

Our objectives today...



Share goals and history of the Climate Pilot Program and Woodland's Role



Understand goals for participating in Climate Pilot Program



Review Steps in Climate Resilience Guidance and develop planning process for Woodlands (Step 1)



Demo climate impacts tool and discuss climate impacts (Step 2)



Identify up to 5 plans for review and discuss plan review template (Step 3)



Clarify roles and discuss project timeline



Steps in the Climate Resilience Guidance



Activity in Pilot Program

Optional

Optional/reduced activity in Pilot Program

Figure 1: Steps and pathways to integrate climate resilience into comprehensive plan





Climate
impacts tool
demo & discuss
climate impacts
(Step 2)

Purpose of Step 2

Build baseline awareness of how climate change is expected to affect your community's sectors (agriculture, transportation, etc.) and their built, natural, and social assets in coming decades.

Climate Model Element Sectors:

- Agriculture
- Buildings & Energy
- Cultural Resources & Practices
- Economic Development
- Emergency Management
- Human Health
- Ecosystems
- Transportation
- Waste Management
- Water Resources
- Zoning & Development

Local Climate Hazards



Increased Heat

Warmer summers with longer and more intense heat waves



Heavy Rains, Flooding, 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 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

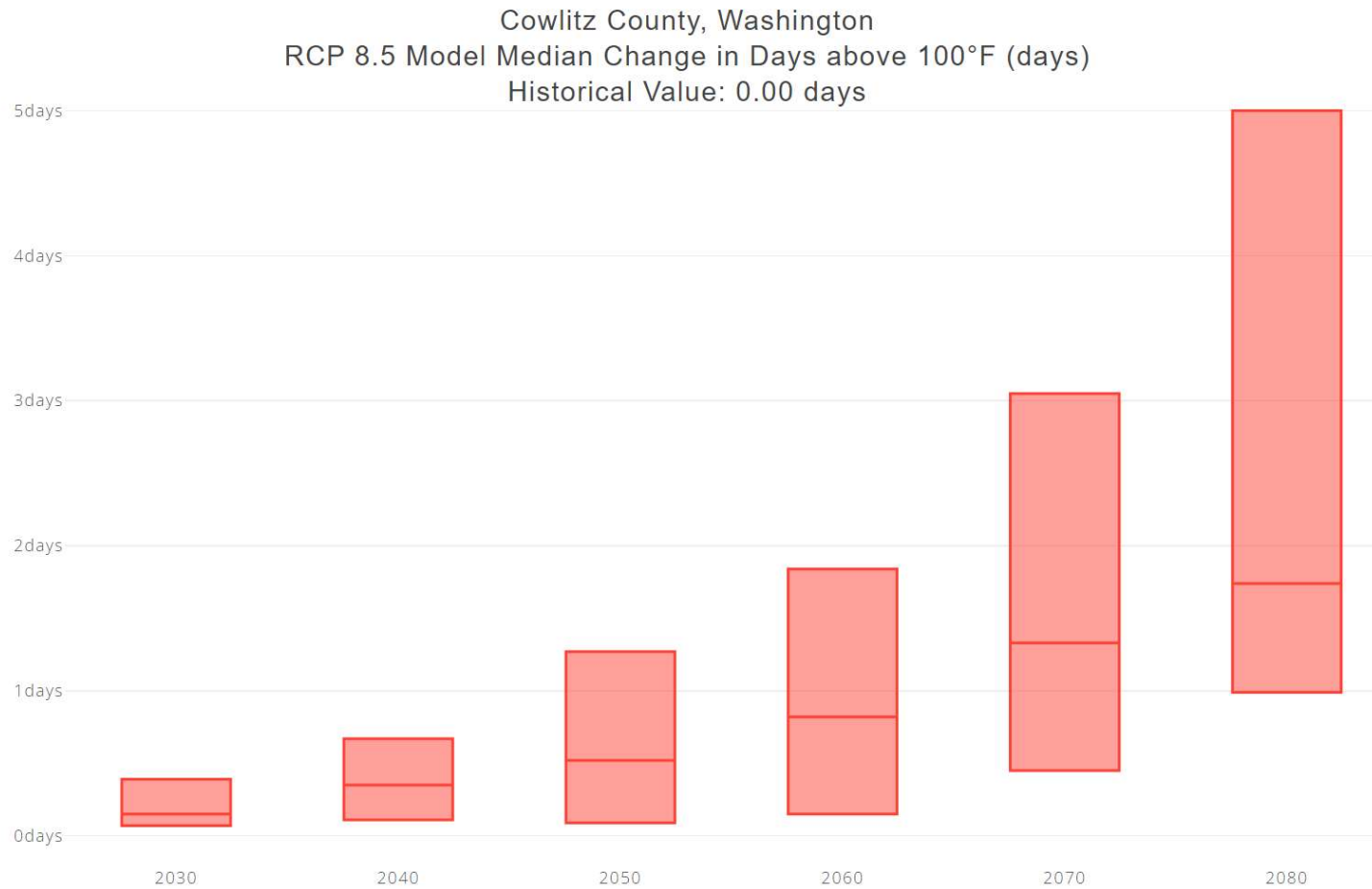
Projected Temperature Changes



	2040-2069	2070-2099
Climate Impact (Source: CIG Tribal Climate Tool*)	Cowlitz Indian Tribe	Cowlitz Indian Tribe
Annual Average Temperature (Historical 1990 48.6°F)	+4.4°F	+6.5°F
Average Daily Summer Max Temperature (Historical 72.5°F)	+5.7°F	+8.1°F
Average number of days with daily max temp above 86°F (Historical 6.2 days)	+15.8 days	+28.3 days
Freeze Free Days (Historical 288.0)	+38.5 days	+49.7 days

* The projections on this table come from the Climate Toolbox and Climate Impacts Group Tribal Climate Tool and use the RCP 8.5 high emissions scenario, accessed on July 6, 2022.

Projected Changes: Hot Days



Projected Precipitation Changes

	2040-2069	2070-2099
Climate Impact (Source: CIG Tribal Climate Tool*)	Cowlitz Indian Tribe	Cowlitz Indian Tribe
Annual Precipitation (Historical 80.0 in)	+1.7 in	+3.4 in
Total precipitation from October to March (Historical 60.9 in)	+3.0 in	+4.7 in
Total precipitation from April to September (Historical 19.1 in)	-0.9 in	-1.4 in

* The projections on this table come from the Climate Toolbox and Climate Impacts Group Tribal Climate Tool and use the RCP 8.5 high emissions scenario, accessed on July 6, 2022.

Projected Precipitation Changes

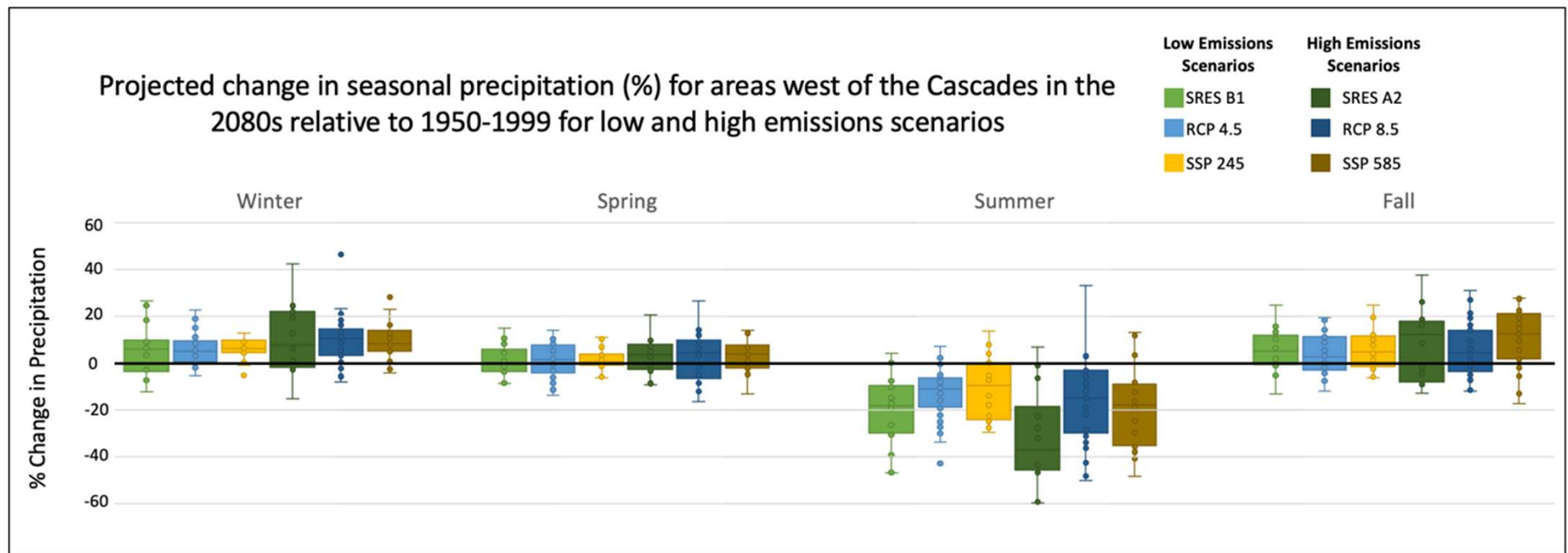
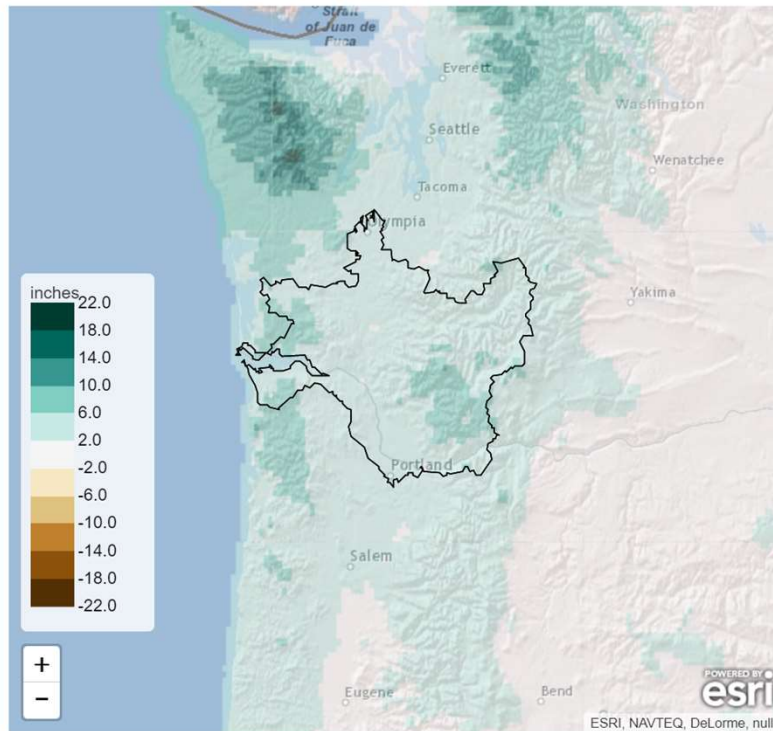


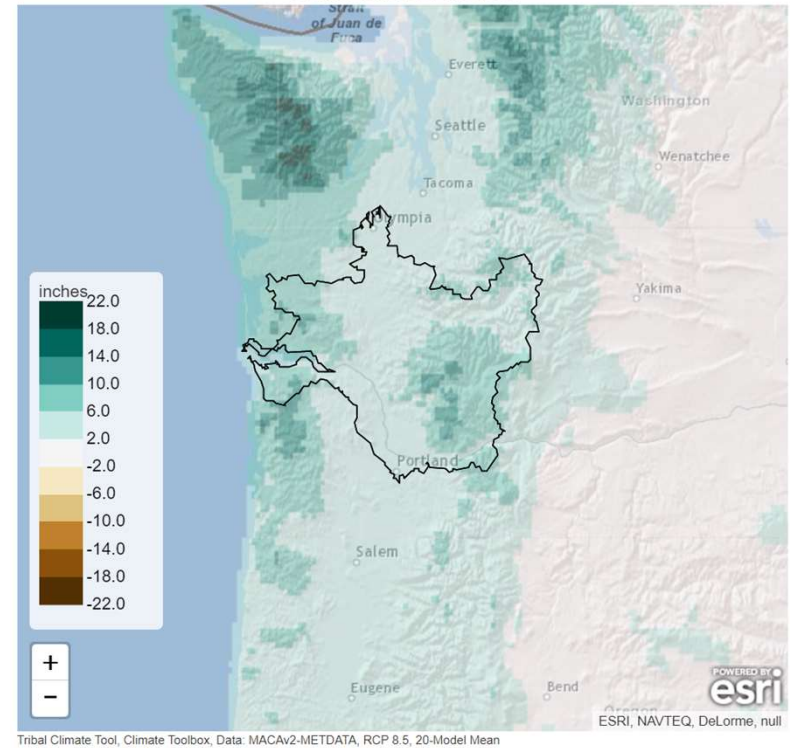
Figure source: adapted from Rogers and Mauger (2021) and created by Cascadia Consulting Group. <https://cig.uw.edu/resources/analysis-tools/pacific-northwest-climate-projection-tool/>

Projected Precipitation Changes

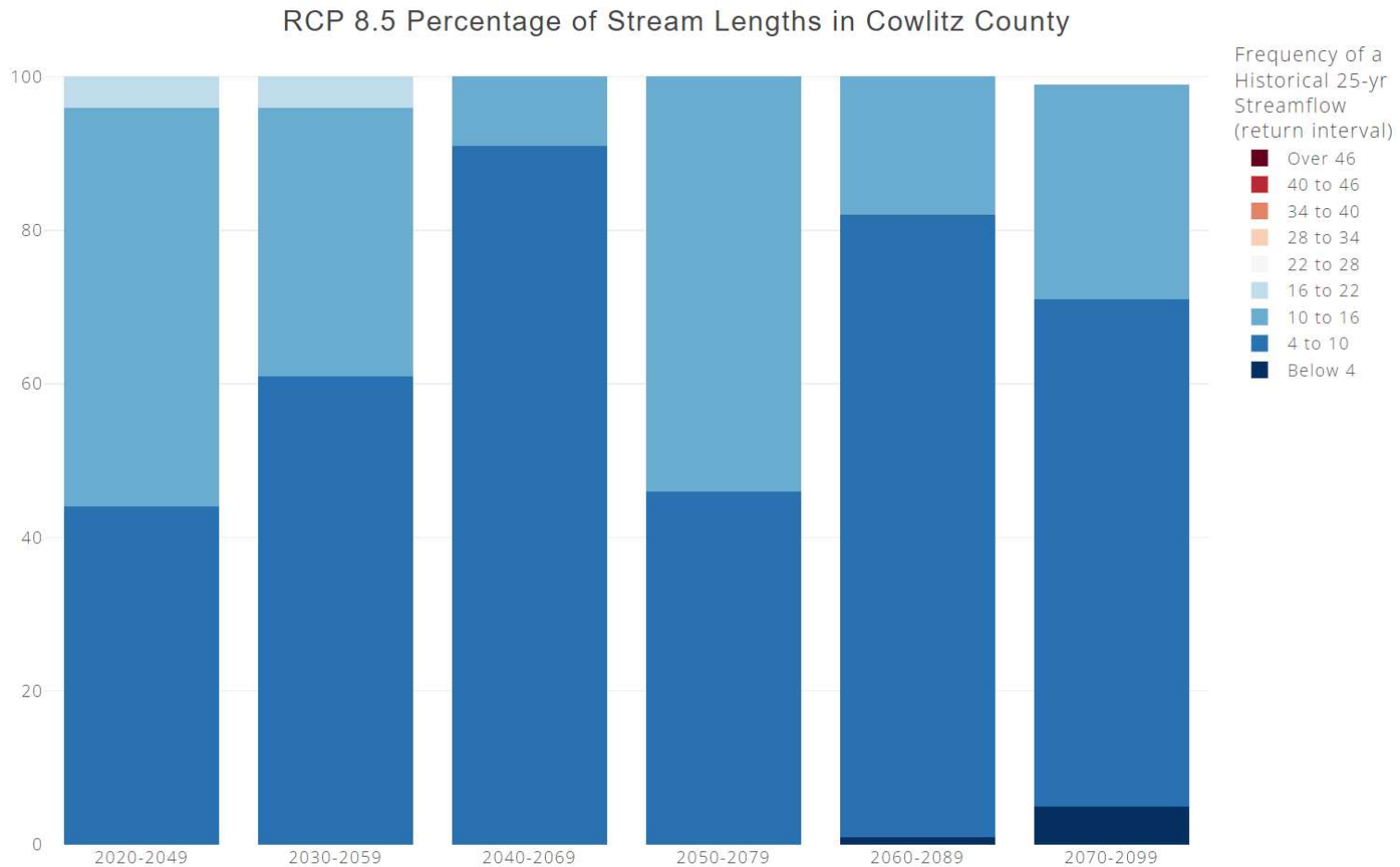
Projected Change in Annual Total Precipitation
2070-2099 (Higher Emissions (RCP 8.5)) vs. 1971-2000 (Historical)
Cowlitz Area of Interest



Projected Change in Oct. - Mar. Total Precipitation
2070-2099 (Higher Emissions (RCP 8.5)) vs. 1971-2000 (Historical)
Cowlitz Area of Interest

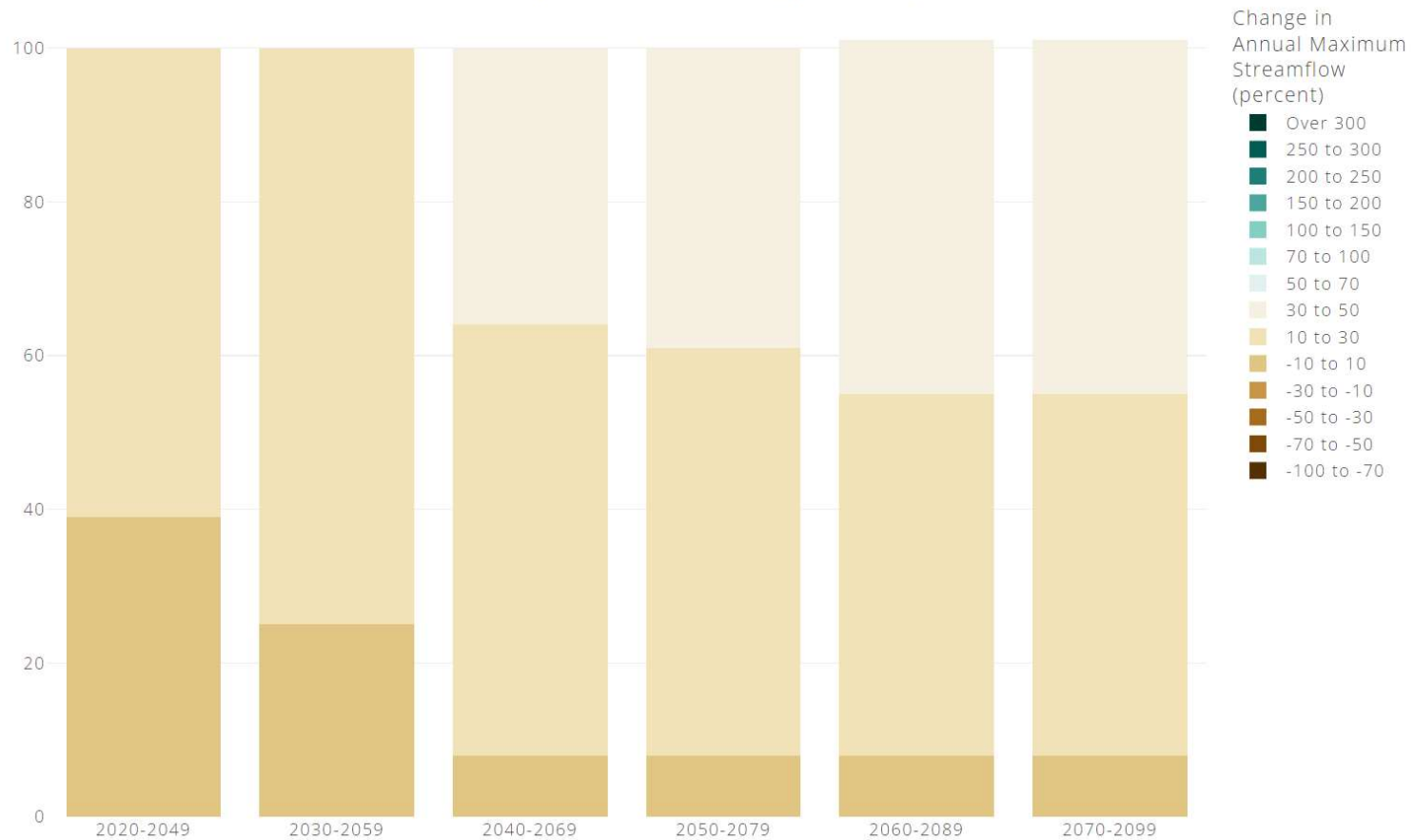


Projected Streamflow Changes



Projected Streamflow Changes

RCP 8.5 Percentage of Stream Lengths in Cowlitz County



Next Steps

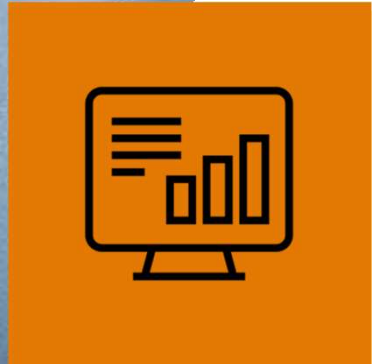
Climate Impacts Analysis

Sector	Change in Climate	Hazard	Climate Impacts	Notes	Nexus with Comp Plan Elements
Agriculture	Late-summer precipitation	Drought	increased water stress for crops in both dryland and irrigated agriculture		Rural; Land Use; Natural Resource Lands
Buildings & Energy					Capital Facilities; Utilities; Housing; Land Use; Ports; Solar Energy; Economic Development; Transportation; Design; Environmental Protection; Conservation
Cultural Resources & practices					Capital Facilities; Housing; Land Use; Rural; Historic Preservation
Economic Development					Economic Development; Land Use; Ports; Capital Facilities; Solar Energy; Conservation
Emergency Management					Capital Facilities; Utilities; Housing; Land Use; Ports; Economic Development; Natural Hazard Reduction
Human Health					Housing; Land Use; Capital Facilities; Park & Recreation; Environmental Protection

Next Steps

Climate Impacts Analysis

Sector	Change in Climate	Hazard	Climate Impacts	Notes	Nexus with Comp Plan Elements
Human Health					Housing; Land Use; Capital Facilities; Park & Recreation; Environmental Protection
Ecosystems					Land Use; Rural; Park & Recreation; Capital Facilities; Conservation; Housing; Natural Resource Lands; Environmental Protection
Transportation					Transportation; Land Use; Housing; Ports; Capital Facilities; Environmental Protection
Waste Management					Capital Facilities; Utilities; Economic Development; Conservation; Environmental Protection
Water Resources					Utilities; Land Use; Capital Facilities; Rural; Conservation; Housing; Economic Development; Park & Recreation; Environmental Protection
Zoning & Development					Housing; Land Use; Capital Facilities; Park & Recreation; Ports; Conservation; Rural; Recreation; Subarea Plans; Economic Development; Environmental Protection



Plans for review and process *(Step 3)*

Relevant Plans: What plans should we review? (up to 5)

- City of Woodland Comprehensive Plan - Woodland Leads?
- ~~Clark County Hazard Mitigation/Emergency Management Plan~~ MRO
- Cowlitz County Hazard Mitigation/Emergency Management Plan – Consulting Team leads
- City of Woodland Water & Sewer Plan – Woodland Leads?
- Cowlitz County Comprehensive Plan – Consulting Team Leads
- City of Woodland Shoreline Master Plan – Woodland Leads?
- Port of Woodland- Updating long range deep water development plan: But bring them in as a stakeholder. -- Port of Woodland Leads?
- Cowlitz County Consolidated Diking District #2—not sure if they have a plan, might be a good stakeholder to pull in.
- [won't be ready, but Travis/David will integrate: Cowlitz County Flood Management Plan (under-development)]

Slide 17

MRO Not this plan (strike out)

Mary Ann Rozance, 2022-10-11T18:15:56.012

Document review template

Document Review Form										
Measure	Document	Sector	Comprehensive Plan Nexus	Change in Climate	Hazards	Impacts	Assets	Gaps and Opportunities	Next Step	
<i>List existing measure (goal or policy) that implicitly or explicitly supports climate resilience.</i>	<i>List the document where the measure is found (comprehensive plan, hazard mitigation plan, shoreline master program, stormwater management plan, etc.)</i>	<i>List the most appropriate sector for the measure</i>	<i>List the measure's nexus with mandatory or optional comprehensive plan elements.</i>	<i>List the climate indicator(s) that are relevant to the measure (changes in snowpack, streamflow, sea level, etc.)</i>	<i>List the climate-related hazard(s) (drought, wildfire, etc.) that the measure addresses.</i>	<i>List climate impacts that the measure addresses now, or could be addressed via policy changes.</i>	<i>List assets (forests, orchards, bridges, etc.) that are affected by the climate impacts you listed.</i>	<i>If applicable, note how the existing measure could be amended or supplemented by a new goal or policy to better address your local climate hazards and impact(s).</i>	<i>Note desired next step (e.g., amend existing measure; add new measure; adopt existing measure in comprehensive plan).</i>	
¹ <i>Develop and implement a comprehensive drought-response strategy that sets action levels for different drought stages</i>	<i>Thurston Climate Adaptation Plan (D-01)</i>	<i>Agriculture</i>	<i>Rural; Land Use; Natural Resource Lands</i>	<i>Late-summer precipitation</i>	<i>Drought</i>	<i>Increased water stress for crops in both dryland and irrigated agriculture</i>	<i>local crops</i>	<i>No changes needed</i>	<i>Adopt into comprehensive plan</i>	

Purpose of Step 3

Assess how well existing local plans and policies build climate resilience.

- Looking for Co-Benefits
- Policy Prioritization

Identifying Co-Benefits

- 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

Step 4: Assess Vulnerability & Risk

November/
December
2022

1 Make a list of valuable assets to the jurisdiction

This should be a general list of social, economic, and environmental assets that your jurisdiction values and wants to protect from harm.

2 List assets and hazards.

List each asset and every climate-influenced hazard that could affect it.

3 Describe the local consequences for each asset-hazard pair

Note past and potential consequences of the hazard exacerbated by climate change.

4 Assess the sensitivity of each asset you paired with a hazard

Assess sensitivity of each asset-hazard pair in qualitative terms (low, medium, or high)

5 Assess adaptive capacity

Consider each assets' attributes in order to assess adaptive capacity qualitatively (low, medium, high)

Optional: Reduced version with 1 climate hazard or sector

Step 4: Assess Vulnerability & Risk

November/
December
2022

6

Characterize vulnerability

Characterize the vulnerability of each asset-hazard pair with a qualitative rating (low, medium, or high)

7

Characterize risk

Characterize the risk of each asset-hazard pair with a qualitative rating (low, medium, or high) using *probability* and *magnitude* as indicators.

8

Decide which risks must be addressed and next steps.

Decide which risks are acceptable or unacceptable for your jurisdiction now and either *take action* or *accept the risk*.

Optional: Reduced
version with 1
climate hazard or
sector

Timeline Overview

