- Offer meeting translation services, and ensure materials are available in multiple languages and formats;
- Ask what support they would need to participate authentically.

Community-based organizations (CBOs) and representatives of these organizations can be particularly helpful partners and collaborators because of their roles as trusted partners in overburdened communities. They also bring broader community perspectives, not only the perspectives of individual community members. When partnering with CBOs, also consider compensating organizations to participate meaningfully in development, implementation, and evaluation of engagement efforts.

³⁷ Commerce guidance (2022), [A Guide to the Periodic Update Process Under the Growth Management Act](#)

³⁸ MRSC website (2023), [Equity and Engagement in Climate Response](#).

2.2: Establish Public Engagement Strategy

Your planning process should include a strategy to engage a diversity of community members in equitable and meaningful ways. It is important to integrate community members into your planning process early to provide them agency in shaping and implementing policies. It is also important to coordinate climate engagement efforts with any broader engagement strategy that is required as part of your comprehensive plan update process.³⁹

Use the resources below to identify and recruit overburdened community organizations and members — people who experience the first and worst consequences of climate change. Also consider inviting representatives from local businesses, neighborhood associations, schools, and other groups, to participate in your process and share their technical expertise, cultural perspective, and lived experience. List these stakeholders in your Climate Element Workbook.

Using Festivals, Books, and Games to Engage Residents and Build Climate Resilience

During Olympia's fall 2017 Arts Walk festival, the Thurston Regional Planning Council (TRPC), Timberland Regional Library, and other partners hosted "Art of Change," an event that merged climate literacy, art, science, and policy. Against the backdrop of an ocean acidification mural painted on downtown's Puget Sound Estuarium building, Timberland staff hosted a "pop-up" library where festival visitors could sign up for a card and check out climate books, films, and other resources. Olympia staff members discussed the City's sea-level rise strategy, while Arts Walk visitors played a TRPC-created board game called "Resilience Road." The collaborative game enabled players to take *Thurston Climate Adaptation Plan* actions to respond to the impacts of floods, droughts, and other climate-exacerbated hazards.

- **Establish goals and outcomes:** Start by establishing equity goals and desired outcomes for your engagement strategy. Next, identify the level of decision-making you're giving to community members (for example, making policy recommendations directly to your advisory team or elected officials).
- **Design an equitable process:** Ask your stakeholders how they want to participate in your process — for example, as part of the climate policy advisory team, technical or cultural focus groups, or multisector committees. Ensure that all stakeholders have an equitable opportunity to participate collaboratively in your planning process' core steps and policy implementation efforts. Seek out ways to center historically marginalized voices [see resources below].
- **Engage broader community:** Consider the following ways to educate and engage the broader community about climate resilience and emissions mitigation:
 - Host interactive events (virtual and in-person meetings and site tours of at-risk areas of the community) to educate residents about local climate impacts and how you will integrate resilience and emissions-reduction goals and policies into your comprehensive plan;
 - Participate in other issue-specific forums — for example, about affordable housing and health — to discuss their nexus with climate change;
 - Work with leaders of community-based organizations to talk directly with residents about climate change and how your jurisdiction and other partners can help neighborhoods reduce their dependence on fossil fuels and build resilience;
 - Participate in existing community arts and cultural events [see example above] to share draft policy ideas and elicit input from residents.
 - See MRSC's Community Engagement Resources [webpage](#) for additional ideas.

³⁹ [WAC 365-196-600](#)

Resources:

- The **White House Council on Environmental Quality's** [Climate & Economic Justice Screening Tool](#) can help your jurisdiction identify disadvantaged (overburdened and underserved) communities — those that are in census tracts that meet the threshold for at least one of the tool's categories of burden (lack of greenspace, legacy pollution, historic underinvestment/redlining, etc.) and corresponding economic indicator, or that are on lands of a Federally Recognized Tribe.
- A joint **University of Washington-Front and Centered** report — [An Unfair Share: Exploring the Disproportionate Risks from Climate Change Facing Washington State Communities](#) — can help you identify potential stakeholders and address inequities through your planning process and policies. The report explains how community members might be exposed differently to climate change and how race, wealth, education, health status and other factors could affect a person's ability to cope with climate impacts.
- An **Antioch University New England** paper, [Centering Equity in Climate Resilience Planning and Action](#), recommends additional best practices for balancing power dynamics through participatory planning and centering equity throughout the planning process.
- The **Washington Department of Health's** [Provisional Community Engagement Plan for HEAL Act Implementation](#) suggests additional public engagement best practices.
- The **National Association of Climate Resilience Planners'** [community-driven climate resilience planning framework](#) complements your public-sector process by recommending best practices for how community-based organizations can help residents of vulnerable and impacted communities define for themselves the complex climate challenges they face and the climate solutions most relevant to their unique assets and threats.

2.3: Establish Tribal Engagement Strategy

Tribal Engagement is an overarching term that encompasses all levels of tribal communication and partnership, from formal government-to-government (G2G) consultation to informal coordination. Formal G2G consultation by definition happens at the federal and state level. Federally recognized tribes retain their rights as sovereign nations to a direct government-to-government relationship with the federal government through treaties and presidential executive orders, independent of the state or local jurisdictions. Washington state tribal relations policy is guided by the [Centennial Accord](#) (1989) and [Millennium Agreement](#) (1999), and you can find more information at the Governor's Office of Indian Affairs (GOIA). Commerce's updated Tribal Relations Policy reflects our commitment to effective communication, collaboration, and relationship-building with tribal partners and provision of quality services to tribal people in Washington.

Tribal Sovereignty is a legal term that means the right of a people to self-govern within jurisdictional borders. According to [Washington Tribes](#), "Tribal sovereignty recognizes that American Indian tribes have the political status of nations and that Indian nations are located within the territorial boundaries of the United States. As sovereigns, tribal nations have a government-to-government relationship with the two other sovereign governing bodies in the U.S. — the federal and state governments."

As sovereign nations, tribes will engage to the degree that benefits their community and at their discretion. If tribes decline to participate in your comprehensive planning process due to capacity constraints or any other issue, your jurisdiction should still share updates and continue to invite input in other ways. Local governments can conduct tribal engagement at a level of formal or informal tribal coordination. Formal coordination involves creating a Memorandum of Understanding (MOU) focused on the climate element of your comprehensive plan. Formal coordination can focus solely on this element or can be broader in purpose. This takes place at the local jurisdiction's governance level, sometimes referred to as Council-to-Council

diplomatic protocol by tribal nations. If you are just beginning or renewing your partnership with the tribes near you and would like additional help in preparing for this step you can contact the Tribal Planning Coordination Manager for assistance.

If you have existing working relationships and/or partnerships, informal coordination may work for you. It involves conversations focused on information sharing with tribal staff at a department-to-department level. In both of these coordination efforts, it is important to understand that tribal engagement is on a separate track than public engagement.

Tribal coordination activity that does belong in the public engagement process includes working with Indigenous groups that are not tribal governments, such as urban Native American organizations and/or tribal populations not located in their Indian Country. This might include non-federally recognized tribes, Native American non-profits and Indigenous community-based organizations. There is a distinction between working with federally recognized tribes who are self-governing sovereign nations and other Native American groups.

Your jurisdiction should reach out to tribes that have reservation lands, ancestral lands and waters, and/or "usual and accustomed areas" that neighbor your jurisdiction. We suggest you engage early, often, and with each tribe individually. Local governments have a legal responsibility to uphold sovereignty and treaty rights by consulting with tribal governments to reach consensus. Consider how you can approach this in a culturally appropriate manner by learning about your neighboring tribes through research, talking to mutual contacts, and visiting cultural heritage centers. Key information about Washington's tribal governments and their reservations can be found online at the Governor's Office of Indian Affairs: www.goia.wa.gov.

Many tribes have their own comprehensive plans that have a climate resilience element, and expertise developing climate adaptation plans. Collaborative planning efforts may help identify mutual priority actions and strategies that can inform neighboring jurisdictions. It's possible that tribes may want to collaborate beyond just the climate element of your comprehensive plan, and tribes can now opt-in to local governments' planning processes as per recent updates to the GMA through [SHB 1717](#) (Ch. 252, Laws of 2022). For more information about tribal participation in overall comprehensive planning visit Commerce's Tribal Planning Coordination [webpage](#) and/or contact the agency's Tribal Coordination Manager.

2.4: Develop Vision Statement

Early in the local planning process, jurisdictions often begin by creating a vision statement. In this context, your climate policy advisory team should draft a statement about the social, economic, and environmental places, traditions, and values that matter most to your community members. Articulate why and how your community members want to sustain them in the face of a changing climate. The vision statement should include guiding principles or values consistent with those your jurisdiction has articulated already for the comprehensive plan and/or the periodic update in general [see *examples in Appendix H*]. This is also an opportunity to revisit those statements and values, and to view them through the lens of climate and equity:

- Ask your community members to describe their unique perspectives, assets, and climate-related challenges;
- Ask them to define what climate resilience and community well-being mean to them;
- Ask them how the guiding principles — and, ultimately, the comprehensive plan goals and policies — could better serve their communities' unique needs and priorities and leverage their strengths;
- Ask them how they want to be a partner in implementing climate policies in the community and how your jurisdiction could help.

Section 3: Resilience Sub-element

3.1: Overview

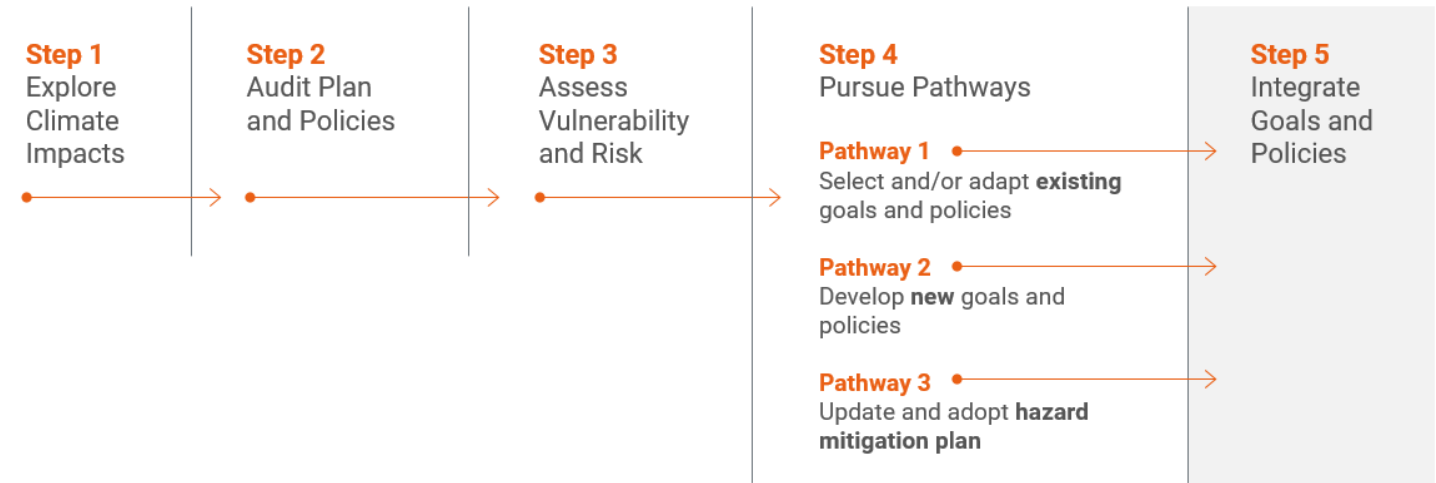
Washington’s cities and counties should use this section to develop comprehensive plan goals and policies that support communitywide climate resilience. The resilience sub-element planning guidance (resilience guidance) that follows will help local jurisdictions use climate modeling to identify and prepare for natural hazards exacerbated by climate change, including floods, droughts, wildfires, and other impacts of changes to temperature and precipitation patterns. The resilience guidance and its companion resources will also help local jurisdictions identify planning and policy approaches to advance environmental justice, adapt to and mitigate the effects of a changing climate, and protect and enhance the environment, economy, and human health and safety.

This section provides a common planning framework with linear steps and flexible pathways [Figure 3].

Defining Climate Resilience

Climate resilience is the ongoing process of anticipating, preparing for, and adapting to changes in climate and minimizing negative impacts to our natural systems, infrastructure, and communities. Washington’s cities and counties can build climate resilience by implementing a mix of preparedness, response, and recovery policies, including mitigating natural hazards, adapting to unavoidable impacts, and restoring degraded natural areas that provide key ecosystem services.

Figure 3: Steps and Pathways to Integrate Resilience into Comprehensive Plan



Steps and Pathways:

Washington’s cities and counties should create their climate resilience sub-element and then review and revise it at least once every 10-year comprehensive plan periodic update cycle, based on best available science, updated climate modeling, and communities’ evolving needs and priorities. **This section includes four required steps and one optional step** for this work: Start by taking the first two steps to explore local climate impacts (**required Step 1**) and identify resilience policy gaps and opportunities (**required Step 2**). Conclude Step 2 by determining whether your jurisdiction needs to conduct a climate vulnerability and risk assessment (**optional Step 3**) or whether your jurisdiction is ready to choose goals and policies (**required Step 4**) for integration into the comprehensive plan (**required Step 5**). Your jurisdiction should choose its progression of steps and pathway(s) based on its staff capacity, existing body of climate work, budget, and other considerations.

The Pathways Approach Provides Flexibility and Recognizes Existing Work

Below are a few examples of how Washington jurisdictions — ranging in size, capacity, and existing climate planning work — could follow the flexible pathways approach for integrating climate resilience into a comprehensive plan. With each pathway, the jurisdiction could use the Menu of Measures as a resource for selecting goals and policies:

A large jurisdiction could use the guidance to identify resilience gaps and opportunities in its comprehensive plan and then integrate into the plan goals and policies from an existing climate action plan and Commerce's Menu of Measures [*Pathway 1*].

A mid-size jurisdiction could use the guidance to conduct a climate vulnerability and risk assessment to create a climate action plan and then integrate its new goals and policies into the comprehensive plan [*Pathway 2*].

A small jurisdiction with limited staff capacity could use the guidance to update an existing hazard mitigation plan and then adopt it, by reference, in the comprehensive plan [*Pathway 3*].

Minimum Requirements for Developing a Climate Resilience Sub-element:

Following the steps and pathways above will help your jurisdiction meet HB 1181's minimum requirements⁴⁰ by ultimately including at least one climate resilience goal and supportive policy for each climate-exacerbated hazard that is relevant to your jurisdiction. The total number and nature of your resilience measures will be based on your science-based assessment of climate impacts, environmental justice considerations, and local planning context and needs. Your collective set of climate resilience goals and policies must include, but are not limited to, those designed to:

- **Requirement 1:** Address natural hazards created or aggravated by climate change, including sea level rise, landslides, flooding, drought, heat, smoke, wildfire, and other effects of changes to temperature and precipitation patterns;
- **Requirement 2:** Identify, protect, and enhance natural areas to foster climate resilience, as well as areas of vital habitat for safe species migration;
- **Requirement 3:** Identify, protect, and enhance community resilience to climate impacts, including social, economic, and built-environment factors, which support adaptation to climate impacts consistent with environmental justice.

Commerce encourages your jurisdiction to address all 11 of this guidance's sectors — including Agriculture & Food Systems and Economic Development [see *Figure 4*] — via its climate resilience sub-element goals and policies. This will help ensure your set of measures enhances beneficial opportunities such as local food security and green job creation and addresses important areas that might not necessarily be included in your jurisdiction's hazard mitigation plan.

By working through this section's steps, engaging community members, and implementing climate goals and policies, your resilience sub-element should accomplish the following, consistent with state law:

- Equitably enhance the resilience of communities and ecological systems to climate change;
- Be consistent with best available science and scientifically credible climate projections and impact scenarios; and,
- Prioritize and benefit overburdened communities that will suffer disproportionately from environmental impacts and climate-exacerbated natural hazards.

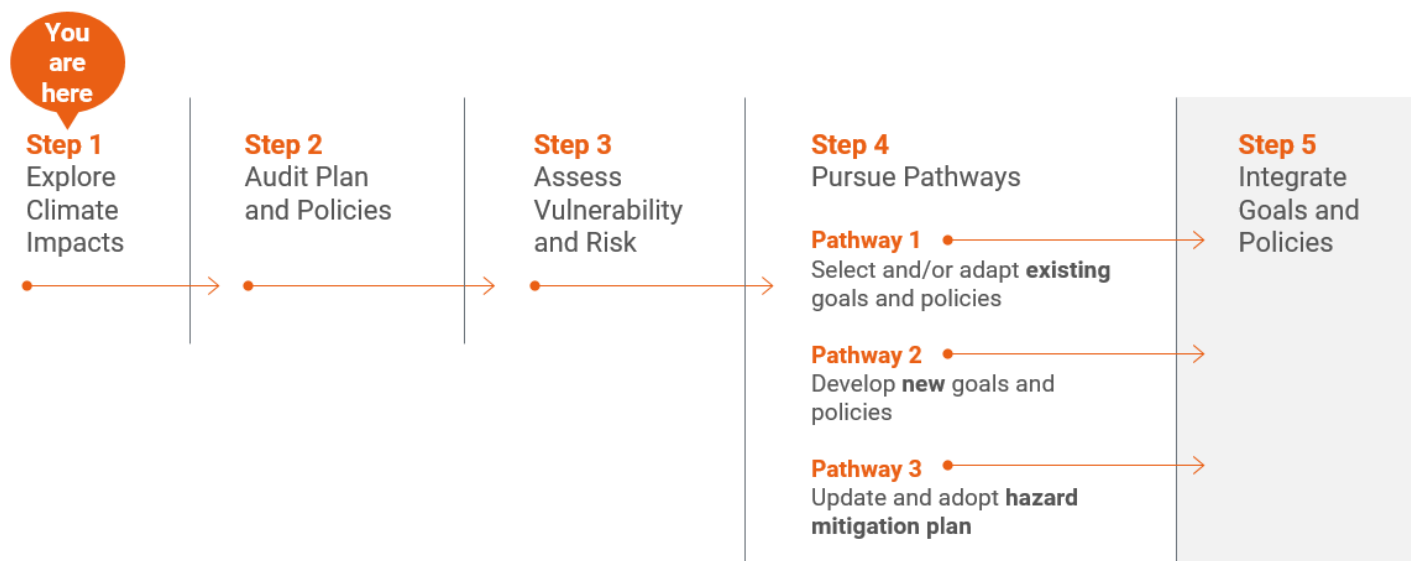
⁴⁰ [RCW 36.70A.070\(9\)\(e\)\(i\)](#)

3.2: Resilience Guidance

Commerce's guidance adapts the [U.S. Climate Resilience Toolkit's "Steps to Resilience"](#) framework⁴¹ and integrates additional best practices recommended by the Association of Washington Cities (AWC), Municipal Research and Services Center of Washington (MRSC), American Planning Association (APA), and other organizations. The resilience guidance provides a linear, yet flexible, approach for jurisdictions to explore climate science, assess impacts on local sectors and assets, and consider policy interventions.

The resilience guidance steps and associated tasks have corresponding tabs in the companion Climate Element Workbook for your jurisdiction to record its work [*Appendix B*]. Commerce recommends that jurisdictions review the workbook and the corresponding guidance steps before beginning work on this sub-element, which will take roughly 12 months to develop and adopt as part of a broader comprehensive plan update. The time and sequence of steps needed to complete work on this sub-element will vary based on a jurisdiction's staff capacity and body of planning work. For example, some jurisdictions may be pulling from a recent, separately completed vulnerability assessment rather than doing this step within their update cycle.

Step 1 – Explore Climate Impacts



In this required step, your jurisdiction's climate policy advisory team should use the University of Washington Climate Impacts Group's (UW CIG) Climate Mapping for a Resilient Washington (CMRW) [webtool](#) to build baseline awareness of how climate change is expected to affect local sectors (water resources, transportation, etc.) and their social, economic, and environmental assets in coming decades. Commerce considers the CMRW webtool a source of best available science and scientifically credible projections, so this guidance makes using the webtool a required starting point for all jurisdictions that are creating or updating a climate resilience sub-element. Commerce encourages jurisdictions to use additional resources [*examples below*], as needed, to explore climate hazards and impacts on local assets and sectors.

⁴¹ The U.S. Climate Resilience Toolkit is published by the National Oceanic and Atmospheric Administration (NOAA) Climate Program Office. The Washington Department of Commerce adapted into its resilience guidance the NOAA Toolkit's Steps to Resilience risk assessment and decision-support framework and integrated best practices published in the October 2022 report, [Implementing the Steps to Resilience: A Practitioner's Guide](#). The Guide includes links to many examples and resources.

Task 1.1: Identify Community Assets

Use the Task 1.1 tab in the Climate Element Workbook to list social, economic, and environmental assets that your community members value and want to protect. In this context, the term "asset" refers broadly to community groups, places, natural resources, infrastructure, and services. Your climate policy advisory team should lead this task and seek input from community members to ensure the list is comprehensive.

- Your initial list should include general asset themes (urban tree canopy, buildings, roads, etc.) within the 11 sectors. You will have an opportunity in Step 3 to refine this general list with specific assets (for example, a key bridge or hospital), should you decide to conduct a more detailed vulnerability and risk assessment.
- Your jurisdiction should consult with special districts, state, and federal agencies responsible for managing local assets. For example, some cities have state or federal highways near floodplains and areas that will be inundated by sea level rise. Such municipalities could coordinate with the agency responsible for the facility and support elevating and protecting it from flooding and erosion, providing some protection for the community.

Resources:

- Your capital facilities and hazard mitigation plans can help you identify physical assets.
- Washington Department of Ecology's report – [Preparing for a Changing Climate: Washington State's Integrated Climate Response Strategy](#) – can help your jurisdiction broaden its list of social and environmental assets.
- NOAA's U.S. Climate Resilience Toolkit report – [Implementing the Steps to Resilience: A Practitioner's Guide](#) – provides useful ideas for grouping assets thematically.

Task 1.2: Explore Hazards and Changes in the Climate

In this task, your jurisdiction will explore how expected changes in the climate could exacerbate natural hazards (droughts, floods, etc.) and impact assets (ecosystem degradation, infrastructure damage, etc.).

- First, you might wish to read summarized climate information from statewide or regional reports⁴² and key takeaways for your area.⁴³ You might also wish to review your local hazard mitigation plan to understand your assets' current risk exposure and vulnerability to the identified hazards.
- Next, use the CMRW [webtool](#) to explore county-level information about expected changes in the climate. Consider both near-term (20 years) and long-term (more than 20 years) climate projections, recognizing that planning might be required now to deal with changes expected in coming decades.
 - See UW CIG's [user guide](#) for its CMRW webtool.
 - Also see UW CIG's companion [report](#), "Biophysical Climate Risks and Economic Impacts for Washington State," for information about filtering and customizing the webtool.
- Finally, use the companion Climate Element Workbook to record your jurisdiction's findings.
 - Use the Task 1.2 tab's "Notes" column to note which emissions scenario(s) you used. You may also wish to identify potential information gaps that might warrant further analysis using other data [*additional resources below*] and/or via a more detailed vulnerability and risk assessment [*Step 3*].

⁴² The [State Climate Summary for Washington](#) could be a helpful starting point, in addition to other statewide and regional reports.

⁴³ The [Climate Explorer](#) summarizes key takeaways for cities and counties under the "Take Action" tab of the tool.

- Use the tab's "Hazards" column to note the hazards relevant to your jurisdiction. The CMRW lists seven hazard options: Drought; Extreme Heat; Extreme Precipitation; Flooding; Reduced Snowpack; Sea Level Rise; and, Wildfire.
- Use the tab's "Climate Impacts" column to note current and future climate impacts relevant to your jurisdiction. Figure 4, adapted from a UW CIG report⁴⁴, includes helpful examples.

NOTE: While HB 1181's minimum requirements specifically list landslides and smoke among hazards and effects "created or aggravated by climate change," the CMRW tool does not map projected changes in landslides and smoke the way it does for heat and other hazards because location-specific information on projected changes are not available. UW CIG and Commerce recommend that local governments use extreme precipitation as an indicator of where landslide risks are expected to change in the future because heavy rain events reduce slope stability and can trigger landslides. Supplement this information with slope and soil information to assess where landslide hazards are highest. Similarly, local governments should use wildfire as the primary hazard to assess how the frequency of smoke events might change in the future and supplement this information with spatial data about where vulnerable populations live. This can help you better understand how such populations might be impacted by smoke from local or distant wildfires and what such populations' needs might be.

Resources:

- NOAA's Climate Mapping for Resilience and Adaptation (CMRA) [tool](#) provides information about past, present, and future climate conditions at the census tract and tribal reservation scales.
- NOAA's U.S. Climate Resilience Toolkit provides additional [online resources](#), including county-scale climate data via [The Climate Explorer](#).
- The U.S. Global Change Research Program's [Fifth National Climate Assessment](#) includes a Northwest chapter and national climate change impacts for different hazards and sectors.
- Washington Department of Natural Resources' [Geologic Information Portal](#) includes an interactive map of landslides and geologic hazards across the state.
- Washington Department of Health's [Environmental Health Disparities Map](#) evaluates environmental health risk factors in communities. It provides a cumulative environmental health impact score for each census tract, reflecting pollutant exposures and factors that affect people's vulnerability to environmental pollution. The tool incorporates indicators that include ozone concentration, wastewater discharge, poverty rate, disability, death from cardiovascular disease, and low birth weight. DOH's map is not fully comprehensive with regard to tribal information, so the map should be complemented by consultation with tribes and guidance from the Environmental Justice Council.
- University of Washington's [Climate Health and Risk Tool](#) can help users: describe how climate-exacerbated hazards impact health; assess communities' relative vulnerability, exposure, and risk; and, identify policies. It is a useful tool for this and other Section 3 steps.
- University of Washington's [Climate Change Impacts and Adaptation in Washington State: Technical Summaries for Decision Makers](#) summarizes existing knowledge about the likely effects of climate change on Washington state. This resource provides contextual information for the projections display in the CMRW webtool.

⁴⁴ UW Climate Impacts Group (2007), [Preparing for Climate Change: A Guidebook for Local, Regional, and State Governments](#)

Figure 4: Examples of Potential Climate Impacts, by Sector, in Washington

Sector	Potential climate-related impacts
Agriculture & Food Systems (production and distribution, including food processing in industrial areas and community gardens in urban areas)	Changes in crop yields
	Farmworkers increasingly exposed to extreme heat
	Potential ability to “double crop”
	Increased heat stress on crops and livestock
	Reduced water availability for crops, livestock, and processing, as well as increased demand for irrigation due to longer and warmer growing season
	Changes in weeds and/or plants that grow with the crops
	Increased pest outbreaks, disease, and weeds, impacting lending opportunities and crop insurance for farmers
	Increased food scarcity after hazards (for example, floods) that disrupt food transportation and distribution
Buildings & Energy (includes generation, transmission, and consumption)	Reduced heating demand during winter months
	More frequent power loss due to extreme storms and other hazard events
	Shuttered power generating stations or transmission corridors to reduce wildfire risk
	Increased cooling demand during summer months, extreme heat events
	Increased or decreased hydroelectric generating capacity due to higher or lower streamflow
Cultural Resource & Practices (includes historic sites and cultural resources and practices)	Loss of cultural and historical sites on coastline to sea-level rise and related impacts
	Loss of cultural and historic sites due to more frequent and intense severe weather events
	Loss of locally grown, temperature-sensitive foods that are culturally important (berries, shellfish, salmon, etc.)
Economic Development (includes business continuity, opportunities)	Increased disruptions of business continuity and lost revenue and wages from wildfires and other hazards
	Price volatility in energy and raw product markets due to more extreme weather events
	Increased insurance premiums due to more extreme weather
	Fewer shipping disruptions associated with snow and ice
	Impacts on business infrastructure within floodplains or coastal areas

Sector	Potential climate-related impacts
	Shifts in business opportunities
	Increased opportunities for warm-season activities in milder areas
	Decreased opportunities for warm-season activities during the hottest part of the year (for example, from heat, forest fires, low water levels, reduced urban air quality)
	Reduced opportunities for cold-season recreation due to decreased snowpack and/or reduced snow or ice quality
	Increased reliance on snow-making at ski areas
	Shifts in tourism dollars within a jurisdiction from one recreation sector to another, or from jurisdictions losing recreational opportunities to jurisdictions gaining opportunities
Emergency Management (includes preparedness, response, recovery)	Increased costs and demands for emergency preparedness, response, and recovery activities due to more frequent and intense hazards (for example overtime for snowplow drivers, salt/ice-melting tools, overtime for firefighters, sand to put in sandbags, etc.). This diverts resources from planning, equipping, training, and exercising for other community hazards and risks.
	Increased household costs to prepare for, respond to, and recover from natural hazards.
	Additional cost in human well-being as first responders are constantly on alert or responding with little downtime for recovery. In addition to first responders, more residents are impacted by hazards on a year-round basis.
Health & Well-being (includes community well-being, equity, and engagement)	Rising temperatures will lead to an increase in heat-related deaths and illnesses, particularly among the elderly, poor, and other vulnerable populations.
	Rising temperatures and wildfires will increase ozone and particulate matter from smoke, elevating the risk of cardiovascular and respiratory illnesses and death.
	Increasing coastal and inland flooding exposes populations to negative health effects and potential exposure to contaminants spread via floodwaters.
	Extreme precipitation will increase the risk of landslides and avalanches that could cause injury and property damage.
	Ticks and other disease vectors will show earlier seasonal activity and be expanding northward, increasing risk of human exposure to disease.
	Increase in water temperatures will alter timing, extent, location and intensity of vibrio growth and harmful algal blooms, increasing exposure and risk of waterborne disease.
	Changes in exposure to weather-related disasters can cause or exacerbate stress and mental health consequences.
	Increased vulnerability of residents, particularly those who live in poverty and polluted and/or high-risk hazard areas.

Sector	Potential climate-related impacts
	Increased strain added to people experiencing homelessness and service providers.
	Longer pollen seasons and changing pollen composition will cause more severe seasonal allergies, increase hospitalizations for people with chronic respiratory diseases.
Ecosystems (includes terrestrial and aquatic species, habitats, and services)	Increased insect outbreaks
	Increased wildfire and smoke (from forests, grasslands, etc.)
	Loss of near-shore habitat and coastal wetlands to sea-level rise and erosion, where sufficient space for habitat migration is not available
	Periodic drought could impact species diversity and distribution.
	Loss of species not able to adapt to changes
	Increased competition from and expanded coverage of invasive species
	Increase in forest growth and productivity in the near-term where soil moisture is adequate and fire risk is low (and vice versa)
	Reduced presence of ephemeral wetlands
	Increased ocean acidification
	Increased sea surface temperature
	Increased stress on cold-water species in lakes and rivers
	Loss of shrubsteppe ecological function and biodiversity
	Potential reductions in water-based navigation due to lower summer streamflow
Transportation (includes multimodal travel and infrastructure)	Increased road surface damage from higher temperatures
	Increased maintenance requirements for roadside and median strip vegetation
	Increased infrastructure damage from rapid rain/freeze/thaw cycles
Waste Management (includes materials recycling and disposal)	Increased solid waste and potentially hazardous waste (downed tree limbs, building rubble, roof shingles, vehicles, and appliances) and associated environmental and public-safety impacts following severe storms, flooding, and other hazards
	Increased waste associated with population growth (including climate migration) and hazards presents opportunities for recycling materials into new products (cradle-to-cradle)
	Increased emissions of carbon dioxide, methane, and other greenhouse gases associated with the transport and disposal of waste

Sector	Potential climate-related impacts
Water Resources (includes water quality and quantity)	Shift in the timing of spring snowmelt
	Lower summer streamflow
	Impacts of wildfire, smoke, and ash on drinking water supply and storage
	Increased drought impacts on water quality and quantity
	Increased flooding impacts
	Increased aquifer drawdown and competition for water
	Warmer water temperature in lakes and rivers
	Changes in water quality
	Increased demands on stormwater management systems with the potential for more combined stormwater and sewer overflows
	Saltwater intrusion into coastal aquifers due to sea-level rise
	Increased risk of pollution from coastal hazardous waste sites due to sea-level rise
Zoning & Development (includes site use, design, and other development facets)	Increased climate-induced population displacement and migration
	Increased erosion or damage to coastal infrastructure, dunes, beaches, and other natural features due to sea level rise and storm surge
	Increased demand for irrigation of non-native, non-productive landscaping
	Changes in the size and shape of designated environmentally critical areas, buffers, and shoreline environments.
	Changes in housing stock availability due to hazard events
	Increased impervious surface runoff and associated management and maintenance costs
	Increased costs for maintenance and expansion of coastal erosion control
	Need for new or upgraded flood-control and erosion-control structures
	Flooding and erosion exacerbated by sea-level rise increases risk of shoreline property and infrastructure damage and displacement.

Task 1.3: Pair Assets and Hazards and Describe Exposure and Consequences

Pair each of the community assets you identified in Task 1.1 with every climate-influenced hazard that could affect it; enter this information into the Task 1.3 tab of your Climate Element Workbook [Appendix B]. Your list will likely include the same asset several times, and some hazards (for example, extreme heat) might affect several assets.

Defining Exposure and Consequences

Exposure is the presence of assets in places where they could be adversely affected by hazards. Consequences are the subsequent results (usually negative) that follow from damage to or loss of an asset due to a hazard.

— U.S. Climate Resilience Toolkit

- Create a numbered row for each asset-hazard pair. Your jurisdiction will use these numbered asset-hazard pairs if it decides to proceed to Step 3 and conduct a vulnerability and risk assessment.
- Select a relevant climate indicator from UW CIG's CMRW webtool for each asset-hazard pair on your list (for example, change in the annual number of hot days) and describe factors that affect the asset's exposure to the hazard (for example, the extent of paved surfaces, tree canopy cover, and other features that exacerbate or ameliorate extreme heat).
- List non-climate stressors that can exacerbate the consequences of climate impacts, where applicable. Non-climate stressors can include population growth and land conversion (for example, development actions such as converting forests into impervious surfaces can increase the urban heat island effect). Non-climate stressors also can include historic neighborhood pollution, redlining, disinvestment and other factors, which may lead to disproportionate climate impacts on overburdened communities.
- Describe potential consequences of the climate impacts in the tab's final column. Factor in exposure, non-climate stressors, and knowledge of how hazards have historically impacted your jurisdiction.
 - **Explore:** Use your hazard mitigation plan and the resources below, as needed, to explore the impacts of past hazard events (for example, the duration and extent of a heat wave and the social, economic, and environmental damage it caused).
 - **Engage:** Encourage your stakeholders to describe their experiences to evoke rich details about the consequences of hazards, as this narrative information will be useful if your community decides to proceed to Step 3 and conduct a vulnerability and risk assessment.

Resources:

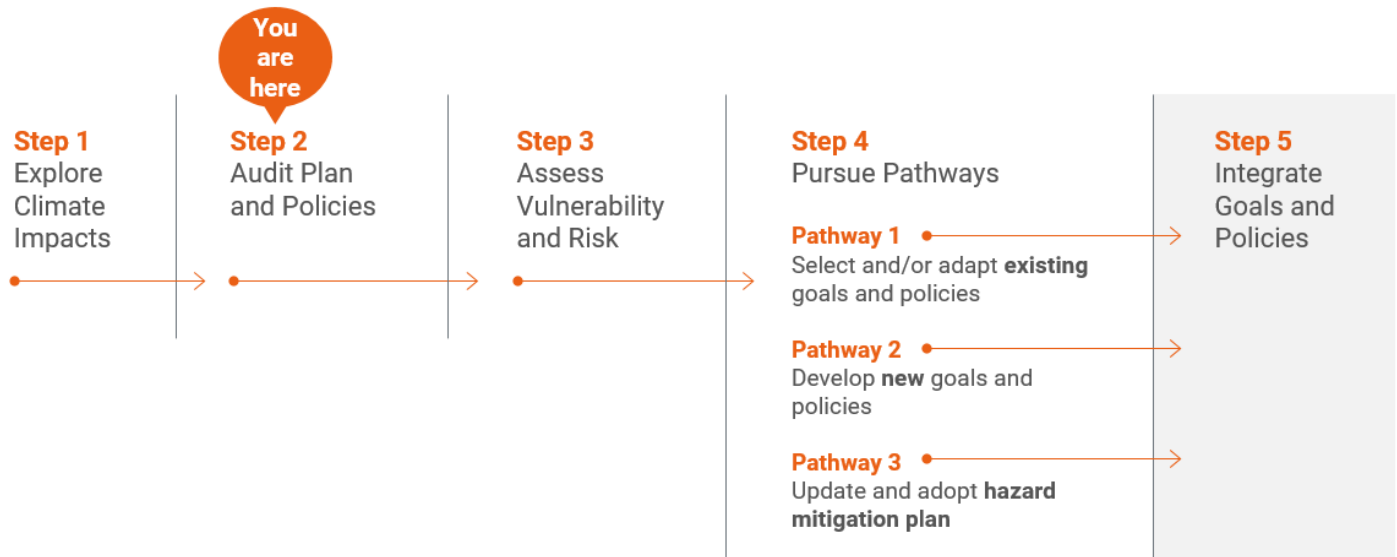
- FEMA's [National Risk Index](#) provides a comparative risk score for all counties and estimates estimated annual loss — in U.S. dollars — due to hazards.
- FEMA's [Resilience Analysis and Planning Tool](#) (RAPT) examines the interplay of infrastructure locations and hazards, including historic disasters and estimated frequency of hazard risk.
- NOAA's [U.S. Climate Resilience Toolkit](#) also has a variety of spatial analysis resources, including sea-level rise projections, to assess potential consequences.

Task 1.4: Identify Priority Climate Hazards

Decide which climate hazards you need to address in your comprehensive plan based on your use of the CMRW tool and your assessment of exposure and consequences — which are building blocks of vulnerability and risk. These are the relevant hazards you will focus on in your plan and policy audit [Step 2] and, if desired, your vulnerability and risk assessment [Step 3]. These are also the hazards you must address via your climate resilience goals and policies [Steps 4 and 5].

- Use the Climate Element Workbook's Task 1.4 tab to document the relevant climate hazards that your jurisdiction will address in its next steps and comprehensive plan.

Step 2 – Audit Plans & Policies



In this step, your jurisdiction will apply information from Step 1 to assess how well your existing local plans and policies build climate resilience. Your jurisdiction will begin by reviewing your comprehensive plan including your SMP and other local documents (hazard mitigation plan, watershed restoration plan, etc.) and looking for climate resilience opportunities, gaps, and barriers. Your jurisdiction will conclude this step by determining whether to proceed directly to Step 3 or skip to Step 4.

Task 2.1: Review Existing Plans for Resilience Gaps, Opportunities and Barriers

First, review your comprehensive plan and SMP for goals and/or policies that explicitly or implicitly build resilience to the climate hazards and impacts you identified in Step 1 as relevant to your jurisdiction.

- Note which hazards and impacts are not addressed by any policies or where existing policies are insufficient; these are the gaps to focus on as you review other plans and develop goals and policies later in the process.
- Look for maladaptation policies and practices that exacerbate assets' vulnerability to climate change (for example, building neighborhoods in areas prone to wildfire) or create barriers to implementing goals, policies, and more detailed development regulations.
- Begin considering where in the comprehensive plan you will add climate resilience goals and policies.

Next, identify and review other plans that could have measures to build climate resilience (for example, hazard mitigation plan, climate action plan, sustainability plan, [community wildfire protection plan](#), floodplain management plan, [community health improvement plan](#), watershed restoration plan, stormwater management plan, regional transportation plan, parks and open space plan, and water system and electric utility business plans). These plans will include goals, actions, strategies, objectives, recommended projects, and other information that can be adapted or drawn from to develop goals and policies for your comprehensive plan.

- Commerce recommends that your jurisdiction audit 3-5 plans and identify approximately 20-40 collective measures within those plans to make this process manageable. Your audit should, at a minimum, include your comprehensive plan (including SMP) and hazard mitigation plan.
- Use the Climate Element Workbook to list your documents and determine your desired next step for each measure (for example, amend an existing measure; consolidate with a similar measure; add a new

measure; keep existing measure in comprehensive plan). To help identify opportunities, gaps, and barriers, crosswalk each measure with the relevant climate hazards and impacts you identified in Step 1.

The following table [Figure 5] can help you note in the workbook which sectors each measure addresses.

Figure 5: Crosswalk of the Climate Guidance's Sectors with the Growth Management Act's Goals²⁹ (numbered) and Comprehensive Plan Elements

SECTOR	NEXUS WITH GROWTH MANAGEMENT ACT GOALS ⁴⁵	NEXUS WITH COMPREHENSIVE PLAN ELEMENTS
AGRICULTURE & FOOD SYSTEMS (INCLUDES PRODUCTION AND DISTRIBUTION)	<p>(2) Reduce sprawl: Reduce the inappropriate conversion of undeveloped land into sprawling, low-density development.</p> <p>(5) Economic Development: Encourage economic development throughout this state that is consistent with adopted comprehensive plans, promote economic opportunity for all citizens of this state, especially for unemployed and for disadvantaged persons, promote the retention and expansion of existing businesses and recruitment of new businesses, recognize regional differences impacting economic development opportunities, and encourage growth in areas experiencing insufficient economic growth, all within the capacities of the state's natural resources, public services, and public facilities.</p> <p>(8) Natural resource industries: Maintain and enhance natural resource-based industries, including productive timber, agricultural, and fisheries industries. Encourage the conservation of productive forest lands and productive agricultural lands, and discourage incompatible uses.</p> <p>(10) Environment: Protect and enhance the environment and enhance the state's high quality of life, including air and water quality, and the availability of water.</p> <p>(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.</p>	Rural; Land Use; Natural Resource Lands
BUILDINGS & ENERGY (INCLUDES ENERGY GENERATION, TRANSMISSION, AND CONSUMPTION)	<p>(4) Housing: Plan for and accommodate housing affordable to all economic segments of the population of this state, promote a variety of residential densities and housing types, and encourage preservation of existing housing stock.</p> <p>(12) Public facilities and services: Ensure that those public facilities and services necessary to support development shall be adequate to serve the development at the time the development is available for occupancy and use without decreasing current service levels below locally established minimum standards.</p> <p>(13) Historic preservation: Identify and encourage the preservation of lands, sites, and structures, which have historical or archaeological significance.</p> <p>(14) Climate change and resiliency</p>	Capital Facilities; Utilities; Housing; Land Use; Ports; Solar Energy; Economic Development; Transportation; Design; Environmental Protection; Conservation

⁴⁵ GMA goals 1-15 are in [RCW 36.70A.020](#).

SECTOR	NEXUS WITH GROWTH MANAGEMENT ACT GOALS ⁴⁵	NEXUS WITH COMPREHENSIVE PLAN ELEMENTS
CULTURAL RESOURCES & PRACTICES (INCLUDES HISTORIC SITES AND CULTURAL RESOURCES AND PRACTICES)	<p>(11) Citizen participation and coordination: Encourage the involvement of citizens in the planning process, including the participation of vulnerable populations and overburdened communities, and ensure coordination between communities and jurisdictions to reconcile conflicts.</p> <p>(13) Historic preservation</p> <p>(14) Climate change and resiliency</p>	Capital Facilities; Housing; Land Use; Rural; Historic Preservation
ECONOMIC DEVELOPMENT (INCLUDES BUSINESS CONTINUITY, OPPORTUNITIES)	<p>(5) Economic Development</p> <p>(8) Natural resource industries</p> <p>(14) Climate change and resiliency</p>	Economic Development; Land Use; Ports; Capital Facilities; Solar Energy; Conservation
EMERGENCY MANAGEMENT (INCLUDES COMMUNITY PREPAREDNESS, RESPONSE, RECOVERY)	<p>(11) Citizen participation and coordination</p> <p>(12) Public facilities and services</p> <p>(14) Climate change and resiliency</p>	Capital Facilities; Utilities; Housing; Land Use; Ports; Economic Development; Natural Hazard Reduction
HEALTH & WELL-BEING (INCLUDES COMMUNITY WELL-BEING, EQUITY, AND ENGAGEMENT)	<p>(10) Environment</p> <p>(11) Citizen participation and coordination</p> <p>(14) Climate change and resiliency</p>	Housing; Land Use; Capital Facilities; Park & Recreation; Environmental Protection
ECOSYSTEMS (INCLUDES TERRESTRIAL AND AQUATIC SPECIES, HABITATS, AND SERVICES)	<p>(8) Natural resource industries</p> <p>(9) Open space and recreation: Retain open space and green space, enhance recreational opportunities, enhance fish and wildlife habitat, increase access to natural resource lands and water, and develop parks and recreation facilities.</p> <p>(10) Environment</p> <p>(14) Climate change and resiliency</p> <p>(15) Shorelines of the state: For shorelines of the state, the goals and policies of the Shoreline Management Act as set forth in RCW 90.58.020 shall be considered an element of the county's or city's comprehensive plan.</p>	Land Use; Rural; Park & Recreation; Capital Facilities; Conservation; Housing; Natural Resource Lands; Environmental Protection
TRANSPORTATION (INCLUDES MULTIMODAL TRAVEL AND INFRASTRUCTURE)	<p>(3) Transportation: Encourage coordinated, multimodal transportation systems that will reduce greenhouse gas emissions and per capita vehicle miles traveled, and are based on regional priorities and coordinated with county and city comprehensive plans.</p> <p>(10) Environment</p> <p>(14) Climate change and resiliency</p>	Transportation; Land Use; Housing; Ports; Capital Facilities; Environmental Protection

SECTOR	NEXUS WITH GROWTH MANAGEMENT ACT GOALS ⁴⁵	NEXUS WITH COMPREHENSIVE PLAN ELEMENTS
WASTE MANAGEMENT (INCLUDES MATERIALS RECYCLING AND DISPOSAL)	(5) Economic Development (10) Environment (14) Climate change and resiliency	Capital Facilities; Utilities; Economic Development; Conservation; Environmental Protection
WATER RESOURCES (INCLUDES WATER QUALITY AND QUANTITY)	(10) Environment (14) Climate change and resiliency (15) Shorelines of the state	Utilities; Land Use; Capital Facilities; Rural; Conservation; Housing; Economic Development; Public Facilities/Services; Park & Recreation; Environmental Protection
ZONING & DEVELOPMENT (INCLUDES SITE USE, DESIGN, AND OTHER DEVELOPMENT FACETS)	(1) Urban growth: Encourage development in urban areas where adequate public facilities and services exist or can be provided in an efficient manner. (2) Reduce sprawl (4) Housing (6) Property rights: Private property shall not be taken for public use without just compensation having been made. The property rights of landowners shall be protected from arbitrary and discriminatory actions. (7) Permits: Applications for both state and local government permits should be processed in a timely and fair manner to ensure predictability. (11) Citizen participation and coordination (12) Public facilities and services (14) Climate change and resiliency (15) Shorelines of the state	Housing; Land Use; Capital Facilities; Park & Recreation; Ports; Conservation; Rural; Recreation; Subarea Plans; Economic Development; Environmental Protection

Task 2.2: Determine Next Step

Your jurisdiction has reached a key decision point: Determine whether to proceed to Step 3 or skip to Step 4. This decision should factor in your initial climate impacts assessment, completed plan and policy audit, and desired pathway(s).

- If you have enough information now to begin choosing climate resilience goals and policies for your comprehensive plan, then proceed to Step 4. If you want to first assess your assets' relative vulnerability and risk, then proceed to Step 3.

Read the description of pathways that follows and use the Task 2.2 tab of the Climate Element Workbook to answer a set of high-level questions that will help your jurisdiction determine the most appropriate next step.

Description of Pathways

The following is a description of each pathway and an example of why a jurisdiction might want to pursue it. Many jurisdictions may find that they will need to pursue a combination of pathways to adequately address their climate-exacerbated hazards and impacts. Pathway 1 will generally require the least amount of time, staff capacity, and budget. Pathways 2 and 3 – in which Commerce recommends incorporating a climate vulnerability and risk assessment – requires more resources but could help a jurisdiction identify its highest relative climate risks to help prioritize and tailor measures that support climate resilience and environmental justice. All pathways conclude with Step 5 – integrating climate goals and policies into a comprehensive plan – and may leverage the Menu of Measures as a resource.



Pathway 1: Select and/or Adapt Existing Goals and Policies.

This pathway may be preferable for a jurisdiction that has already created a climate action plan and/or a climate element in its comprehensive plan. This pathway, like the others, could be taken by itself or in combination with another pathway. For example, if a jurisdiction's Step 2 audit showed comprehensive plan resilience gaps, the jurisdiction might opt to select its existing climate action plan goals and policies [*Pathway 1*], develop new measures [*Pathway 2*], and select supplemental ones from Commerce's Menu of Measures. If your jurisdiction is relying on existing plans, it will be important to show your work. Use the Climate Element Workbook to show how your plans, taken as a whole, meet all the climate planning requirements.

NOTE: To pursue this pathway, a jurisdiction needn't have completed a climate action plan or other hazard-focused plan or strategy (for example, a flood or wildfire protection plan). In such a case, a jurisdiction could simply use its foundational work on Steps 1 and 2 to help identify and adapt existing comprehensive plan goals and policies to address locally relevant hazards and support climate resilience. Again, the Menu of Measures could be a resource to fill remaining gaps.

Pathway 2: Develop New Goals and Policies.

This pathway provides jurisdictions the flexibility to develop new comprehensive plan goals and policies with or without developing a separate climate action plan and/or conducting a vulnerability and risk assessment. Commerce recommends such an assessment for a jurisdiction that wants to identify its highest relative climate risks to help prioritize and tailor measures for a climate action plan and/or a comprehensive plan and development regulations. Using maps, indicators, and local knowledge to consider the sensitivity and adaptive capacity of social, economic, and environmental assets can help a jurisdiction better understand who and what are impacted by climate change, when, where, how, and why.

For example, reviewing maps that identify areas with less tree canopy/higher sensitivity to extreme heat and areas with a higher poverty rate/lower adaptive capacity can show where you might want to plant street trees and place community resilience hubs. As another example, using flood modeling, topographic maps, and socioeconomic data can help you assess the climate exposure, sensitivity, and adaptive capacity of low-elevation, low-income communities. This can help you identify which areas are most vulnerable to flooding and which residents may be most at risk of climate-induced displacement and migration.

A jurisdiction with less capacity may want to seek outside technical assistance (from a university, Commerce, consultant, etc.) to complete a vulnerability and risk assessment and/or develop a climate action plan. Commerce recommends that jurisdictions that opt to complete a vulnerability and risk assessment follow Step 3's tasks, which are adapted from NOAA's U.S. Climate Resilience Toolkit framework. Commerce considers NOAA's framework a model best practice, but local jurisdictions may use an alternative framework or take a limited approach to assess their assets' relative climate vulnerability and risks. For example, instead of conducting a vulnerability and risk assessment that considers all climate hazards across the entire jurisdiction, a city with less capacity might opt to conduct an assessment of a single sector or hazard within a limited geographic area (for example, a downtown sea-level rise response strategy). Step 3's tasks and tools are applicable for a variety of approaches.

Pathway 3: Update Hazard Mitigation Plan and Adopt it in Your Comprehensive Plan.

A jurisdiction might want to use Step 3's vulnerability and risk assessment framework and resources to help assess climate risks in a hazard mitigation plan. This could provide some efficiencies and better integration of the hazard mitigation plan and the comprehensive plan. The hazard mitigation plan must be approved by the Federal Emergency Management Agency (FEMA). It could be adopted, by reference, in a comprehensive plan, provided it also meets the statutory requirements for the resilience sub-element. If you are planning to use your hazard mitigation plan as your resilience sub-element, the GMA allows you to delay completion to align with the deadline for your hazard mitigation plan [See *Appendix C*].

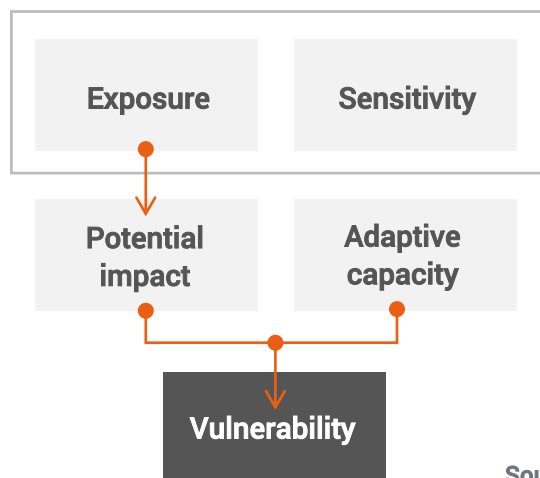
As of April 2023, FEMA requires that all updated local hazard mitigation plans assess the effects of climate change and other [future conditions](#) in the document's required risk assessment [See *Appendix C for requirements*]. Additionally, such plans must identify all natural hazards that can affect the community's assets and include measures (goals, actions, projects) to reduce the effects of those relevant hazards. If your updated and adopted hazard mitigation plan does not address all 11 of this Commerce guidance's sectors [Figure 5], your jurisdiction may choose to voluntarily address those sector gaps via supplemental measures in your comprehensive plan. Such supplemental measures may be consolidated in a single climate chapter or dispersed across several other chapters (land use, transportation, etc.).

Step 3 – Assess Vulnerability & Risk



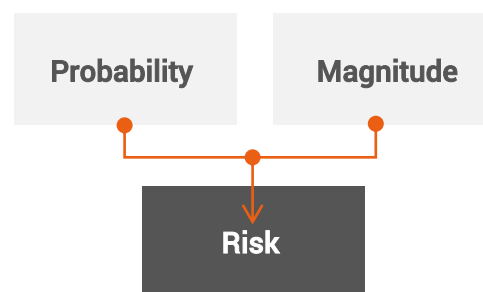
In this optional step, your jurisdiction will use the exposure information from Step 1 and other resources below to consider the sensitivity and adaptive capacity of local assets to assess their vulnerability to climate-exacerbated hazards and impacts [Figure 6]. Your jurisdiction will then characterize risk – the probability and magnitude of hazards impacting your assets [Figure 7]. This compound process enables you to identify which assets have the highest relative vulnerability and risks related to climate change hazards and impacts – information that can help you identify and prioritize policies and development regulations.

Figure 6: Elements of climate vulnerability



Source: U.S. Climate Resilience Toolkit

Figure 7: Elements of climate risk



Before You Begin

Before beginning this technical step, review the glossary's key terms [Appendix J] and watch a U.S. Climate Resilience Toolkit primer [video](#) to better understand how elements such as sensitivity and adaptive capacity will help your jurisdiction to characterize the vulnerability of assets. Also, review [FEMA's Local Mitigation Planning Policy Guide](#) if your jurisdiction plans to use Step 3 to help assess climate risks in a hazard mitigation plan and then adopt it, by reference in the comprehensive plan [Pathway 3]. Appendix D includes a crosswalk of Commerce's resilience guidance and FEMA's requirements for updating local hazard mitigation plans.⁴⁶

Supplementing and Leveraging Hazard Mitigation Plans

Your jurisdiction might use Step 3 of the resilience guidance in a variety of ways, including, but not limited to:

- Your jurisdiction could use the tasks and resources below to assess climate vulnerability and risk for sectors and assets that are typically beyond the core focus of a hazard mitigation plan (for example, winter recreation, active transportation, and urban farms and forests). This can help your jurisdiction to identify comprehensive plan goals and policies to supplement your hazard mitigation plan and address all 11 of this guidance's sectors.

⁴⁶ As of April 2023, all updated local hazard mitigation plans' risk assessments must address climate change and other future conditions. For more information, consult FEMA's [Local Mitigation Planning Policy Guide](#) (2022).

- Your jurisdiction could also leverage its hazard mitigation plan's information to assess climate vulnerability and risk associated with all hazards relevant to your jurisdiction. Alternatively, your jurisdiction's vulnerability and risk assessment could focus on a single hazard and/or sector — for example, extreme heat impacts on health and well-being.

Task 3.1: Assess Sensitivity

Use the Climate Element Workbook and the following guidance to assess the sensitivity of the asset-hazard pairs your jurisdiction developed in Step 1. The U.S. Climate Resilience Toolkit provides a simple litmus test for sensitivity: If an asset could sustain a negative impact from a hazard, it is sensitive to that hazard. Your task is to assess the degree of sensitivity in qualitative terms (*low, medium, or high*) for each asset-hazard pair using local knowledge and other available information. Commerce recommends the following approach, which uses indicators and rulesets:⁴⁷

- Start by articulating a core question that your jurisdiction could answer consistently for each asset-hazard pair (for example, transit center-sea level rise). The following example question incorporates the U.S. Climate Resilience Toolkit's definition of sensitivity and could be answered qualitatively with a "low," "medium," or "high" response: *"To what degree would this hazard affect this asset?"*
- Next, select 1-3 indicators that your jurisdiction could use to answer this question. Your indicator(s) should be based on the asset type, hazard, and available information.
 - For physical assets, such as buildings and roads, examples of useful indicators include the asset's: age (*What's the asset's age relative to its design life?*); condition (*What's the condition of the asset — poor, good, or excellent?*); and, physical design (*Is the asset physically protected from the hazard?*).
 - For environmental assets, such as forests and wetlands, examples of indicators include the asset's fragmentation, temperature range, and exposure to pests and disease.
 - For social assets, such as community health and well-being, your jurisdiction might want to use air and water quality indicators (for example, concentration of ozone and particulate matter) and socioeconomic and health indicators (for example, population age, poverty rate, disability, disease).

Defining Sensitivity

Sensitivity is the degree to which a system, population, or resource is or might be affected by hazards. For example, the yield of crops with a high sensitivity might be reduced in response to a change in daily minimum temperature during the pollination season.

— U.S. Climate Resilience Toolkit

Selecting Indicators

Using indicators to help assess sensitivity and other components of vulnerability and risk is a common practice. Indeed, some practitioners might decide to use the same indicator in different ways (for example, using an asset's age to rate its sensitivity or adaptive capacity). Commerce's advice is for a local jurisdiction to decide where the indicator works best and use it just once.

⁴⁷ In October 2022, NOAA published a practitioners' guide for using the US Climate Resilience Toolkit's "Steps to Resilience" framework. Based on the NOAA guide and the pilot tests in Pullman and Port Angeles, Commerce added to this guidance examples of how cities and counties could use indicators and rulesets in their vulnerability and risk assessments.

- Apply a simple ruleset for each indicator: For example, if a coastal transit center's age exceeds its design life — the period for which the building was designed — the building could be rated as having "high" sensitivity to flooding exacerbated by rising sea levels. The ruleset's assumption is that the aging asset is more likely to fail after flooding.
- If your jurisdiction uses more than one indicator, factor the collective information into a composite rating for sensitivity [*Example: Age (high) + Physical Design (low) = medium sensitivity*]. Your jurisdiction could repeat this general qualitative approach — and supplement it with quantitative information — to assess adaptive capacity and other vulnerability and risk assessment tasks that follow.

NOTE: When assessing the predisposition of an asset to be harmed by a hazard, your jurisdiction may want to consider time of impact as an indicator. For example, some assets may have low sensitivity within the 20-year comprehensive planning horizon but have higher sensitivity within a longer timeframe.

NOTE: This is a good time to consider revising the asset-hazard pairs you created in Task 1.3, based on your chosen pathway and sensitivity assessment. You might want to include specific assets among your list of general asset themes (for example, a transit center or repetitively flooded structures within your buildings theme) if you want to use this step to help update your hazard mitigation plan or such assets might warrant a unique comprehensive plan policy or detailed implementation action(s). See Appendices C and D for FEMA's requirements for updating local hazard mitigation plans.

Resources:

- **Headwaters Economics'** Neighborhoods at Risk [online spatial analysis tool](#) shows census tract-level data for indicators including tree canopy cover and impervious surfaces, overlaid with socioeconomic data. The tool can help identify communities where people could experience unequal impacts from climate-exacerbated flooding and extreme heat.
- **PolicyMap's** [online spatial analysis tool](#) shows census tract-level data for a wide range of indicators within categories that include housing, lending, education, economy, and quality of life.
- **The White House Council on Environmental Quality's** [Climate and Economic Justice Screening Tool](#) can help with this and other tasks that follow. The tool's interactive map uses datasets that are indicators of burden in several categories, including: climate change; energy; health; housing; legacy pollution; transportation; water and wastewater; and, workforce development.
- **The U.S. Census Bureau** regularly updates online [data profiles](#) for all geographies, down to the city and town level. Users can access socioeconomic, housing, and business data via interactive maps and tables.

Task 3.2: Assess Adaptive Capacity

Adaptive capacity is the ability of an asset (individual assets as well as populations and systems) to adjust to a hazard, take advantage of new opportunities, or cope with change. For example, if a coastal transit hub could be raised or relocated as sea levels rise, the asset has adaptive capacity.

- Use indicators and rulesets, as your jurisdiction did with sensitivity, to assess adaptive capacity qualitatively (*low, medium, high*). Record this rating in the Climate Element Workbook.
- Your core question for each asset-hazard pair on your list could be: "*What is the ability of this asset to adjust to the hazard, take advantage of new opportunities, or cope with change?*"
- Examples of indicators to assess adaptive capacity include: design flexibility, financial resources availability, planning staff capacity, and back-up power/generator capability.

Resources:

- NOAA's [Implementing the Steps to Resilience: A Practitioner's Guide](#) provides examples of how to assess sensitivity, adaptive capacity, and other pieces of a vulnerability and risk assessment.
- The National Wildlife Federation report, [Incorporating Nature-based Solutions into Community Climate Adaptation Planning](#), provides useful examples and advice for assessing the adaptive capacity of forests, marshes, and other assets that provide nature-based solutions to climate change. NWF and EcoAdapt prepared the report in support of the U.S. Climate Resilience Toolkit's Steps to Resilience planning framework.
- Headwaters Economics' [Rural Capacity Map](#) assesses rural jurisdictions with low capacity and high risk of climate-related hazards, specifically wildfires and floods. The interactive map assesses a jurisdiction's adaptive capacity through several indicators, including poverty level, educational attainment, health insurance, and planning staff capacity.

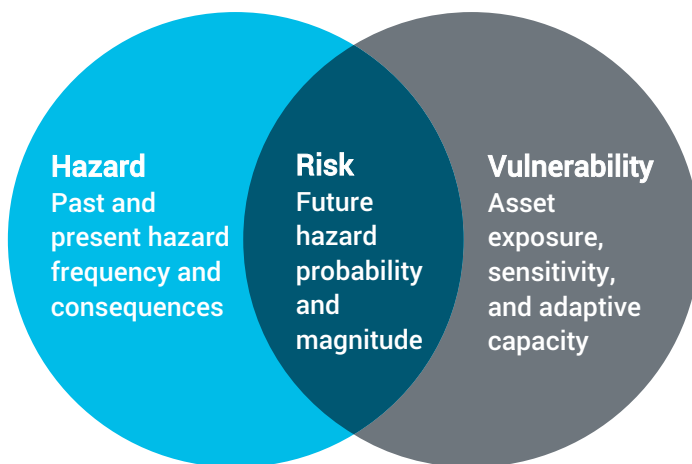
Task 3.3: Characterize Vulnerability

Now that your jurisdiction has assessed exposure, sensitivity, and adaptive capacity, use the Climate Element Workbook to characterize the vulnerability of each asset-hazard pair with a composite, qualitative rating (*low, medium, or high*). For example, your jurisdiction might determine that assets with high sensitivity and low adaptive capacity have high vulnerability. The U.S. Climate Resilience Toolkit defines vulnerability as "the propensity or predisposition of assets to be adversely affected by hazards."

Task 3.4: Characterize Risk

It is now time for your jurisdiction to narrow its focus and characterize risk for each asset-hazard pair with "medium" or "high" vulnerability. The U.S. Climate Resilience Toolkit explains that risk is a compound concept — encompassing a hazard's probability and magnitude of occurrence — which describes the chance of sustaining a substantial loss [Figure 8].

Figure 8: Relationship Between Hazard, Vulnerability, and Risk



Source: Washington
Department of Commerce

- **Probability:** Consider how often a hazard occurred in the past (frequency) and how likely (likelihood) it is to occur in the future to characterize probability. Recognize that climate change may alter the frequency and likelihood of your identified hazards.

- Use the resources below to consider past frequency, and draw upon other information in your local hazard mitigation plan about past wildfires and other hazards in your jurisdiction.
- Use the resources below to consider future likelihood, and draw upon the climate projections your jurisdiction explored in Step 1. You may also wish to consult your local hazard mitigation plan for timeframes, probability, and risk information so that the climate information in your comprehensive plan corresponds to that in your hazard mitigation plan. You may even want to specifically cross-reference your hazard mitigation plan and your comprehensive plan.
- The U.S. Climate Resilience Toolkit recommends using a simple ruleset to characterize probability consistently. The following Toolkit example incorporates timeframes that are useful for comprehensive plans:
 - Characterize hazardous events that are likely to occur within 5 years as "high" probability.
 - Characterize events that are likely to occur just once in 5 to 20 years as "medium" probability.
 - Characterize events that are likely to occur less frequently than once in 20 years as "low" probability.

Resources:

- NOAA's U.S. Climate Resilience Toolkit includes a database of [spatial analysis tools](#) – searchable by topic (ecosystems, health, water, etc.) and function (for example, past conditions and applied forecasts).
 - FEMA's [National Risk Index](#) – searchable by county and census tract – provides annualized frequency figures for droughts, heat waves, and more than a dozen other natural hazards. The figures are derived from the number of recorded hazard occurrences over a given period or the modeled probability of a hazard occurrence each year.
 - The UW CIG report, "[How to Choose: A Primer For Selecting Sea Level Rise Projections for Washington State](#)," can help local jurisdictions make three critical choices when using sea level rise data: choosing an emissions scenario, selecting a time frame, and weighing the probabilities of different sea level rise projections against the risk. Note that this general approach could be applied to other hazards and datasets.
- **Magnitude:** To characterize magnitude – which the U.S. Climate Resilience Toolkit also refers to as magnitude of impact or loss – your jurisdiction could draw upon its Step 1 work describing hazard consequences. The U.S. Environmental Protection Agency recommends thinking about hazard events comparatively. For example, your jurisdiction might deem a high-impact hazard event as a costly, major disruption and a low-impact event as comparatively less costly and disruptive.⁴⁸
- Indicators that can help your jurisdiction assess magnitude include the asset's redundancy (*for example, if a roadway's pavement buckles due to extreme heat, is there an alternative route?*), replacement cost (*for example, assessor's parcel value*), and criticality. Your jurisdiction could develop its own rulesets for these and other indicators (*for example, if an asset meets FEMA's critical facility definition, this indicator's rating could be "high"*) as well as use the resources that follow.

⁴⁸ U.S. Environmental Protection Agency workbook (2014), [Being Prepared for Climate Change: A Workbook for Developing Risk-Based Adaptation Plans](#)

Resources:

- FEMA's [National Risk Index](#) provides qualitative ratings and dollar values (for building and agricultural assets and population fatalities and injuries) for a community's expected annual loss associated with a given natural hazard. The online mapping application also measures community resilience and social vulnerability.
- FEMA's [Hazus software](#) — distributed as a GIS-based desktop application — identifies areas of high risk and estimates the physical, economic, and social impacts from floods and other hazards.
- Your local hazard mitigation plan can also help with this task.

Matrix Plot: After characterizing risk for your most vulnerable asset-hazard pairs, plot them on the 3x3 matrix in your Climate Element Workbook.

The value of a simple, qualitative rating

Using a qualitative rating is useful for several reasons when assessing climate risk:

- Future changes in the climate system cannot be projected with the exactness that is needed to precisely quantify the probability of a risk at any given future time.
- You might need to manage many distinct risks, and it would be prohibitively expensive to scientifically quantify the likelihood of each one.
- The general public has a limited ability to understand and process statistical probability.
- With participants in the process it likely will be easier to agree on a qualitative rating (for example, *low*, *medium*, *high*) than on whether mathematical calculations of likelihood or consequence were done correctly.

The key is not to overcomplicate the process. Define what you mean by your scale and communicate these definitions to your stakeholders and regulators.

— U.S. Environmental Protection Agency, [Being Prepared for Climate Change: A Workbook for Developing Risk-Based Adaptation Plans](#)

Task 3.5: Decide Course of Action

Based on your risk characterization matrix, decide which risks are more or less acceptable and categorize them as ones to address now or as ones to address later and monitor in the meantime. As with other tasks, it's important to engage your community stakeholders as part of this critical decision.

- **Decision Point:** Limit your course of action ruleset to either "Take Action" or "Accept Risk," and note your decision in the Climate Element Workbook:
 - **Take action** means deciding to address the risk's impacts now with comprehensive plan policies (and, if desired, detailed implementation actions for a hazard-specific strategy). For example, your jurisdiction might choose to take action for all risks of higher magnitude and probability.
 - **Accept risk** means deciding to not address the risk with a policy, strategy, or action now, but to instead monitor and reassess the risk periodically (for example, as part of your comprehensive plan's periodic update process). Your jurisdiction might decide this is the right path forward for risks of lower probability and magnitude.

Step 4 – Pursue Pathways



In this required step, your jurisdiction will pursue an individual pathway or a combination of pathways to select goals and policies that build climate resilience. Use the guidance below and the Climate Element Workbook to complete your work. Commerce encourages jurisdictional staff members developing measures as part of Step 4 to provide interim updates to their planning commission and city/county council, so they're prepared to efficiently integrate such measures into the comprehensive plan as part of Step 5.

Pursuing Pathways

Your jurisdiction could pursue one or a combination of pathways to meet HB1181's requirements. Alternatively, your jurisdiction could approach different hazards using different pathways and/or determine that a combination of pathways are needed to adequately address a single hazard. Commerce's goal is to provide wide flexibility to communities of varying climate planning experience and capacity.

Remember, all pathways lead to the same destination: a resilience sub-element with at least one resilience goal and supportive policy for each climate-exacerbated hazard that is relevant to your jurisdiction [see *Section 3 introduction*]. Your set of policies must meet this section's minimum requirements and prioritize actions that benefit overburdened communities that will suffer disproportionately from compounding environmental impacts and will be most impacted by natural hazards due to climate change; the Menu of Measures denotes highest-priority policies, based on their effectiveness, number of co-benefits, potential to promote equity and justice, and other criteria.

- See Task 4.3 below to evaluate your policies' co-benefits.
- See Section 5 to prioritize your policies for integration into the comprehensive plan.
- Use the Climate Element Workbook to list your climate resilience goals and policies.

Pathway 1 –Select and/or Adapt Existing Goals and Policies.

Pursuing this pathway means addressing your jurisdiction's climate hazards and impacts with existing goals and policies from your body of planning work.

- Based on Step 2's audit, list in the Climate Element Workbook the relevant comprehensive plan goals and policies you're retaining and the goals and policies from other existing local plans (climate action plan,

hazard mitigation plan, etc.) you're adding to your comprehensive plan. Note any edits you're making to adapt these existing goals or policies to better support climate resilience, either explicitly or implicitly.

- Follow Tasks 4.1 and 4.2 below only if your jurisdiction opts to develop new goals and policies to supplement your existing ones (for example, to address any remaining gaps and barriers identified by your audit).
- Follow Task 4.3 to identify your policies' co-benefits.

Pathway 2 – Develop New Goals and Policies.

Pursuing this pathway means developing new climate resilience goals and policies for your comprehensive plan (and other documents, if desired). If you conducted a vulnerability and risk assessment, you can use it to help prioritize and tailor your measures.

- Follow Tasks 4.1-4.3 below to create goals and policies, and list them in the Climate Element Workbook.
- Remember, you can supplement your list of new goals and policies with ones from existing local plans [*Pathway 1*], the Menu of Measures, or other sources. Such resilience goals and policies could go into a climate action plan and/or directly into your comprehensive plan.

Pathway 3 – Update Hazard Mitigation Plan

Pursuing this pathway means updating your hazard mitigation plan to assess climate risks and adopting it, by reference, in your comprehensive plan. As noted previously, as of April 2023, FEMA requires that all updated local hazard mitigation plans must assess the effects of climate change and other future conditions in the plan's required risk assessment.

- Use Tasks 4.1-4.3 to help craft climate resilience measures for your hazard mitigation plan, and ensure that they meet [FEMA Local Mitigation Planning Policy Guide](#) requirements (for example, identify implementation lead, funding source, timeframe). Your jurisdiction should work with the Washington Emergency Management Division, FEMA, and other state and local partners while preparing and submitting a hazard mitigation plan for approval [*Appendix C*].
- Next, list in the Climate Element Workbook how your updated hazard mitigation plan's measures address each climate-exacerbated hazard that is relevant to your jurisdiction [*as determined by Step 1*]; this will help ensure you're meeting this guidance's minimum requirements for the resilience sub-element.
 - **Optional:** If your updated hazard mitigation plan does not include at least one climate resilience goal and supportive policy (which [FEMA guidance](#) identifies as an "action" such as a planning regulation, education program, or infrastructure project) within each of the 11 sectors used in this guidance (for example, Agriculture & Food Systems and Cultural Resources & Practices), you may choose to directly integrate the missing sector measures into your comprehensive plan. These supplemental goals and policies may be collected in a climate chapter or dispersed across several other chapters (for example, housing, land use, transportation).

Task 4.1: Develop Goals

If your jurisdiction created guiding principles [Section 2], revisit them to develop resilience goals that address the climate hazards and impacts identified in this section's Step 1 and supplement the goals audited in Step 2. Also be sure that your goals factor in your vulnerability and risk assessment, if you completed Step 3.

Remember, your set of resilience measures must address each climate-exacerbated hazard that is relevant to your jurisdiction. Commerce also encourages your jurisdiction to address each of the 11 sectors below in its set of measures [see the *Menu of Measures for examples*]:

- **Agriculture & Food Systems** (includes production and distribution);
- **Buildings & Energy** (includes energy generation, transmission, and consumption);
- **Cultural Resources & Practices** (includes historic sites and cultural resources and practices);
- **Economic Development** (includes business continuity, opportunities);
- **Emergency Management** (includes community preparedness, response, and recovery);
- **Health & Well-being** (includes community well-being, equity, and engagement);
- **Ecosystems** (includes land and water species and habitat);
- **Transportation** (includes multimodal travel and infrastructure);
- **Waste Management** (includes materials recycling and disposal);
- **Water Resources** (includes water quality and quantity);
- **Zoning & Development** (includes site use, design, and other development facets).

Task 4.2: Develop Policies

Develop at least one supportive policy for each goal, and list them in the Climate Element Workbook. Ensure your collective set of goals and supportive policies addresses: the climate hazards and impacts you identified in Step 1; the gaps, opportunities, and barriers identified in Step 2; and, if applicable, the vulnerabilities and risks identified in Step 3.

- Start by revising your existing policies to better support climate resilience.
- Supplement your initial list of policies with ones suggested by local tribes and stakeholders, who could have ideas in mind based on their knowledge of past hazardous events and their communities' unique needs and assets.
- Supplement your list with policies from the Menu of Measures and other jurisdictions' climate plans, if desired.
- Where appropriate, identify next action steps, such as revising development codes and design standards to implement policies.

Resilience as Cohesion, Connectivity and Capacity

Whether your jurisdiction is revising existing goals and policies or crafting new ones, it's helpful to think about climate resilience holistically. Think about equitable ways to build your communities' connectivity, cohesion, and capacity to reduce, withstand, respond to, and recover from climate impacts. Look for policy solutions that provide multiple co-benefits and achieve multiple goals. For example, planting drought-tolerant street trees to adjust to hotter, drier summers in frontline communities has GHG reduction and adaptation co-benefits: Such trees store carbon (*reduce*), use less water (*respond*), and provide cooling shade (*withstand*). Supporting community-run resilience hubs in these neighborhoods provides places to gather, build relationships, and share resources (*connectivity and cohesion*) year-round — not just when climate hazards and impacts occur.

Resources:

- Washington Department of Commerce's Climate Program [website](#) includes helpful resources for selecting and refining policies and developing and implementing projects and plans that build climate resilience. Resources include:
 - The Menu of Measures lists model policies and links to implementation and development tools. Such tools include: model ordinances (for example, [Sustainable Development Code](#)); guidance on protecting and enhancing and natural areas that support wildlife habitat and species migration (for example, [Washington's Urban Forest Pest Readiness Plan](#) and WDFW's [Shrubsteppe and Grassland Restoration Manual for the Columbia River Basin](#)); and, guidance on and identifying, designing, and investing in natural and traditional infrastructure that supports community resilience to climate impacts (for example, U.S. EPA's green infrastructure [toolkit](#) and FEMA's Building Community Resilience with Nature-Based Solutions [guide](#)).
 - Additional resources include: MRSC's [interactive map](#) of Washington local and tribal governments' climate plans; the federal government's green infrastructure and Climate Mapping for Resilience and Adaptation [portal](#) (modeling, design, maintenance, funding resources); and, Georgetown University's [Adaptation Clearinghouse](#).

Task 4.3: Identify Policy Co-benefits

Commerce and its partners identified co-benefits associated with every Menu of Measures policy. The list of co-benefits assessed include:

- Reduces emissions
- Sequesters carbon
- Enhances resilience
- Improves salmon recovery
- Promotes economic development
- Promotes equity and justice
- Provides cost savings
- Provides ecosystem services
- Protects tribal treaty rights
- Improves public health and well-being
- Improves air quality
- Builds community knowledge
- Protects water quality
- Supports housing supply and diversity

In the Climate Element Workbook, note every co-benefit associated with each of your policies — including ones you've developed or selected from the Menu of Measures or other sources. The Workbook lists 13 co-benefit options from which to select.

Step 5 – Integrate Goals & Policies



In this required step, your jurisdiction will decide where it intends to integrate its climate resilience goals and policies in its comprehensive plan and SMP. Your jurisdiction could choose to list all its climate element goals and policies (GHG reduction and resilience) in one chapter or could choose to integrate them into several chapters/elements (Land Use, Housing, Transportation, etc.).

Task 5.1: Review and Finalize Resilience Goals and Policies

During Step 4, you built a list of climate resilience goals and policies. Review this list and note where you will place each goal and policy in your comprehensive plan and/or SMP. Enter your climate resilience goals and policies into the Climate Element Workbook [Step 5 tab].

- Note where you plan to place each measure in your comprehensive plan.
- Also note how your measures meet the resilience sub-element's minimum requirements.
- Use this list to develop an implementation plan and to complete the checklist your jurisdiction submits to Commerce. The checklist is available on Commerce's GMA Periodic Update [website](#).

Section 4: GHG Emissions Reduction Sub-element

4.1: Overview

Washington's cities and counties should use this GHG emissions reduction (GHG reduction) sub-element planning guidance to measure, reduce, and eliminate local GHG emissions and per capita vehicle miles traveled (VMT) via comprehensive plan goals and policies. The sub-element should be developed with an overall target of reaching net-zero emissions by 2050.⁴⁹ When tracking progress, targets should be evaluated on a total and per capita basis so that progress is not masked by population growth.

Mitigation measures should, at a minimum, include goals and policies within the following sectors: Transportation; Buildings & Energy; and, Zoning & Development. These are the sectors where local action can make the biggest impact.

Defining greenhouse gas emissions reduction (mitigation)

Actions taken to reduce or eliminate the emissions of greenhouse gases (present and future) in order to reduce the rate and extent of climate change damage.

Commerce's Menu of Measures includes polices with a demonstrated ability to reduce emissions. Such mitigation measures — which are within local jurisdictions' authority to implement via development regulations and other actions — will help make Washington more resilient by reducing the rate and extent of climate change.

Cities and counties should select measureable policies with a clear path to local implementation. Progress on meeting GHG reduction sub-element requirements will be assessed on both how much emissions have declined over time, and on whether the policies were implemented.

4.2: GHG Reduction Guidance

Minimum Requirements for Developing a GHG Emissions Reduction Sub-element:

HB1181⁵⁰ requires that a city or county's GHG reduction sub-element and its related development regulations must identify the actions the jurisdiction will take during the planning cycle that will:

- **Requirement 1:** Result in reductions in overall greenhouse gas emissions generated by transportation and land use within the jurisdiction but without increasing emissions elsewhere in Washington;
- **Requirement 2:** Result in reductions in per capita vehicle miles traveled within the jurisdiction but without increasing greenhouse gas emissions elsewhere in Washington; and,
- **Requirement 3:** Prioritize reductions that benefit overburdened communities in order to maximize the co-benefits of reduced air pollution and environmental justice.

Your jurisdiction may develop its own goals and policies, as well as select ones from Commerce's Menu of Measures, to address these minimum requirements. Policies that are not specifically identified in the Menu of Measures will be considered consistent with this guidance if they are measureable and supported by

⁴⁹ The state operating budget ([ESSB 5092](#)), which funded Commerce's initial development of this guidance (June 2023 "early" guidance), stipulated that the guidance must include a set of actions cities and counties may take — under existing statutory authority and through updates to comprehensive plans and development regulations — that have a demonstrated ability to reduce greenhouse gas emissions in order to achieve the statewide greenhouse gas emissions reductions set forth in [RCW 70A.45.020\(1\)](#).

⁵⁰ [RCW 36.70A.070\(9\)\(d\)\(i\)\(A-C\)](#)

scientifically credible projections and scenarios that indicate their adoption is likely to result in reductions of GHG emissions or per capita VMT.⁵¹

- Use the Association of Washington Cities' climate [handbook](#), MRSC's climate [website](#), Commerce's Menu of Measures, and other planning resources listed in this section of the guidance to help with this work.

Measuring and Reporting Implementation Progress

The GMA requires cities, counties, and Commerce to report progress toward implementing comprehensive plan commitments, including those in the climate element.⁵²

Your reporting: When selecting goals and policies that reduce emissions and per capita VMT, your jurisdiction will need to report on its five-year progress implementing the measures. Choose measures for which you are able to track and report implementation progress to Commerce.

- Jurisdictions should use 2022⁵³ as their emissions baseline year and set incremental targets that lead to achieving net zero emissions in 2050, consistent with Washington's statewide [target](#).
- Your report to Commerce should show your progress implementing policies to reduce emissions and per capita VMT to achieve local goals and targets [*HB1181, Sec. 15(9)(b)*]. While some policies may be difficult to measure quantitatively, you may still report progress on your jurisdiction's efforts to advance adopted policies (for example, updating development regulations, zoning, and engineering design and development standards).

Commerce's reporting: Commerce must evaluate and report on the impact adopted climate elements have had on local GHG and VMT reduction goals and include this information in guidance published after 2025. The evaluation will reference information from the five-year progress reports and, at a minimum, include results from local emissions inventories and an index of climate elements with a correlation of impacts on local emissions.

⁵¹ Per HB 1181, a jurisdiction may not restrict population growth or limit population allocation in order to reduce its emissions and per capita vehicle miles traveled.

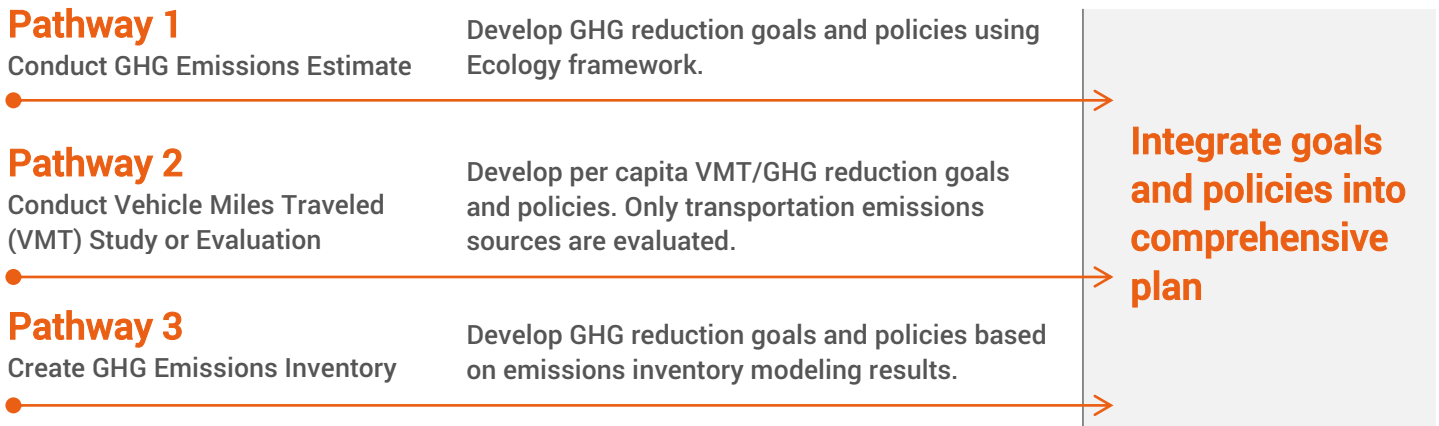
⁵² Per requirements in [HB 1241](#) (2022) and [1181](#) (2023).

⁵³ Commerce and Ecology recommend that jurisdictions use 2022 as a baseline year because it reflects the new normal in terms of activity within the transportation sector and other sectors.

4.3: Choose Pathways

Commerce provides local jurisdictions three pathways [Figure 9] to set emissions-reduction targets and goals and to select policies to achieve them.

Figure 9: Pathway Summary



Jurisdictions may pursue one or a combination of pathways, depending on their regulatory requirements:

- **Voluntary jurisdictions:** Cities and counties that are not required to create a GHG reduction sub-element may pursue any one or a combination of the pathways, taking into account their planning capacity, budget, and other considerations. Commerce recommends pursuing Pathways 1 and 2 (combined) – or Pathway 3 (by itself) – to satisfy the minimum requirements.
- **Mandatory jurisdictions:** Cities and counties that are required to create a GHG reduction sub-element should pursue Pathway 3.
 - Counties voluntarily seeking Commerce's approval of the GHG reduction sub-element⁵⁴ should use a Commerce-provided emissions inventory⁵⁵ to select mitigation goals and policies to satisfy the minimum requirements.
 - Cities voluntarily seeking Commerce's approval of the GHG reduction sub-element should use their own emissions inventory and may utilize Pathway 3 guidance and planning grants.⁵⁶ Commerce encourages cities to first assess what's already been completed and then reach out to their regional metropolitan planning organizations and clean air agencies for available data.
 - All mandatory jurisdictions (cities and counties) voluntarily seeking Commerce's approval of their sub-element should – at a minimum – adopt Menu of Measures goals and policies within the Transportation, Buildings & Energy, and Zoning & Development sectors that are within the jurisdictions' authority to implement and that support achieving net-zero emissions by 2050. Such jurisdictions should also consider adopting goals and policies from the Menu's other sectors (Waste Management, Agriculture & Food Systems, etc.) based on the local emissions inventory.

⁵⁴ See [HB 1181 Sec. 6](#) for the GHG reduction sub-element approval process.

⁵⁵ Commerce is creating emissions inventories for the 11 counties that are required to include a GHG reduction sub-element in their comprehensive plan. The inventories use 2022 as a baseline year but do not disaggregate emissions to the city level.

⁵⁶ Cities may use an existing emissions inventory (for example, one that was created as part of a climate action plan), or they may develop a new inventory using Pathway 3's guidance and Commerce's planning grants.

All pathways depend on a multidisciplinary team [see *Section 2*], and sometimes a consultant, to gather and evaluate climate planning data. Figure 10 shows the advantages and limitations of each pathway.

Figure 10: GHG Emissions-Reduction Pathways — Advantages and Limitations

Pathway Options	Advantages	Limitations
Pathway 1 Conduct GHG Emissions Estimate	<ul style="list-style-type: none"> Not as technically rigorous as a GHG emissions inventory (Pathway 3) Might be able to perform analysis in-house and not need a consultant 	<ul style="list-style-type: none"> Baseline GHG emissions are harder to establish for all sources. Difficult to monitor progress toward emission reduction goals Some emission sources could be missed.
Pathway 2 Conduct VMT Summary or Study	<ul style="list-style-type: none"> More accuracy in evaluating emissions from internal combustion vehicles Could be done in conjunction with the other pathways. Results could enhance transportation data from other pathways. Repeatable and provides a baseline to track VMT reduction progress 	<ul style="list-style-type: none"> Might require a consultant Emissions information will be limited to transportation sources
Pathway 3 Create GHG Emissions Inventory	<ul style="list-style-type: none"> Provides a comprehensive baseline of emissions Repeatable process Progress can be tracked toward goals Accounts for all emissions sources 	<ul style="list-style-type: none"> Technically rigorous A jurisdiction without in-house expertise might need to hire a consultant Might be shortcomings with the level of the data

Engaging Stakeholders

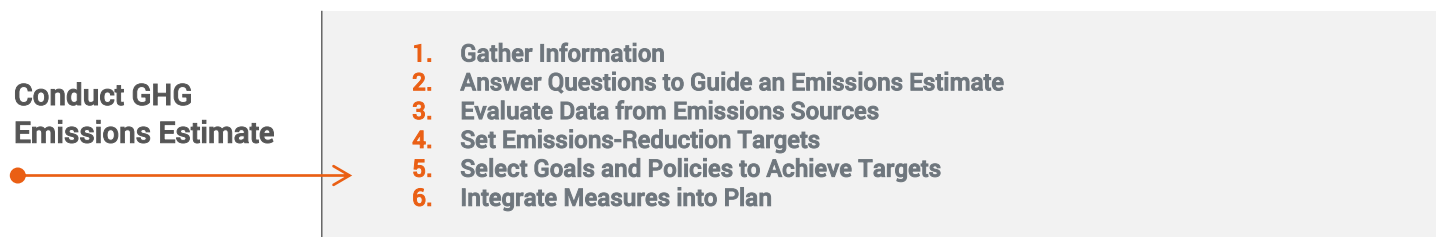
With each pathway, your jurisdiction should refer to *Section 2* to conduct early and ongoing engagement. This will help ensure that policymakers and the public support your process, recommendations, and implementation efforts.

- There might be internal staff members who could create technical graphics to help communicate emissions data in compelling ways; however, a jurisdiction might also consider hiring staff, even for a limited duration, to support engagement efforts.
- Community-based organizations, local non-profits focused on environmental issues, school districts, and local business networks can also be very effective partners in sharing out your jurisdiction's climate measures and supporting implementation efforts.
- Designing and convening workshops with vulnerable and disproportionately impacted residents will also help your jurisdiction develop and implement mitigation measures that support environmental justice and equity. Refer to *Section 2* and the Washington Department of Health's [Environmental Health Disparities Map](#) for help identifying frontline communities and engagement best practices. *NOTE: The Environmental Health Disparities Map is not fully comprehensive with regard to tribal information, so the map should be complemented by consultation with tribes and guidance from the Environmental Justice Council.*

Pathway 1: Conduct GHG Emissions Estimate

Pathway 1 leads a city or county to develop an emissions estimate based primarily on a survey developed by the Washington Department of Ecology [Figure 11]. The survey is an "estimate" because it asks a jurisdiction to evaluate emissions from only a few sources, without the benefit of the specific GHG data that are required for a VMT study or emissions inventory [Pathways 2 and 3].

Figure 11: Pathway 1 Steps Summary



Step 1: Gather Information

Your climate policy advisory team [see Section 2] should start by gathering general planning data needed for this pathway. Most of the local planning data below should be collected as part of the broader comprehensive plan update process:

- Population forecasts
- Population distribution
- Urban Growth Area (UGA) boundaries
- Rural lands distribution
- Critical area lands distribution

Next, your team should gather general state, regional, or local emissions data. Assemble information from energy profiles and reference inventories [see resources below] and think through how it compares with local data you'll gather in Step 2. Also, review and evaluate existing local, state, and federal climate laws and targets. This will help you understand what emissions sources should already be reduced or eliminated by the target dates you choose for your goals and policies in subsequent steps.

Resources:

- The **National Renewable Energy Laboratory** maintains a [database](#) of state and local energy profiles.
- The **University of California, Berkeley's CoolClimate Network** features a free calculator and mapping tool that shows the average carbon footprint of households at the national, city, and zip code scale. A companion calculator shows average emissions for businesses within manufacturing, retail, and other sectors.
- The **Center for Climate & Energy Solutions** maintains a [database](#) of state climate targets, energy portfolio standards, and other information.
- The **U.S. Environmental Protection Agency** maintains a [list](#) of federal climate change regulatory actions and initiatives.

Step 2: Answer Questions to Guide an Emissions Estimate

Ecology crafted the questions below to assist with developing an emissions estimate in-house, following Washington state emissions inventory reporting categories. The eight questions and subsequent discussion also provide an approach that could be used to estimate emissions based on how local sources compare to a known dataset.

The advantage of this approach is that it is generally easier to assemble information from other established inventories and think through how those emissions sources in your jurisdiction might be comparable to – or different than – that inventory. The questionnaire is based on following five primary activity and emissions sources, plus sectors used in Ecology's statewide emissions inventory:

- Use of Electricity;
- Use of fuel in residential and commercial stationary combustion equipment;
- On-road passenger reduction, freight motor vehicle travel use, and marine vessel use;
- Use of energy in potable water and wastewater treatment and distribution; and,
- Generation of solid waste.

Use the "S4, Eight Questions Worksheet" tab of the companion Climate Element Workbook to organize your data and answer the questions that follow. The U.S. EPA's [Greenhouse Gas Equivalencies Calculator](#) and bullet points below can help you with measuring emissions.

Eight Questions to Guide a Greenhouse Gas Emissions Estimate ⁵⁷

1) What are your emissions associated with electricity use?

Electric utilities in Washington report annually the source of generation (for example, coal and wind) sold to their customers. Beginning in 2020, these reports were converted into CO₂ emissions. The carbon content of your utility's electricity can be found via the [Department of Commerce Fuel Mix Disclosure program](#), under "Annual Reports." Local utilities are required to provide this information and could be of assistance as well.

- Multiply your kilowatt-hours (kWh) of electricity consumption by the average emission rate for your utility.
- Options to reduce this include establishing a contract for Environmental Preferred Power (EPP) or investing in renewable self-generation. Remember to invest first in energy efficiency.

2) What is your local transportation profile?

A transportation profile details the modes of transportation utilized in a particular jurisdiction and estimates the amount of people who utilize each mode. A transportation profile could determine:

- Total VMTs per day, week, month, or year;
- The number of people who use mass transit vs. single-occupancy vehicles;
- The number of electric vehicles in use; and,
- The number of people who use bicycles and other forms of non-motorized transportation.

⁵⁷ The questions follow Washington State emissions inventory reporting categories and were provided by the Department of Ecology (2022).

Some jurisdictions might be able to obtain data for a transportation profile through existing transportation master plans, studies, and planning documents. If a jurisdiction lacks internal capacity to obtain such data, it could hire a consultant that specializes in transportation planning to obtain the data or perform a transportation study. Local planners can also contact the Washington Department of Transportation's [Multimodal Planning & Data Division](#) for more information on developing a transportation profile.

3) What are your emissions from natural gas use?

If your jurisdiction is served with natural gas, work with your service provider to determine the quantity of gas sold in your area by residential, commercial, and industrial customer sectors. If there are few customers in a sector, the information might be considered confidential.

- Convert NG therms to metric tons CO₂: multiply therms by .00531 MT CO₂/therm.
- Convert NG Mcf (metric cubic feet) to CO₂: multiply Mcf by .548 MT CO₂/Mcf.

4) What are your emissions from propane and home heating oil use?

Determining the amount of propane and heating oil used in your jurisdiction could require a survey of propane and heating oil providers. However, some providers are private companies that have no legal obligation to disclose information related to sales or use of their products. If local planners are unable to obtain this information, they can estimate the amount of propane and heating oil used by determining the number of households in the jurisdiction that do not receive heat from electric and natural gas utilities and multiplying that number by the amount of propane or heating oil needed to heat an average-sized home. The following formulas can help planners convert gallons of propane or heating oil used to metric tons of CO₂ equivalent:

- Convert gallons of heating oil: Multiply gallons of oil by .0102 MT CO₂/gallon.
- Convert gallons of propane: Multiply gallons of propane by .5574 MT CO₂/gallon.

5) What are your emissions associated with waste generation and management?

Planners can work with waste-management providers in their jurisdictions to determine the total VMTs from trucks collecting waste and estimate the amount of greenhouse gas emissions that result from those trips. If your jurisdiction has an existing contract with a waste-management provider, the provider could be required to provide information on emissions. If not, the provider will likely be open to discussing the topic.

Some jurisdictions are also home to waste-management facilities, such as landfills and recycling centers, which emit greenhouse gases. If your jurisdiction owns and operates such a facility, emissions information should be available internally. If a private entity operates the facility, the entity might not have a legal obligation to disclose information about emissions. Local planners should inquire, nonetheless.

Once you have basic information about your jurisdiction's waste generation and management, you may use U.S. EPA's [Waste Reduction Model](#) (WARM) to create high-level estimates of potential greenhouse gas emissions reductions from different practices, including source reduction, landfilling, and recycling.

6) What are your emissions from wastewater treatment plants?

Most wastewater utilities are public entities and will likely provide emissions information upon request. Planners should contact these utilities directly to discuss the emissions they generate.

7) What are your emissions from industrial facilities?

Sources of emissions over 10,000 MTCO₂ per year are legally obligated to report their emissions to Ecology, and those reports can be found [here](#). However, industrial operations that generate smaller amounts of emissions do not have a public reporting requirement. To estimate emissions from these facilities, local planners can either contact these operations directly or ask electric or natural gas utilities that supply energy to the jurisdiction.

8) What are your emissions from agricultural activities?

Agricultural activities can also emit greenhouse gases, but quantifying the amount of emissions is complicated and not always possible. Using a reference inventory from a jurisdiction with a similar agricultural sector can help local planners estimate emissions from agriculture. However, your jurisdiction's agricultural emissions might be less or greater than the reference inventory depending on the intensity/scale of livestock farming versus other types of agriculture, manure-management practices, fertilizer applications, and carbon sequestration capacity of local agricultural operations.

Step 3: Evaluate Data from Emissions Sources

This step should be completed in collaboration with the climate policy advisory team assembled for the periodic update. Some of the activities of collecting and evaluating current emissions source data that could be involved in this step are:

- Contacting local utilities and/or energy providers to determine how much local energy is being consumed and/or what emissions come from wastewater treatment facilities;
- Contacting WSDOT to determine what relevant transportation data is available; and,
- Discussing with Ecology obtaining industrial and agricultural emissions information.

Jurisdictions may use the "S4, Emissions Worksheet" tab of the Climate Element Workbook to identify GHG emission sources and rank sectors, based on answers to the eight questions in Step 2. Remember, you may modify the worksheet, as needed, to record and evaluate the data you gather.

Step 4: Set Emissions-Reduction Targets

Based on your work in the first three steps, you may decide to set emissions-reduction targets for each source (transportation, energy, etc.) as well as an overall target for all sources you've assessed in your estimate. Enter the targets in the "S4, Emissions Worksheet" of the Climate Element Workbook.

As noted in the introduction to this section, local jurisdictions should use 2022 as their emissions baseline year and set incremental targets that lead to achieving net zero emissions in 2050, consistent with Washington's statewide [target](#). Maintaining the initial results of your emissions estimate and updating the inputs every five years should provide a general determination of progress toward your targets.

Step 5: Select Goals and Policies to Achieve Targets

In this step, your jurisdiction should select goals and supportive policies that are proven to be effective at reducing emissions. Consider using the following resources to estimate potential GHG reductions from individual measures:

- The California Air Pollution Control Officers Association's [Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities and advancing Health Equity](#) provides a common

platform and tools for evaluating greenhouse gas reduction measures and promoting equitable land use planning and project design. While the CAPCOA resource was developed for California, most of the handbook's methods can be adapted for Washington. Jurisdictions should review the quantification methods for individual measures prior to use to ensure accurate calculations. A sample calculation is in Appendix J.

- The U.S. Environmental Protection Agency's [Quantified Climate Action Measures Directory](#) presents information on quantified emissions-reduction measures in state and local climate action plans published between January 2018 and August 2023. The EPA directory — which includes searchable tables — helps users understand how the example measures were quantified and locate the planning or analysis documents that formed the basis for the measure's directory entry.

A jurisdiction could select goals and policies from the Menu of Measures or other sources (for example, the EPA directory noted above) and modify them, as needed. Some of the Menu's sample measures include a placeholder for inserting the target percentage of GHG reduction for your jurisdiction, based on vetting among the climate policy advisory team and the public process.

Questions to consider when setting mitigation goals include:

- Are the goals consistent with your vision statement and guiding principles [see *Section 2*]?
- Is your jurisdiction trying to identify the largest sources of emissions so it can prioritize potential mitigation actions?
- Is the primary concern tracking whether the jurisdiction is meeting benchmarks for emissions reductions, or something else?
- Is the jurisdiction looking to inform residents about the relative sources of emissions and create a basis for public conversations around how members can reduce their carbon footprints?
- Do the goals drive how, where, and when the jurisdiction reduces GHG emissions and communicates results?

Step 6: Integrate Measures into Plan

Adopting emissions-reduction goals and policies into your comprehensive plan should turn planning into action through the local legislative process. The conclusion of a legislative process should result in the adoption of emissions-reduction goals and policies that meet this section's minimum requirements.

- Use the "S4, Emission Reduction Measures" tab in the Climate Element Workbook to list the goals and policies you're integrating into your comprehensive plan.
- Note your measures' co-benefits, sectors, and other information in the table.

Pathway 2: Conduct VMT Study or Evaluation

This pathway [Figure 12] helps cities and counties to define baseline VMT conditions and evaluate strategies and transportation projects that provide substantial progress toward reducing transportation-related emissions. This pathway leads jurisdictions toward developing per capita VMT reduction targets and adopting effective, measurable comprehensive plan policies.

Figure 12: Pathway 2 Steps Summary



Step 1: Determine Project Scope and Geographic Scale

Start by establishing an appropriate size and number of zones/areas in the jurisdiction for a VMT analysis:

- Geography usually means either city boundaries or cities plus unincorporated areas for a county.
- Define modeling purposes; what are the existing model traffic analysis zones?
- Special attention should be given to identifying which VMT is of concern, including people who live, work, and travel through the area.

Step 2: Acquire Relevant VMT Data

- Acquire from WSDOT relevant VMT data (vehicle miles of travel for the time period and geography of interest — for example, within a city for one year). The state agency produces VMT data disaggregated to the county and city level. Local governments should reach out to their regional transportation planning partners for assistance in developing VMT data analysis if they do not have capacity or expertise in-house.

Step 3: Determine Significant VMT Sources

Task 3.1: Conduct VMT Data Analysis

- Develop baseline data for current per capita VMT and the associated GHG emissions (if available). Local jurisdictions should use 2022 as the baseline year. Consider, at a minimum, the travel of people who live in the area and the travel generated by employers.

Task 3.2: Conduct Travel Market Assessment

- Identify large employers (already listed in the Commute Trip Reduction program), large residential areas, tourist activities, and other large trip generators. Consider which locations are well-served by transit and active transportation facilities to understand how strategies would affect different areas; for example, locations with poor or limited transit service options and minimal protected bicycle facilities may benefit from demand strategies such as carpooling, teleworking, and providing flexible work hours.

Step 4: Set Per Capita VMT Reduction Targets

Develop or choose per capita VMT reduction targets that can be achieved in the near term (five years) and longer term (10 years). The implementation timeframes should match the timeframes of the other

comprehensive plan goals of your jurisdiction. WSDOT has developed [guidance](#) to assist local jurisdictions in developing processes for establishing local VMT reduction targets and options for local jurisdictions to achieve the targets.

***NOTE:** The GMA requires that cities and counties plan for a 20-year horizon. GMA comprehensive plans are required to be updated every 10 years.*

Step 5: Develop Measures and Implementation Plans to Achieve Targets

Your advisory team should develop or choose specific per capita VMT reduction strategies to use that are sensitive to the locations identified in the travel market assessment. Develop goals, policies and an implementation plan to achieve your per capita VMT targets and additional GHG reduction targets [see "*minimum requirements*" above]. Consider adopting measures listed in the Menu of Measures or from Commerce's companion guidebook for developing a comprehensive plan transportation element.⁵⁸

Your jurisdiction may modify the Menu of Measures' model goals and policies [Section 5], as needed. For example, some of the Menu's mitigation measures include a placeholder for inserting the target date.

- Use the "S4, Emission Reduction Measures" tab in the Climate Element Workbook to list your goals and policies and note how they meet this guidance's minimum requirements for a GHG reduction sub-element. Section 5 provides guidance to help you select, adapt, prioritize, and implement goals and policies from the Menu of Measures.
- Quantify the effectiveness of your policies to determine how well they will help your jurisdiction achieve its goals and meet its targets. The following resources, which are also listed in Pathways 1 and 3, can help with this work:

Resources:

- The California Air Pollution Control Officers Association's [Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities and advancing Health Equity](#) provides a common platform and tools for evaluating greenhouse gas reduction measures and promoting equitable land use planning and project design. While the CAPCOA resource was developed for California, most of the handbook's methods can be adapted for Washington. Jurisdictions should review the quantification methods for individual measures prior to use to ensure accurate calculations. A summary of calculation samples is in Appendix J.
- The U.S. Environmental Protection Agency's [Quantified Climate Action Measures Directory](#) presents information on quantified emissions-reduction measures in state and local climate action plans published between January 2018 and August 2023. The EPA directory – which includes searchable tables – helps users understand how the example measures were quantified and locate the planning or analysis documents that formed the basis for the measure's directory entry.

United States, Bureau of Transportation Statistics, Local Area Transportation Characteristics for Households Data. <https://www.bts.gov/latch/latch-data>

⁵⁸ Washington State Department of Commerce. 2012. Your Community's Transportation System. Retrieved from <https://deptofcommerce.app.box.com/s/erocgtpv3acyxv2m9bcb59c38s13qqjb>

Step 6: Integrate Measures into Comprehensive Plan

Ensure that the per capita VMT reduction goals and policies are integrated into the comprehensive plan in this step. Your measures should be consistent with and reference each other across plan elements such as transportation, housing, and land use.

After selecting per capita VMT goals and policies, include them as part of your jurisdiction's comprehensive plan update process. This step should include your advisory team, lead staff, and planning commissioners, as appropriate. A jurisdiction might consider embedding an implementation or action plan into the comprehensive plan as an additional step. This would speed up subsequent implementation of adopted goals and policies.

The following are examples of actionable comprehensive plan policies to reduce VMTs:

- Improve the presence, quality, and capacity of the walking and bicycling networks, and work with local transit agencies to improve access to transit, transit speed and reliability, and transit frequency.
- Change zoning to encourage a greater diversity of housing, services, commercial, and institutional uses within easy walking or bicycling distance of each other.
- Develop programming to encourage use of multimodal facilities and services. Washington state law requires large employers (100 employees or more) to engage in commute trip reduction (CTR) activities.⁵⁹ Most large employers already have transportation coordinators that promote transit, active transportation, and other demand-management strategies to employees. Consider expanding this type of program elsewhere in the jurisdiction to provide information about available transportation options and facilitate events that could show the community the options available to them – for example, walking school buses, ride-to-work month, etc. If there are no large employers in the jurisdiction, large reduction CTR programs can be scaled down or reconfigured to fit different requirements.

Step 7: Evaluate Progress

A jurisdiction needs to consider how to measure progress toward its per capita VMT reduction targets. A jurisdiction could measure per capita VMT changes by developing a comparison between the jurisdiction's baseline per capita VMT data and present values.

Revisit the per capita VMT data at regular intervals (at least every five years), and measure progress from the last review. If there are changes in data sources or methods, those changes should be documented and discussed to distinguish how much of the change in figures is attributable to data sources rather than behavior change. A jurisdiction might choose to report on progress annually or at some longer reduction interval that coincides with plan updates or other milestones. This would depend on which VMT data you choose and potential related costs.

⁵⁹ [RCW 70A.15.4020](#)

Pathway 3: Create Emissions Inventory

The emissions inventory pathway [Figure 13] begins with modeling to help determine all of the GHG emission sources within a city or county and the relative amounts of emissions from each source. This enables the jurisdiction to establish an emissions baseline in order to develop reduction targets and choose effective mitigation goals and policies. Developing an emissions inventory will also enable a jurisdiction to track progress.

Figure 13: Pathway 3 Steps Summary



Step 1: Determine Scope, Scale, and Identify All Local Emissions Sources

A city or county's ability to effectively mitigate climate change and monitor progress largely depends on having access to GHG emissions data. An emissions inventory provides the data and enables local jurisdictions to understand the sources of emissions and the effectiveness of different activities (measures) to remove or reduce emissions within a specific geography and time period. This is generally referred to as a "Geographic Analysis." There are other methodologies; however, this method is more commonly used.

The scope and detail of your emissions inventory should be driven by answering a core question: What information does my jurisdiction need to support its climate planning goals? Answering this question will help your jurisdiction make decisions about what emissions sectors (transportation, energy production, solid waste, etc.) should be included in the inventory, how frequently the inventory should be revised, and how emissions should be quantified.

Task 1.1: Identify Emissions Inventory's Scope and Plan

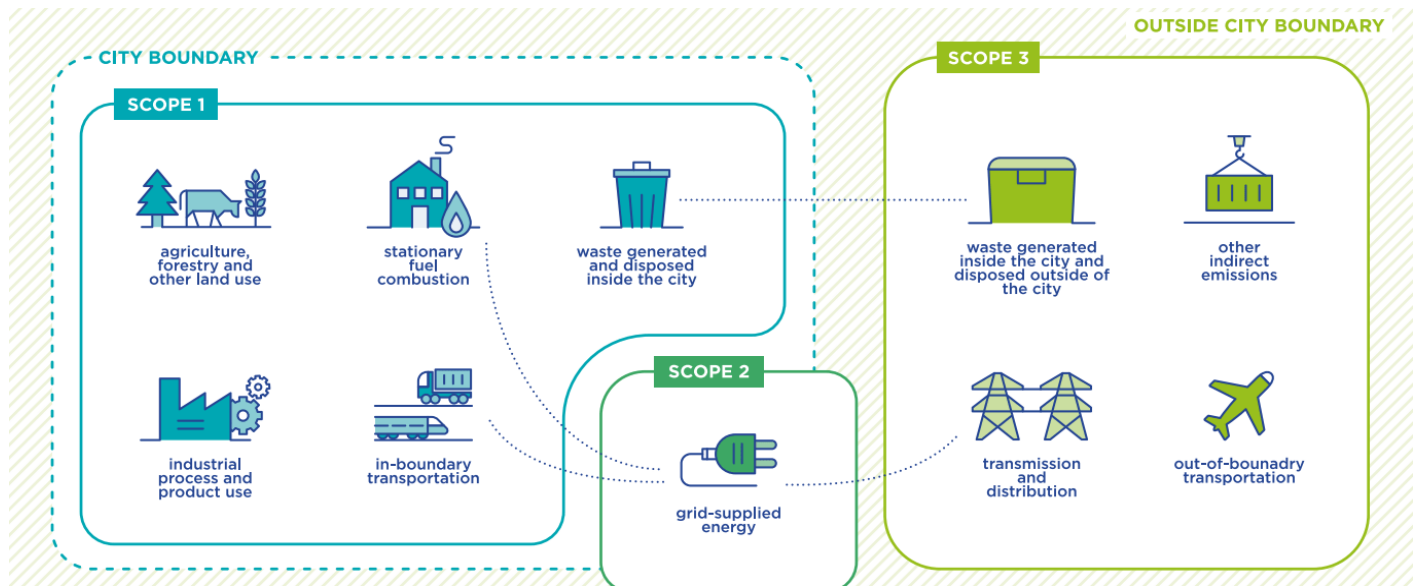
An emissions inventory starts by identifying a scope and plan as follows:

- Defining or identifying the geography (organizational and/or natural boundaries) that will be included and excluded from the inventory;
- Defining the scope(s) (extent of factors to be analyzed inside the geography/boundaries);
- Establishing the accounting standards and methods; and,
- Choosing an inventory base year.

Define the geography and scope: First, you must identify the geographic extent for the inventory and analysis. Will the inventory be based on the boundaries of the jurisdiction or other geographies?

You must also define the scope, the extent of factors or emissions sources to include in the inventory [Figure 14]. The scope could include: only the area fully within the boundary of the jurisdiction (Scope 1); the area of the jurisdiction, plus energy supplier (Scope 2); and, the area of the jurisdiction, plus indirect sources that a jurisdiction contributes to or is affected by (Scope 3). These scopes are described in more detail below, and a jurisdiction could choose to analyze one or more of these.

Figure 14: GHG Emissions Scopes for Determining the Extent of Inventory Analyses within Jurisdictional Geographies/Boundaries



Source: C40 Cities Climate Leadership Group

Scope 1: GHG emissions generated within the jurisdictional boundary include things such as industrial processes and stationary fuel combustion that emit greenhouse gases, transportation within the jurisdictional boundary, emissions associated with land uses such as forestry and agriculture, and waste and wastewater generated within the jurisdiction. Jurisdictions could choose to distinguish emissions sources according to what is directly under the control of the jurisdiction, and what emissions are generated from the community’s residences and businesses, as follows:

- A municipal inventory that accounts for GHG emissions resulting from government operations. This can help the city or county understand emissions stemming from activities that are entirely within its control, such as fleet vehicle emissions and municipal building operations.
- A communitywide inventory that considers the activities outside of government activities but comprehensive of all the activities of community residents, businesses, and non-municipal organizations. This includes things such as fuels used by vehicles traveling within the community, solid waste generated by the community, and emissions due to energy to heat and power homes.

Scope 2: GHG emissions associated with grid-supplied energy. Most jurisdictions do not generate electricity within their jurisdictional boundary, but rather they purchase it from a utility that generates the electricity and associated GHG emissions elsewhere. These emissions are counted as part of a jurisdiction’s Scope 2 emissions.

Scope 3: Emissions embedded in the goods and services that are consumed within the community but generated outside of it. This includes things such as food and other household purchases, and includes activities such as airline travel in which community members are engaged but that occurs outside the jurisdictional boundary.

The GHG emission scope(s) that a jurisdiction chooses to incorporate into its emissions inventory should be driven by the fundamental question laid out in the beginning of this guidance: What are the goals of the jurisdiction in creating this inventory? For example, if the jurisdiction is primarily interested in reducing

emissions from sources over which it has direct control, an inventory focused on Scope 1 and 2 municipal emissions could be the most appropriate. If a broad picture of community emissions is desired, then an inventory that considers all three scopes could be the right approach.

Task 1.2: Choose Accounting Standards and Methods

It is critical that your accounting methods are accurate, repeatable, and verifiable, regardless of the inventory's scale and scope. It is also helpful for your inventory to be comparable across multiple jurisdictions or regions.

GHG emissions are estimated by multiplying activity data by the fuel-specific emissions factors. Examples:

- Kilowatt-hours (kWh) of electricity use x CO₂/kwh = CO₂ from electricity use
- Gallons of gasoline consumed by vehicles x CO₂ per gallon = CO₂ from transportation
- Natural gas therms consumed by buildings x CO₂ per therm = CO₂ from natural gas use in building

The most typical and prominent greenhouse gases generated by human activities are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). These gases have different warming potentials in the atmosphere and are typically calculated and reported in units of metric tons of carbon dioxide equivalents (MT CO₂e).

As noted in the introduction to this section, counties should use the Commerce-provided emissions inventory if they are required to develop a GHG reduction sub-element [see "*mandatory jurisdictions*"] and voluntarily seek Commerce's approval of the sub-element. Other jurisdictions should use an inventory tool or protocol that ensures emissions are reported in a consistent, verifiable, and credible way. Reputable tools and protocols include, but are not limited to:

- U.S. EPA's [Local Greenhouse Gas Inventory Tool](#) provides an interactive spreadsheet that calculates GHG emissions for sectors, including residential, commercial, transportation, and waste and water management. The tool is comprised of two separate modules: one for communitywide inventories, the other for local government operations inventories.
- The World Resources Institute's [Greenhouse Gas Protocol](#) applies widely used GHG emissions accounting standards to help cities and other levels of government design mitigation goals and policies and assess and report progress.
- ICLEI's [U.S. Community Protocol for Accounting and Reporting Greenhouse Gas Emissions](#) includes methodologies and best practices to help local governments measure and report the emissions associated with their communities.

Task 1.3: Choose GHG Emissions Inventory Baseline Year

It is important to select an emissions inventory baseline year as the benchmark against which current or future emissions are compared. Cities and counties should use a 2022 baseline year. It is likely easier to find more complete and accurate data to support an emissions inventory from a more recent timeframe, as methods of tracking data for common emissions sources such as energy and transportation have become increasingly digitized and available online in recent years.

Task 1.4: Collect Data and Quantify Emissions

The data that a jurisdiction collects will depend on the objectives and scoping determined in Task 1.1. There are primary emissions-generating activities that should be included in a communitywide inventory, and even in many smaller-scale municipal inventories [Figure 15]. A city or county should consult with local

stakeholders and tribes as it collects data, as well as document its data sources and process to help guide updates to its emissions inventory.

Figure 15: Five Primary Community GHG Emissions Sources, Associated Activities, and Examples of Data Sources

Activity Resulting in Emissions	Emissions Sources	Examples of Data Sources
Use of Electricity	Power generating facilities; utilities that supply the jurisdiction or community	Utility providing power to the community
Use of fuel in residential and commercial stationary combustion equipment	Boilers, furnaces, propane tanks, generators; refrigerant leakage	Propane supply companies; community survey of consumers or industries
On-road passenger and freight motor vehicle travel use; use of marine vessels	On-road passenger, transit, and freight vehicles operating within the inventory boundary; marine vessels operating within the inventory boundary	Downscaled state or regional VMT data study/modeling.
Use of energy in potable water and wastewater treatment and distribution	Operation of water delivery and wastewater infrastructure	Public works operations
Generation of solid waste	Solid waste disposal facility operations; solid waste transportation (or could be counted in motor vehicle category above)	Solid waste vendor

Jurisdictions also need to form and maintain relationships with key vendors and other partners for data collection and tracking. Obtaining data regarding electricity usage from public utilities could be easier than from private entities. Others might be more challenging, depending on the reporting requirements and accounting formats of vendors.

Other governmental or taxing entities in the jurisdiction might already be conducting their own emissions inventory or collecting the kinds of data that would be useful to a local emissions inventory. Entities such as school districts, park districts, fire districts, and utility districts might also already have a community greenhouse gas inventory.

There might be cases in which emissions inventory data specific to your community doesn't currently exist. Transportation data, for example, might only be available on a state or regional scale. If having community data for transportation-based emissions is important to your climate goals, it could be necessary to implement or contract for a study to generate the data.

The activity data collected for an emissions inventory might arrive in different units from its source. Electricity use is reported in kWh. Stationary fuel combustion will likely be expressed in gallons or another volumetric measure, and transportation is commonly expressed in terms of VMT. The protocols and links listed in Task 1.2 provide information on how to convert these different activity metrics into total emissions.

Jurisdictions have approached the development and on-going reporting of their emissions inventories in many different ways, including:

- Conducting and maintaining GHG emissions inventories primarily in-house;
- Joining an organization such as ICLEI to obtain relevant software and expertise for completing an inventory; and,
- Contracting with a consulting firm to complete the inventory and generate reporting for the jurisdiction.

Appendix F provides an example of an RFP that a jurisdiction might use to solicit bids for consultants to complete an emissions inventory.

Examples of GHG Emissions Inventories

Washington jurisdictions have recently completed GHG Emission Inventories. Here are four examples:

[King County](#) (consultant-prepared)

[Jefferson County](#) (ICLEI-driven)

[City of Spokane](#) (consultant-prepared)

[City of Bainbridge Island](#) (consultant-prepared, ongoing ICLEI membership and in-house updates)

Task 1.5: Develop GHG Emissions Inventory Management Plan

A primary reason for creating an emissions inventory is to provide a tool for benchmarking progress toward climate goals and targets. The inventory should be updated regularly, so progress can be measured and shared. Primary components of an emissions inventory management plan should include:

- Identifying an inventory update interval;
- Managing data quality;
- Reviewing and testing inventory assumptions and limitations; and,
- Sharing results with the broader community.

Task 1.6: Identify Update Interval

Emissions inventories are intended to be replicated in a consistent manner to report progress. The frequency of inventory updates should be driven by jurisdictional goals. The goals should include benchmarks for emissions reductions, which will be important for evaluating progress.

A jurisdiction should identify an interval of reporting that is informative, realistic given resources, and aligns with the climate action goals and targets. Shorter inventory intervals, such as every 3-5 years, are useful to obtain more regular input and information on the emissions over which the jurisdiction has the most control.

Many jurisdictions set ultimate and interim goals and targets regarding emissions reductions that inform the frequency with which inventories are conducted.

NOTE: Washington's Clean Energy Transformation Act (CETA) commits Washington to an electricity supply free of greenhouse gas emissions by 2045, and sets interim benchmarks for actions including transitioning away from coal by 2025 and GHG neutrality by 2030. Washington greenhouse gas reporting is required from state agencies on a biennial basis, but the reporting consists of a more limited set of data sources than might be needed for a comprehensive jurisdictional inventory.

Task 1.7: Ensure Data Quality Management

Adherence to data quality standards including a data management plan is essential for transparency and accountability. This will also ensure the creation of an emissions inventory that accurately reflects emissions, and is repeatable in a manner that is consistent and valid for tracking emissions over time. The greenhouse gas inventory protocols referenced in Task 1.2 have a comprehensive set of guidelines regarding the integrity of inventory data.

Major components of a data collection and management plan

- **Data:** Information regarding activity levels and emissions factors is the foundation of an emissions inventory. The design of a jurisdiction's inventory should facilitate and support consistent data collection and maintenance procedures, including the methods and review processes described in the following three paragraphs.
- **Methods:** Jurisdictions should select and design methods for estimating emissions that accurately represent the characteristics of their emission sources. It is very possible that collection methods change over time.
- **Inventory Processes and Systems:** An inventory should have technical and managerial consistency in the ways in which data is collected and managed. The staff or team should be clearly identified and assigned responsibility for the baseline and ongoing updates to the inventory. It might make sense, based on jurisdictional operations, to house this data management with staff who already conduct similar functions for other data collected and processed within the organization.
- **Quality Assurance/Quality Control (QA/QC):** QC activities including regular checks on the consistency of the data being collected, whether from external sources or generated internally; and ensuring that widely accepted standardized procedures are being used for calculations, estimating uncertainties, and reporting. QA activities include the review of methods and results.

Task 1.8: Review and Test Inventory Assumptions and Limitations

Conducting regular reviews of the assumptions and limitations of an inventory will ensure its continued relevance and accuracy. Inventory data can change over time and have meaningful implications for changes to emissions. Some ways in which data can change over time include:

- Changes in vendors used for jurisdictional services;
- Changes in internal government operations; and,
- Changes in services offered to the community (for example, new public infrastructure or transit).

Building in a process for reviewing the scope and sources of the inventory is critical. It could be possible to embed this process in the QA/QC processes discussed above, including accessing independent technical expertise that can incorporate this type of thinking into their review.

Components such as emissions factors or regional emissions projections used in setting benchmarks and climate action goals are similarly subject to change as climate modeling and policy continues to develop. A regular review of protocols to ensure the inventory uses the most up-to-date science and methodology is important.

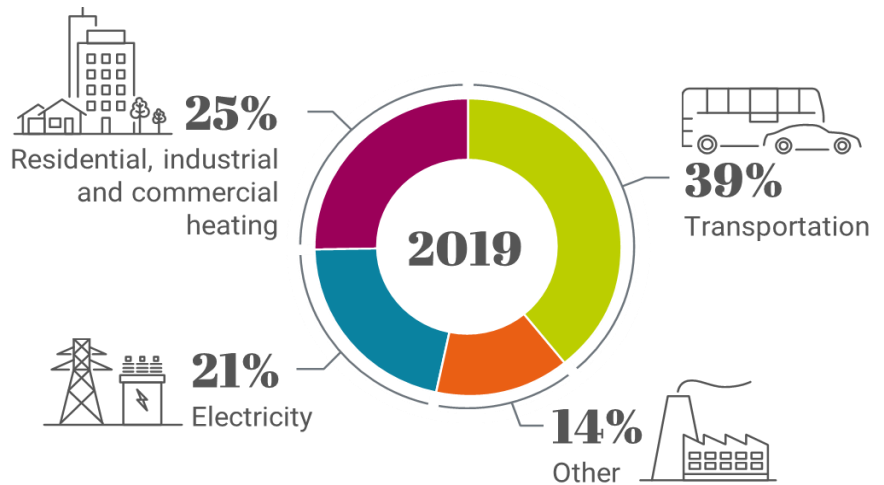
Step 2: Set Emissions-Reduction Targets

Use the Emissions Worksheet in the Climate Element Workbook to identify emissions sources and establish reduction targets.

Completing the Emissions Worksheet includes ranking the sectors from highest to lowest emissions. The ranking can be used to identify areas for priority action. Transportation is for many jurisdictions the highest source of GHG emissions.

Finally, identify targets – emission reductions from each source. Emissions inventory summaries should depict all GHG emissions [Figure 16] in specific percentages.

Figure 16: Statewide Emissions, by Sector



Washington greenhouse gases
Department of Ecology-Statewide Emission Inventory 2019

Local jurisdictions should use 2022 as their emissions baseline year and set incremental targets that lead to achieving net zero emissions in 2050, consistent with Washington's statewide [target](#).

Step 3: Develop Measures and Implementation Plan to Achieve Targets

A jurisdiction could decide to develop its own goals and policies based on measures provided in Section 5 or its own research. Ensure that the internal departments responsible for measures are at the table when developing an implementation plan.

Presenting the data results with the broader community is an important component of translating data into climate planning and action. It is important to return to juxtapose the goals of the jurisdiction in completing this inventory.

The goals should drive how, where, and when you communicate results, and how they are integrated into climate action goals to reduce emissions. Data that are visually engaging and meaningful to a wide audience (written in a format that is broadly and easily understood by a variety of ages and demographics) and actionable (for example, now that you know 35% of the community carbon footprint is residential energy use, what can residents do about this?) are all important in communicating results.

- Use the "S4, Emission Reduction Measures" tab in the Climate Element Workbook to list your goals and policies and note how they meet this guidance's minimum requirements for a GHG reduction sub-element. Section 5 provides guidance to help you select, adapt, prioritize, and implement goals and policies from the Menu of Measures.

NOTE: Some of the sample measures include a placeholder for inserting the target percentage of GHG reduction for your jurisdiction that would be based on vetting from an internal sub-committee and the public process.

- Consider how to communicate the initial analysis. Communication of the results should be considered from the beginning to ensure that the resources are in place.

- Quantify the effectiveness of your policies to determine how well they will help your jurisdiction achieve its goals. The following resources can help with this work:

Resources:

- The California Air Pollution Control Officers Association's [Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities and advancing Health Equity](#) provides a common platform and tools for evaluating greenhouse gas reduction measures and promoting equitable land use planning and project design. While the CAPCOA resource was developed for California, most of the handbook's methods can be adapted for Washington. Jurisdictions should review the quantification methods for individual measures prior to use to ensure accurate calculations. A summary of calculation samples is in Appendix J.
- The U.S. Environmental Protection Agency's [Quantified Climate Action Measures Directory](#) presents information on quantified emissions-reduction measures in state and local climate action plans published between January 2018 and August 2023. The EPA directory – which includes searchable tables – helps users understand how the example measures were quantified and locate the planning or analysis documents that formed the basis for the measure's directory entry.

Step 4: Integrate Measures into Plan and Evaluate Progress

The task of integrating new GHG reduction goals and policies into a comprehensive plan should include a multidisciplinary sub-committee, lead staff, and planning commissioners.

The GHG emission reduction goals and policies selected for your comprehensive plans should turn research into action through the legislative process, particularly when these policies are implemented and GHG reduction goals are achieved.

- Commerce recommends that your jurisdiction update its emissions inventory every five years to evaluate progress toward your GHG reduction goals and targets.

Section 5: Climate Measures

Sections 3 and 4 provided guidance on developing resilience and GHG reduction sub-elements. This section describes the Menu of Measures in greater detail and provides additional information to support selecting, prioritizing, adopting, and implementing measures.

The Menu of Measures [*also see Appendix L*] contains examples of model climate goals and supportive policies. Your team will review the measures and select ones that will build resilience and mitigate emissions in your jurisdiction. Most measures will need to be adapted to reflect local conditions and priorities before adding them to your comprehensive plan. These measures are the core of the model element that the state team was charged to deliver.

The Menu of Measures is comprehensive but not exhaustive; there may be climate measures that your jurisdiction identifies that are essential to your climate element but are not on the Menu. No two jurisdictions will face the same vulnerabilities to climate change or have the same GHG reduction goals, so some measures will not apply to your jurisdiction.

NOTE: *The Menu of Measures includes policies that have a demonstrated ability to reduce greenhouse gas emissions and are within the authority of a local government to implement. As noted in Section 4, your jurisdiction may develop its own mitigation policies as well as select ones from Commerce's Menu of Measures to meet the GHG reduction sub-element's minimum requirements. Policies that are not specifically identified in the Menu will be considered consistent with this guidance if they are measureable and supported by scientifically credible projections and scenarios that indicate their adoption is likely to result in reductions of GHG emissions and per capita VMT.*

Climate element nexus with SMPs: The sample measures are written for comprehensive plans. However, it will be important to consider your SMP when using the Menu of Measures to select goals and policies. There are several ways that the policies in the Menu could interact with your SMP. First, a measure may be primarily focused on the shoreline jurisdiction and will need to be incorporated directly into your SMP as a policy or regulation to be actionable (for example, coastal resilience policies). Developments, uses, or geographic areas solely within the shoreline jurisdiction can only be effectively managed with policies and regulations within your SMP. Second, if you are adding a goal or policy that is intended to apply throughout your jurisdiction, you may need to add or revise a complimentary goal or policy in your SMP to ensure that the new policy can be implemented within the shoreline jurisdiction. Finally, some climate adaptation actions may not be appropriate to apply within shoreline jurisdiction because they are not consistent with the SMA and the jurisdiction's SMP. As noted below, there is an SMP column in the Menu that indicates the climate resilience policies that will most likely need to be in your SMP. Policies that may have a nexus to your SMP depending on where and how they are intended to be implemented are not indicated in this column, as this will vary depending on the local government and their plans. SMP amendments for climate resilience require following the required amendment process (WAC 173-26-090) and must be reviewed for internal consistency. See Section 1.4 for more information on shoreline master programs.

5.1: How to Select Goals and Policies from the Menu of Measures

Jurisdictions may sort the Menu of Measures by any of the following attributes to select goals and policies:

- **Measure Type:** This identifies whether a measure fits best within the GHG reduction or resilience sub-element. **NOTE:** *The Menu's co-benefits column [see below] recognizes that many measures reduce emissions and build resilience.*

- **Climate Sector:** This includes the same 11 sectors used in UW CIG's Climate Mapping for a Resilient Washington webtool [see *Section 3*]. The climate sectors include: (1) Agriculture & Food Systems (includes production and distribution); (2) Buildings & Energy (includes generation, transmission, and consumption); (3) Cultural Resources & Practices (includes historic sites and cultural resources and practices); (4) Economic Development (includes business continuity, opportunities); (5) Emergency Management (includes preparedness, response, recovery); (6) Health & Well-being (includes community well-being, equity, and engagement); (7) Ecosystems (includes terrestrial and aquatic species, habitats, and services); (8) Transportation (includes multimodal travel and infrastructure); (9) Waste Management (includes materials recycling and disposal); (10) Water Resources (includes water quality and quantity); (11) Zoning & Development (includes site use, design, and other development facets).
- **Supplemental Description:** This explains why and how your jurisdiction might to implement each measure. For example, the supplemental description may describe how a policy could be part of a broader strategy or may include specific actions to implement a policy.
- **Comprehensive Plan Nexus:** This notes a climate measure's nexus with another comprehensive plan element (for example, housing or transportation). This information could aid jurisdictions that decide to integrate climate policies throughout their comprehensive plan.
- **Co-benefits.** Each measure on the Menu is associated with one or more of the following co-benefits: (1) supports housing supply and diversity; (2) reduces emissions; (3) sequesters carbon; (4) enhances resilience; (5) improves salmon recovery; (6) promotes economic development; (7) promotes equity and justice; (8) provides cost savings; (9) provides ecosystem services; (10) protects tribal treaty rights; (11) improves public health and well-being; (12) improves air quality; (13) protects water quality; and, (14) builds community knowledge.
- **EJ Potential with:** This attribute – developed by Front and Centered, based on its work with frontline communities – shows each measure's potential to support environmental justice [see *Appendix A for additional details*].
- **Policy Development and Implementation Tools:** Each policy on the Menu links to at least one resource (tool) that will help a local jurisdiction develop and/or implement the policy. Tools range from model development code provisions to project funding and design resources.
- **Hazards Addressed:** This includes climate-exacerbated hazards (for example, sea level rise and wildfires) that are addressed by measures. Every resilience measure addresses at least one hazard, and most resilience measures address several hazards. Selecting "search all" as a search attribute will pull up all the climate resilience goals and policies. Selecting specific hazards will pull up a narrower field of measures.
- **Impacts Addressed:** This lists climate impacts (for example, air and water pollution) that are addressed by the resilience measures. Selecting "search all" as a search attribute will pull up all the climate resilience goals and policies. Selecting specific impacts will pull up a narrower field of measures.
- **Tracking:** Each policy on the Menu lists one or more metrics that a jurisdiction could use to track implementation. Such metrics may be useful for reporting implementation progress at defined intervals.
- **Shoreline Master Program (SMP) Nexus:** This identifies measures that likely need to be incorporated into your SMP to allow for implementation. Adding these policies to your SMP would require consistency review and an SMP amendment.
- **Grouping:** This suggests measures that would complement one another, or that should be considered as a set of measures for ultimate effectiveness.

Customize based on local conditions

The climate measures as drafted include varying levels of authority. Some measures, for example, include terminology that is typically reflected in language describing initial steps, such as "study" or "consider," whereas other measures include language that is associated with implementation actions, with such terms as "implement" or "adopt." You will even notice that some measures include blanks with prompts such as "insert date" or "insert target." This combination of terminology was intentional to provide a wide range of options and to spark inspiration in your community. Notably, meeting your obligation to reduce GHG emissions will require implementation of tangible actions. A set of policies limited to "study" or "consideration" will not reduce GHG emissions.

Your climate policy advisory team should be invited to customize the measures as it reviews and selects them, to set targets that are relevant and appropriate for your jurisdiction. This aspect of customizing the measures is important to recognize as your climate policy advisory team selects and adapts measures, which must ultimately be appropriate for your local conditions, values, and climate goals and targets.

5.2: Multi-criteria Prioritization Analysis

Commerce and its partners evaluated Menu of Measures goals and policies using a multi-criteria prioritization framework. The highest-priority measures are marked with a red dot. The priority level indicates how well a measure met the attributes of the charge given to the state partners — meaning that this analysis does not include localized criteria that only your city or county would be able to assess. Given the subjective nature of the scoring, we suggest that the ranking be used as a starting point for conversation.

Below, we provide an explanation of the initial criteria and the basis for highest-priority measures. The score includes the sum of co-benefits and timeframe. The criteria for effectiveness and equity are not scored by the state team, as explained in the next section.

Initial Criteria

Your climate element must prioritize measures that are in alignment with your jurisdiction's vision and goals, and expressly prioritize overburdened communities, who will suffer disproportionately from compounding environmental impacts and will be most impacted by natural hazards due to climate change. Jurisdictions could adapt the prioritization framework by including additional local criteria to better align their climate element policies. Appendix I describes the development of the Menu of Measures' multi-criteria prioritization framework and provides examples of multi-criteria analyses that has been applied in other jurisdictions.

Commerce elicited input from state agency staff and used the initial criteria to prioritize policies in the Menu of Measures. The prioritization reflected in the Menu of Measures includes an evaluation of the first three criteria. The fourth criterion was developed by the Uplift Communities Project, led by Front and Centered [see *Appendix A for more details*].

- 1) **Effectiveness:** Measures within the Menu were considered to be effective at addressing GHG reduction and/or resilience after the state team affirmatively responded to the framing questions. The level of effectiveness will ultimately need to be assessed at the local level in combination with the set of measures that are selected to compliment your goals.
- 2) **Co-benefits:** Your jurisdiction could choose to utilize the co-benefits provided in this guidance or modify the list. The state team balanced the relative value of the multiple co-benefits of this criterion with the total criteria to ensure that this singular criterion did not outweigh the others. This ensured that the top possible score for this criterion should not exceed the top value of the other criteria.

- 3) **Timeframe of Benefit:** This criterion reflects whether the measure will provide benefits in the short or long term. This assumes shorter-term benefits may be policies that need to be replaced or revisited within five years – in contrast with something that is long-term and would typically include considerable investment.
- 4) **Equity:** It is difficult to determine at a state level if a measure itself is equitable. Cities and counties must identify the overburdened communities and vulnerable populations in their planning jurisdictions [see *Section 2*] and collaborate with those stakeholders to adequately determine if a measure would have disparate impacts. Commerce and its partners created the framing questions [Figure 17] for jurisdictions and community representatives to evaluate the potential for equity for any measure and to identify necessary alterations through a just transition and an environmental justice lens [see *Appendix A*].

Figure 17: Framing Questions for Prioritizing Policies

Criteria	Framing questions	
Effectiveness	<p>For Resilience Measures: Will the policy reduce the severity of the hazard's projected climate impacts?</p> <p>For GHG Reduction Measures: Does the policy have a demonstrated ability to reduce GHG emissions and/or per capita VMT?</p>	
Timeframe of Benefit (short or long)	<p>How long are the effects of this measure?</p> <p><u>Short-term (1-4 years):</u> Will the measure provide a benefit of less than five years? Examples of such measures are those that are dependent on a personal choice, such as incentives for transit users or installing a “smart” meter to conserve water on private property.</p> <p><u>Long-term (5 or more years):</u> Is the policy a long-term response to the climate impact or reduction to GHG emissions? An example includes the considerable investment of replacing a fleet of combustion-engine vehicles with electric vehicles, or relocating essential facilities out of the floodway.</p>	
Co-benefits	<p>Does the measure provide any of the following co-benefits?</p> <ul style="list-style-type: none"> • reduces emissions (GHG reduction) • sequesters carbon (GHG reduction) • enhances resilience • improves salmon recovery • promotes economic development • promotes equity and justice 	<ul style="list-style-type: none"> • provides cost savings • provides ecosystem services • protects tribal treaty rights • improves public health & wellbeing • improves air quality • builds community knowledge • supports housing supply & diversity

Criteria	Framing questions	
Equity	<ul style="list-style-type: none"> ○ Co-governance: Does the measure show potential to build self-determination for frontline communities of color and/or low-income communities? ○ Targeted Universalism: Is the measure clear on rights to healthy communities, and explicit in targeting interventions to communities furthest from achieving those rights? 	<ul style="list-style-type: none"> ○ Accountability: Does the measure show potential to directly limit harm and hold those responsible? Does it prioritize effectiveness? ○ Community Wealth Building: Does the measure show potential to invest in and sustain local livelihoods, starting with communities with the greatest barriers to meeting their needs, through sustainable resource use and cooperative work?

Additional Criteria for Local Governments

The state team evaluated the relative priority of measures using criteria that could be assessed at a state level. This initial prioritization does not account for the unique attributes of a particular jurisdiction, and as such a city or county should include additional criteria that better reflect its climate goals following sub-element development [Sections 3 and 4], along with readily available resources to accomplish near-term activities. Commerce recommends including the following criteria and framing questions:

- **Unintended Impacts:** Will implementing the policy result in unintended social, economic, or environmental impacts/externalities? *Example: population displacement*
- **Feasibility:** Is there administrative and other staff capacity to implement the policy?
- **Cost:** What is the estimated cost to implement the policy (consider whether implementation will require one-time or ongoing funding)? This criterion could provide more distinction to “feasibility” or it could stand alone.
- **Political or Public Support:** Is there community support for the policy? Is this an elected body priority, and do elected officials understand what it will take to implement the policy?
- **Authority:** Does the jurisdiction have the authority to implement the policy? Jurisdictions should generally exclude measures that are outside their span of control. However, there might be measures that a jurisdiction could influence or affect through a partnership as described in a particular measure.

Opportunity Cost Considerations

Your jurisdiction may wish to consider opportunity costs — what other activities or measures could produce more environmental benefit for a similar cost? Jurisdictions should attempt to maximize environmental benefits within available resources when planning to reduce or eliminate emissions. The effectiveness of emissions-reduction projects can be assessed based on the cost to reduce one MT of CO₂.

There are two metrics jurisdictions could use to assess effectiveness using this approach. First, the Washington State Utilities and Transportation Commission set the “[social cost of carbon](#)” at \$94 per metric ton of CO₂ for 2025. Spending more than that to reduce CO₂ means the jurisdiction is spending more than the global benefit they are providing. The social cost of carbon is an estimate of global impact, not local. The second metric that can be used is the cost of carbon offsets from the [Climate Action Reserve](#) and the [American Carbon Registry](#), both of which have been approved by Ecology as having a track record of excellence. Both organizations offer opportunities to reduce the maximum amount of CO₂ for any budget.

5.3: Organize Climate Element for Integration and Consistency

Each jurisdiction's development regulations, planning activities, and capital budget decisions must be consistent with and implement the comprehensive plan. The Growth Management Act requires that all comprehensive plans be internally and externally consistent.⁶⁰

- **Internal consistency** means that all goals and or policies must be based on the same future land use map designations and population projections. Internal consistency also requires reviewing your plan and addressing goals and policies that conflict with or create barriers to implementing other measures. Internal consistency also typically encompasses your other adopted plans or development regulations.
- **External consistency** means that the local comprehensive plan must be consistent with countywide planning policies (CPPs)⁶¹ and regional transportation plans (RTPs)⁶² and be coordinated with comprehensive plans of adjacent cities and counties.

Visit [MRSC](#) for resources, and consider whether your climate element measures:

- align with your comprehensive plan's other measures;
- align with your comprehensive plan's vision;
- align with your countywide planning policies and regional transportation plan measures; and,
- align with GMA goals for climate, transportation, housing, and other applicable areas [see *Figure 5*].

Demonstrated Approach: Model Climate Element

As noted in Section 1, your climate element may take the form of a single chapter (new or existing), or your climate element may be a collection of climate goals and policies integrated into other chapters (for example, your land use, housing, and transportation elements). The following model climate element is intended to demonstrate how to integrate climate goals and policies into a single climate chapter.

The following GHG reduction and resilience goals and policies — which are from the Menu of Measures — focus on the transportation, buildings & energy, and zoning & development sectors. Commerce and its partners ranked several of these goals and policies as priority measures, factoring in their co-benefits, potential to support environmental justice, and other criteria [see *Figure 17*].

Your full climate element will likely include additional measures, based on your work in Sections 3 and 4 of this guidance and other regulatory requirements.⁶³ For example, several of the following climate resilience sub-element measures explicitly address sea level rise and wildfire hazards; your climate resilience sub-element may need to include goals and policies within the emergency management and health & well-being sectors to address extreme heat and other climate-exacerbated natural hazards that are relevant to your jurisdiction [as determined by Section 3's steps].

This guidance's companion Climate Element Workbook [*Appendix B*] includes tables to note how your climate measures produce co-benefits and intersect with other comprehensive plan elements and sectors. Use the workbook to organize your climate element and ensure it meets this guidance's minimum requirements.

⁶⁰ [RCW 36.70A.130\(1\)\(d\)](#)

⁶¹ [RCW 36.70A.210](#)

⁶² [Chapter 47.80 RCW](#)

⁶³ The model climate element is a general example for all Washington jurisdictions and does not address many of the multicounty planning policies and countywide planning policies required for central Puget Sound jurisdictions.

Climate Resilience and GHG Emission Reduction

Purpose: In this section, describe how the climate element provides a consolidated climate policy framework that is essential to facilitating local planning and meeting Growth Management Act goals.

Background: In this section, draw from your Climate Element Workbook to summarize your jurisdiction's existing and expected climate hazards and impacts, as well as its largest emissions sources and reduction targets. Also note how the climate element's goals and policies meet Commerce's minimum requirements [from Sections 2, 3 and 4] and prioritize actions to benefit overburdened communities and support environmental justice [from Section 5].

GHG Reduction Sub-element

Climate Goal 1 (CG 1): Reduce vehicle miles traveled ⁶⁴ to achieve greenhouse gas reduction goals. [Priority measure #240]

CG 1 Policies

- 1-1 Implement travel demand management (TDM) programs and strategies. [Measure #54]
- 1-2 Create a safe, well-connected, and attractive bicycle and pedestrian transportation network to encourage active transportation. [Priority measure #246]
- 1-3 Prioritize, develop, and maintain mobility hubs in transportation-efficient locations — especially in overburdened communities experiencing a scarcity of transportation alternatives. [Priority measure #478]
- 1-4 Facilitate the siting of complimentary destinations such as commercial-employment centers, schools or education centers, and residential developments. [Priority measure #500]

Climate Goal 2 (CG 2): Ensure that buildings use renewable energy, conservation, and efficiency technologies and practices to reduce greenhouse gas emissions. [Measure #386]

CG 2 Policies

- 2-1 Incentivize green building certification to improve energy and environmental performance. [Priority measure #430]
- 2-2 Maximize renewable energy sources for the supply of electricity and heat to new and existing buildings. [Measure #230]
- 2-3 Retrofit buildings for energy efficiency. [Priority measure #160]
- 2-4 Require all publicly owned buildings to be powered completely by renewable energy by [insert target date]. [Measure #229]

Climate Goal 3 (CG 3): Increase housing diversity and supply within urban growth areas to reduce greenhouse gas emissions and support environmental justice. [Priority measure #254]

CG 3 Policies

- 3-1 Increase or remove density limits in areas well-served by transit and other services within the urban growth area. [Priority measure #253]
- 3-2 Allow or encourage micro-housing units. [Priority Measure #507]
- 3-3 Develop and implement inclusionary zoning to support greater income diversity in housing types. [Priority measure #508]

⁶⁴ Vehicle miles traveled reductions would be limited to the boundaries of the jurisdiction.

Resilience Sub-element

Climate Goal 4 (CG 4): Ensure that the local transportation system — including infrastructure, routes, and travel modes — is able to withstand and recover quickly from the impacts of extreme weather events and other hazards exacerbated by climate change. [Measure #393]

CG 4 Policies:

- 4-1** Improve street connectivity and walkability, including sidewalks and street crossings, to serve as potential evacuation routes. [Measure #86]
- 4-2** Design and site new and expanded roads and railroads to have the least possible adverse effect on the shoreline, account for sea-level rise projections, not result in a net loss of shoreline ecological functions, or adversely impact existing or planned water-oriented uses, public access, and habitat restoration and enhancement projects. [Priority measure #22]
- 4-3** Enhance the resilience of parks and recreational trails by assessing and addressing climate hazards and impacts. [Priority measure #318]

Climate Goal 5 (CG 5): Ensure that energy infrastructure — including generation and transmission — is able to accommodate renewable energy opportunities and to withstand and recover quickly from the impacts of extreme weather and other natural hazards worsened by climate change. [Measure #385]

CG 5 Policies:

- 5-1** Install distributed renewable energy generation and battery infrastructure at public facilities to store renewable electricity generated on site and provide emergency power that ensures continuity of operations. [Measure #381]
- 5-2** Require new subdivisions to bury electricity transmission lines and associated infrastructure to reduce damage from storms and wildfire ignition risks. [Measure #453]
- 5-3** Work with energy utilities to improve the safety and reliability of infrastructure vulnerable to climate change. [Measure #438]

Climate Goal 6 (CG 6): Ensure that development and redevelopment projects are resilient to the impacts of climate change. [Measure #8]

CG 6 Policies:

- 6-1** In areas with significant vulnerability to climate hazards, facilitate and support long-term community visioning including consideration of managed retreat. [Measure #465]
- 6-2** Review required buffers and setbacks for steep slopes and shorelines vulnerable to erosion exacerbated by climate change, and establish new minimums, if necessary, so that improvements are not required to protect structures during their expected life. [Measure #19]
- 6-3** Consider future climate conditions during siting and design of capital facilities, including changes to temperature, rainfall, and sea level, to help ensure they function as intended over their planned life cycle. [Measure #439]
- 6-4** Identify and implement strategies for reducing residential development pressure in the wildland-urban interface. [Priority measure #444]

○ Resource:

- Visit MRSC's [climate portal](#) for examples of comprehensive plans with climate measures.

5.4: Take Legislative Action

The Growth Management Act requires that development regulations be consistent with and implement the comprehensive plan,⁶⁵ and the deadline for amending or adopting these development regulations is the periodic update deadline.⁶⁶ In addition to adopting a comprehensive plan climate element with goals and policies, your jurisdiction must adopt the necessary development regulations.

Given the scope and complexity of this task, it is very important to explain in a staff report each measure you intend to adopt and its development regulation implications. Consider including your completed Climate Element Workbook [Appendix B] as a companion to a staff report to support the recommended goals and policies and changes to development regulations.

Generally, the beginning of legislative action is when you are ready to present your set of comprehensive plan amendments to a planning commission. The planning commission will make recommendations that will be forwarded to the final approval authority, such as an elected council. You will want to plan time to incorporate feedback from your public-engagement process and other advisory bodies before presenting recommendations.

The conclusion of legislative action should result in your elected officials adopting the climate goals and policies into the jurisdiction's comprehensive plan and notifying state agencies. Be sure to notify Commerce at least [60 days](#) before the final adoption of your comprehensive plan and/or development regulations, including all necessary details to comply with statutory notice requirements.

5.5: Measure Implementation Progress

The GMA requires cities, counties, and Commerce to report progress toward implementing comprehensive plan commitments and goals.⁶⁷ Cities and counties must provide Commerce an implementation report that details progress achieved five years after updating their comprehensive plan, including the climate element.

For jurisdictions that are required to create a GHG reduction sub-element as part of their climate element, the progress report must detail progress implementing GHG emissions and per capita VMT reduction policies to achieve local goals and targets [HB1181, Sec. 15(9)(b)]. The collective set of measures must meet HB 1181's minimum requirements, as noted in this guidance's Section 4. Cities and counties may utilize the companion Climate Element Workbook [Appendix B] to list their policies and track implementation progress.

Commerce must evaluate and report on the impact that locally adopted climate elements have had on local GHG emissions and per capita VMT reduction goals. Commerce must include this evaluation in guidance published after 2025. The evaluation will reference information from the five-year progress reports and, at a minimum, include results from local emission inventories and an index of climate elements with a correlation of impacts on local emissions.

⁶⁵ [RCW 36.70A.040\(3\), \(4\)](#)

⁶⁶ [RCW 36.70A.130\(1\)\(a\)](#)

⁶⁷ [36.70A.130](#).

Appendices

A. Summary Report: Climate Justice in Growth Management:

Editor's note: Commerce hired the nonprofit Front & Centered to lead a task force of frontline community members ("Uplift Communities" project) to help shape the state agency's climate planning guidance and Menu of Measures. Upon the completion of its work, Front & Centered wrote the summary report and policy recommendations below. Commerce used the recommendations to revise and add goals and policies to the Menu of Measures, where appropriate. Not all of the task force's recommendations that follow are within the span of control of local governments, and thus may not be suitable for comprehensive plans. In recognition of their expertise and respect for their engagement role, such recommendations are still included here to capture the broader conversations that occurred through this project.

Summary

Front and Centered (FC) prepared this appendix report to document the work and lessons learned through its contract with the Washington State Department of Commerce (Commerce), through the "Prioritize Actions to Uplift Communities Disproportionately Impacted by Climate Change" (Uplift Communities) Project. The content of this report is drawn from an extensive community engagement process managed by FC, which involved a committee of community-based organizations representing overburdened and vulnerable communities⁶⁸ across Washington. Front and Centered provided the recommendations of this report in advance of the final draft of the "early" climate element planning guidance Commerce published in June 2023.

GHG reduction and resilience planning is fundamentally a matter of equity. In approaching climate element measures, it is essential to reject "one-size-fits-all" approaches to the selection and application of measures. Rather, processes must effectively engage impacted communities through models of engagement that center community voices and priorities, and adjust based on the needs, perspectives, and realities of community members and the organizations that represent them.

Findings with respect to this process:

- Frontline⁶⁹ communities are very interested in comprehensive planning processes, and jurisdictions engaged in planning must meet community members where they are at. Too often, planning and engagement processes are overly complicated, lack sufficient clarity on what influence engagement may have, and lead to frustration in impacted communities.
- Frontline communities choose to not engage when there is strong belief their engagement will have no impact. Poorly designed engagement strategies discourage participation – in the near term and long term. Frontline communities are interested in both the process and the outcome of their engagement.
- There are models that jurisdictions can use to center the perspectives and voices of frontline communities. These models can increase engagement, build trust, and create opportunities for co-governance.
- Frontline communities care deeply about the impacts of climate change on their families and their lives. Comprehensive planning community engagement processes must strive to make connections between near-term and long-term impacts of climate change and communicate the role of planning in that context.

⁶⁸ Throughout this report, "overburdened" communities and "vulnerable" populations will interchangeably be referred to as "frontline" communities and populations. Definitions for these terms are found within the glossary at Appendix J.

⁶⁹ Ibid (see notes above)

Jurisdictions must identify the overburdened communities and vulnerable populations in their scopes of work in order to determine if the proposed climate element measures are equitable. They must also collaborate with those stakeholders to adequately determine if a measure may enable or prevent disparate impacts.

This report serves as a tool to incorporate equity and environmental justice in the planning process.

- It summarizes important frameworks, beginning with a summary of the Just Transition Framework, including principles of co-governance, and recommends tools and resources.
- It provides a tool to examine — in partnership with community members — how criteria can be used to assess the equity/harm potential of draft measures.
- It also includes community-recommended measures, with a description of what goals those measures might address and how they might be applied in the planning process.

Introduction: Climate Justice and Frontline Communities in Climate Planning

Commerce contracted with Front and Centered to provide guidance in the development of the climate element from the perspective of communities that disproportionately experience harm from climate change. Front and Centered is a statewide coalition of community-based organizations representing people of color and lower incomes.

Climate is fundamentally an issue of equity. Climate impacts hit us wherever we live, work, and play in Washington. Climate pollution threatens our health and the health of future generations — but the impacts are not distributed evenly. Who is at risk is a factor of both who is most exposed, and who has the ability to respond, adapt, and decide. Communities of color, Indigenous peoples, and communities with lower wealth and incomes tend to face the greatest climate risks and are therefore on the frontlines of climate and environmental threats and face greater social, economic, and health issues.

To date, comprehensive plans in Washington have lacked adequate consideration and planning to address the current, historical, and ongoing environmental racism that many communities around our state experience. These plans shape the future of communities in the state and are often a deciding factor in how heat, floods, fires, and other climate-related impacts communities will endure. The existing comprehensive planning process is not accessible or equitable for many people who reside in frontline communities and does not address the disproportionate impacts from climate change.

If jurisdictions want to undo and prevent further disparity, they must identify the overburdened communities and vulnerable populations in their jurisdictions and make intentional efforts to understand the cumulative threats these communities are facing. They must also understand how those issues may be alleviated through land use planning, and how the local communities want to be supported. These efforts should be shaped heavily through collaboration with the overburdened communities through building community capacity and meaningful public participation processes. For additional guidance, please see the public engagement resources and best practices in Commerce’s draft climate planning guidance [Section 2].

The Front and Centered coalition envisions a future where our communities and the Earth are healed and thriving, our people have dignified work and the building blocks of opportunity and prosperity, and our government values, respects, and represents us. Getting to a place where that vision is reality, requires a Just Transition. This involves transitioning away from regulations and policies that allow for or depend on the exploitation of natural resources and labor, and that protect wealth and power through land ownership and

consumerism. Instead, local governments must move toward investment in the health and social well-being of all people and places through proper co-governance.

This report summarizes the approach of the Front and Centered coalition's Uplift Communities Project, led by a Community Leadership Committee (CLC), to developing guidance and reviewing draft measures for a comprehensive plan climate element. It focuses on equity strategies for how jurisdictions can minimize burdens and maximize benefits to overburdened communities. The goals, guidance, and recommendations are informed by outreach conducted by seven community-based organizations that were created by and for communities of color, and low-income communities across Washington.

The Just Transition Framework

The Front and Centered Coalition envisions climate justice as a transition away from an extraction-based economy to one centered on ecological restoration, community resilience, and social equity, fueled by regenerative resources and cooperative work, governed by deep democracy, and a culture of caring and sacredness. The report, "[Accelerating a Just Transition in Washington State](#)", is a primer on Front and Centered's application of the Just Transition framework to climate GHG reduction and resilience strategies.

Such a Just Transition will require interventions in four key areas that, while not historically the focus of climate work, are necessary conditions for achieving climate goals:

Center Those Disproportionately Impacted in Governance. The communities that experience climate impacts and fossil fuel pollution first and worst — or have the least ability to transition to a lower-carbon economy — can be active participants in identifying solutions that will work for them. New models of participatory governance — or “co-governance” between government leaders and agencies and impacted communities — will be necessary to truly address these gaps in community leadership and shared governance. Key cornerstones of co-governance include: a) establishing government commitment to the self-determination of communities; b) supporting communities to build their capacity to effectively participate (in government processes); c) developing shared governing power in principles and in process; and, d) demonstrating equitable processes and results.

Restore Community Connections to Place. Place-based communities that can practice self-determination, care for their social and economic well-being, and honor ecological stewardship and sustainability are at the heart of a Just Transition. A place-based approach focuses policy, programmatic interventions, and innovations in specific geographic areas that are suffering from environmental and social injustices. A place-based approach, where each community is valued, ensures that no community is sacrificed to climate impacts or to suffer emissions disproportionately. This creates pressure to eliminate, rather than move emissions from place to place. Jurisdictions can integrate this priority by placing greater value on and by centering in their public engagement processes the values, cultures, aspirations, hopes, and experiences of the communities impacted by their plans and actions.

Create Livelihoods within a Healthy Environment. A regenerative economy is one that prioritizes sustainable living and working within ecological limits. It would eradicate inequality, ensure all basic needs are met, and foster individual and community well-being and health. Rather than enabling economies rooted primarily in growth, the commodification of people and things, and the extraction of resources and labor, we must enable economies that are rooted in the dignity of people, their voice, and their work, where people can afford what they need, and where they benefit from clean and healthy air, land, and water. Jurisdictions can support movement toward a regenerative economy by prioritizing the needs of communities over the needs of corporations.

Transition to Renewable Resources and Energy. A key cornerstone of a Just Transition is enabling strategies to ensure energy is first conserved, and that energy generation is renewable and equitable. This means phasing out and rejecting extractive energy sources — for example, fossil fuels that harm the environment — and enabling adoption of healthier and environmentally sound energy sources and ensuring access to these energy sources to everyone, including impacted communities. This also means, including distributed ownership opportunities that can support self-determination, economic development, and direct benefits in overburdened and vulnerable communities. Jurisdictions can support this pillar by planning for the use of renewable energy sources in their planning jurisdiction. Transitioning away from fossil fuels or non-renewable sources can reduce social and environmental harms in frontline communities.

Some government entities may question the relevance of these pillars to land use planning. Others may place limitations on potential policy interventions by setting standards for “proven effectiveness” that may intentionally or inadvertently exclude these factors. Moving forward in the climate realm, experimentation is needed to mitigate the impacts of climate change and to ensure the resilience of communities. Approaches to planning and policy that rely solely on what is comfortable or proven replicate harmful dynamics and shift power away from disproportionately impacted and marginalized communities. Such approaches bias planning toward keeping things the way they are and favor incremental change that may limit what is possible, and this will certainly fall short with respect to equity.

Environmental Justice

Washington Gov. Jay Inslee signed a landmark environmental justice bill in 2021, the [Healthy Environment for All Act \(SB 5141\)](#), or the [HEAL Act](#). The law grew out of a decades-long struggle by people of color and Indigenous peoples in Washington. And in more recent history, the HEAL Act emerged from the development of the [Washington State Environmental Health Disparities Map](#), and the leadership of frontline communities seeking equitable treatment and outcomes, co-governance and self-determination, and just environmental policy.

The HEAL Act defines “Environmental Justice” as: “The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, rules, and policies. Environmental justice includes addressing disproportionate environmental and health impacts in all laws, rules, and policies by prioritizing vulnerable populations and overburdened communities, striving for the equitable distribution of resources and benefits, and eliminating harm.”

The HEAL Act creates requirements for state agencies. These requirements include:

- The creation of an Environmental Justice Council of majority frontline community representatives and an interdepartmental environmental work group;
- The development of community engagement plans that emphasize reaching vulnerable populations in overburdened communities;
- The use of the [Environmental Health Disparities Map](#) to identify Overburdened Communities [see *Section 2 of guidance*];
- Environmental Justice (EJ) implementation plans that shape agency strategic plans;
- EJ assessments of significant policies, budgets, projects and expenditures by agencies;
- Application of EJ principles to budgets and funding, including a 40% goal for agency environmental expenditures to benefit Overburdened Communities; and,
- Public reporting, including a dashboard to monitor progress.

These components provide a foundation for climate planning to reduce environmental health disparities that can be adopted at the local level. For example, jurisdictions could undertake an environmental justice assessment of their draft comprehensive plan. More information about the HEAL act, including links to agency community engagement plans and implementation plans, can be found at frontandcentered.org/heal-act.

Engaging Priority Communities in the Planning Process

Uplift Project Outreach as a Model

The outreach conducted for the Uplift Communities project may serve as a model for local governments and their constituents. Organizations participating in the Uplift Community Leadership Committee designed and implemented community outreach activities tailored for their respective communities. Each of the organizations in the Committee conducted outreach in ways that they determined were most efficient and effective for their communities. Front and Centered staff supported the organizations by helping them plan outreach activities, create surveys, and attend outreach events to co-facilitate or take notes. Each member organization received monetary stipends to use for outreach activities, such as providing refreshment, translation, room rental, participation stipends, and other tools to maximize community participation.

Activities included survey collection, in-person forums, virtual workshop sessions, and one-on-one outreach with identified community members. The various formats allowed for the CLC to customize outreach based on the preferences of their communities. Some members chose to host stand-alone events or meetings to consult their communities. Others set aside time in existing meetings with their community. This approach maximized how many people were able to participate comfortably and reflected the diversity of communities across Washington. It also made outreach easier for the CLC because they were able to assess their own capacity and integrate the project into their organizational work plans.

The focus of outreach efforts also shifted based on the communities that the organizations represented. Some organizations provided general environmental justice education and learned from attendees what barriers they face in their neighborhoods. Others discussed specific issue areas that are already priorities in their communities and connected them to the planning process. The CLC asked similar questions and discussed common topics but used different approaches and languages. This underscored how different communities need information to be delivered in different ways. Some preferred physical materials, presentations, and visuals. Others preferred surveys they could answer on their own time that led to facilitated discussions.

The CLC used various tools to advertise their outreach. Popular options were posting outreach on social media, listservs, and coalition network apps. Several of these advertisements were very general, focusing mostly on climate or environmental justice themes. Members chose to do this because they found that “comprehensive planning” and “the Growth Management Act” were not terms or phrases that many community members were familiar with or found enticing.

Lessons and Guidance for Jurisdictions

There are numerous findings from our process that are relevant to planning organizations that will engage in comprehensive planning, including but not limited to the climate element. Some of these findings emerged from the CLC’s outreach and others came from the CLC monthly meetings. The findings convey the raw lessons learned during this project. Recommendations are our suggested way forward based on the findings. Jurisdictions can use these findings and recommendations to better engage with community members and

community-based organizations (CBOs) representing vulnerable populations and overburdened communities.

First, there is significant interest in comprehensive planning among impacted communities, but there are real barriers to effective engagement. Community-based organizations and individuals in overburdened communities are interested in better understanding the comprehensive planning process and in the potential impact of a climate element on that process. For a range of reasons, people lack basic tools and information about the Growth Management Act (GMA) and the comprehensive planning process.

CBOs and community members conveyed feelings of exhaustion and frustration with the lack of access to educational resources needed to be involved in decision making. They also conveyed confusion over whether processes can provide for available assistance – financial or otherwise – to participate. They shared that it often takes too much effort to identify entry points into lengthy planning processes, and they stressed the importance of advertising and communicating what resources and assistance can be available. Participants also stated that there is not enough adequate notice on how and when to get involved in important meetings, such as those related to comprehensive planning.

CBOs are, therefore, often forced into untenable positions where they are providing education for community members, mobilizing to respond to notices, and engaging in activities that may detract from and drain their capacity to do other meaningful work. Community members and leaders also described the feeling of always having to play catch-up because they are not given the opportunity to be at the decision-making table. This is a problem because communities rely on CBOs to provide education on a range of topics, to connect community members to the resources they need, and to also meet basic needs. This places additional pressure on organizations attempting to respond to public planning processes that fail to consider the day-to-day realities of organizations and community members in overburdened and vulnerable communities.

The lack of basic necessities for community members who may be in crisis, and lack of action to help is another barrier to involvement for communities interested in comprehensive planning. Community members are often preoccupied with trying to meet their basic needs. Differences in priorities between community members and those in power, such as lack of focus on basic necessities like the price of food and stable housing, can generate cynicism in planning processes and create more barriers to community involvement in comprehensive planning.

Second, there is significant uncertainty regarding the efficacy of comprehensive planning. Organizations participating in the CLC expressed concern over the efficacy of community engagement in the comprehensive planning process. While they acknowledged the importance of community engagement in the process, they also expressed dissatisfaction over the lack of clear accountability or transparency in the process. Too often, feedback provided through community engagement processes appears to be ignored and sometimes misinterpreted.

These experiences contribute to exhaustion and cynicism about community engagement processes. If feedback appears to have minimal impact, this in turn raises questions about whether community organizations should focus their limited time and resources in these efforts.

Poor community engagement processes can undermine community trust. Respondents to one survey conducted in the CLC process shared that they believed that they were being impacted now by climate change. They shared concerns that their cities and counties will be unlivable or too expensive to live in within the next few years. But rather than engage with public planning processes that felt irrelevant to their experiences, they prioritized individual actions they could take to mitigate or adapt to climate change. For

example, attendees said they have taken to buying air conditioners and fans, or going to cooling areas, such as pools. This too is useful information for jurisdictions to consider.

Third, public participation in comprehensive planning processes should be more community-centered. Community members and leaders shared that local governments' outreach seems to vary across community demographics. There does not seem to be an equitable effort to include all stakeholders, regardless of their culture or language needs. Participants suggested that class and an intersection of identities are the root of this discrepancy and that it further harms their ability to access education or resources.

Communities that will be impacted by a particular plan or measure should have more decision-making power in what happens to their neighborhoods and how it is implemented. Communities, such as overburdened communities and vulnerable populations who bear greater systemic burdens, should have ample decision-making power to steward development in their areas. Indigenous tribes and Indigenous communities not recognized by the state or federal government should also be prioritized in decision making to empower their traditional knowledge and stewardship practices. The CLC emphasized the importance of prioritizing cultures that support the health of the environment.

Fourth, bridge short-term experiences and long-term priorities. Throughout the project, the CLC found that cities, and counties do not talk about the climate crisis in the present tense. More often, the impact of climate change is a somewhat theoretical issue. But participating organizations and leaders stressed that the climate crisis is happening now. Effectively engaging community members will require jurisdictions to both take into consideration the realities of people's lives, but it will also require them to communicate the relationship between current challenges, and how climate change may be shaping those experiences, not just in the future, but also in the present.

One of the biggest fears that came up in outreach efforts was the fear of displacement, including how climate change and climate-based disasters could force them to move from the communities they cherish. Community participants were eager to engage in discussions that considered the future in the context of present challenges facing communities.

The case for co-governance. Effective community engagement is difficult, but centering the perspectives and experiences of impacted communities can be transformational, in both shaping engagement processes, overcoming barriers, generating meaningful community input, and in building long-term support for priorities that reflect community priorities. Jurisdictions should be open to creative and novel solutions to overcome these obstacles.

Co-governance and education on the practice of co-governance should be integrated into the comprehensive planning process. Local governments should establish a commitment to the self-determination of communities, supporting communities to build their capacity to effectively participate in government processes, and in the process develop shared governing power in principles, processes, and results. Discussing weighty topics can be stressful on communities, especially when talking about policies or scenarios that directly affect a community when community members are not decision makers. Having space within communities to deliberate before interacting with government is critical. Community assemblies are one strategy to enable co-governance.

Community assemblies is a participatory democratic process that brings people together to articulate community needs with a focus on those furthest from economic well-being, assess solutions, and mobilize for action. Community assemblies bring together a group of people with a variety of life experiences that have been historically marginalized from decision making.

Evaluating Climate Measures for Justice

One of the charges of the Commerce Climate Program's budget proviso⁷⁰ was to prioritize measures for equity. There is no one way to determine if a measure itself is equitable. Jurisdictions must identify the overburdened communities and vulnerable populations in their planning jurisdictions and collaborate with those stakeholders to adequately determine if a measure would have disparate impacts. Front and Centered created the following matrix for jurisdictions and community representatives to evaluate the potential for equity for any measure and to identify necessary alterations to improve a measure through a just transition and an environmental justice lens.

[Editor's note: Each policy in Commerce's Menu of Measures is evaluated using the following criteria.]

Equity Criterion Matrix: Scale of low, medium, high (low being least potential and high being greatest potential)

- **Co-governance:** Does the measure show potential to build self-determination for frontline communities of color and/or low-income communities?

Sub-Considerations:

- Are communities' most impacted identifying their needs and solutions?
- Do they have the ability to meaningfully shape the decisions in implementation?

- **Targeted Benefits:** Is the measure clear on rights to healthy communities, and explicit in targeting interventions to communities furthest from achieving those rights?

Sub-Considerations:

- Do the goals and targets recognize our fundamental rights to healthy environments and communities?
- Do the strategies prioritize those most facing highest cumulative impacts/risk?

- **Just Responsibility (Accountability):** Does the measure show potential to directly limit harm and holding those responsible? Does it prioritize effectiveness?

Sub-Considerations:

- Is the solution directly stopping the problem? Is it making anything worse?
- Are those creating the greatest harm held most accountable?

- **Wealth Building:** Does the measure show potential to invest in and sustain local livelihoods, starting with communities with the greatest barriers to meeting their needs, through sustainable resource use and cooperative work?

Sub Consideration:

- Are we supporting production by local communities for local communities, based on a principle of using local resources and living wage labor?

Assessing Draft Climate Measures

At the previous section of this summary report, Section E: Engaging Priority Communities in the Planning Process, it describes how we gathered input on climate measures. The Community Leadership Committee

⁷⁰ A description of the full charge of the Climate Program is described at page 6, Introduction.

prepared a list of priority actions that were ranked at a statewide summit that was attended by over 100 community leaders from 60 CBOs. The Committee then finalized an order of prioritization of actions that are described in the section that follows. Staff used the Committee’s prioritization to inform the supplemental description of measures and apply the criteria listed in the prior section to each of the measures gathered by the state, both of which appear in the Menu of Measures.

Recommended Actions for Climate Justice

The sections that follow share goals, guidance, and ranking for each category. The tables show the ranking of measures, the top being those that are the most priority for environmental and climate justice from the perspective of frontline communities. To create the rankings, FC staff first aggregated and translated the measures into common themes. Then the community leaders voted for the categories and measures that most aligned with their work, communities’ needs, and overall coalition goals. Afterward, the CLC finalized the categories that are most urgent to the coalition, and the measures within those categories that are most impactful.

The top five categories of climate element measures prioritized by participants in the FC process are: Agriculture & Food Systems; Buildings & Energy; Economic Development; Health & Wellbeing; and, Cultural Resources & Practices The measures were inadequate in describing community priorities when narrowly focused on climate issues and not the broader community concerns.

The proposed climate element measures – though comprehensive in some ways – revealed major gaps that aren’t necessarily addressed elsewhere in the GMA. Community partners requested more guidance, information, and context on the implications of measures on potential local choices. For example, in the case of infrastructure choices, community members requested that measures require greater clarity regarding how infrastructure investments impact climate. They also wanted more information about infrastructure decisions, including how they are paid for.

Agriculture & Food Systems

Farmworker health and safety should be taken into consideration for any measure in this category. Workers and those living and working in close proximity to agricultural processes, are more at risk to be impacted by the pollution and health impacts created by such processes.

Agroecology, or regenerative agriculture, is the relationship between nature and farming in an effort to create farming systems that prioritize long-term sustainability and traditional knowledge over short-term gains, and healthy food systems. Jurisdictions should consider how plans can enable cities, counties, and frontline communities in the development of systems that work with nature, without pesticides or fossil fuels, and that are resilient to climate impacts. These systems should be grown by farmworker owners, and be built to sustain difficult times. They should also aim to minimize carbon per nutritional value and cultural need, be distributed locally at low or no cost, and prioritize areas with least access and facing worse health outcomes currently.

Priority Actions
Regulate agricultural pollution and eliminate pesticides.

Use agroecology, agriculture land management and livestock practices for absorbing carbon, and resilience.
Preserve land for agriculture, recreation, open space, rural/wild.
Support and create structures to shift diets away from frequent, mass-produced meat and dairy toward local healthy foods.

Buildings & Energy

Plans should contemplate how to create fully weatherized, electrified homes built to manage energy demand and resilient to climate impacts in extreme heat or cold. Improvements to residential and non-residential buildings should be secured in trusts free from displacement, landlord decision-making, or rent increases based on climate improvements. And there should be guaranteed sufficient energy for home needs without excess, regardless of ability to pay. Conserve energy to reduce demand from generation sources. Meet resources needs through distributed solar covering every built environment surface, and remove damaging energy supplies and harmful proposals such as dams, nuclear, and other resources that cause other ecological or social harm. Consider how the plan can articulate these goals and support implementation with the measures without creating burdensome transition costs on consumers, especially low-income consumers.

Participants expressed curiosity and need for information on what it would mean or look like to transition away from fossil fuels and GHG emissions on the economy, on lifestyles, and on communities. Jurisdictions should prioritize energy conservation and then solar and renewable energy in communities where it's used to create more jobs and require these systems be sourced from lowest-impact materials. Additionally, this cost should not fall on the consumers, especially those who may already face economic disadvantages.

Jurisdictions should consider what hurdles renters may face in advocating with landlords or property owners to assist transition on residential buildings. Renters may fear retaliation from landlords or property owners for participating in jurisdictions' planning process. Jurisdictions should consider how renters can give feedback in ways that do not put them in jeopardy of retaliatory actions; feedback methods could include using anonymous surveys and caucusing at meetings so different audiences can share feedback in safe spaces.

Priority Actions
Buildings
Preserve people's ability to stay in their community and prevent displacement from gentrification and hazards exacerbated by climate change.
Design, build, change buildings for energy conservation, solar, and to withstand climate impacts.
Maximize use of existing buildings.

Provide energy assistance and prevent shut-offs based on income.
Phase out fossil fuels from heating and appliances and convert to high-efficiency electric.
Support conversion from "natural" gas (methane-producing) energy source.
Generation
Support the transition to renewable energy sources that can weather climate impacts.
Build solar energy in communities where it's used, avoid long transmission.
Create energy limits that cap high energy users where feasible and require use of renewable sources where high energy use is unavoidable.

Economy & Finance

Plans should enable a future where cities and counties have small community-owned and producer/consumer cooperative businesses that meet most local needs without the risks of dependence on the global supply chain. They should also reimagine plans to create local economies that prioritize businesses, especially those that reduce the racial wealth gap, provide livable wages, and phase out industries that harm human and environmental health while providing support and just transition for workers.

Comprehensive plans should reflect these needs and integrate frontline communities' vision into each element. Jurisdictions should avoid strategies that prevent bonuses for large businesses that are not environmentally friendly. Instead, they should prioritize support to essential businesses that are independently and locally owned, and serving local communities. Workers' well-being, both in and out of the workplace, should also be prioritized.

Priority Actions
Identify and enact social safety nets around housing and poverty that reduce economic inequalities to provide resilience to climate impacts.
Support essential local-serving, independently owned businesses' ability to operate through climate impacts.
Expand worker control and ownership and better distribute work opportunities and support locally owned businesses.
Support workforce to transition from climate-impacted jobs.

Using zoning and permit authority, limit siting of industries that pollute and do not provide incentives for expansion.

Cultural Resources & Practices

Jurisdictions should seek guidance from leaders indigenous to the land, inform and consult with tribal nations on issues affecting tribes and tribal lands, and seek wisdom of traditional cultural practices. This work must include perspectives from immigrant and refugee communities and those closest to the land.

Cultural and resource lands should be made into public trust or tribal stewardship. Jurisdictions should recognize and celebrate traditional practices and relationships between human cultures and ecologies. Indigenous populations should have access to natural lands and waters without substantial harm from polluting entities or interruption from jurisdictions.

Priority Actions

Preserve culturally important sites and foods from climate impacts.

Recognize and incorporate cultural forms of conservation and adaptation.

Establish Legal Rights of Nature for protection of natural resources whether ascribed value is attached.

Ecosystems

Plans should prioritize identification of frontline communities that lack ecosystems (forests, wetlands, and eelgrass meadows) that capture carbon in/or near them. This information should be met with provisions for public access to restored lands such as former Superfund sites. Jurisdictions should prioritize ecological restoration and equity that buffers climate impacts (including sea level rise, flooding, and extreme heat) in frontline communities.

Priority Actions

Build resilience to climate through ecological solutions, such as trees that prevent erosion and other co-benefits.

Use land and plants to absorb carbon pollution — and restore wetland, forest, and seagrass ecosystems and prioritize this work in frontline communities.

Emergency Management

Plans should contemplate how residents and workers can be fully prepared and informed about relevant cultural and language information and response systems for emergencies in their jurisdictions. Community-based organizations (CBOs) should be integral in the planning of resilience hubs, and building emergency plans for their local areas. An example of this would be collaboration between CBOs and emergency service providers so that there can be more efficient rescue and assistance in times of need.

There should be a prioritization of households and vulnerable communities with least mobility and information to receive support before, during, and after emergencies. BIPOC (Black, Indigenous, People of Color) and low-income communities often suffer the worst in emergencies, because they do not receive assistance first and do not have the same infrastructure as more affluent communities or those with more political and societal power. Jurisdictions should account for this by eliminating disparities in infrastructure and information and by working with community-based organizations in these neighborhoods.

Priority Actions
Create places in a community to go to in emergencies such as for shelter and resources when there is a natural disaster.
Provide government/first responder training, coordination to better prepare for natural disasters and to ensure that emergency response is equitable.

Materials & Waste Management

Reducing material waste requires a cultural shift by addressing consumer culture and power of marketers and creation of need. Both consumer and producer waste reduction requires better product standards for durability and producer responsibility and creating shared-use models rather than private or individual ownership.

Plans should build on practices of Indigenous communities and traditional knowledge of immigrant and refugee communities. These can have many benefits such as the conservation of natural and built materials. Jurisdictions should also create plans that require reductions in material inputs and waste starting with wealthiest and most prolific.

Additionally, jurisdictions should also support entrepreneurs in a circular economy and provide public infrastructure for reuse. There should be plans to provide education targeted to overburdened communities and vulnerable populations for this. There should also be emphasis on circular production methods and bans on hazardous materials with research into alternatives that maintain accessible use.

Priority Actions
Reduce, reuse, and recycle materials and waste.
Reduce and limit material consumption and shift toward craft economies.

Governance & Health

Achieving equitable co-governance of frontline communities with government sector agencies can embed a worldview of care and sacredness over consumerism and shift to deeper participation.

Co-governance requires a commitment to the self-determination of communities, supporting communities to build their capacity to effectively participate (in government processes), developing shared governing power in principles and in process, Demonstrating equitable processes and results. Jurisdictions should adopt

provisions of the HEAL Act [referenced in Section 2] and develop equitable community engagement plans, environmental justice implementation plans, and integrate environmental justice into budgeting and spending, and conduct environmental justice assessments of major regulations and ordinances, capital projects, and other decisions.

Priority Actions
Advance community control of land and resources, to include participatory budgeting of public funds.
Create pathways for communities who are most impacted to shape decisions that affect them.
Advance environmental justice by prioritizing health first, assuming risk prior to action, and targeting solutions to the most impacted.
Prevent privatization and fencing-off of common spaces.
Build community capacity for climate and Environmental Justice.

Transportation

There should be reliable, accessible, and frequent public transportation that contemplates local use as well as cross-city and county use. Sidewalks, crosswalks, and bike paths should be commonplace and have a set quality standard such that anyone can use them without fear of injury or immobility.

Consider both cultural and practical implications of transportation projects. For example, electric vehicle (EV) chargers may signify displacement and harm to some communities or lack of chargers can mean exclusion for others – particularly in multifamily buildings. Measures that create limits or disincentives to driving or driving alone should require a diagnosis of who may be unfairly impacted by such plans. Telework may not be applicable or equitable based on other factors such as living space or internet access. Further, public transportation is not ideal for, workers with night shifts or with families. These populations may be negatively impacted by plans and policies that over prioritize carbon minimal options such as telework. Likewise, improving public transit service so that there is accessible transportation at all times of day would support non-drivers.

Priority Actions
Make it easier to not need a car by designing walkable neighborhoods and providing affordable public transportation.
Reduce fossil fuel vehicle miles by switching to electric and create EV charging stations near residences.

Create limits or disincentives to driving, or driving alone.
--

Water Resources

Plans should aim for jurisdictions where there is safe, accessible, and adequate drinking water for every household. Waters should also be clean for marine habitats. This can be achieved through intensive conservation, demand management, publicizing water rights, and thriving saltwater ecologies.

Plans should be attentive to local contexts and communities affected by interventions. These impacts may displace communities and/or make their lives substantially harder. Jurisdictions should contemplate how water resources can be maintained and improved without a disproportionate impact on any community – but especially frontline communities.

Priority Actions
Change water rights, from private into public trust.
Protect water from pollution by holding the polluting industry accountable.
Ensure water systems can withstand climate impacts.
Plan and fund water systems for droughts and to reduce water consumption.
Use reclaimed water.

Zoning & Development

Plans should have zoning and development built into land trusts for common use and removed from speculative markets that create perverse outcomes for communities and climate outcomes. Plans and policies should prioritize public mobility and space over roads. This will build connections for community resilience and reduce auto-dependency.

Priority Actions
Prevent climate-risky development; avoid hazardous areas, use climate appropriate design to reduce emissions, improve resilience, and be relocation ready.
Build dense, affordable communities around public transportation.
Create and preserve open space, tree and green space, restore green infrastructure.
Build low-impact developments that are solar-ready.

Plan for people to move and migrate.
Create climate and pollution safe areas.

Conclusion

How local governments approach climate change — and the pollution that is causing it — in their planning processes is a critical issue for all Washington residents. Through the Uplift Communities Project, Front and Centered was asked to provide a model and best practices for centering equity. It is only through centering vulnerable communities and the principles of Just Transition that jurisdictions engaged in comprehensive planning can effectively mitigate the impact of climate change and adapt to its impacts. There are tools available to jurisdictions and communities to meet the challenges facing our climate and our communities [see *Section 2*].

We offer these approaches as a model for innovating the comprehensive planning process, but more innovation is possible if jurisdictions center the needs, experience, and aspirations of impacted communities in their important work.

B. Climate Element Workbook

[See Commerce Dashboard](#)

C. Best Practices for Integrating Climate into Hazard Mitigation Plan

Hazard mitigation planning is the foundation of community resilience, FEMA explains, because it encourages the development of a long-term mitigation strategy.⁷¹ The planning process spurs local jurisdictions to identify risks that hazards pose for assets and to develop policies before a disaster occurs. This potentially lessens the impacts to people and property and makes it easier to recover from hazard events.

Local governments must prepare a natural hazard mitigation plan (hazard mitigation plan) and update it every five years to be eligible for certain types of non-emergency disaster assistance, including grants to mitigate floods.⁷² Such plans must undergo review by the Washington Military Department's Emergency Management Division and the Federal Emergency Management Agency (FEMA). FEMA will grant approval of a hazard mitigation plan if it meets minimum federal requirements. Once approved, the hazard mitigation plan provides eligibility for certain FEMA grants. The state of Washington also has a hazard mitigation plan, and that document could be a resource for local jurisdictions.

"Acknowledging the risk of future incidents builds a risk-conscious culture that enables community leaders to routinely and systematically evaluate a wide variety of threats and hazards. However, future conditions are not necessarily reflective of past conditions, requiring a consideration of science-based data and expertise to help inform decisions. Community leaders can then prioritize strategies, resources, and efforts using a well-informed comprehensive approach to preparedness."

— FEMA, [National GHG reduction Framework](#)

FEMA Planning Framework for Hazard Mitigation Plans

While there is no required format for a hazard mitigation plan, federal regulations require that it include:⁷³

- Documentation of the planning process, which must include an opportunity for the public to comment on the plan during the drafting stage and prior to final approval;
- A risk assessment that provides the factual basis for activities proposed to reduce losses from hazards that can affect the jurisdiction. The assessment must describe the type, location, and extent of all natural hazards that can affect the jurisdiction, as well as include information regarding previous occurrences of hazard events and the probability of future hazard events;
- A mitigation strategy that provides the jurisdiction's blueprint — action plan — for reducing potential losses identified in the risk assessment;
- A plan maintenance process that includes: the method and schedule for updating the plan within a five-year cycle; a discussion of how the jurisdiction will be engaged in the plan's maintenance; a process by which local governments incorporate the plan's requirements into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate; and, documentation that the mitigation plan has been formally adopted.

FEMA Requirements for Assessing Climate in Hazard Mitigation Plans

Climate change affects the characteristics of hazards and severity of impacts. For example, rising sea levels associated with warmer temperatures and melting polar ice raise the risk of coastal flooding in Puget Sound jurisdictions and increase the vulnerability of low-lying roads and buildings (assets) to impacts.

⁷¹ FEMA circular (2017), [Planning For a Resilient Jurisdiction: A 4-Hour Workshop For Planners](#)

⁷² FEMA website (2022), [Hazard GHG reduction Plan Regulations & Guidance](#)

⁷³ [Title 44 Code of Federal Regulations \(CFR\) §201.6](#)

As of April 2023, FEMA requires that all updated local hazard mitigation plans' risk assessments must include the effects of future conditions, including population, land use, development, and climate change. Section 4 of the FEMA's [Local Mitigation Planning Policy Guide](#) (Policy Guide) specifies FEMA's requirements (elements) for climate assessment, equity inclusion, policy prioritization (needs to consider costs, etc.), and plan implementation, which can include integrating policies into a comprehensive plan. FEMA's companion [Local Mitigation Planning Handbook](#) helps local governments meet the Policy Guide's requirements and provides useful approaches to reducing vulnerabilities and long-term risk from natural hazards and disasters. FEMA's [Climate Adaption Planning Guidance](#) for Emergency Managers can help local emergency managers incorporate climate adaptation into emergency management planning efforts.

To help Washington's cities and counties with this work, FEMA conducted a crosswalk of its Policy Guide with Commerce's climate resilience sub-element planning guidance [see *Appendix D*]. Commerce also summarized below HB 1181's requirements for integrating an updated hazard mitigation plan into a comprehensive plan.

Integrating a Hazard Mitigation Plan into a Comprehensive Plan

A city or county's comprehensive plan may adopt by reference ⁷⁴ a local hazard mitigation plan that is guided by the new GMA climate and resiliency goal, prioritizes actions that benefit overburdened communities, and complies with the applicable requirements of RCW, Chapter 47.80. If the jurisdiction's hazard mitigation plan adequately addresses the climate resilience sub-element as specified in HB 1181 ([Chapter 228, Laws of 2023](#)), then it is compliant with meeting the requirement.

If the jurisdiction's hazard mitigation plan inadequately address HB 1181's climate resilience sub-element requirements [See *HB 1181, pg. 18*], then the city or county must supplement the hazard mitigation plan with additional goals and policies in its comprehensive plan [See *planning guidance's Section 3 for how to do this*].

Commerce may grant a time extension to a city or county that intends to adopt by reference a hazard mitigation plan that does not comply with the climate resilience sub-element requirements. HB 1181 stipulates the following:

- Eligibility for an extension prior to July 1, 2027, is limited to a city or county required to review and, if needed, revise its comprehensive plan on or before June 30, 2025, as provided in RCW 36.70A.130, or for a city or county with an existing, unexpired hazard mitigation plan scheduled to expire before Dec. 31, 2024.
- Extension requests after July 1, 2027, may be granted if requirements for the resilience sub-element are amended or added by the Washington Legislature or if Commerce finds other circumstances that may result in a potential finding of noncompliance with a jurisdiction's existing and approved hazard mitigation plan.
- A city or county that wishes to request an extension of time must submit a request in writing to Commerce no later than the date on which the city or county is required to review and, if needed, revise its comprehensive plan, as provided in RCW 36.70A.130.
- Upon the submission of such a request to Commerce, the city or county may have an additional 48 months from the date provided in RCW 36.70A.130 in which to either adopt by reference an updated hazard mitigation plan or adopt its own hazard mitigation plan, and to then submit that plan to Commerce.

⁷⁴ See pg. 18 of HB 1181

- The adoption of ordinances, amendments to comprehensive plans and development regulations, and other non-project actions taken by a city or county are not subject to administrative or judicial appeal under Chapter 43.21C RCW.

D. Crosswalk Comparison of FEMA and Commerce Guidance

([See Commerce Dashboard](#))

E. Climate Change Resources

([See Commerce Dashboard](#))

F. Sample RFP for Greenhouse Gas Inventory

Greenhouse Gas Emissions Inventory Request for Proposals (RFP)

Project Title: Greenhouse Gas Emissions Inventory

Proposals Due: X:XX PM MO/DD/YYYY

_____ is requesting proposals from qualified consultants to develop a baseline greenhouse gas emissions inventory (GHG Inventory) for _____.

Proposals should include:

- General statement of the Consultant's understanding of the scope of services;
- Project team, including proposed sub-consultants;
- Project team's experience in GHG inventories and related tasks;
- Experience of the proposed project manager education and individuals who will be working on the project;
- Proposed task list and level of effort for each task;
- Schedule for completing the project;
- Description of the Consultant's approach to managing and completing the project;
- Description of the Consultant's approach to communicating with the client(s).

Submission Instructions:

- The City will only accept proposals in _____ format. Submit the proposal to: email@city.gov
- Proposals must be presented as a single, combined file that contains all proposal materials and any supporting documents.
- Proposals are due no later than _____. Late proposals will not be accepted. Applicants are solely responsible for ensuring that proposals are submitted and received on time. Applicants will receive an email acknowledging _____'s receipt of their proposal.
- Questions related to this RFP should be submitted via email to: email@city.gov.

Any firm failing to submit information in accordance with the procedures set forth in the Request for Proposals may not be considered responsive and may therefore be subject to disqualification.

Introduction

_____ is seeking a consultant or team of consultants ("Consultant") to conduct a GHG inventory. This Request for Proposals ("RFP") outlines the information necessary to understand the Consultant selection process and the required documentation a Consultant must submit. After reviewing this RFP, any Consultant that determines it has the necessary expertise and experience and could successfully perform the required services may submit its Submittal, addressing the items set forth herein. A general overview of the selection process is as follows:

1.1. Submittals shall be emailed to _____ no later than X:XX on MM/DD/YYYY, after which time they will be reviewed and evaluated. The Submittal shall be emailed to: email@city.gov

1.2 _____ may, at its option, contact a Consultant and ask clarifying questions concerning the Consultant's Submittal.

1.3 _____ may conduct interviews with consultants qualifying as finalists.

The purpose of this RFP is to obtain a qualified Consultant to provide professional services to develop a baseline GHG inventory for _____ [and/or] community emissions. A preliminary scope of services is provided as follows.

Project background

2.1 Scope of Services

_____ is seeking technical assistance in developing a baseline GHG inventory for _____ [and/or] community emissions.

2.2 Background

[Insert text describing your jurisdiction's goals for reducing greenhouse gas emissions, the role of the inventory in supporting those goals including tracking GHG emissions on an ongoing basis. Also describe the Scope of the GHG inventory requested, including whether it addresses both jurisdictional operations and community activities, or is limited to one or the other. If desired, add additional context: as to how this fits into your jurisdictional planning process, if there are advisory committees or task forces engaged to provide review of this inventory, and how your jurisdiction will work with the consultant in terms of providing data for the GHG inventory.]

2.3 Scope of Work

_____ is seeking a consultant or team of consultants ("Consultant") to conduct a GHG inventory. The GHG inventory project will consist principally of [insert number] main tasks; Consultant and _____ responsibilities for these tasks are described below. In their proposals, Consultants are encouraged to provide a detailed technical and project management approach that incorporates and expands on these tasks.

Define Methods

The GHG inventory shall be developed in accordance with [protocol of your choosing or you may ask the consultant to define, for example, the ICLEI US Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions (Community Protocol)]. _____ seeks a GHG inventory that is transparent, replicable year-over-year, and allows for future benchmarking to regional and other municipal inventories. Components of the GHG inventory that will be defined include, but are not limited, to:

- Selection of the base year;
- Confirmation of data sources, calculation methods, emissions factors, context data, and analytical tools; and
- Confirmation of categories for GHG tracking and reporting, including emission sources and activities that will be included and excluded. GHG emissions should be reported for major sectors (for example, residential, commercial, industrial, transportation, waste).

[Define the scopes or types of emissions to be included (for example, jurisdictional, community, or both)]

In consultation with _____, the Consultant will recommend a process for selecting which GHG emissions sources and activities to include in the GHG inventory beyond the five "Basic Emissions Generating Activities" prescribed by the Community Protocol. Additional components may include:

- Emissions from community air travel;
- Communitywide consumption-based emissions (including upstream GHG emissions associated with consumption of household goods, food, and services);
- Net emissions and/or sequestration from agriculture, forestry, and other land use activities.
- The Consultant should propose options (for example, identify possible methods and data sources) for including these components in the inventory, along with estimated time and cost associated with such options.

Data Collection

The Consultant will collect data necessary for developing the GHG inventory. _____ will review the Consultant's data needs and provide assistance in locating data owned by _____. The Consultant will lead collection of data from utilities and other entities; _____ will assist where possible. The Consultant will identify and review any energy and/or GHG analysis conducted by entities that have a footprint in _____. _____ is open to considering the Consultant's use of innovative data collection approaches for community sectors, such as crowdsourcing or surveys, including for consumption-based emissions estimates.

Data Analysis

Based on the agreed upon methodology, the Consultant will calculate baseline energy usage and emissions for [municipal operations and/or the community]. Analysis must be done using non-proprietary methods and all assumptions, calculations, data sources, and key contacts must be made available to _____ at a minimum, the analysis will calculate emissions in each municipal operations and community category as well as combined emissions.

GHG Emissions Report

In consultation with _____, Consultant will recommend frameworks for presenting and reporting GHG emissions data in accordance with [Insert the Protocol you wish the consultant to follow, if you have a preference]. The Consultant will prepare a report that textually and graphically presents the GHG inventory and identifies emissions over which _____ may have significant influence [as well as additional communitywide emissions]. When possible, _____ will provide content, such as photographs and quotations. The report will identify top-priority sources of GHG emissions for which reduction strategies could be developed in later phases of _____'s climate change planning process.

Training and Tracking

In addition to providing base year GHG emissions, this effort is intended to supply _____ with the means to update the GHG inventory on an ongoing basis. The Consultant will provide _____ with the information and materials necessary to replicate the GHG emissions calculations used for the base year GHG inventory, track progress, and generate reports. The Consultant will provide _____ with an electronic version of the base year analysis. The Consultant will hold training sessions (no less than [insert number]) for _____ staff to learn how to update the inventory.

Project Management

_____ [or the Office of ____] will oversee the work of the Consultant. [The Sustainability Task Force will serve in an advisory capacity, as its members are charged with providing advice and/or

recommendations to the city council or city staff, as appropriate, related to the City's GHG emission reduction targets]. During the project, the Consultant will be available for XX meetings to provide project status updates to and answer questions from _____ [and the Sustainability Task Force].

2.4 Specifications and Requirements

A. Consultant Capabilities

_____ is seeking a Consultant who has experience conducting similar GHG analyses for other municipalities. Consideration will be given to the Consultant's ability to demonstrate knowledge transfer to municipal clients in terms of their success in updating initial GHG inventories. _____ is seeking to capitalize on our community's great interest in climate by engaging stakeholders with a thoughtful, creative, and understandable GHG emissions report. The Consultant should be capable of producing both sound analysis and high-quality reporting materials. The scope of services for this RFP does not include the development of GHG reduction strategies, as this will be a principal activity in the upcoming climate change planning process; however, Consultants with experience in GHG reduction strategy are encouraged to demonstrate in their proposals how their approach to the baseline inventory and projections may provide advantages in future phases of the climate change planning process.

B. Existing Data

_____ will provide the Consultant with reports and data, including the following:

[Insert a list of the data sources expect to be made available for consultants. This could include things such as municipally owned vehicles and their fuel consumption, jurisdictional buildings and their square footage, and relevant land use and zoning data that might be relevant for a community-scale inventory]

3. PROCUREMENT PROCESS

General information: [Insert jurisdiction's legal requirements and expectations regarding costs borne by consultants, public disclosure, and other processes set by the contracting jurisdiction]

4. Schedule

Anticipated schedule. The selection process is anticipated to proceed as follows and is subject to change: [Insert your schedule for submittal review, interviews if necessary, and final selection]

Notification. _____ will notify appropriate firms of changes in RFP and Notice of Selection

Addenda. [Insert a description of the process for informing consultants of changes to the RFP]

Negotiations [Insert the process for negotiating cost and pricing, billing process, and establishment of the SOW and project schedule]

Cost and Pricing Data [Insert requested information related to Consultant firm's salaries, overhead, markups and billing rates]

Insurance requirements of the selected Consultant [Insert insurance requirements]]

5. Evaluation and Selection Criteria

[Insert the jurisdiction's process for evaluating and interviewing applicants]

6. Documentation

[Insert the jurisdiction's requirements regarding the format, length, and components of the application required, including the letter of interest and statement of qualifications]

APPENDIX: AGREEMENT FOR PROFESSIONAL SERVICES

[Insert the jurisdiction's agreement language here, including insurance requirements]

G. Summary Report: Climate Resilience Pilot Program

(Prepared by Cascadia Consulting Group Inc. on April 28, 2023)

Executive Summary

Project Background

The Washington Department of Commerce (Commerce) contracted with Cascadia Consulting Group (Cascadia) and BERK Consulting (BERK) to test and evaluate the resilience sub-element guidance through a climate pilot program (pilot program). The pilot program was designed to guide three jurisdictions — Port Angeles, Pullman, and Woodland — through the resilience guidance to demonstrate proof-of-concept and identify ways to improve the resilience guidance and its companion tools. The consultant team used findings and key takeaways of the pilot program to develop recommendations for improving the usability and effectiveness of the resilience guidance and its companion tools, as well as the overall process of resilience sub-element integration. Commerce subsequently added bracketed and italicized "Editor's notes" throughout this summary report to indicate how the state agency addressed the consultant team's recommendations in the final climate element planning guidance published in 2023.

Evaluation Approach

The pilot program team (project team) — which consisted of Commerce, Cascadia, and BERK — developed and administered pre-pilot and post-pilot program surveys to each of the pilot jurisdictions to capture feedback about the usability of the resilience guidance and understand how each jurisdiction's capacity and staffing constraints impacted their ability to integrate the resilience sub-element during the pilot program. Following the pilot program, the project team conducted semi-structured interviews with each jurisdiction to dive deeper into survey responses and learn more about their reflections on the process and recommendations to improve the resilience guidance. The project team also utilized regular team check-in notes documenting real-time modifications for each jurisdiction's needs and lessons learned throughout the course of the pilot program to inform evaluation findings.

Key Takeaways

The project team identified a few key areas for improvements to the step-by-step resilience guidance and resilience sub-element integration process:

- Overall, the resilience guidance and its companion tools were clear, accessible, and user-friendly.
 - The resilience guidance workbook would benefit from inclusion of real pilot program examples throughout the step-specific tabs. [*Editor's note: Commerce integrated pilot city examples into the workbook to show other jurisdictions how they could complete guidance tasks and fill in workbook tables.*]
- Jurisdictions should supplement county-level climate impact data collected via the University of Washington Climate Impacts Group's (CIG) web-based companion tool (webtool) with more granular, localized climate data. [*Editor's note: Commerce revised Section 3, Task 1.2 of the planning guidance, instructing jurisdictions to start by reading summarized climate information from statewide or regional reports (linked above) and their local hazard mitigation plan to understand assets' current exposure and vulnerability. In addition to linking to UW CIG's how-to guide for using its CMRW webtool, this revised task links to other resources with localized climate data.*]

- The model climate element should include a foundational project planning framework that includes an organizational assessment and instructions and templates for developing a project team and process, with suggested interim goals and timeframe considerations. *[Editor's note: Commerce revised the planning guidance to have a standalone section (Section 2) that instructs jurisdictions how to form a project team and planning process for developing and adopting a climate element over roughly 18-24 months. The companion workbook (Tasks 2.1 and 2.2) provides template tables for listing project team members and community stakeholders.]*
- Integrating the resilience sub-element into comprehensive planning would be significantly more difficult for jurisdictions, if not impossible, without additional capacity and/or climate expertise and support. This is particularly the case for smaller, capacity-constrained jurisdictions, as well as jurisdictions that do not have a robust history of climate planning or are in the early stages of that process. *[Editor's note: Commerce revised Section 3, Task 2.2 to better explain the tradeoffs of pursuing each of the planning and policy-development pathways, factoring in time, budget, and staff capacity. We underscore that a jurisdiction may want to seek outside funding and technical assistance (for example, from a consultant) to complete a vulnerability and risk assessment.]*
- Commerce should consider additional support mechanisms for providing technical support to smaller, capacity-constrained jurisdictions, including development of training webinars and workshops, hotline support, and additional grant funding opportunities that allow for additional technical assistance. *[Editor's note: This recommendation validates the purpose of the pilot program and supports Commerce's plans for providing future assistance, including grants and technical assistance.]*
- Additional resources that would be useful for successful resilience sub-element integration include:
 - Climate change and impact factsheets that are clear and accessible to the public and lay persons to increase community awareness, buy-in, and understanding around value and need for climate consideration integration into city and countywide planning processes. *[Editor's note: In the full planning guidance and its companion online resources list, we link to such information (for example, Commerce and MRSC climate planning portals, APA climate planning guides). This recommendation also supports Commerce's plans for providing future assistance to local jurisdictions.]*
- Recorded tutorials that demonstrate the use of the resilience guidance, web-based companion tool, and workbook. *[Editor's note: This recommendation echoes feedback we've received from Front and Centered. As Commerce and its partners (for example, UW CIG, MRSC) develop print and video tools, we will integrate them into this document's companion Resources list.]*

Pilot Program Overview and Goals

To test the integration of the resilience sub-element into comprehensive planning, Commerce contracted with Cascadia and BERK to evaluate the usability and effectiveness of its resilience guidance and companion tools and resources. Commerce and the consultant team strategically selected three pilot jurisdictions — Port Angeles, Pullman, and Woodland — to help demonstrate and evaluate the resilience guidance and process.

The resilience guidance and companion tools are designed to help jurisdictions identify and address natural hazards exacerbated by climate change, including floods, droughts, wildfires, and other impacts stemming from relevant climate change drivers (for example, changes to temperature, precipitation, and sea levels)

through policy and goal development. The companion tools include a county-level webtool⁷⁵ to help identify expected changes in the climate and related natural hazards, as well as the Climate Element Workbook (workbook) designed to help jurisdictions track and document findings and key decisions throughout the process.

The evaluation approach, objectives, and results are discussed in the subsequent sections of the report.

Pilot Jurisdiction Recruitment

The recruitment phase of the pilot program occurred in August and September of 2022. To select three Washington jurisdictions for the pilot program, cities were initially evaluated against a set of individual criteria. Individual criteria and rationale are presented in Table 1.

Table 1. Individual criteria for pilot jurisdiction selection

Criteria	Rationale
Not located within the ten most populous counties.	Evaluate ability of smaller, potentially resource-constrained jurisdictions to integrate the resilience sub-element
Comprehensive plan update deadline is near-term.	Prioritize support for jurisdictions with upcoming deadlines
Planning staff capacity is moderate or high.	Ensure sufficient capacity to effectively participate in the pilot program

Those jurisdictions that passed the initial set of criteria were then evaluated against a second set of group criteria. The project team selected group criteria to ensure pilot jurisdictions are geographically and demographically varied, with:

- Varied population representation of vulnerable groups including Black, Indigenous, and people of color (BIPOC) and low-income communities, elderly persons, and those with chronic health conditions or disabilities.
- Diversity of climate impacts and exposures including wildfire risk, sea level rise and coastal flooding, riverine flooding, extreme heat and drought, and/or reduced snowpack and streamflow.

The project team used an Excel database to evaluate a total of 40 qualifying jurisdictions based on the selection criteria and arrive at five top-ranked jurisdictions. After inquiring with planning department leads, two of the top-ranked jurisdictions declined to participate due to limited staff capacity. The City of Port Angeles, City of Pullman, and City of Woodland elected to participate in the pilot program.

Table 2 illustrates selection criteria for each of the three jurisdictions. To learn more about the selection and recruitment process, refer to Jurisdiction Selection Memo found in the "Pilot Project Materials" section of the report.

75 See University of Washington Climate Impacts Group’s web-based companion tool, Climate Mapping For A Resilient Washington, available: <https://cig-wa-climate.nkn.uidaho.edu/>.

Table 2: Key criteria for selecting the three pilot jurisdictions

Pilot Jurisdiction Selection Criteria	Pullman	Port Angeles	Woodland
Population	32,827	20,134	6,540
Comprehensive plan periodic review deadline	2027	2025	2026
County	Whitman County	Clallam County	Cowlitz County
Geographic region	Southeast	Northwest	Southwest
Demographic notes ⁷⁶	Mid-size jurisdiction, 33.6% poverty rate, 29.3% people of color	Mid-size jurisdiction, 11.5% poverty rate, 18.6% people of color	Small-mid-size, 7.4% poverty rate, 27.5% people of color
Potential climate impacts and vulnerabilities	Riverine flooding, wildfires and smoke, extreme heat	Sea level rise, wildfire smoke, extreme heat, water scarcity	Wildfires and smoke, extreme heat, water scarcity, riverine flooding

Pilot Program Process

In October of 2022, the project team began the resilience guidance implementation phase of the pilot program by holding project kick-off meetings with each of the three pilot jurisdictions. Key objectives of the kick-off meetings were as follows:

- Share overview and goals of the pilot program.
- Clarify jurisdiction roles in participating in the pilot program.
- Review steps in the resilience guidance and develop planning process for the pilot program.

Throughout the course of the resilience guidance implementation phase of the pilot project (October 2022 - February 2023), the project team worked with pilot jurisdictions to implement each step of the resilience guidance. The project team utilized the companion workbook to guide the implementation of each step. Each step and associated tasks of the resilience guidance have a corresponding tab with instructions and templates for capturing findings and decisions.

Table 3 gives an overview of the overall pilot program timeline, including timing of each resilience guidance step and a description of how it was implemented.

⁷⁶ US Census Bureau Quick Facts 2021

Table 3: Description and timeline of implementation for each step of resilience guidance

Steps	Timeline	Description of step implementation
Step 1: Develop planning process	October 2022	Step 1 guided the setup of the resilience guidance pilot process. Each jurisdiction selected up to two staff leads to partner with the project team in pilot program participation. The jurisdiction co-leads and project team established a program timeline, communication platforms, and bi-weekly check-ins meetings. The project team managed the project timeline, led agenda development, and provided meeting notes with actions items for each check-in. With project team guidance, jurisdiction co-leads developed goals and guiding principles to help define pilot project outcomes.
Step 2: Explore climate impacts	November-December 2022	Step 2 provided the pilot cities with time to explore anticipated changes in the climate and associated hazards by utilizing CIG's webtool for each jurisdiction at the county-level scale. The project team reviewed trends under the high emissions scenario for the early, mid, and late century and used their climate expertise to interpret the climate projections and findings. Jurisdiction co-leads helped contextualize climate impacts for their local jurisdictions, in terms of on-the-ground environmental conditions, lived experience of staff and community members regarding hazard and climate events, and prior planning efforts to address those impacts.
Step 3: Audit plans and policies	November-December 2022	Step 3 was used to identify existing plans with climate resilience goals and policies from each jurisdiction and determine whether to pursue a risk and vulnerability assessment (RVA) in step 4. The project team led the existing plan audit, with jurisdiction co-leads reviewing the audit results for gaps. Due to the ambitious timeline pursued for the purpose of this pilot, the consultant team and pilot jurisdictions were unable to seek additional funding and partners or develop a robust engagement strategy.
Step 4: Assess vulnerability and risk	December 2022 - January 2023	Jurisdictions that decided to pursue a vulnerability and risk assessment (VRA) in Step 3 focused on one climate hazard and a set of critical assets impacted by that hazard. Commerce, with support from the consultant team, led the VRAs by helping jurisdictional staff members characterize and assess the sensitivity, adaptive capacity, vulnerability, and risk of each asset-hazard pair. The VRA helped the jurisdictions to identify assets with the highest relative risks and to tailor climate policies for their comprehensive plan.
Step 5: Choose pathway to adapt and/or adopt goals and policies	January - February 2023	Step 5 was used to develop draft goals and policies for integration into comprehensive plans. Each jurisdiction's process differed depending on their history of climate planning and whether they had existing policies that address climate priorities. Overall, all three chose to integrate some existing policies from other city planning efforts and adopt policies from Commerce's Menu of Measures. The project team compiled a draft list of goals and policies and cross-walked each policy for potential co-benefits, such as air quality improvement, emissions reductions, and equity benefits. Jurisdiction co-leads reviewed and edited draft goals and policies. The project team assisted co-leads in presenting draft goals and policies forward to Planning Commissions and the public for initial feedback.

Steps	Timeline	Description of step implementation
Step 6: Integrate goals and policies	February 2023	In the final step, the project team integrated feedback from each jurisdiction's Planning Commission to revise draft goals and policies. Once finalized, each jurisdiction will decide where it intends to integrate its climate resilience goals and policies in its comprehensive plan. Based on City Council direction, each jurisdiction may choose to list all of its climate element goals and policies into one climate chapter or may choose to integrate them into several chapters/elements (Land Use, Housing, Transportation, etc.).

Pilot Program Evaluation Approach

Using the following objectives to guide evaluation, the project team assessed jurisdictions before, after, and throughout the course of the pilot program:

- Evaluation Objective 1: Demonstrate integration of the resilience sub-element into comprehensive plans within three small-medium sized cities that represent a diversity of climate, geographical, and planning contexts.
- Evaluation Objective 2: Improve the usability and effectiveness of the six steps of the resilience guidance.
- Evaluation Objective 3: Understand the impact (if any) of the pilot program process and project team support on improving the ability of the pilot cities to integrate climate into comprehensive planning.

The findings and key takeaways gleaned from assessment of objective outcomes were used to prepare recommendations to improve the (1) resilience guidance and its associated companion tools, and (2) the overall process for integrating the resilience sub-element into comprehensive planning.

Evaluation Sources

The project team elicited input and reflections from the jurisdiction co-leads during the initial stages of the pilot program, throughout each step of the resilience guidance implementation, and at the end of the pilot program. Feedback from jurisdictions was captured through the following efforts:

- Pre-pilot and post-pilot program survey administered to jurisdiction co-leads in the early stages of the pilot program (November 2022) and at the close of the pilot program (February-March 2023).
 - The objectives of the surveys were to (1) elicit feedback on usability of the resilience guidance and associated tools and opportunities for improvement and (2) understand the expertise and capacity of each jurisdiction to implement the resilience guidance.
- Bi-weekly check-ins throughout the pilot program with jurisdiction co-leads.
 - The consultant team took detailed check-in notes, flagging real-time process modifications for jurisdiction needs and ad-hoc input for future refinements.
- Semi-structured interviews with jurisdiction co-leads at program close-out (March 2023).
 - The objective of the interviews was to unpack post-pilot results through supplemental questions to better understand survey responses.

In addition to pilot jurisdiction feedback, the project team relied on detailed notes and reflections captured during bi-weekly project team check-ins to further inform the pilot program assessment and develop

recommendations for improvement. During bi-weekly check-ins, the consultant team logged notes on implementation of each resilience guidance step, detailing challenges, strengths, real-time modifications, and potential changes and refinements for future applications.

Survey results and program close-out interview guide can be viewed in the "Pilot Project Materials" section of the report.

Results

The outcomes and efficacy of the pilot program were evaluated using the three overarching goals of the program. Demonstrated outcomes, findings, and recommendations for each goal are discussed in the sections below.

Demonstrate Integration of the Resilience Sub-Element

To demonstrate the integration of the resilience sub-element into comprehensive planning, the project team worked with the three pilot jurisdictions in testing the planning framework laid out in the resilience guidance. The project team largely adhered to six steps outlined in Figure 2 but made key decisions to omit or curtail some sub-steps due to timeframe and jurisdictional capacity constraints. Due to these constraints, the project team led the primary execution of resilience guidance steps and relied on jurisdiction co-leads to partially implement specific sub-steps, review outputs, and confirm key decisions. Implications of the expedited pilot program timeframe are discussed further in the "Study Limitations" section of the report.

Figure 2. Original resilience sub-element steps and pathways (as tested by the pilot cities)⁷⁷



⁷⁷ Following in the pilot test, Commerce revised this graphic to reflect changes to the planning guidance. Such revisions include moving the first step of the resilience sub-element (Step 1: Develop Planning Process) to Section 2 of the broader guidance.

All three jurisdictions successfully applied the resilience guidance to develop draft resilience policies that address climate risks and impacts to their cities and are poised to integrate the resilience sub-element into their comprehensive plans, pending City Council approval. Key outcomes include identification of priority climate impacts and hazards, a light-touch assessment of vulnerability and risk, review of existing local plans and policies for climate resilience considerations and gaps in local planning, and draft climate resilience policies for comprehensive plan integration.

Table 4 shows a summary of the work completed with each pilot jurisdiction in each step of the resilience guidance.

Table 4: Resilience guidance outcomes and key decisions across pilot jurisdictions

Resilience Guidance Step	Pullman	Port Angeles	Woodland
Step 1: Develop planning process	<p>Co-leads: RJ Lott, Community Development Director and Ariel Medeiros, Assistant Planner Additional representation: Mike Heston, Fire Chief</p> <p>Key Stakeholders⁷⁸: Citizen Climate Lobby, Planning Commission, and WSU contacts</p> <p>Guiding principles: To be innovative, a champion of climate work, and incorporate a variety of City departments in climate work</p>	<p>Co-leads: Ben Braudrick, Senior Planner, Resilience Planning Lead and Zachary Trevino, Implementation Planning Lead</p> <p>Key stakeholders: North Olympic Development Council, Port Angeles and surrounding communities, Climate Action Planning Group, Wastewater Department, Stormwater Department, Solid Waste Department, Chamber of Commerce, private landowners, downtown businesses, sub-Committees for climate on the Planning Commission</p> <p>Guiding principles: Integrate climate resilience throughout the comprehensive plan, with a focus on hazard mitigation, demonstrate commitment to the pilot program, use the results of this work to update land-use maps and other City goals</p>	<p>Co-leads: Travis Goddard, Community Development Director, Deputy Clerk/Treasurer, Public Records Officer; David Lukaczer, Associate Planner</p> <p>Key stakeholders: Planning Commission, School District contacts, Port of Woodland, PacifiCorp, Cowlitz-Wahkiakum COG, Cowlitz Sheriff-Emergency Management, Clark-Cowlitz Fire Rescue, Cowlitz Consolidated Dike District</p> <p>Guiding principles: City staff and Council education on climate impacts, incorporate climate into local decision making</p>

⁷⁸ Key stakeholders identified by jurisdiction co-leads for future involvement in the process.

Resilience Guidance Step	Pullman	Port Angeles	Woodland
Step 2: Explore climate impacts	Priority impacts: Extreme heat, extreme precipitation and flooding, drought, wildfire	Priority impacts: Extreme heat, extreme precipitation and flooding, drought, wildfire, sea level rise	Priority impacts: Extreme heat, extreme precipitation and flooding, drought, wildfire
Step 3: Audit plans and policies	Reviewed existing plans: City of Pullman Comprehensive Plan (2021), Whitman County Hazard mitigation Plan (2020), RTPO Regional Transit Plan (2019-2023), Public Works Stormwater (2022), Pullman Draft Bicycle Plan (2022)	Reviewed existing plans: City of Port Angeles Comprehensive Plan (2019), City of Port Angeles Climate Resiliency Plan (2022), Port Angeles Capital Facilities and Transportation Improvement Plan (2023-2028), Port Angeles Shoreline Master Plan (2021), NODC Disaster Resiliency Planning (2022)	Reviewed existing plans: City of Woodland Comprehensive Plan (2016), Cowlitz County Hazard mitigation Plan/Emergency Management (2019), Cowlitz Comprehensive Plan (2017), City of Woodland Shoreline Master Plan (2021), City of Woodland Sewer Plan (2017)
Step 4: Assess vulnerability and risk	Conducted VRA for extreme heat hazard	Conducted VRA for sea level rise on segment of downtown/waterfront area	Did not pursue VRA due to time constraints.
Step 5: Pursue pathways	Drafted 44 resilience policies Modified 18 existing policies to include climate and VRA considerations. Supplemented climate gaps with 26 new policies from Menu of Measures, project team expertise, and Planning Commission feedback.	Drafted 42 resilience policies. Modified 19 existing policies to include climate and VRA considerations. Supplemented gaps with 23 new policies from the Climate Resiliency Plan, Menu of Measures, project team expertise, and Planning Commission feedback.	Drafted 39 resilience policies. Modified three existing policies to include climate impact considerations. Supplemented gaps with 36 new policies from Menu of Measures, project team expertise, and Planning Commission feedback.
Step 6: Integrate goals and policies	Leads will complete this step after continued review of draft policies with Planning Commission and public and Council approval in 2023.	Leads will complete this step after continued review of draft policies with Planning Commission and public and Council approval in 2025.	Leads will complete this step after continued review of draft policies with Planning Commission and public and Council approval in 2023.

Takeaways

- Jurisdictions with more robust climate planning histories and dedicated climate and/or sustainability staff will be better equipped to use the resilience guidance to integrate climate into comprehensive planning.
- Port Angeles, which has an adopted Climate Resilience Plan, more in-house climate expertise, and a community that is generally supportive and well-versed on the topic of climate change required less support from the project team. The existing policy audit and draft policy development processes were significantly more streamlined, as the project team was able to utilize more of the City's existing, tailored climate policies and adapt policies in more a strategic manner.
- The other two pilot jurisdictions – Woodland and Pullman – have less robust local climate planning histories. As such, co-leads consistently indicated they had less capacity and expertise to integrate climate into comprehensive planning. These jurisdictions required more support from the project team throughout the pilot program, particularly in development of new draft policies and identification of climate priorities.

Jurisdictions with less support from city stakeholders and the community around addressing climate change will face added barriers in creating buy-in and will need to consider additional approaches, support, and resources for the engagement process.

Woodland co-leads indicated their community members were unfamiliar with climate change and somewhat unsupportive of addressing climate change issues. To facilitate buy-in from the community, co-leads identified the need for additional support around community engagement efforts, including the use of easily accessible collateral with messaging about the importance of climate change with a clear connection to climate impacts and lived experiences.

Co-leads for the City of Pullman, which has a community that is somewhat familiar and supportive of addressing climate change, also identified the need for engagement approaches that connect the goals of this process to real community experiences with recent climate events (heat dome events, recent wildfires, etc.).

Process Outcomes by Jurisdiction

Pullman

The City of Pullman is located within Whitman County in southeastern Washington. A mid-size city with a population of 32,827, Pullman is home to Washington State University (WSU) and is known as an agricultural center. Pullman's population is 71% non-Hispanic white and has a relatively high poverty rate (35.4%), which is partially due to its large student population.

The City is early in its climate planning efforts, but is seeing increased enthusiasm and interest for such efforts from the community. The City recently updated its Comprehensive Plan (2021) and plans to make updates to integrate climate resilience policies in 2023.

The project team needed to arrive at a draft list of climate resilience policies for comprehensive plan integration. They met with Pullman co-leads and Community Development and Fire Department staff for an initial kick-off planning meeting and then on a bi-weekly basis to implement each step of the resilience guidance to accomplish this. The kick-off meeting and the first several check-ins were dedicated to Step 1, developing the overall planning process of the pilot program. Tasks 1.3 (scope a budget and schedule first three steps) and 1.4 (develop a public-engagement strategy) were significantly reduced in scope due to the




expedited timeframe of the project. *[Editor's note: Following the pilot testing of the resilience sub-element, Commerce moved what had been the resilience sub-element's Step 1 (Develop Planning Process) into the full planning guidance's Section 2. The revision makes forming a project team and engagement strategy precede the resilience and GHG reduction sub-elements (Sections 3 and 4) and provides additional guidance for jurisdictions.]*

To implement Step 2 (Explore Climate Impacts), the project team identified the following climate change drivers and associated impacts as the most relevant to the City using the webtool:



- Increased Heat: Warmer summers with longer and more intense heat waves.
- Heavy Rains, Flooding, and Landslides: More frequent and intense precipitation and storms that cause extreme flooding and increase landslide risk. Changes in timing and hydrologic conditions in rivers.
- Summer Drought, Reduced Snowpack, and Wildfire: Less rain in the summer and warmer winters with reduced snowpack may create drought conditions. Additional summer dry conditions may create more wildfire risk and smoke.

Pullman has already experienced impacts, and climate projections suggest that climate change drivers will continue to worsen these impacts. Table 4 presents mid- and late-century climate projections for Whitman County. These climate change impacts lead to negative effects on public health, agriculture, food supply, as well as infrastructure damage to transportation systems, homes, and buildings.

Table 5. Climate projections for Whitman County⁷⁹

	Climate Impact	2040-50	2080
	Average summer temperature Jun-Aug	↑6.6°F increase	↑11.5°F increase
	Number of hot days (humidex over 90 degrees)	↑32.8 days	↑57.2 days
	Total late summer precipitation July-Sept	↑0.7% increase	↓1.6% decrease
	Total annual precipitation	↑10.2% increase	↑14.5% increase
	Intensity of extreme rain events (change in the magnitude of 2-year storms)	↑13% increase	↑20% increase
	Precipitation intensity projected change in a 25-year, 1 hour rain event	↑21% increase	↑29% increase
	Precipitation drought (likelihood of a year with summer precipitation below 75% of historical normal)	19%	27%
	Percent change in April 1 snowpack	↓100% decrease	↓100% decrease

79 Washington County Climate Projections (uidaho.edu)

	Climate Impact	2040-50	2080
	Peak streamflow	↑22.4% increase	↑47.5% increase
	Change in high fire danger days	↑11 days	N/A

These local climate hazards will affect the City’s plans to adapt existing areas to be more resilient (for example, new buildings and street locations and designs, new or retrofitted tree and landscaping standards for drought resistance and shade) or how the City responds during or after extreme events (for example, public services and business continuity, transit availability, emergency services and evacuation, building and recovery). These hazards can also affect the health and wellbeing of sensitive populations (for example, older persons, young children, persons with pre-existing conditions).

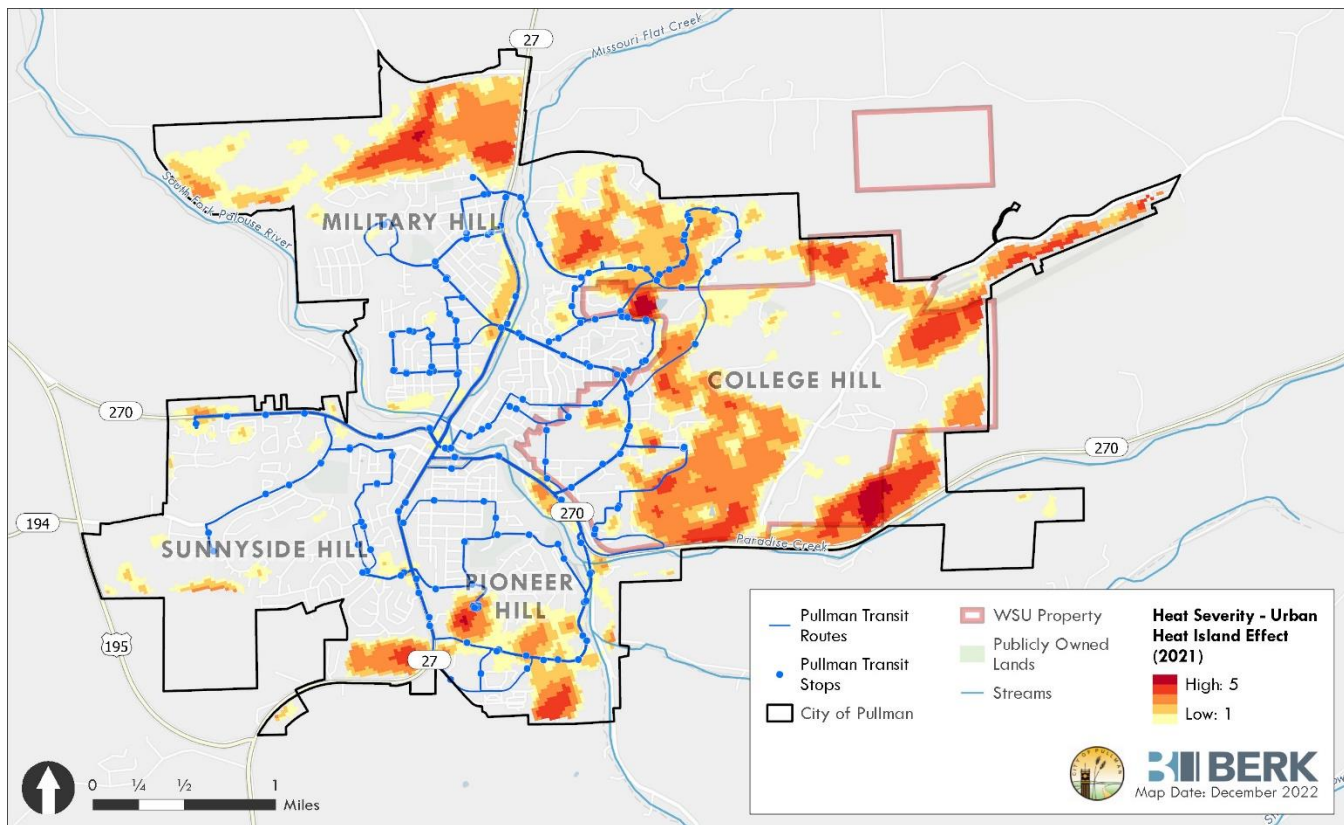
In Step 3 (Audit Plans & Policies), the project team and Pullman co-leads worked together to perform an audit of existing plans and policies to identify relevant goals, policies and strategies that support communitywide resilience across the 11 comprehensive planning sectors. The audit focused on the following plans:

- City of Pullman Stormwater Management Program Plan 2022
- City of Pullman Draft Bicycle and Pedestrian Master Plan 2022 (in progress)
- City of Pullman Comprehensive Plan 2021
- Whitman County Hazard Mitigation Plan 2020
- Palouse RTPPO Coordinated Public Transit- Human Services Transportation Plan 2018

In Step 4 (Assess Vulnerability & Risk), Pullman co-leads worked closely with the project team to evaluate heat severity risk in Pullman and how increased temperatures may impact transportation access and need. Figure 3 shows where areas of Pullman are hotter than the average temperature for Pullman as a whole and considered information sources such as impervious areas and tree canopy coverage.

Figure 3 shows that neighborhoods east and north of Washington State University (WSU) experience more severe extreme heat, and are also not well served by transit, a mode that those with less mobility may require (for example, elderly, people without cars). The project team refined draft goals and policies to reflect the preliminary vulnerability and risk assessment findings and focus on urban forest management, building and site design for passive cooling, and other strategies.

Figure 3: Extreme Heat Risk and Transit Routes and Stops – Pullman



Sources: BERK, Pullman, Commerce.

In Step 5 (Pursue Pathways), the project team utilized the Menu of Measures, drafted by Commerce and its partners, to fill in any climate gaps that were revealed from the policy audit and drafted 44 preliminary climate resilience goals and policies, including amendments to existing goals and policies and new goals and policies. The policy recommendations consider the co-benefits of activities that would result in one or more of the following: enhances resilience; improves public health and well-being; promotes economic development; provides cost savings; provides ecosystem services; improves air quality; reduces emissions; sequesters carbon; improves salmon recovery; promotes equity and justice; protects tribal treaty rights; and builds knowledge. To review the full list of draft policies, refer to the Pullman Discussion Guide developed for the February 2023 Planning Commission meeting, which is found in the **"Pilot Project Materials"** section of the report.

The project team and Pullman co-leads presented the draft list of policies to the Pullman's Planning Commission for an initial review in February 2023 as an interim sub-step in Step 6 (Integrate Goals & Policies). The goal of the meeting was to provide an overview of the approach for integrating the climate model element, with specific focus on the resilience sub-element, into the city's comprehensive planning process and review the draft policy list. Using the feedback captured at the meeting, including identification of priority policies and proposed edits, the project team updated the draft list of policies.

Only a handful of policies were discussed at the meeting but, this meeting marked the first step in a lengthy process to refine the draft policy list. The City will take the following steps to integrate the final climate and resilience policies into the Comprehensive Plan Update in 2023:

- Policy amendments are discussed and refined at Planning Commission meetings as needed.

- Recommendations are presented to City Council by the Planning Commission.
- Amendments are presented to City Council for adoption.
- Amendments are integrated into the Comprehensive Plan, if adopted by Council.

The project team developed a concise [factsheet](#) about the City’s participation in the pilot program and intended next steps for continued use throughout the comprehensive planning process.

Port Angeles

The City of Port Angeles-population of 20,134 is located in Clallam County in northwestern Washington. Port Angeles represents a mid-size and rapidly growing jurisdiction that has made significant progress in climate planning. The City is currently in the first phase of implementing its recently adopted Climate Resiliency Plan. Recognizing the importance of holistic climate integration across city and county planning, the City is eager to integrate climate resilience considerations into its comprehensive plan update in 2025.


The project team needed to arrive at a draft list of climate resilience policies for comprehensive plan integration. They met with Port Angeles co-leads for an initial kick-off planning meeting and then on a bi-weekly basis to implement each step of the resilience guidance. The kick-off meeting and the first several check-ins were dedicated to Step 1, developing the overall planning process of the pilot program. Due to the expedited timeframe of the project the Tasks 1.3 (scope a budget and schedule first three steps) and 1.4 (develop a public-engagement strategy) were significantly reduced in scope.

Using the webtool in Step 2 (Explore Climate Impacts), the project team identified following climate change drivers and associated impacts as the most relevant to the region and county:






- Increased Heat: Warmer summers with longer and more intense heat waves.
- Heavy Rains, Flooding, and Landslides: More frequent and intense precipitation and storms that cause extreme flooding and increase landslide risk. Changes in timing and hydrologic conditions in rivers.
- Summer Drought, Reduced Snowpack, and Wildfire: Less rain in the summer and warmer winters with reduced snowpack may create drought conditions. Additional summer dry conditions may create more wildfire risk and smoke.
- Rising Sea Level: Sea level rise increasing coastal flooding, erosion, and decreasing water quality.

Port Angeles has already experienced impacts, and climate projections suggest that climate change drivers will continue to worsen these impacts. Table 6 presents mid- and late-century climate projections for Clallam County. These climate change drivers lead to negative impacts on public health, agriculture, food supply, as well as infrastructure damage to transportation systems, homes, and buildings.

Table 6. Climate projections for Clallam County⁸⁰

	Climate Impact	2040-50	2080
	Average summer temperature Jun-Aug	↑5.5°F increase	↑9.2°F increase
	Number of hot days (humidex over 90 degrees)	↑11.9 days	↑30.8 days

80 Washington County Climate Projections (uidaho.edu)

	Climate Impact	2040-50	2080
	Total late summer precipitation July-Sept	↓10.6% decrease	↓16.2% decrease
	Total annual precipitation	↑2.8% increase	↑2.9% increase
	Intensity of extreme rain events (change in the magnitude of 2-year storms)	↑8% increase	↑14% increase
	Precipitation intensity projected change in a 25-year, 1 hour rain event	↑9% increase	↑18% increase
	Precipitation drought (likelihood of a year with summer precipitation below 75% of historical normal)	25%	33%
	Percent change in April 1 snowpack	↓76% decrease	↓93% decrease
	Peak Streamflow	↑22.7% increase	↑18.8% increase
	Change in high fire danger days	↑10 days	N/A
	Likely sea level rise (50% likelihood)	0.5 feet	1.7ft

These local climate hazards will affect the City's plans to adapt existing areas to be more resilient (for example, new buildings and street locations and designs, new or retrofitted tree and landscaping standards for drought resistance and shade) or how the City responds during or after extreme events (for example, public services and business continuity, transit availability, emergency services and evacuation, building and recovery). These hazards can also affect the health and wellbeing of sensitive populations (for example, older persons, young children, persons with pre-existing conditions).

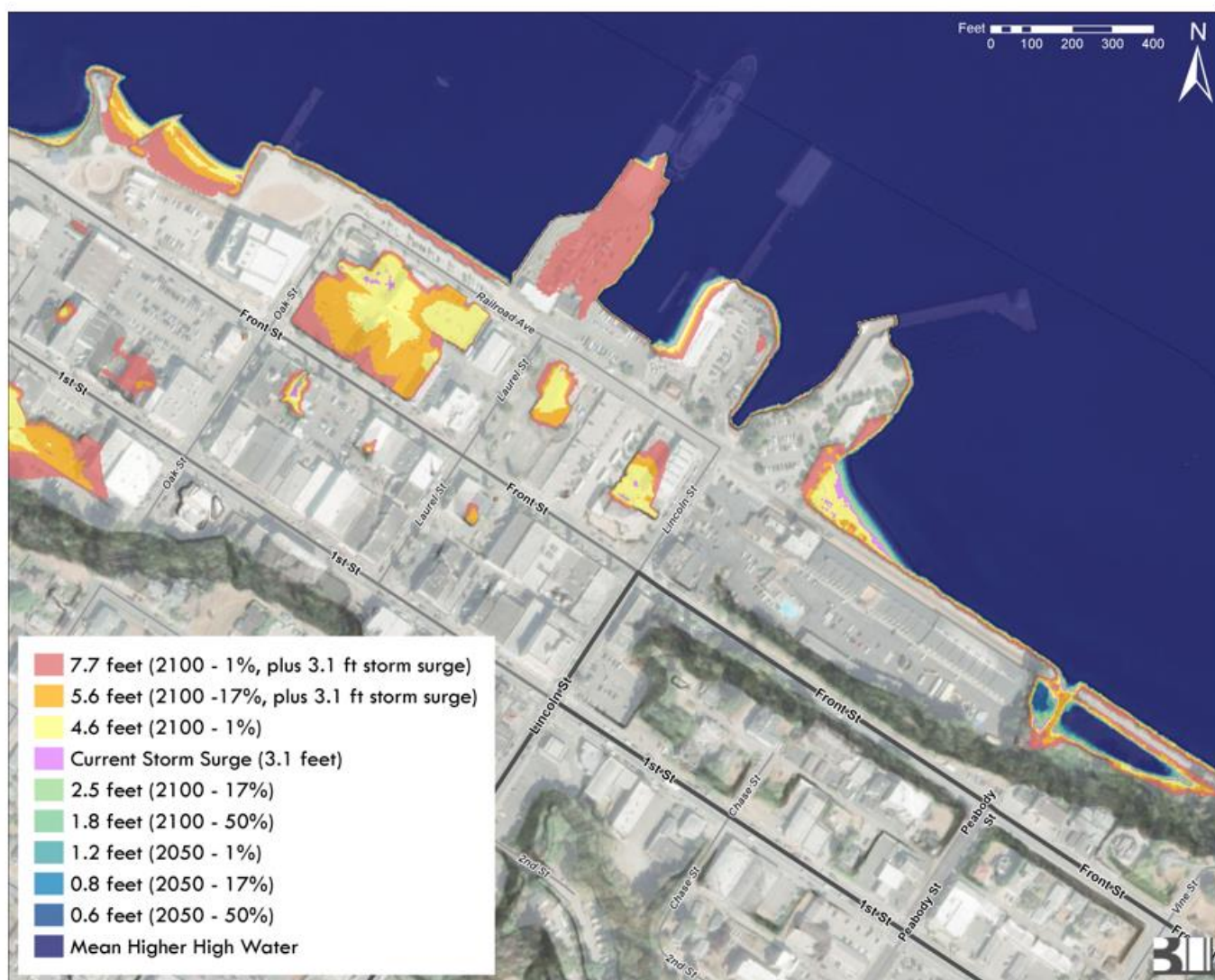
In Step 3 (Audit Plans & Policies), the project team and Port Angeles co-leads worked together to perform an audit of existing plans and policies to identify relevant goals, policies and strategies that support communitywide resilience across the 11 comprehensive planning sectors. The audit focused on these plans:

- North Olympic Peninsula Resource Conservations & Development Council (NODC): Natural Disaster Resiliency Planning
- City of Port Angeles [Capital Facilities & Transportation Improvement Plan](#) 2023-2028
- City of Port Angeles [Climate Resiliency Plan](#) 2022
- City of Port Angeles [Comprehensive Plan](#) 2019
- City of Port Angeles [Shoreline Master Program](#) 2021

In Step 4 (Assess Vulnerability & Risk), Port Angeles co-leads worked with the project team to evaluate and assess vulnerability and risk of a portion of the Port Angeles waterfront assets to sea level rise. The team assessed the potential for exposure, sensitivity, and the adaptive capacity of the city to climate change-exacerbated sea level rise.

The map below, which incorporates climate modeling used in the webtool, shows how rising sea levels could exacerbate the impacts of coastal flooding in downtown Port Angeles over the 21st century. This will increase risks for important, vulnerable assets such as the transit center, ferry terminal, wharf, and coastal parks. The project team recommended goals and policies that directly addressed these vulnerability and risk assessment findings, including retrofitting and protecting critical and high-risk facilities at the waterfront.

Figure 4: Projected Sea Level Rise – Downtown Port Angeles



Sources: BERK, Cascadia, Port Angeles, Clallam County.

In Step 5 (Pursue Pathways), the project team utilized Commerce's Menu of Measures to fill in any climate gaps that were revealed from the policy audit and drafted 42 preliminary climate resilience goals and policies, including amendments to existing goals and policies and new goals and policies. The policy recommendations consider the co-benefits of activities that would result in one or more of the following:

enhances resilience; improves public health and well-being; promotes economic development; provides cost savings; provides ecosystem services; improves air quality; reduces emissions; sequesters carbon; improves salmon recovery; promotes equity and justice; protects tribal treaty rights; and builds knowledge. To review the full list of draft policies, refer to the Port Angeles Discussion Guide developed for the February 2023 Planning Commission meeting, which is found in the "**Pilot Project Materials**" section of the report.

The project team and Port Angeles co-leads presented the draft list of policies to the Port Angeles Planning Commission and members of the community for an initial review in February 2023. This was an interim task in Step 6 (Integrate Goals & Policies). The goal of the meeting was to provide an overview of the approach for integrating the climate model element, with specific focus on the resilience sub-element, into the City's comprehensive planning process and review the draft policy list. Using the feedback captured at the meeting, including identification of priority policies and proposed edits, the project team updated the draft list of policies.

This was the first step in a lengthy process to refine the draft policy list. The City will take the following steps to integrate the final climate and resilience policies into the Comprehensive Plan Update in 2025:

- April 2023 – Submit notice to the WA State Department of Commerce of intent to adopt Comprehensive Plan & development regulation amendments.
- May 2023 – Bring proposal of Climate Resiliency Comprehensive Plan integration to the Planning Commission for consideration and follow with a public comment period.
- June 2023 – Bring proposal of Climate Resiliency Comprehensive Plan Integration to City Council following the Planning Commission's recommendations to consider adoption.
- 2023-2024 – Implement Comprehensive Plan policies incorporating climate resilience.
- 2025 – Update the Comprehensive Plan in accordance with the Growth Management Act.
- June 2025 – Adopt Comprehensive Plan update in accordance with the Growth Management Act Periodic Update schedule.

The project team developed a concise [factsheet](#) about the City's participation in the pilot program and intended next steps for continued use throughout the comprehensive planning process.

Woodland

The City of Woodland is located within Cowlitz County in southwestern Washington. With a population of 6,540, Woodland represents a small Washington jurisdiction. The City has a 74% poverty rate and 27.5% of the population identify as people of color. While continuing to focus on industrial and commercial development and growth, the City is committed to incorporating environmental considerations into communitywide planning efforts that reflect growing stakeholder and community interests.

To arrive at a draft list of climate resilience policies for comprehensive plan integration, the project team met with Woodland co-leads for an initial kick-off planning meeting and then on a bi-weekly basis to implement each step of the resilience guidance. The kick-off meeting and the first several check-ins were dedicated to Step 1, developing the overall planning process of the pilot program. Due to the expedited timeframe of the project the Tasks 1.3 (scope a budget and schedule first three steps) and 1.4 (develop a public-engagement strategy) were significantly reduced in scope.






Using the webtool in Step 2, the project team identified following climate change drivers and associated impacts as the most relevant to the region and county:

- Increased Heat: Warmer summers with longer and more intense heat waves.

- Heavy Rains, Flooding, and Landslides: More frequent and intense precipitation and storms that cause extreme flooding and increase landslide risk. Changes in timing and hydrologic conditions in rivers.
- Summer Drought, Reduced Snowpack, and Wildfire: Less rain in the summer and warmer winters with reduced snowpack may create drought conditions. Additional summer dry conditions may create more wildfire risk and smoke.

Woodland has already experienced impacts and climate projections suggest that climate change drivers will continue to worsen these impacts. Table 8 presents mid- and late-century climate projections for Cowlitz County. These climate change drivers lead to negative impacts on public health, agriculture, food supply, as well as infrastructure damage to transportation systems, homes, and buildings.

Table 7. Climate projections for Cowlitz County⁸¹

	Climate Impact	2040-50	2080
	Average Summer Temperature Jun-Aug	↑5.9°F increase	↑9.6°F increase
	Number of hot days (humidex over 90 degrees)	↑27.7 days	↑51.9 days
	Total Late Summer Precipitation July-Sept	↓10.6% decrease	↓16.2% decrease
	Total annual precipitation	↓25.4% decrease	↓24.6% decrease
	Intensity of extreme rain events (change in the magnitude of 2-year storms)	↑4.7% increase	↑4.5% increase
	Precipitation Intensity Projected change in a 25-year, 1 hour rain event	↑13% increase	↑13% increase
	Precipitation drought (likelihood of a year with summer precipitation below 75% of historical normal)	↑16% increase	↑14% increase
	Percent change in April 1 snowpack	↓95% decrease	↓100% decrease
	Peak Streamflow	↑35.7% increase	↑45.5% increase
	Change in high fire danger days	↑7 days	N/A

⁸¹ Washington County Climate Projections (uidaho.edu)

These local climate hazards will affect the City's plans to adapt existing areas to be more resilient (for example, new buildings and street locations and designs, new or retrofitted tree and landscaping standards for drought resistance and shade) or how the City responds during or after extreme events (for example, public services and business continuity, transit availability, emergency services and evacuation, building and recovery). These hazards can also affect the health and wellbeing of sensitive populations (for example, older persons, young children, persons with pre-existing conditions).

In Step 3, the project team and Woodland co-leads worked together to perform an audit of existing plans and policies to identify relevant goals, policies, and strategies that support communitywide resilience across the 11 comprehensive planning sectors. The audit focused on these plans:

- City of Woodland Comprehensive Plan 2016-2036 (last amended 2019)
- City of Woodland Shoreline Master Program 2021
- City of Woodland General Sewer Plan 2017
- Cowlitz County Comprehensive Emergency Management Plan 2019. Woodland is a partner in the Comprehensive Emergency Management Plan along with the other cities and the County.
- Cowlitz County Comprehensive Plan 2017. Affects lands, shorelines, and infrastructure around the city limits including the City's desired urban growth area.

Woodland co-leads decided to omit the vulnerability and risk assessment due to lack of capacity and adequate time (Step 4).

In Step 5 (Pursue Pathways), the project team utilized the Menu of Measures to fill in any climate gaps that were revealed from the existing policy audit and drafted 39 preliminary climate resilience goals and policies, including amendments to existing goals and policies and new goals and policies. The policy recommendations consider the co-benefits of activities that would result in one or more of the following: enhances resilience; improves public health and well-being; promotes economic development; provides cost savings; provides ecosystem services; improves air quality; reduces emissions; sequesters carbon; improves salmon recovery; promotes equity and justice; protects tribal treaty rights; and builds knowledge. To review the full list of draft policies, refer to the Woodland Discussion Guide developed for the February 2023 Planning Commission meeting, which is found in the "**Pilot Project Materials**" section of the report.

The project team and Woodland co-leads presented the draft list of policies to the Pullman's Planning Commission for an initial review in February 2023 as an interim task in Step 6 (Integrate Goals & Policies). The goal of the meeting was to provide an overview of the approach for integrating the climate model element, with specific focus on the resilience sub-element, into the city's comprehensive planning process and review the draft policy list. Using the feedback captured at the meeting, including identification of priority policies and proposed edits, the project team updated the draft list of policies.

The City will take the following steps to integrate the final climate and resilience policies into the Comprehensive Plan Update in 2023:

- April 2023 – host an open house and a public hearing to continue discussing incorporation of draft climate resilience element into the 2023 update.
- Identify and prioritize key goals and policies from the draft climate resilience element based on outreach with the community and elected officials.
- Pass the draft climate resilience element through the Planning Commission
- Advance the climate resilience element to the City Council as part of the City's 2023 Comprehensive Plan and undergo Commerce review.

- December 2023 – Bring the final version of the climate resilience amendment to City Council for adoption.

The project team also developed a concise [factsheet](#) about Woodland's participation in the pilot program for continued use throughout the city's comprehensive planning process. See Port Angeles Factsheet [*final section of Appendix G*].

Improve the Resilience Guidance

The project team evaluated the usability and effectiveness of the six steps of the resilience guidance by using pre- and post-pilot surveys, semi-structured interviews, and ongoing team check-in notes. The intention of this evaluation was to better understand accessibility, clarity, and efficacy of the resilience guidance steps and companion workbook and webtool. This evaluation informed the development of recommendations for improving the various components of the guidance.

Three key recommendations are summarized below, followed by a table of detailed findings and additional opportunities for improvement associated with each step of resilience guidance and companion tools.

Recommendation #1

Include guidance for jurisdictions to supplement use of CIG's webtool (step 2) with additional climate information that is more locally relevant, when available, adding an example of climate data points and projections to communicate magnitude of change beyond a general trend. Step 2 guidance should also include examples of hazard indicators to prioritize and provide a clear explanation around which climate scenario to use and why. Some potential resources that can supplement the webtool analysis are in Table 8. *[Editor's note: See "Key Takeaways" section above for how Commerce addressed this recommendation in its revised planning guidance and companion resources. Additionally, the revised planning guidance links to the three resources listed in the table below; and the [Resources](#) at Appendix E includes additional ones.]*

Table 8. Additional climate change resources and tools.

Source	Description
Washington Tracking Network , Washington State Department of Health	This climate projection data includes projections for precipitation change, extreme heat days (days over the 99th percentile for temperature), cooling degree days, and heating degree days to the census tract level.
Washington State Sea Level Rise Visualization Tool	Sea level rise projections for 171 locations along Washington's coastline.
Climate and Economic Justice Screening Tool	Interactive map and data sets that indicate burden across multiple categories, including climate change burden, at the census tract level.

Recommendation #2

Create climate-focused engagement collateral, such as climate change 101 factsheets, that communicate how future climate change will impact local jurisdictions. Include messaging around how climate impacts – including wildfire and wildfire smoke, sea level rise, increased precipitation, extreme heat, and reduced snowpack – are expected to exacerbate existing hazards and the cascading implications for existing and new

city infrastructure, natural systems, and the health and safety of the community. Engagement collateral could include case studies and data points around recent regional and local climate-related extreme events. The project team developed factsheets for each pilot jurisdiction that can serve as a model for development of similar collateral. Factsheets for each pilot jurisdiction can be viewed in the "Pilot Project Materials" section of the report. This recommendation is intended to help jurisdictions educate city staff, stakeholders, and the public about climate change impacts and create buy-in for integrating climate change into comprehensive planning (Steps 5 and 6). *[Editor's note: See "Key Takeaways" section above for how Commerce addressed this recommendation in its revised planning guidance and companion resources.]*

Recommendation #3

Adjust the sequence of several tasks, so that the vulnerability and risk assessment (Step 4) is better integrated with the explore climate impacts step (Step 2). Although jurisdictions noted that the CMRW webtool was critical for initial identification and prioritization of climate change impacts, conducting a VRA after a policy audit (Step 3) was challenging. Conducting a policy audit (Step 3) may be more valuable after completing some of the VRA's initial tasks, such as assessing the exposure of local assets and the consequences of hazards. *[Editor's note: Based on the consultants' recommendation and other stakeholder feedback, Commerce shifted several of the VRA's initial tasks to what was formerly Step 2 (Explore Climate Impacts). These tasks (now listed as Section 3, Tasks 1.1-1.3) include creating asset-hazard pairs and using the UW CIG's CMRW webtool. Commerce also added a new task (1.4: Identify Priority Climate Hazards), which asks jurisdictions to decide which climate hazards they might need to address in their comprehensive plan.]*

Other Opportunities for Improvement

Table 9 provides an overview of detailed findings and additional opportunities for improvement associated with each step of the resilience guidance.

Table 9: Summary of detailed findings and opportunities for improvements associated with each step of the resilience guidance

[Editor's note: Commerce incorporated recommendations from the table below into the revised planning guidance.]

Step	Findings	Opportunities for Improvement
Step 1: Develop planning process	<p>Co-leads rated this step clear and easy to use (4 or 5 out of 5 in a Likert scale⁸²) on both pre- and post- pilot surveys.</p> <p>With two co-leads per jurisdiction, the pilot cities relied heavily on the project team for general program management, setting interim deadlines, meeting management, and tracking deliverables.</p> <p>Due to the condensed timeframe of the pilot program, the program lacked robust City staff and community engagement.</p>	<p>Add a detailed timeline template with suggested timeframes for each step. Prompt project leads to review the steps and workbook in full at this planning stage to gain a holistic understanding of how the steps build onto one another.</p>

⁸²For pre- and post-survey ranking questions, a Likert scale was used, with 1 being most difficult/unclear and 5 being easiest/most clear.

Step	Findings	Opportunities for Improvement
Step 2: Explore climate impacts	<p>Co-leads rated this step clear and easy to use (4 or 5 out of 5) in both pre- and post- pilot surveys.</p> <p>Most co-leads rated this step easy (4 or 5 out of 5) to complete without consultant support in the post- pilot surveys. One co-lead ranked his ability to complete this step without consultant support as moderate (3 out of 5).</p> <p>The webtool was easy to use and effective for summarizing climate data into a general hazard trend at the county scale and presenting the data in different formats. However, the webtool does not account for nuance within the city and local observations.</p> <p>Jurisdiction co-leads found it very helpful to have the support of the project team in demonstrating the tool and applying the climate trends and findings to real world implications for their communities.</p>	<p>Include instructions to limit audit to five plans/documents.</p> <p>Provide links to resources and data tools that provide more granular and/or city-level climate data.</p> <p>Include link to webtool tutorial video or workshop that demonstrates how to use the tool and apply the findings to local contexts.</p>
Step 3: Audit plans and policies	<p>Co-leads rated this step clear and easy to use (4 or 5 out of 5) in both pre- and post- pilot surveys.</p> <p>The resilience guidance instructions were overall useful for this step but lacked clear guidance on how to prioritize plans and policies for the audit.</p> <p>This is both a critical and time-consuming step of the process. While only one co-lead ranked his ability to complete this step without consultant support as moderate (3 out of 5), with the rest indicating it would be easy (4 or 5), follow up interviews with co-leads revealed and this would have been challenging to execute without additional capacity and some climate expertise.</p>	<p>Include clearer direction on how to determine priorities to focus the policy audit and how many policies to audit (20-40).</p> <p>Provide examples of several audited policies from different types of planning documents.</p> <p>Clearly indicate in the guidance how this step feeds into step 5, choosing a pathway to adapt and/or adopt goals/policies. Emphasize that the audit results will lead to either retaining existing goals/policies, amending existing goals/policies, adding goals/policies, or a combination.</p>

Step	Findings	Opportunities for Improvement
Step 4: Assess vulnerability and risk	<p>Two co-leads who completed this step indicated it was clear and easy to use (4 or 5), while one indicated it was moderate (3).</p> <p>Two co-leads indicated it would have easy to complete this step with consultant support (4 or 5), while one indicated it would be moderate (3).</p> <p>Jurisdiction co-leads found the checklist in Tab 3.2 of the workbook to be useful for determining whether to proceed to the VRA step.</p> <p>Some jurisdiction co-leads indicated the VRA should follow the exploration of climate impacts step and precede the policy audit. Understanding city vulnerabilities would allow project leads to focus policy audit on relevant policies.</p> <p>Smaller jurisdictions would not have the in-house expertise to complete this step without substantial technical expertise, particularly conducting GIS analysis to assess vulnerability and risk of city assets.</p>	<p>Include additional guidance, instructions, and resources for selecting appropriate indicators and developing simple rulesets to qualitatively assess these components or vulnerability and risk should be made available.</p> <p>Using pilot jurisdictions as case studies, include examples of climate indicators used to assess asset-hazard pairs in VRA workbook tabs.</p> <p>The workbook tabs associated with the VRA step should be decoupled and live as stand-alone tabs for each task. Alternatively, include more instruction explaining grouped tabs.</p>
Step 5: Choose pathway to adapt and/or adopt goals and policies	<p>Co-leads rated this step clear and easy to use (4 or 5) on both pre- and post- pilot surveys.</p> <p>Jurisdiction co-leads found it challenging to understand the pros and cons associated with each integration approach -- integrating policies into a single climate element or across multiple elements.</p> <p>Co-leads indicated that this step would have been difficult to execute without the project team's support.</p>	<p>Include clearer guidance around each integration approach (single climate element vs. dispersed across multiple elements), with examples or a summary of pros and cons associated with approach.</p>
Step 6: Integrate goals and policies	<p>Co-leads rated this step clear and easy to use (4 or 5) on both pre- and post- pilot surveys.</p> <p>Two co-leads indicated it would have easy to complete this step with consultant support (4 or 5), while one indicated it would be moderate (3).</p>	<p>Include a "draft step 6 tab" within the workbook to capture the first iteration of the draft policies that will go to the Planning Commission and public for input. Once draft policies have been presented to the Planning Commission and public for feedback edits can be made to the goals and policies to reflect their feedback in the "final step 6 tab."</p>

Understand Impact of Project Team and Process on Pilot Program Success

An important goal of the pilot program was to understand how the overall program structure and project team support impacted the success of the pilot jurisdictions in using the resilience guidance to integrate climate into their comprehensive planning.

Findings

The survey responses and follow-up interviews with jurisdiction co-leads revealed that both the resilience guidance and the support from the project team were critical to implementation of the resilience sub-element. While overall clear and useful, the resilience guidance alone would have made it challenging, if not impossible, for these jurisdiction co-leads to complete this process, especially within a condensed timeline. Staff time and capacity were the most significant limiting factors for jurisdictions to complete this process; however, insufficient in-house climate expertise posed another barrier to successful implementation for several of the steps in the process. According to post-pilot data, two of three pilot jurisdictions felt they had some current in-house expertise to complete this process, while the third indicated they had sufficient expertise.

Follow up interviews revealed greater insight into where project team capacity was most useful, key barriers to completing this process, and additional resources needed to bolster their ability to successfully complete this process. These insights were used to develop recommendations that address how best to provide support for jurisdictions that face barriers related to staff capacity and/or in-house climate expertise for integrating the model climate element. Recommendations are noted in the "Improve the Resilience Guidance" Section of the summary report.

Key successes of pilot:

"The TA team was critical – we would have floundered and be lost without the TA team."

"Key to success of this guidance is educating the planner, so that person has a set of talking points in response to community skepticism."

"Coming into the work with CAP work already being done made it a lot easier – already had the buy-in and engagement work done."

"Project team support for Planning Commission meeting and use of Poll Everywhere [to solicit feedback] was great."

"The support from the project team was huge – the clarity when talking to the planning commission and city council."

"The TA was critical to make this happen. Not sure how many planners out here in their 40s and 50s would know how to approach this project. Maybe taught now, but not something he was trained in."

The guidance puts it [ability to integrate climate into comprehensive planning] at a 6/10 in feasibility, with the TA it's a 10. Without either the tool or TA, it's a 0 or 1.

Barriers/Challenges:

“Community knowledge and attitude is mixed. There’s a strong understanding of how climate affects people’s daily lives, but also a strong sense of mistrust when we discuss the science and modeling.”

“Gap is in the area of urgency and optimistic. Climate needs to be integrated holistically and that’s what we’re doing here [with this pilot program].”

“The accelerated timeline added to the challenge. Would have been less challenging with a longer timeline.”

“Unsure if we could do the GIS component internally (mostly because of time).”

Additional resources needed for success:

“Technical support for data gathering and modelling may be useful. For data-driven actions, compiling adequate supporting information could get complex and time-consuming. Aid in identifying resources and data sources for use in developing justification for specific actions would be valuable when needed. This Pilot Program will certainly be a massive help in boosting staff capabilities.”

“Having someone from Commerce come to talk about why having this integration is impactful and useful to our community.”

“Climate Impacts 101 Factsheet, video tutorials [with digestible messaging climate hazards and how to plan for them], Commerce TA via email or mentor line.”

“Resources for when you realize there’s another layer of the work that you don’t understand. Could look like a hotline or on-call resource/consultant that you can reach out.”

Conclusion

Study Limitations

The expedited timeframe of the pilot program impacted the overall implementation and execution of the resilience sub-element integration process. Multiple sub-steps were intentionally omitted due to timing considerations, including planning a robust engagement process with city departments, stakeholders, and the communities of each pilot jurisdiction. This is a critical step in this process that requires 9-12 months to adequately execute. The project team included a significantly truncated version of this process to demonstrate a portion of this step.

The optional vulnerability and risk assessment (Step 4) is a technical, time-consuming, and capacity-intensive step. As such, the project team supported interested pilot jurisdictions in conducting a light-touch vulnerability and risk assessment, focusing on one specific climate hazard and a narrow list of assets. One pilot jurisdiction opted out of participating in the light-touch VRA due to internal capacity constraints. While limited in scope, the light-touch VRA conducted with two pilot jurisdictions demonstrated how this step may be implemented and revealed valuable takeaways for refinement.

Due to the expedited timeline of the pilot program, the pilot jurisdiction co-leads were not able to take on a significant leadership role in execution of steps, as originally intended. As a result, the project team led much of the work, while the jurisdiction co-leads provided review and direction where needed to ensure pilot program completion by the contracted deadline date (April 30, 2023). If jurisdiction co-leads were able to take

on a bigger leadership role in the execution of the resilience steps, this may have resulted in richer findings for resilience guidance and process improvements.

Pilot Project Materials

[Climate Pilot Program Jurisdiction Selection Memo](#)

Planning Commission Guidance Documents

- [Pullman](#)
- [Port Angeles](#)
- [Woodland](#)

Jurisdictional factsheets

- [Pullman](#)
- [Port Angeles](#)
- [Woodland](#)

Pilot Program surveys and interview guide

- [Pre-pilot survey results](#)
- [Post-pilot survey results](#)
- [Program Close-out Interview Guide](#)

H. Examples of Guiding Principles for Climate Planning

Example 1: Spokane Sustainability Action Plan guiding principles (2021)

- We seek to provide future generations with a quality of life equal to or better than the quality of life we now are experiencing.
- We seek to bring people and stakeholders together to co-create solutions and move our community towards resilience in the face of climate change.
- We believe climate strategies must address historic inequalities and environmental injustices. We will work to undo environmentally racist actions and systems.
- We believe that equitable inclusion is imperative in sustainability planning, therefore we will engage the community often and through diverse formats of communication.
- We believe that all people in Spokane should benefit from environmental programs and policies, not just a wealthy few.
- In a time of uncertainty, we seek to help prepare our community for the challenges to come. We seek to protect the right of all members of our community, human and other than human, to a healthy environment.
- We believe that every action we take must be evaluated for its impact on the climate.
- We believe urgent action is required!

Example 2: King County Strategic Climate Action Plan guiding principles (2020)

- Act with urgency and intention.
- Lead with racial justice and equity.
- Respond to community needs and priorities.
- Use and develop best available science.
- Seek systemic solutions.
- Build partnerships.
- Lead through local action.
- Prioritize health and co-benefits.
- Be transparent and accountable.

Example 3: [Thurston Climate Adaptation Plan](#) guiding principles (2018)

- Think in terms of multiple generations and connected built and natural systems, as well as view local and regional decisions through the lens of social, economic, and environmental sustainability.
- Increase resilience through achievable, flexible – and, where possible, measurable and replicable – adaptation strategies and actions that will help the region prepare for and cope with climate change impacts.
- Be responsive to immediate and long-term climate impacts – both emergencies and opportunities.
- Identify and leverage climate change adaptation strategies and actions with GHG reduction co-benefits, such as reducing, capturing, and storing greenhouse gas emissions.
- Utilize sound scientific research, scenarios modeling, economic analysis, and other tools to analyze regional and local climate change vulnerabilities, risks, and solutions.
- Incorporate and complement work produced by others, including the Natural Hazards Mitigation Plan for the Thurston Region, Sustainable Thurston, Thurston Thrives, and Olympia sea-level rise analyses.

- Consider the impacts of climate change adaptation recommendations on the region's economy, environment, and society; this includes all urban and rural communities — especially vulnerable residents — and the ecosystem benefits provided by natural systems.
- Recognize and strive to protect local indigenous tribes' community health and well-being, including natural resources security and self-determination.
- Seek broad community input, as well as educate residents about climate change and inspire them to take action.

I. Multi-criteria Analysis Examples

The following multi-criteria analysis methods are provided for comparison purposes and to provide further context for additional criteria that your jurisdiction could decide to include to prioritize the climate element goals and policies. These examples show a range of criteria that were utilized by the Stillaguamish Tribe, FEMA, Thurston Regional Planning Council, and the City of Vancouver.

Stillaguamish Tribe

The following set of criteria was included in the Stillaguamish Tribe Climate Adaptation Plan (2017), which was prepared in collaboration with the Stillaguamish Tribe, WA Department of Natural Resources, and the University of Washington Climate Impacts Group. Their plan included the following criteria for evaluating climate measures:

- **Effectiveness.** The expected ability of the action to help reduce the impacts of climate change on habitats and species;
- **Benefits to Priority Species.** The expected ability of the action to benefit one or more priority species;
- **Feasibility.** The Tribe's ability to carry out this work over the next five years, or to otherwise address barriers that could limit implementation (For example: organizational, technical, policy, legal, fiscal barriers);
- **Urgency.** The action's ability to address impacts that are already, or will soon be, affecting habitats and species important to the Stillaguamish Tribe;
- **Expected risk(s).** This means the potential for negative consequences that are associated with an action; and
- **Readiness to implement.** The choices within this category included actionable, almost ready and not ready.

FEMA's STAPLEE Method

The STAPLEE method is a multi-criteria analysis framework developed by FEMA and enables users to apply a consistent analysis to the range of policy options they are considering adopting and implementing. STAPLEE refers to seven evaluation criteria: Social, Technical, Administrative, Political, Legal, Economic, and Environmental. The basic STAPLEE framework does not assign priority or weight to any of the criteria, but the framework could be adapted to do so.

The STAPLEE method assesses the feasibility of potential hazard mitigation and climate adaptation policies, and the framework leaves room for addressing equity. STAPLEE could also be adapted to provide quantitative values (and weighting) to the qualitative answers to its standard questions. The following example is adapted from a [framework](#) used by the city of Muscatine, Iowa:

- **Social:** The public must support the overall implementation strategy and specific mitigation actions and the mitigation actions are evaluated in terms of community acceptance. Considerations:
 - **Community Acceptance:** Will the action disrupt established neighborhoods, break up voting districts, or cause the relocation of lower-income people? Is the action compatible with present and future community values?
 - **Effect on Segment of Population:** Will the proposed action adversely affect one segment of the population? Could the benefits and burdens of the policy be distributed fairly?

- **Technical:** It is important to determine if the proposed action is technically feasible, will help to reduce losses in the long term, and has minimal secondary impacts. This category evaluates whether the alternative action is a whole or partial solution, or not a solution at all. Considerations:
 - **Feasibility:** How effective is the action in avoiding or reducing future losses (resilience) and mitigation? Does the action solve the problem or only a symptom? Will the action create more problems than it solves or other impacts?
- **Administrative:** This category examines the anticipated staffing, funding, and maintenance requirements for the mitigation actions to determine if the jurisdiction has the personnel and administrative capabilities to implement the actions or whether outside help will be necessary. Considerations:
 - **Staffing:** Does the jurisdiction have the capability (staff, technical experts, and training) to implement the action?
 - **Funding allocated:** Does the jurisdiction have the funding to implement the action, or can it readily be obtained? Can it be accomplished in a timely manner?
 - **Maintenance/Operations:** Can the community provide the necessary maintenance?
- **Political:** This considers the level of political support for the mitigation activities and programs. Considerations:
 - **Political Support:** Is there political support to implement and maintain this action? Have political leaders participated in the planning process so far?
 - **Local Champion or Plan Proponent (respected community member):** Is there a local champion willing to help see the action to completion?
 - **Public Support (stakeholders):** Is there enough public support to ensure the success of the action? Have all the stakeholders been offered an opportunity to participate in the planning process?
- **Legal:** Whether the jurisdiction has the legal authority to implement the actions, or whether the jurisdiction must pass new laws or regulations, is important in determining how the mitigation action can be best carried out. Considerations:
 - **State Authority:** Does the state have authority to implement the action?
 - **Existing Local Authority:** Are proper laws, ordinances, and resolutions in place to implement the actions?
 - **Potential Legal Challenge:** Is there a technical, scientific, or legal basis for the mitigation action (i.e. does the mitigation action “fit” the hazard setting)? Are there any potential legal consequences? Is the action likely to be challenged by stakeholders who might be negatively affected?
- **Economic:** Economic considerations must include evaluation of the present economic base and projected growth. Cost-effective mitigation actions that can be funded in current or up-coming budget cycles are more likely to be implemented than actions requiring general obligation bonds or other instruments that would incur long-term debt to a community. Considerations:
 - **Benefit of Action:** What benefits will the action provide?
 - **Cost of Action:** Does the cost seem reasonable for the size of the problem and the likely benefits? What burden will be placed on the tax base or local economy to implement this action?
 - **Contributes to Economic Goals:** Does the action contribute to other community economic goals, such as capital improvements or economic development?


- **Outside Funding Required:** Are there currently sources of funds that can be used to implement the action? What proposed actions should be considered by be “tabled” for implementation until outside sources of funding are available?
- **Environmental:** Impact on the environment is an important consideration because of public desire and need for sustainable and environmentally healthy communities. Also, statutory considerations, such as the National Environmental Policy Act (NEPA), need to be kept in mind when using federal funds. Considerations:
 - **Affects Land/Water Bodies:** How will this action affect land/water?
 - **Affects Endangered Species:** How will this action affect Endangered Species?
 - **Affects Hazardous Materials and Waste Sites:** How will this action affect Hazardous Materials and waste sites?
 - **Consistent with Community’s Environmental Goals:** Is this action consistent with community environmental goals?
 - **Consistent with Federal Laws:** Is the action consistent with federal laws?

Thurston Regional Planning Council

In development of the Thurston Climate Adaption Plan, the project team and advisory board assigned negative and positive values to the criteria, although the final actions that were published in the report did not include the numerical scores. They evaluated each criterion within the range of high, medium, or low. Their criteria included:

- **Magnitude:** How many risks does this action take?
- **Effectiveness:** Is this action a long-term solution? To what degree would this action reduce the risks? Is this action already being taken?
- **Side Effects:** Would this action have negative effects on other goals? Would this action have positive effects on other goals?
- **Equity:** Would the costs and benefits of this action be shared fairly?

Excerpt from Thurston Climate Adaptation Plan (2018)



A-01

Update the regional climate adaptation plan periodically with new information, evaluate implementation efforts and effectiveness, amend strategies and actions as necessary, and enhance community climate literacy (e.g., by working with schools, libraries, and other partners to enhance the public's understanding of climate change causes, impacts, and responses).

TRPC should update the plan every five years with new climate data (observed and projected) and community input to ensure that the plan remains a relevant reference tool for local policy makers and residents. As part of its adaptive management process, TRPC should track which actions the community takes and consider steps to overcome barriers to implementation and coordination.

LEAD: TRPC

PARTNER: All

TIMEFRAME: Short

STRESSOR: All

Vancouver, WA

In Vancouver’s Climate Action Framework, they include strategies, actions, and metrics for tracking progress of their climate goals. Their project team and collaborators assigned numerical values to their initial list of measures, which, similar to Thurston County, was not included as a value in their final framework plan. Their framework will achieve 80% of the city’s climate goals, with the hope that as technology evolves, they will be able to add more specific actions to fully achieve them. Their final evaluation criteria are based on estimated dollar values. Their criteria included:

- **Estimated emission reductions:** They modeled estimated emissions reductions for key actions in the buildings & energy, transportation & land use, and natural systems focus areas. The identified actions were selected because they were of interest to members of the stakeholder advisory group and were able to reliably be modeled with available data.
- **Timeframe:** Near term; Mid-term, Long term, and ongoing.
- **Costs to the city:** This refers to the estimated cost to the City of Vancouver.
- **Costs to the community:** This refers to estimated costs incurred by partners and stakeholders such as C-TRAN, Clark PUD, NW Natural, and others.
- **Costs of inaction:** This is an equity measurement, as it is an estimate of the social cost of carbon of \$84 for the year 2025 (in 2020 dollars), which is midway between 2020 and the interim target of 2030, as based on the Washington Utilities & Transportation Commission (UTC).

To arrive at their priority rating, the measures were organized by the combined costs from highest to lowest per capita **net present value**⁸³ community costs.

Recommendations from University Capstone Project

Western Washington University urban planning students volunteered as part of a capstone project (term January to June 2022) to provide a recommendation to the Climate Team on a preferred prioritization method. The students considered the STAPLEE method and Vancouver’s draft climate action plan, which has evolved since their review, and is now titled “Climate Action Framework (November 2022)”. The metrics in the final framework have changed from the version that the students reviewed. With this in mind, the students recommended that Commerce adapt the Vancouver draft method, adding criteria and modifying the criteria weighting. The following is an excerpt from the WWU students’ project:

Prioritization Method

In addition to modifying the weights, we recommend that the scores used to rate each of the criteria be expanded from a 1-5 scale to a 2-10 scale. The larger numbers [Table 3] help to show greater distinctions between the measures.

Gaps in Vancouver’s Climate Roadmap

1. The Environmental Impact criterion does not include clear language specific to environmental impacts. We believe it is important to differentiate social impacts and impacts to the ecosystem when prioritizing measures to have a comprehensive judgement on human-nature paired systems as the framework for prioritization.

2. Additionally, it is unclear what “level of city control” means in the Feasibility criterion. We believe an unclear definition leaves room for political pressure in the subsequent policy process, and therefore needs to be explicitly defined and attributed.

⁸³ “Net present value” is calculated using a 3% discount rate. Negative numbers are cost savings.

Proposed Criteria Modifications

Heavily inspired by FEMA's STAPLEE method, we propose adding the following sub criteria to Vancouver's Feasibility criterion and splitting the Impact criterion into two:

Feasibility: Administrative Capabilities:
Does the jurisdiction have the appropriate staffing and funding to implement the climate measure? Does it have appropriate funding for maintenance? With the following sub criteria (where very low is scored a 2 and very high is a 10):

- Very low—inadequate staff and funding to implement and maintain climate measure. (2)
- Low—not enough staff, funding plausible but not likely, high maintenance cost. (4)
- Moderate—climate measure maintenance requires outside funding, but staffing is sufficient. (6)
- High—enough staff, funding possible through levy, little-to-no maintenance required. (8)
- Very High—appropriate and existing staff, funding liquidity and/or already allocated. (10)

Environmental Impact: long- and short-term impacts to land and water, endangered species, HAZMAT and waste sites. With the following sub criteria (where very low is a 10 and very high is 2):

- Very low—climate measure has no known short- or long-term impacts on the environment. (10)
- Low—climate measure has no known long-term impacts but some short-term impacts on the environment. (8)
- Moderate—climate measure's negative impacts on the environment are minimal and can be reversed with existing science and technology. (6)
- High—climate measure has short-term negative impacts on the environment. (4)
- Very high—climate measure has long term negative impacts on the environment. (2)

Social Impact: Long- and short-term impacts to social groups, with a focus on disadvantaged and vulnerable groups. With the following sub criteria (where very high is scored a 2 and very low is a 10):

- Very low—climate measure has no known short- or long-term impacts on social groups. (10)
- Low—climate measure has no known long-term impacts but some short-term impacts on social groups. (8)
- Moderate—climate measure's negative impacts on social groups are minimal and can be reversed with existing science and technology. (6)
- High—climate measure has short-term worsening of inequity and disproportionately affects vulnerable groups. (4)
- Very high—climate measure has long term worsening of inequity and disproportionately affects vulnerable groups. (2)

Table 3. Vancouver evaluation steps Summary

Criteria	Original Weight	Revised Weight	Definition
*Environmental Impact	0.25	0.25	How does it improve the environment?
*Social Impact	Combined with above	0.1	How does it improve public services?
*Time		0.05	How fast can it be installed and how fast will results be seen? The faster the process the higher the number.
Cost	0.15	0.1	How much does it cost for the community and other resources?
Community support	0.1	0.05	How easy will it be to be accepted by the community?
Feasibility	0.1	0.15	How realistic is it for the city to implement these measures?
Equity	0.2	0.1	How does it help vulnerable and overburdened populations?

J. Summary: Handbook for Analyzing Greenhouse Gas Emission Reductions

The California Air Pollution Control Officers Association (CAPCOA) prepared the "Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities and Advancing Health and Equity" to provide a common platform of information and tools for evaluating greenhouse gas reduction measures, assessing climate vulnerabilities, and promoting equity to support sustainable, resilient, and equitable land use planning and project design.

CAPCOA prepared the handbook in collaboration with academia, agencies, community organizations and leaders, local governments, non-governmental organizations, and technical experts. The quantification methods, tools, and recommendations provided in this handbook were developed based on the latest science and literature available at the time of publication.

This (500+ page) handbook should be viewed as a planning resource. It provides strategies, tools, and analytical methods to facilitate integrated and resilient decision making, despite potential future planning uncertainty. The Handbook should be used to assist in the development of climate change public policy.

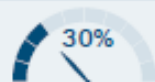
The following graphics from their handbook depict specific GHG reduction measures (from California) and provides instruction on how to evaluate/calculate their potential for reducing emissions.

The complete handbook is contained in this link: <https://www.airquality.org/ClimateChange>.

T-1. Increase Residential Density

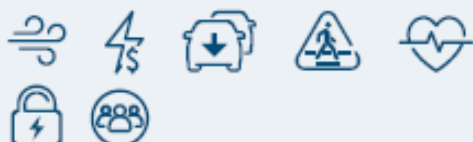


GHG Mitigation Potential



Up to 30.0% of GHG emissions from project VMT in the study area

Co-Benefits (icon key on pg. 32)



Climate Resilience

Increased density can put people closer to resources they may need to access during an extreme weather event. Increased density can also shorten commutes, decreasing the amount of time people are on the road and exposed to hazards such as extreme heat or flooding.

Health and Equity Considerations

Neighborhoods should include different types of housing to support a variety of household sizes, age ranges, and incomes.

Measure Description

This measure accounts for the VMT reduction achieved by a project that is designed with a higher density of dwelling units (du) compared to the average residential density in the U.S. Increased densities affect the distance people travel and provide greater options for the mode of travel they choose. Increasing residential density results in shorter and fewer trips by single-occupancy vehicles and thus a reduction in GHG emissions. This measure is best quantified when applied to larger developments and developments where the density is somewhat similar to the surrounding area due to the underlying research being founded in data from the neighborhood level.

Subsector

Land Use

Locational Context

Urban, suburban

Scale of Application

Project/Site

Implementation Requirements

This measure is most accurately quantified when applied to larger developments and/or developments where the density is somewhat similar to the surrounding neighborhood.

Cost Considerations

Depending on the location, increasing residential density may increase housing and development costs. However, the costs of providing public services, such as health care, education, policing, and transit, are generally lower in more dense areas where things are closer together. Infrastructure that provides drinking water and electricity also operates more efficiently when the service and transmission area is reduced. Local governments may provide approval streamlining benefits or financial incentives for infill and high-density residential projects.

Expanded Mitigation Options

When paired with Measure T-2, *Increase Job Density*, the cumulative densification from these measures can result in a highly walkable and bikeable area, yielding increased co-benefits in VMT reductions, improved public health, and social equity.



Subsector Maximum

($\sum A_{\text{maxT-1 through T-3}} \leq 65\%$) This measure is in the Land Use subsector. This subcategory includes Measures T-1 through T-3. The VMT reduction from the combined implementation of all measures within this subsector is capped at 65 percent.

Example GHG Reduction Quantification

The user reduces VMT by increasing the residential density of the project study area. In this example, the project's residential density would be 15 du per acre (B), which would reduce GHG emissions from project VMT by 14.2 percent.

$$A = \frac{15 \frac{\text{du}}{\text{ac}} - 9.1 \frac{\text{du}}{\text{ac}}}{9.1 \frac{\text{du}}{\text{ac}}} \times -0.22 = -14.2\%$$

Quantified Co-Benefits



Improved Local Air Quality

The percent reduction in GHG emissions (A) would be the same as the percent reduction in NO_x, CO, NO₂, SO₂, and PM. Reductions in ROG emissions can be calculated by multiplying the percent reduction in GHG emissions (A) by an adjustment factor of 87 percent. See *Adjusting VMT Reductions to Emission Reductions* above for further discussion.



Energy and Fuel Savings

The percent reduction in vehicle fuel consumption would be the same as the percent reduction in GHG emissions (A).



VMT Reductions

The percent reduction in VMT would be the same as the percent reduction in GHG emissions (A).

Sources

- Ewing, R., K. Bartholomew, S. Winkelman, J. Walters, and D. Chen. 2007. *Growing Cooler: The Evidence on Urban Development and Climate Change*. October. Available: https://www.nrdc.org/sites/default/files/cit_07092401a.pdf. Accessed: January 2021.
- Stevens, M. 2016. Does Compact Development Make People Drive Less? *Journal of the American Planning Association* 83:1(7–18), DOI: 10.1080/01944363.2016.1240044. November. Available: https://www.researchgate.net/publication/309890412_Does_Compact_Development_Make_People_Drive_Less. Accessed: January 2021.

K. Glossary of Terms

The following terms are found throughout the guidance and within the Menu of Measures.

Term	Definition	Source
Acidification	Ocean acidification refers to a reduction in the pH of the ocean over an extended period of time, caused primarily by uptake of carbon dioxide (CO ₂) from the atmosphere.	National Oceanic and Atmospheric Administration (NOAA)
Active Transportation	Active transportation means forms of pedestrian mobility including walking or running, the use of a mobility assistive device such as a wheelchair, bicycling, and cycling, irrespective of the number of wheels, and the use of small personal devices such as foot scooters and skateboards. Active transportation includes both traditional and electric assist bicycles and other devices. Planning for active transportation must consider and address accommodation pursuant to the Americans with Disabilities Act and the distinct needs of each form of active transportation.	HB 1181
Active Transportation Facilities	Facilities provided for the safety and mobility of active transportation users, including but not limited to, trails, as defined by RCW 47.30.005, sidewalks, bike lanes, shared-use paths, and other facilities in the public right-of-way.	HB 1181
Adaptation	The process of adjusting to new (climate) conditions in order to reduce risks to valued assets.	U.S. Climate Resilience Toolkit
Adaptive capacity	The ability of a person, asset, or system to adjust to a hazard, take advantage of new opportunities, or cope with change.	U.S. Climate Resilience Toolkit
Agroecology	Agroecology seeks to optimize the interactions between plants, animals, humans and the environment while also addressing the need for socially equitable food systems within which people can exercise choice over what they eat and how and where it is produced.	Food and Agriculture Organization of the United Nations
Assets	People, resources, ecosystems, infrastructure, and the services they provide. Assets are the tangible and intangible things people or communities value.	U.S. Climate Resilience Toolkit
Biofuel Infrastructure	The term biofuels usually applies to liquid fuels and blending components produced from biomass materials. Infrastructure includes facilities that generate, transport, and distribute energy.	U.S Energy Information Administration
Carbon footprint	A carbon footprint is the total amount of greenhouse gases (including carbon dioxide and methane) that are generated by our actions.	The Nature Conservancy

Term	Definition	Source
Carbon sequestration	Carbon sequestration is the process of capturing and storing atmospheric carbon dioxide. Biologic carbon sequestration refers to storage of atmospheric carbon in vegetation, soils, woody products, and aquatic environments. Geologic carbon sequestration is the process of storing carbon dioxide (CO2) in underground geologic formations.	U.S. Geological Survey
Centers for Disease Control and Prevention (CDC)	Centers for Disease and Control (CDC) is tasked with protecting the nation from health, safety and security threats, both foreign and within the U.S. Whether diseases start at home or abroad, are chronic or acute, curable or preventable, human error or deliberate attack, CDC fights disease and supports communities and citizens to do the same.	Centers for Disease Control and Prevention
Climate	Climate in the usual weather of a place.	National Aeronautics and Space Administration (NASA)
Climate 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
Climate stressor	A condition, event, or trend related to climate variability and change that can exacerbate hazards.	U.S. Climate Resilience Toolkit
Co-benefits	The ancillary or additional benefits of policies that are implemented with a primary goal, such as climate change mitigation – acknowledging that most policies designed to reduce greenhouse gas emissions also have other, often at least equally important, benefits (for example, energy savings, economic benefits, air quality benefits, public health benefits). Also referred to as "multiple benefits."	U.S. Environmental Protection Agency (EPA)
Community Wildfire Protection (Plan)	A Community Wildfire Protection Plan (CWPP) is a comprehensive wildfire safety plan developed by the local citizens and state and federal agencies.	Washington Department of Natural Resources
Commute-trip-reduction (CTR)	Washington state's laws relating to commute trip reduction (CTR law) were adopted in 1991 and incorporated into the Washington Clean Air Act as RCW 70.94.521 through 70.94.551. The intent of the CTR law is to reduce automobile-related air pollution, traffic congestion, and energy use through employer based programs that encourage the use of alternatives to the single occupant vehicle traveling during peak traffic periods for the commute trip.	Washington State Legislature

Term	Definition	Source
Concurrency (Regulatory)	(Regulatory) Concurrency requires jurisdictions or a developer to provide any transportation improvements or programs required to reduce demand and meet an established transportation level-of-service within six years of the completion of a development.	RCW 36.70A.070 (6)(b)
Consequence	A subsequent result (usually negative) that follows from damage to or loss of an asset. Quantifying potential consequences is an important part of determining risk.	U.S. Climate Resilience Toolkit
Criteria pollutant	Criteria pollutant means a pollutant for which there is established a National Ambient Air Quality Standard at 40 C.F.R. Part 50. The criteria pollutants are carbon monoxide (CO), particulate matter, ozone (O3) sulfur dioxide (SO2), lead (Pb), and nitrogen dioxide (NO2).	WAC 173-400-030
Critical infrastructure	Systems and assets, whether physical or virtual, so vital that the incapacity or destruction of such may have a debilitating impact on the security, economy, public health or safety, environment, or any combination of these matters, across any local, state, tribal and federal jurisdiction.	FEMA
Defensible space	Defensible space is the area around a building in which vegetation, debris, and other types of combustible fuels have been treated, cleared, or reduced to slow the spread of fire to and from the building.	Federal Emergency Management Agency
Drawdown	The vertical distance groundwater elevation is lowered, due to the removal of groundwater. The distance between the static water level and the surface of the cone of depression.	Michigan State University
Ecosystem services	Ecosystem services are the benefits that humans receive from nature. These benefits underpin almost every aspect of human well-being, including our food and water, security, health, and economy.	U.S. Environmental Protection Agency
Electric vehicle (EV)	An EV is defined as a vehicle that can be powered by an electric motor that draws electricity from a battery and is capable of being charged from an external source.	U.S. Department of Energy
Embodied carbon	Embodied carbon refers to the greenhouse gas emissions arising from the manufacturing, transportation, installation, maintenance, and disposal of building materials.	Carbon Leadership Forum
Environmental equity	Describes a country, or world, in which no single group or community faces disadvantages in dealing with environmental hazards, disasters, or pollution. No one should need extreme wealth or political connections to protect the well-being of their families and communities. Environmental equity is considered a basic human right.	Mobilize Green

Term	Definition	Source
Environmental justice	The fair treatment and meaningful involvement of all people regardless of race, color, national origin or income with respect to the development, implementation, and enforcement of environmental laws, regulations and policies.	Washington State's Environmental Justice Task Force
Environmental Protection Agency (EPA)	The mission of EPA is to protect human health and the environment. EPA works to ensure that Americans have clean air, land and water; that chemicals in the marketplace are reviewed for safety, and to reduce other environmental risks. They are responsible for ensuring that contaminated lands and toxic sites are cleaned up by potentially responsible parties and revitalized. Environmental stewardship is integral to U.S. policies concerning natural resources, human health, economic growth, energy, transportation, agriculture, industry, and international trade, and these factors are similarly considered in establishing environmental policy. The EPA attempts to make information sufficient to effectively participate in managing human health and environmental risks readily available to the public.	U.S. Environmental Protection Agency
Exposure	The presence of people, assets, and ecosystems in places where they could be adversely affected by hazards	U.S. Climate Resilience Toolkit
Externalities	A side effect or consequence of an industrial or commercial activity that affects other parties without this being reflected in the cost of the goods or services involved, such as the pollination of surrounding crops by bees kept for honey.	Oxford Languages Dictionary
Extreme heat	Extreme heat is defined as summertime temperatures that are much hotter and/or humid than average.	Centers for Disease Control and Prevention (CDC)
Federal Emergency Management Agency (FEMA)	The Federal Emergency Management Agency (FEMA) has 10 regional offices located across the country and work to ensure that America is equipped to prepare for and respond to disasters. FEMA's mission is helping people before, during and after disasters.	FEMA
Frontline community	Frontline community members are people who experience the first and worst consequences of climate change. Such residents' health and livelihoods are often highly vulnerable to climate-exacerbated hazards and economic disruptions, and their communities often lack basic support infrastructure and suffer disproportionately from the compounding impacts of pollution, discrimination, racism, and poverty.	Washington State Department of Commerce
Geographic Information System (GIS)	A Geographic Information System (GIS) is a computer system that analyzes and displays geographically referenced information. It uses data that is attached to a unique location.	U.S. Geological Survey (USGS)

Term	Definition	Source
Gray infrastructure	Gray infrastructure is traditional stormwater infrastructure in the built environment such as gutters, drains, pipes, and retention basins.	U.S. Environmental Protection Agency
Green infrastructure	Green infrastructure means a wide array of natural assets and built structures within an urban growth area boundary, including parks and other areas with protected tree canopy, and management practices at multiple scales that manage wet weather and that maintain and restore natural hydrology by storing, infiltrating, evapotranspiring, and harvesting and using stormwater.	HB 1181
Green space	An area of land, vegetated by natural features such as grass, trees, or shrubs, within an urban context and less than one acre in size that creates public value through one or more of the following attributes: is accessible to the public; promotes physical and mental health of residents; provides relief from the urban heat island effects; promotes recreational and aesthetic values; promotes streams or water supply; or, preserves visual quality along highway, road, or street corridors.	HB 1181
Greenhouse gas (GHG)	Greenhouse gases, such as carbon dioxide, methane, nitrous oxide, and certain synthetic chemicals, trap some of the Earth's outgoing energy, thus retaining heat in the atmosphere.	U.S. Environmental Protection Agency
GHG emission reduction (climate GHG reduction)	Actions taken to reduce or eliminate the emissions of greenhouse gases (present and future) in order to reduce the rate and extent of climate change damage. It may also be referred to as greenhouse gas emissions GHG reduction.	Washington Department of Commerce
Growth Management Act (GMA)	The Growth Management Act (Chapter 36.70A RCW) is a series of state statutes, first adopted in 1990, that requires fast-growing cities and counties to develop a comprehensive plan to manage their population growth.	Municipal Research and Services Center
Hazard	An event or condition that may cause injury, illness, or death to people or damage to assets	U.S. Climate Resilience Toolkit
Hazard mitigation	Any sustainable action that reduces or eliminates long-term risk to people and property from future disasters.	FEMA
Impacts	In the context of this guidance document, impacts means the effects on natural and human systems that result from hazards. Evaluating potential impacts is a critical step in assessing vulnerability.	U.S. Climate Resilience Toolkit
Indicator	A sign that shows you what something is like or how a situation is changing.	Oxford Learners Dictionaries

Term	Definition	Source
Intergovernmental Panel on Climate Change (IPCC)	The Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing the science related to climate change.	The Intergovernmental Panel on Climate Change
Inundation	Inundation is the total water level that occurs on normally dry ground as a result of the storm tide, and is expressed in terms of height of water, in feet, above ground level.	National Oceanic and Atmospheric Administration (NOAA)
Low Impact Development (LID)	The term low-impact development (LID) refers to systems and practices that use or mimic natural processes that result in the infiltration, evapotranspiration or use of stormwater in order to protect water quality and associated aquatic habitat.	U.S. Environmental Protection Agency
Magnitude	The measure of consequences — for example, high, medium, or low — for an asset that is impacted by a climate-exacerbated hazard.	U.S. Climate Resilience Toolkit
Managed retreat	Voluntary movement and transition of people and ecosystems away from vulnerable coastal areas.	Georgetown Climate Center
Mobility hub	A mobility hub is a recognizable place with options for different and connected transport modes, such as scooters, e-bikes, and electric car charging stations, supplemented with enhanced facilities to both attract and benefit the traveler.	WA Department of Commerce
Multimodal	Multimodal transportation includes public transportation, rail and waterways, bicycle and pedestrian. Multimodal access supports the needs of all users whether they choose to walk, bike, use transit or drive. It means more connections and more choices.	WA Department of Transportation
Multimodal concurrency	Multimodal concurrency considers all modes of transportation — including automobile, transit, bicycle, and pedestrian — as well as the benefits of transportation demand management.	WA Department of Commerce
Municipal Research and Services Center (MRSC)	The Municipal Research and Services Center (MRSC) is a nonprofit organization that helps local governments across Washington better serve their communities by providing legal and policy guidance on any topic.	Municipal Research and Services Center
National Fire Protection Association (NFPA)	The National Fire Protection Association (NFPA) is a nonprofit organization, devoted to eliminating death, injury, property and economic loss due to fire, electrical and related hazards.	National Fire Protection Association (NFPA)
National Oceanic and Atmospheric Administration (NOAA)	National Oceanic and Atmospheric Administration (NOAA) is an agency that enriches life through science. Their reach goes from the surface of the sun to the depths of the ocean floor.	National Oceanic and Atmospheric Administration (NOAA)

Term	Definition	Source
Net-Zero	Refers to a state in which the greenhouse gases going into the atmosphere are balanced by removal out of the atmosphere.	Net Zero Climate
Non-climate stressor	A change or trend unrelated to climate that can exacerbate hazards.	U.S. Climate Resilience Toolkit
Onsite Non-potable Water System (ONWA)	Non-potable water is water that does not meet the standards for drinking purposes of the State or local authority having jurisdiction, or water that meets the quality standards prescribed by the U.S. Environmental Protection Agency's National Primary Drinking Water Regulations. Onsite non-potable water systems (ONWS) capture and treat water sources generated from within or surrounding a building, such as wastewater, greywater, stormwater, or roof collected rainwater. The treated water is then reused onsite or locally.	Washington State Department of Health United States Environmental Protection Agency
Overburdened community	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.	HB 1181
Passive survivability	A building ability to maintain critical life-support conditions in the event of extended loss of power or water; or in the event of extraordinary heat spells, storms, or other extreme events.	University of California at Berkeley Center for the Built Environment
Per capita vehicle miles traveled (VMT)	This means the number of miles traveled using cars and light trucks in a calendar year divided by the number of residents in Washington. The calculation of this value excludes vehicle miles driven conveying freight.	HB 1181
Probability	The likelihood of hazard events occurring. Probabilities have traditionally been determined from the historic frequency of events. With changing climate and the introduction of non-climate stressors, the probability of hazard events also changes.	U.S. Climate Resilience Toolkit
Projections	Potential future climate conditions calculated by computer-based models of the Earth system. Projections are based on sets of assumptions about the future (scenarios) that may or may not be realized.	U.S. Climate Resilience Toolkit
Recreation and Conservation Office (ROC)	The Recreation and Conservation Office (RCO) is a small state agency that manages grant programs to create outdoor recreation opportunities, protect the best of the state's wildlife habitat and working farms and forests, and help return salmon and orcas from near extinction.	Washington State Recreation and Conservation Office

Term	Definition	Source
Regenerative agriculture	A land management philosophy that involves farming and ranching in harmony with nature. Regenerative agriculture prioritizes climate, ecosystems, water quality, people's health, and relationships within and across ecosystems, and fair pay and racial equity for farmers. The idea includes networks of entities who grow, enhance, exchange, distribute, and consume goods and services—instead of a linear supply chain.	Natural Resources Defense Council
Risk	The potential for negative consequences where something of value is at stake. In the context of the assessment of climate impacts, the term risk is often used to refer to the potential for adverse consequences of a climate-related hazard. Risk can be assessed by multiplying the probability of a hazard by the magnitude of the negative consequence or loss.	U.S. Climate Resilience Toolkit
Sensitivity	The degree to which a system, population, or resource is or might be affected by hazards.	U.S. Climate Resilience Toolkit
Shoreline Management Act (SMA)	The Shoreline Management Act (SMA) requires all counties and most towns and cities with shorelines to develop and implement Shoreline Master Programs. The law also defines our role in reviewing and approving local programs. The SMA was passed by the Washington Legislature in 1971 and adopted by voters in 1972. Its overarching goal is "to prevent the inherent harm in an uncoordinated and piecemeal development of the state's shorelines."	WA Department of Ecology
Shrubsteppe	The shrubsteppe is an arid ecosystem found in Eastern Washington and other western states.	WA Department of Fish and Wildlife
Single Occupancy Vehicle (SOV)	A single occupancy vehicle commute is a trip to or from a daily destination (usually work) by an individual alone in a car, truck or van.	NWA Regional Planning Commission
Snowpack	A mass of snow on the ground (commonly in mountainous areas) that is compressed and hardened by its own weight.	U.S. Environmental Protection Agency (EPA)
State Environmental Policy Act (SEPA)	The State Environmental Policy Act (SEPA) process identifies and analyzes environmental impacts associated with governmental decisions. These decisions may be related to issuing permits for private projects, constructing public facilities, or adopting regulations, policies, and plans.	WA Department of Ecology
Transfer of Development Rights (TDR)	Transfer of Development Rights (TDR) is a market-based mechanism that encourages the voluntary transfer of growth from places where a community would like to see less development (referred to as sending areas) to places where a community would like to see more development (referred to as receiving areas.)	WA Department of Commerce

Term	Definition	Source
Transportation System	Transportation system means all infrastructure and services for all forms of transportation within a geographical area, irrespective of the responsible jurisdiction or transportation provider.	HB 1181
Travel Demand Management (TDM)	Transportation demand management (TDM), or simply demand management, is defined a set of strategies aimed at maximizing traveler choices. Managing demand is about providing travelers, regardless of whether they drive alone, with travel choices, such as work location, route, time of travel and mode. In the broadest sense, demand management is defined as providing travelers with effective choices to improve travel reliability.	U.S. Department of Transportation: Federal Highway Administration
Tribal sovereignty	Sovereignty is a legal term meaning the right of a people to self-govern within jurisdictional borders. Tribal sovereignty recognizes that American Indian tribes have the political status of nations and that Indian nations are located within the territorial boundaries of the United States. As sovereigns, tribal nations have a government-to-government relationship with the two other sovereign governing bodies in the U.S. — the federal and state governments.	washingtontribes.org
Uncertainty	A state of incomplete knowledge. Uncertainty about future climate arises from the complexity of the climate system and the ability of models to represent it, as well as the inability to predict the decisions that society will make.	U.S. Climate Resilience Toolkit
United States Department of Agriculture (USDA)	The USDA provides leadership on food, agriculture, natural resources, rural development, nutrition, and related issues based on public policy, the best available science, and effective management.	U.S Department of Agriculture
United States Forest Service (USFS)	The US Forest Service leads in the protection, use, research, and stewardship of natural and cultural resources within our federal forests and grasslands. Their mission is to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations.	U.S Department of Agriculture Forest Service

Term	Definition	Source
Urban Growth Area (UGA)	Each county that is required or chooses to plan under RCW 36.70A.040 shall designate an urban growth area or areas within which urban growth shall be encouraged and outside of which growth can occur only if it is not urban in nature. Each city that is located in such a county shall be included within an urban growth area. An urban growth area may include more than a single city. An urban growth area may include territory that is located outside of a city only if such territory already is characterized by urban growth whether or not the urban growth area includes a city, or is adjacent to territory already characterized by urban growth, or is a designated new fully contained community as defined by RCW 36.70A.350.	RCW 36.70A.110
Vulnerability	The propensity or predisposition of assets to be adversely affected by hazards. Vulnerability encompasses exposure, sensitivity, potential impacts, and adaptive capacity.	U.S. Climate Resilience Toolkit
Vulnerable populations	Vulnerable populations are groups that are more likely to be at higher risk for poor health outcomes in response to environmental harms, due to: adverse socioeconomic factors such as unemployment, 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 include, but are not limited to: racial and ethnic minorities; low-income populations; and, populations disproportionately impacted by environmental harms.	HB 1181
Washington Department of Ecology (ECY)	The Department of Ecology (ECY) works to protect, preserve, and enhance Washington's environment for current and future generations. They strive to protect and sustain healthy land, air, water, and climate in harmony with a strong economy.	HB 1181
Washington Department of Fish and Wildlife (WDFW)	The Washington Department of Fish and Wildlife is dedicated to preserving, protecting, and perpetuating the state's fish, wildlife, and ecosystems while providing sustainable fish and wildlife recreational and commercial opportunities.	HB 1181
Washington Department of Health (DOH)	The Department of Health works to protect and improve the health of all people in Washington state.	HB 1181

Term	Definition	Source
Washington Department of Natural Resources (DNR)	Washington State Department of Natural Resources (DNR) protects our state's heritage of natural resources by sustainably managing millions of acres of state lands in forests, under the sea and across agricultural plains. Manage, sustain, and protect the health and productivity of Washington's lands and waters to meet the needs of present and future generations.	HB 1181
Washington Department of Fish and Wildlife (WDFW)	The Washington Department of Fish and Wildlife is dedicated to preserving, protecting, and perpetuating the state's fish, wildlife, and ecosystems while providing sustainable fish and wildlife recreational and commercial opportunities.	WA Department of Fish and Wildlife
Washington Department of Transportation (WSDOT)	WSDOT provides safe, reliable and cost-effective transportation options to improve communities and economic vitality for people and businesses.	WA Department of Transportation
Washington Environmental Health Disparities (WA EHD)	The Washington Environmental Health Disparities Map is an interactive mapping tool that compares communities across our state for environmental health disparities.	WA Department of Health
Weather	Weather is the changes we see and feel outside from day to day.	National Aeronautics and Space Administration (NASA)
Wildland-Urban Interface (WUI)	Wildland-urban interface means the geographical area where structures and other human development meets or intermingles with wildland vegetative fuels.	HB 1181
World Climate Research Programme (WCRP)	The World Climate Research Programme (WCRP) coordinates and facilitates international climate research to develop, share, and apply the climate knowledge that contributes to societal well-being	World Climate Research Programme

L. Menu of Measures

The Menu of Measures is a library of climate goals and policies that Commerce will continue to curate. Click [here](#) to see the current version of the Menu.