Chapter 2

Mitigation Strategy: Goals, Objectives, and Initiatives

Vision:

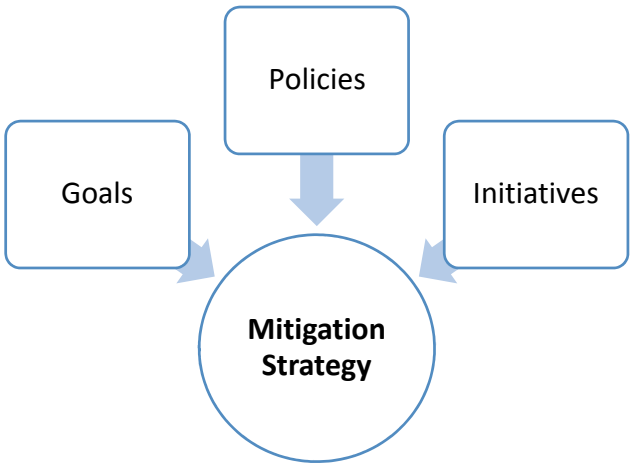
All sectors of the community work together to create a disaster resilient region.

Introduction

The mitigation strategy is a call to action. It is the Thurston Region's blueprint for reducing losses and impacts from the hazards that are identified in this plan's risk assessment. The plan's goals are the overarching principles that communities will base their mitigation planning and investment decision-making upon. The policies further support decision-making to fulfill the plan's goals. The initiatives are specific projects and activities that each jurisdiction identifies, prioritizes, and commits to implementing as a long-term investment to build and maintain disaster resilient communities. Together the plan's goals, policies, and initiatives form the Thurston Region's mitigation strategy.

As this is a multi-jurisdictional plan, the goals and policies are applicable to each plan participant. Moreover, each participant adheres to their jurisdiction's unique comprehensive or strategic plans, policies, and programs that promote and protect the safety and welfare of their community and their services. This plan's mitigation strategy provides a regional framework for local governments to work together with community members and stakeholders to expand the region's collective capacity to protect community assets from natural hazards.

Figure 2.1 Thurston Region Mitigation Strategy



Goals and Policies

The plan includes nine goals to achieve the plan's vision. The goals guide hazard mitigation decision making and investments. Achieving goals 1-5 will protect community assets including people, infrastructure, property, the environment, and the economy. Achieving goals 6-9 builds collective capacity to plan together to implement actions including building community support, expanding understanding of hazards, implementing mitigation strategies, and increasing public awareness.

Thirty-four policies support the plan's goals. Every regional mitigation initiative and each jurisdictional initiative is tied to one or more of the plan's policies.

1. **Protect Life**
   - A. Design, build, operate, and maintain disaster resistant communication systems that provide emergency notifications and instructions.
   - B. Prioritize mitigation actions that directly benefit underserved communities[1] and special needs populations[2].
   - C. Address emergency evacuation needs, prioritizing areas of the community where mitigation strategies are ineffective or cost prohibitive.
   - D. Train and equip emergency service providers to effectively respond to hazard events.
2. **Protect Infrastructure**
   - A. Maintain and upgrade roads, bridges, and other transportation infrastructure and services to withstand the effects of hazards without prolonged operational disruptions.
   - B. Maintain and upgrade utility systems and services to withstand the effects of hazards without prolonged operational disruptions.
   - C. Maintain or replace public buildings such as offices, schools, and other facilities to withstand the effects of hazards.
   - D. Strengthen or relocate critical facilities or create protective spaces or infrastructure around them so they are not significantly affected by the effects of hazards.
3. **Protect Property**
   - A. Minimize the number of properties that are situated in hazard prone locations.
   - B. Protect and preserve vital records, data, information technology systems, and facility contents.
   - C. Safeguard objects or places that have cultural or historic significance.

[1] Executive Order 13985 On Advancing Racial Equity and Support for Underserved Communities Through the Federal Government defines "underserved communities" as "populations sharing a particular characteristic, as well as geographic communities, that have been systematically denied a full opportunity to participate in aspects of economic, social, and civic life…"

[2] Special Needs Populations: Populations whose members may have additional needs before, during, and after an incident in functional areas, including but not limited to: maintaining independence, communication, transportation, supervision, and medical care. Individuals in need of additional response assistance may include those who have disabilities; who live in institutionalized settings; who are elderly; who are children; who are from diverse cultures; who have limited English proficiency or are non-English speaking; or who are transportation disadvantaged. Glossary, National Response Framework

4. **Protect the Environment**

   A. When possible, use mitigation strategies that preserve ecological functions of natural systems.

   B. Consider mitigation actions that restore natural systems that provide protective measures to surrounding properties.

   C. Continue evaluating the effectiveness of Critical Areas Ordinances and development regulations and revise as necessary to ensure development does not occur in areas prone to hazards or changing environmental conditions that threaten public safety.

   D. Support efforts to increase local jurisdictions' abilities to appropriately respond to hazardous material releases.

5. **Sustain the Economy**

   A. Develop and maintain efforts to prepare recovery plans.

   B. Focus on mitigation strategies that protect medical treatment centers, employment centers, commercial districts, and schools.

   C. Coordinate with regional, state, and federal agencies to identify and prioritize continuity of operations on lifeline transportation corridors and systems.

   D. Strengthen public-private partnerships to reinforce or establish redundancy for critical supply systems.

   E. Develop and maintain continuity of operations plans for essential public safety services.

6. **Build Community Support**

   A. Coordinate and provide leadership in the hazard mitigation planning process among local, tribal, state, and federal government entities.

   B. Engage residents, businesses, employers, medical centers, utility companies, subject matter experts, community, and faith-based organizations as partners to help identify opportunities to strengthen the region's hazard resilience.

   C. Update the region's Hazards Mitigation Plan every five years, or sooner if necessary to respond to emerging threats.

7. **Expand Understanding of Hazards**

   A. Monitor and evaluate precipitation, groundwater, and stream flow levels, and survey flood high water marks.

   B. Partner with state and federal agencies, colleges, universities, and nongovernmental organizations to participate in modeling programs to map areas at risk from hazards.

   C. Participate in regional or statewide disaster scenario exercises to assess mitigation, preparedness, response, and recovery capacities, and apply lessons learned to mitigation activities.

D. Incorporate best available climate change science and data into hazard mitigation planning.

E. Develop a better understanding of the location and mitigation needs of underserved communities and special needs populations.

F. Document, share, and act on lessons learned following disaster events.

8. **Implement Effective Mitigation Strategies**

A. Focus mitigation efforts on the region's greatest risks and vulnerabilities.

B. Integrate adopted mitigation strategies into other planning documents such as response plans, comprehensive plans, strategic plans, Critical Areas Ordinances, Capital Facility Plans, zoning code, and development regulations.

C. Apply for federal mitigation assistance grants and leverage other funding sources to finance mitigation projects.

9. **Increase Public Awareness**

A. Develop and sustain communication campaigns with residents, customers, businesses, and other stakeholders about the known risks of hazard events and the actions that community members or organizations can take to prevent or minimize losses.

B. Conduct broad outreach activities to engage all sectors of the community in the hazards mitigation planning process.

Revisions to Goals and Policies

The Hazard Mitigation Workgroup reviewed the plan's goals and policies during the plan update process. The goals remain the same. Five policies were revised and one new policy was added. Revisions were performed to clarify policy intent or to establish consistency between the plan's policies and new FEMA Local Mitigation Planning Policy guidance that became effective in April 2023. The following revisions were incorporated into this plan:

- Policy 1B was updated to emphasize the region's need to prioritize mitigation actions that benefit underserved communities and special needs populations.
- Policy 2B was revised to clarify that utilities should be protected from hazards to additionally withstand prolonged operational disruptions.

- Policy 7B was revised to address all areas at risk from hazards, not just high-risk areas.
- Policy 7D, a new initiative, was added to incorporate best available science and data about climate change into hazard mitigation planning.
- Policy 7E (formerly 7D) was revised to replace "vulnerable" with "underserved communities."
- Policy 9A, the word "ongoing" was removed.

Consistency with Washington State Hazard Mitigation Goals

The Washington State Enhanced Hazard Mitigation Plan, last updated in 2023, establishes the statewide hazard mitigation strategy and provides guidance to local governments. The Thurston region's goals and policies are unique to the needs of our communities, but there is consistency between the state's and the Thurston Region's policies.

Table 2.1 Washington State and Thurston Region Hazard Mitigation Planning Policy Relationships

	Washington State Enhanced Hazard Mitigation Plan Goals	Thurston Region Hazard Mitigation Policies
1	Reduce the impacts of natural hazards on our community lifeline infrastructure and other critical assets.	2A, 2B, 2C, 2D
2	Prioritize effective long-term partnerships across all levels of government.	6A
3	Allow the risk and vulnerability assessments to drive the State's Mitigation Strategy and prioritization of mitigation actions.	8A
4	Improve our understanding of multi-hazard environments.	7A, 7B, 7C, 7D, 7E, 7F
5	Embed cultural understanding into our mitigation work.	3B, 3C
6	Ensure improved and equitable access to hazards information.	9A, 9B
7	Champion and prioritize people-centered mitigation actions in addition to property-centered ones.	6B, 7E, 3A
8	Emphasize the role of sustainable development and climate adaptation in hazard mitigation.	7D, 8B
9	Strategically reduce the number of repetitive loss and severe repetitive loss properties.	3A
10	Ensure all counties and sub-county jurisdictions in Washington understand their hazard risks and are eligible for mitigation funding opportunities.	6C

Progress Toward Goals and Policies

The region's mitigation partners have made steady progress toward fulfilling the plan's goals and policies. The plan's mitigation strategy is ongoing and will require ongoing coordination and continuous efforts from all communities, special purpose districts, and other public and private sector partners. Successful progress toward the plan's goals will be measured by the implementation, monitoring, and evaluation of the regional and the jurisdictional adopted mitigation initiatives. The following accomplishments highlight just a few of the successes that Thurston County communities are achieving to become more disaster resilient:

Plan partners – please insert your mitigation success stories in this section. It is acceptable to include a paragraph about mitigation grants you have applied to or funding awards that are pending based on this plan's approval.

1. **Protect Life –** The Thurston County Hazardous Weather Task Force led by Thurston County Public Health and Social Services developed a Hazardous Weather Response Plan. This life saving response plan mitigates extreme winter and summer weather impacts experienced by community members who are unsheltered. The plan coordinates response with local government partners, shelter operators, and other organizations to minimize the risks of hazardous weather on the life safety of vulnerable populations.
2. **Protect Infrastructure –** In June 2022, the Local Emergency Planning Committee, Thurston County Emergency Management, and TRPC invited local agency and Washington State Department of Transportation staff to participate in a one-day Cascadia Rising 2022 Transportation Recovery tabletop training exercise. The event assessed the participants' recovery and interagency coordination transportation planning capabilities for a Cascadia Subduction Zone earthquake scenario. The exercise revealed a strong interest among public works transportation staff to continue building interagency relationships and working together on transportation recovery and mitigation planning.

3. **Protect Property** – In March 2019, the Olympia Sea Level Rise Response Plan was approved by the City of Olympia, the Port of Olympia, and the LOTT Clean Water Alliance. The plan contains a range of potential adaptation strategies including physical, governance, informational, and operational strategies to protect Downtown Olympia and the Port Peninsula from the impacts of sea level rise. Implementation of the plan is occurring through the Olympia Sea Level Rise Collaborative.
4. **Protect the Environment** – In 2023, the City of Olympia submitted a Building Resilient Infrastructure and Communities (BRIC) grant application for a project to underground a sewer line located on a utility bridge in Percival Canyon which, if damage by an earthquake, landslide or severe weather could result in untreated sewage being discharged into Percival Creek and Budd inlet as occurred in 2020 during a severe winter storm. The project was selected for funding pending FEMA approval of the Hazard Mitigation Plan update.
5. **Sustain the Economy** – At the onset of COVID-19, Thurston County, Lacey, Olympia, Tumwater, the Economic Development Council, and several other community-based organizations formed the Thurston Strong coalition. The coalition took immediate action to help businesses and workers weather the emergency (a hotline, protective gear, childcare support, $9 million in grants) and implemented a 24-month plan to accelerate regional economic recovery and support workers seeking new job opportunities.
6. **Build Community Support** – In February 2019, over 100 local government elected officials, department leaders, staff, and community stakeholders participated in a four-day FEMA sponsored Integrated Emergency Management Course on disaster recovery and mitigation. The outcome of this exercise increased leadership awareness of disaster recovery and mitigation. A Disaster Recovery Council was formed in January 2022 to update the Thurston Region's Disaster Recovery Framework.
7. **Expand Understanding of Hazards** – Since February 2017, FEMA has worked with the City of Olympia and Thurston County on a Risk MAP process to conduct a flood study for 26 lakes in the City of Olympia and 40 lakes in Thurston County. Analyses included survey, hydrology, and flood risk products that will ultimately be used to support Flood Insurance Rate Map (FIRM) development, risk communications, and mitigation actions for the City of Olympia and Thurston County. A public outreach process was convened in Fall 2022 to inform affected property owners about the potential changes to FIRMs. A Final Letter of Determination is expected in November 2023.

   In 2021, Thurston County secured a grant from the Washington Department of Natural Resources and US Geological

Survey through the 3D Elevation Program to acquire QL1 LiDAR data for the entire county. This data will greatly improve the county's ability to update its wetland inventory, landslide hazard areas, and river channel migration zones more accurately.

8. **Implement Effective Mitigation Strategies** – In 2020, Thurston County and the cities of Lacey, Olympia, and Tumwater in partnership with TRPC produced the region's first Climate Mitigation Plan. The plan recognizes the increasing risks of natural hazards the region will experience due to the effects of climate change. The plan presents a comprehensive strategy for the plan partners to reduce carbon emissions. In 2023, the Sea Level Rise Collaborative, including the Squaxin Island Tribe and the Washington State Department of Enterprise Services, submitted a letter of intent for the National Oceanic and Atmospheric Administration's Resilience Challenge. The project request includes building sea level rise flood protection measures, Deschutes Estuary restoration, project staffing, and analyzing the City of Olympia's combined sewer and storm system for retrofits.

In October 2017, Thurston County updated its Flood Hazard Mitigation Plan. Thurston County's flood mitigation investments in public information, flood mapping and regulations, flood damage reduction, and warning and response activities has earned it enough credit to earn a Class 2 Rating for the National Flood Insurance (NFIP) Program's Community Rating System (CRS). Only eight communities in the U.S. have earned a Class 1 or 2 CRS rating. The Class 2 rating affords NFIP policy holders a 40% discount on their flood insurance premiums.

9. **Increase Public Awareness** – In 2023, West Thurston Regional Fire Authority in partnership with the Thurston Conservation District and Washington State Department of Natural Resources launched a Wildfire Ready Neighbors Program in southwest Thurston County. The program provides direct contact with Thurston County residents to identify actions that property owners can take to reduce their risks for wildfire.

Also in 2023, Thurston County Emergency Management hosted a series of two-day Assessing Structure Ignition Potential from Wildfire workshops. The training was delivered by wildland fire specialists to instruct participants on the physical and behavioral sciences behind wildfire mitigation. These workshops were made available through FEMA Hazard Mitigation Grant Program Post Fire funding.

Mitigation Initiatives

Central to the hazard mitigation plan are the proposed projects, programs, and activities the plan participants will implement to provide long-term and sustained benefits that will reduce losses from the impacts of the hazards that are identified in this plan's risk assessment. Each action or initiative was evaluated and scored by benefit-cost review criteria. Each initiative will require significant investments in planning, design, and construction or coordination, and may take years to complete or be sustained as an ongoing activity. The desired outcomes of this plan's mitigation strategy are that communities:

- Build the necessary capacity to improve their knowledge of hazards and their risks.
- Identify and implement actions that will effectively reduce their jurisdiction's vulnerabilities to the hazard identified in the risk assessment; and
- Implement strategies that will fulfill the plan's goals and policies.

The plan defines two sets of mitigation initiatives. Through the adoption of both the Regional Mitigation Initiatives from the core plan and the jurisdiction-specific annex initiatives, each community formulates a comprehensive mitigation strategy tailored to its specific needs.

1. **Regional Mitigation Initiatives**: These are countywide actions that were identified by members of the Hazards Mitigation Workgroup and stakeholders and approved by the Emergency Management Council. Many of these actions have carried over from previous plans. The initiatives, if implemented, will benefit multiple jurisdictions and improve interagency hazard mitigation planning capabilities. The regional initiatives will be overseen by the Emergency Management Council, the Hazard Mitigation Planning Workgroup, and other leads. Thurston County Emergency Management staff will play a role in convening and coordinating stakeholders, and for some actions, managing the actions' implementation.
2. **Jurisdictional Initiatives**: Each plan partner identifies actions that address specific vulnerabilities in their community. The plan partners are responsible for implementing their actions. Each plan partners' initiatives are presented in their respective annex.

Types of Mitigation Activities

There are seven types of mitigation activities that jurisdictions can perform to reduce or eliminate current and future vulnerabilities. Each initiative primarily falls into one of the following categories, although the scope of some initiatives may incorporate activities from more than one category:

1. **Public Outreach and Information:** Information and outreach activities that improve the public's understanding of hazards, their impacts, and steps that people and organizations can take to reduce their risks.
2. **Plan Coordination and Implementation:** Developing emergency plans, coordinating their implementation across multiple agencies, training, and communications to improve community response and resiliency to hazards.
3. **Data Collection and Mapping:** Studies, data collection, monitoring programs, and mapping to improve a community's understanding of hazards to better inform decisions and investments to reduce risks.
4. **Development Regulations:** Developing or reviewing and updating strategic plans, codes, policies, and programs to incorporate best practices in hazard mitigation. Such activities influence the way land is developed and buildings are constructed.
5. **Hazard Preparedness:** Investments in emergency warning and alert notification systems, specialized training to enhancing emergency response, and stockpiling emergency supplies and materials.
6. **Hazard Damage Reduction:** Acquisition, elevation, relocation, seismic retrofits, modernization, and other modifications to or surrounding existing buildings and structures to protect them from hazards.
7. **Critical Facilities Replacement/ Retrofit:** Hazard damage reduction activities for key lifeline facilities such as medical facilities, police and fire stations, water treatment systems, bridges, communications, and other critical community assets.

Identification and Preparation of Mitigation Initiatives

Thurston Regional Planning Council provided guidance to the Hazard Mitigation Workgroup members who in turn coordinated with their jurisdiction planning team to prepare their mitigation strategies. Thurston Regional Planning Council provided numerous resources to assist the plan participants with their initiative development process, including:

- Updated Risk Assessment with hazard risk ratings
- Level 2 Hazus model critical facilities vulnerability analysis results

- Hazard maps
- Demographic data
- An online GIS map with hazard layers and critical facilities
- Updated Goals and Policies
- A copy of previous annexes with the initiatives
- Capability assessment worksheets
- An updated mitigation initiative template with instructions
- FEMA's "Local Mitigation Planning Handbook"
- FEMA's "Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards"
- A catalogue of risk reduction measures
- Benefit-Cost Review Criteria and worksheet
- Public Engagement Activities including two community surveys and an online open house

The process for evaluating vulnerabilities and identifying a range of alternative mitigation actions to reduce actual and potential hazard exposure varies among jurisdictions depending on their capabilities and resources. In general, workgroup members collaborated with staff and/or committees within their jurisdictions that were most familiar with their infrastructure, facilities, key assets, services, and their incorporated boundaries or service areas. Local planning partners referenced a variety of jurisdiction-specific resources such as their comprehensive plans, strategic plans, emergency management plans, capital facility plans, after action review reports, other planning documents, and local knowledge to compile existing mitigation activities. Jurisdictions also considered existing initiatives from the previous plan and identified new and original initiatives identified as part of this plan's update process.

Benefit-Cost Review Criteria

A benefit-cost review is an assessment tool for weighing the various probable benefits that a mitigation action is expected to produce versus the cost to implement the action. This tool is useful for:

- Comparing a limited number of alternative actions to select a preferred action that will best serve the needs of a community to minimize or eliminate a vulnerability.
- Ranking the order of a set of actions based on their scores to sort the actions' order of implementation (higher scoring actions result in a higher priority implementation status).

During the development of the mitigation strategy, each action was screened using eight point-based criteria. Five points were awarded for high benefit, three points for medium benefit, and one point for low benefit. Each initiative could score a potential maximum

of 40 points. Four additional but optional criteria were available to jurisdictions that required a more comprehensive review or a greater differentiation in point-based outcomes. The criteria and the scoring matrix are presented in Figure 2.2.

Regional Mitigation Initiative Scoring

A volunteer panel of the Hazard Mitigation Workgroup performed the benefit-cost review for the regional initiatives. The panel discussed all eight criteria including their definitions, how each criterion would be applied to each initiative, and the process for scoring the actions. A round robin approach was used to score each initiative for each criterion. For each action and every criterion, every panel member shared their perspectives and their score. Each action's point assignment was achieved through consensus. The Regional Mitigation Initiative Benefit-Cost Review Worksheet results are shown in Figure 2.3 at the end of this chapter.

Jurisdictional Mitigation Initiative Scoring

Each jurisdiction's planning team performed a benefit cost review process for their actions. The details of jurisdictional benefit-cost review scoring processes are documented in the annexes.

Figure 2.2 Mitigation Actions Benefit-Cost Review Criteria and Scoring Matrix

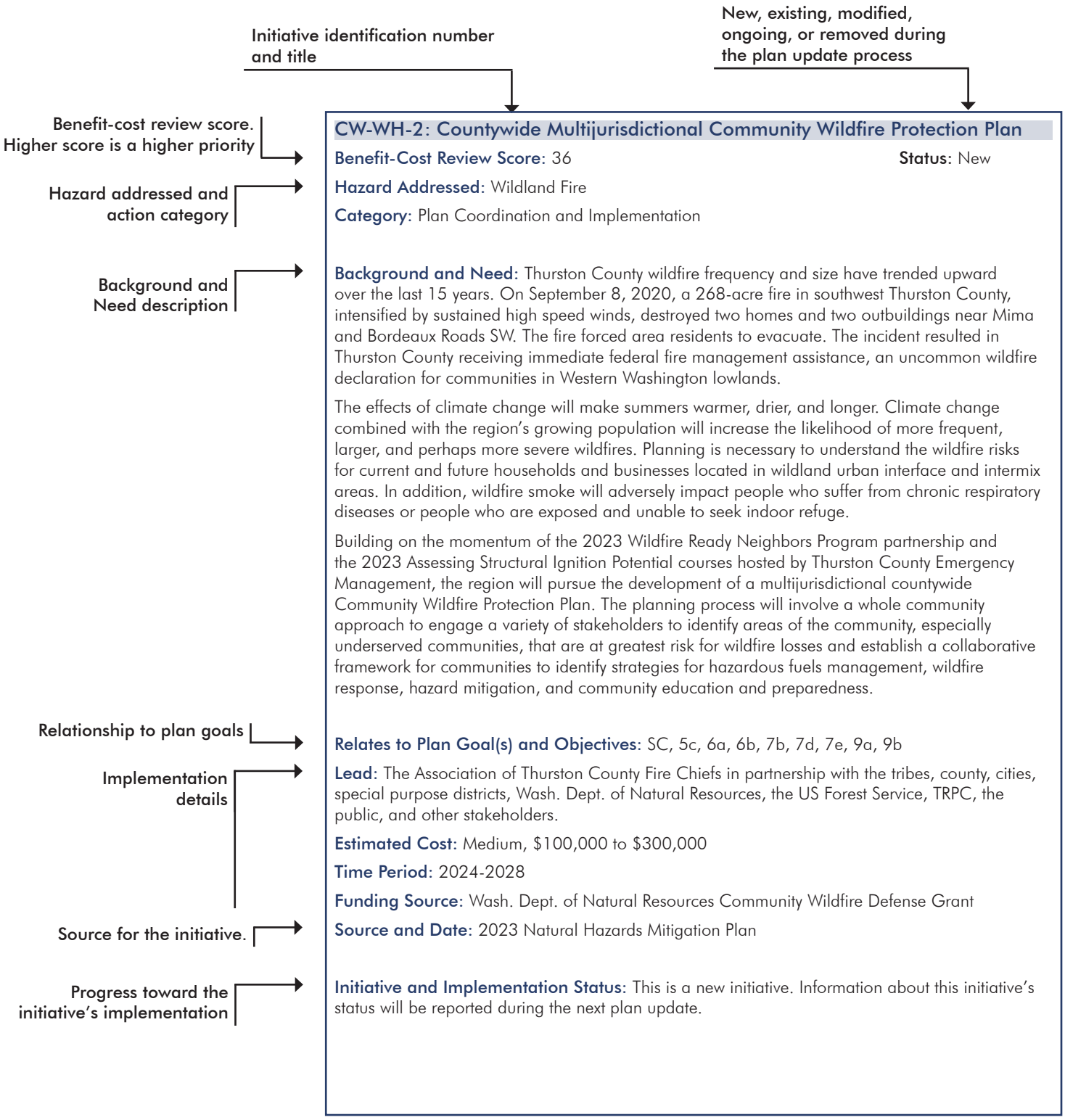
HIGH BENEFIT		MEDIUM BENEFIT		LOW BENEFIT		NO BENEFIT	
Description	Pts	Description	Pts	Description	Pts	Description	Pts
1. Project Cost: The total cost to implement an action or project over its lifecycle. The action's outcomes should provide a protective benefit, be sustained, and exceed the cost to implement the action Lower cost initiatives with higher benefits should be a priority.							
Low cost, less than $100K	5	Medium cost, $100K-$500K	3	High cost, more than $500K	1	Cost far exceeds the anticipated benefits	0
2. Hazard Risk Rating: Actions that address high risk hazards or hazards that produce greater community vulnerabilities should be a community priority.							
Action addresses a jurisdiction's High-Risk Hazard	5	Action addresses a Medium-Risk Hazard	3	Action addresses a Low-Risk Hazard	1	Action Addresses a no-risk hazard	0
3. Goal and Policy Fulfillment: Actions that will achieve plan goals and policies should be a community priority.							
Action strongly supports at least four policies	5	Action supports at least two policies	3	Action supports one policy	1	Action does not support plan policies	0
4. Life Safety: An actions ability to protect the safety of residents, businesses, property, and community lifelines.							
Action will produce significant and lasting public safety benefits for residents, businesses, and property	5	Action will produce public safety benefits…	3	Action will produce minimal public safety benefits…	1	Action has no public safety benefits	0
5. Social Vulnerability[1]**:** Does the action directly benefit underserved communities or individuals or groups that are socially vulnerable?							
Action will produce a significant and direct benefit for socially vulnerable or underserved communities	5	Action will produce a benefit…	3	Action will have minimal benefit…	1	Action does not benefit socially vulnerable or underserved communities	0
5. Changes in Development: Does the action directly account for changes in development due to recently completed or planned construction or changes in policies, standards, codes, or regulations that influence development patterns?							
Action includes measures that strongly account for changes in development	5	Action includes measures that account for changes in development	3	Action includes minimal measures that account for changes in development	1	Action does not account for changes in development…	0
7. Climate Change: Does the action address a hazard that will present greater risks in the future due to the effects of climate change?							
Action strongly accounts for the effects of climate change on the hazard it addresses	5	Action accounts for the effects of climate change…	3	Action minimally accounts for the effects of climate change…	1	Action does not account for the effects of climate change…	0
8. Geographic Impact: Does the action address a hazard for the entire geographic area that is affected or at risk?							
Action addresses hazard risks for the entire affected area of the community	5	Action address risks across at least half of the affected area	3	Action address risk for a very limited portion of the affected area	1	Action does not address risks within the affected area	0

[1]Local governments have a responsibility to ensure that the plan's mitigation strategy complies with all applicable legal requirements related to civil rights, to ensure nondiscrimination. Compliance can help achieve equitable outcomes through the mitigation planning process for all communities, including underserved communities and socially vulnerable populations.

Mitigation Initiative Format

Every action in the plan follows a consistent format. Each initiative has a unique identification number, a title, a background and needs description, its benefit-cost review score, the hazard addressed, mitigation category, relationship to goals and policies, department or project lead, cost estimate, timeline for implementation, potential funding sources, relationship to other community planning documents – if applicable, and implementation status. Refer to Figure 2.3 for the layout of the mitigation initiative content.

Figure 2.3 Sample Mitigation Initiative



Regional Mitigation Strategy

The Regional Mitigation Strategy consists of 12 multijurisdictional initiatives that, if implemented, will improve the region's ability to coordinate hazard mitigation planning, assess risks, respond to natural hazards, and protect community assets. Seven initiatives are carried over from the previous plan. Five new initiatives were added through the plan update process.

Priority Actions

Table 2.2 presents the regional mitigation actions. The actions are sorted by their mitigation category and ranked by their benefit-cost review score. Five actions have benefit-cost review scores that are 32 points or higher, representing the top five highest-ranking actions in the plan (see title annotations in Table 2.2).

Regional Mitigation Strategy Action Survey Results

In Summer 2023, TRPC hosted an online open house and community survey to solicit feedback on the Regional Mitigation Strategy actions. The survey asked respondents "Based on your understanding of hazards and how they might impact you or your community, select the three actions that you would like to see prioritized highest." Only 70 people answered this question. Although the responses are not statistically meaningful, the survey respondents' top three actions align with three of the five highest benefit-cost review scored actions. Table 2.2 shows the percentage of survey participants that selected each initiative as one of their top three choices.

Table 2.2 Regional Mitigation Strategy Initiatives

Mitigation Categories and Initiative Description	Status	Benefit-Cost Review Score	Action Survey Results
Public Outreach and Information			
CW-MH-6 Regional Hazard Mitigation Public Outreach Strategy (Top 5) Continue countywide outreach and education activities to inform all sectors of the community about natural hazards and steps people and organizations can take to reduce their risks. Attention will focus on socially vulnerable populations who are at higher risk.	Ongoing	36	23%
Plan Coordination and Implementation			
CW-WH-2 Community Wildfire Protection Plan (Top 5) Develop a countywide plan that identifies areas that are at risk for wildfire losses and prioritize strategies for reducing and controlling vegetative fuels, wildfire response, and community education and preparedness.	New	36	37%
CW-SH-2 Extreme Heat Incident Response and Illness Prevention Plan (Top 5) Develop a countywide plan to improve the region's response during extreme heat incidents. The plan will identify capabilities and strategies needed to reduce heat-related injuries and deaths.	New	32	41%
CW-MH-13 Ongoing Hazard Mitigation Planning Workgroup Coordination Establish regular meetings among local government partners to implement, monitor, evaluate and maintain the Hazard Mitigation Plan's actions and risk assessment.	New	30	23%
CW-DH-1 Evacuation Route Planning for Catastrophic Dam Failure and Volcanic Lahar Develop an evacuation plan for potential dam failure and lahar hazards in coordination with residents, businesses, and other stakeholders. The plan will include routes, alert notification protocols, signs, staging areas, public education, emergency sheltering needs, operational plans, and training for organizations and personnel who would be involved in evacuation operations.	Modified	26	4%
Data Collection and Mapping			
CW-MH-11 Countywide Emergency Shelter Capacity and Operational Assessment (Top 5) Conduct a pre-disaster emergency shelter facilities assessment to look at staffing requirements, support services, material resources, funding, and agreements to support shelter operations for a range of capacities, durations, and needs.	Modified	34	40%
CW-MH-4 Develop a Regional Transportation Resiliency Plan Identify and map "lifeline" transportation routes that are critical for regional mobility, public safety, and economic resiliency. A plan will guide long-term transportation infrastructure strengthening projects.	Existing	28	31%
CW-MH-12 Hazard Modeling and Loss Estimation Capacity Building Build local knowledge and technical skills to develop, operate, and maintain community-specific GIS-based hazard modeling tools that include local data. Local modeling tools can inform planning and decision making for hazard mitigation, emergency management, and disaster recovery, and training.	Modified	28	6%

Mitigation Categories and Initiative Description	Status	Benefit-Cost Review Score	Action Survey Results
CW-MH-1 Critical Infrastructure Inventory Maintain an accurate and complete database of critical infrastructure such as bridges, water systems, medical facilities, energy utilities, etc. to improve communities' ability to look at risks, identify vulnerabilities, maintain situational awareness, and prioritize the restoration of essential lifeline services during post-disaster recovery.	Ongoing	24	26%
CW-LH-1 Countywide Landslide Hazards Mapping Enroll in the Washington Geological Survey Landslide Hazards Program to accurately inventory and map the county and cities' landslide hazards.	New	22	3%
Hazard Preparedness			
CW-MH-7 Critical Asset Management System Critical assets include subject matter expert personnel, specialized teams, and specialized equipment that supports emergency response and recovery needs. Developing and maintaining an inventory of these resources and a system for tracking requests can help reduce losses and speed recovery activities for both pre- and post-disaster emergency situations.	Existing	23	21%
Critical Facilities Strengthening			
CW-SL-1 Olympia Sea Level Rise Response Plan Implementation (Top 5) Implement the strategies in the Olympia SLR Response Plan, which aims to reduce risks from emerging sea level rise hazards. Downtown businesses, the Port of Olympia's Marine Terminal, and the LOTT Clean Water Alliance Budd Inlet Wastewater Treatment Plant are some of the valued assets and critical facilities that will require protection.	New	32	13%

CW-MH-6: Regional Hazard Mitigation Public Outreach Strategy

Benefit-Cost Review Score: 36 **Status:** Ongoing

Hazard Addressed: Multi Hazard

Category: Public Information

Background and Need: Ongoing public outreach and education for hazard mitigation is necessary to engage and inform all sectors of the community to become more disaster resilient. This action should ensure that useful information is tailored to socially vulnerable and underserved populations. This comprehensive hazard mitigation public outreach strategy entails crafting clear and accessible messages that educate the public on potential threats from dam failures, earthquakes, flooding, landslides, sea level rise, severe weather, tsunamis, volcanic lahars, and wildfires. This multihazard approach will foster awareness, preparedness, and resilience within the community.

A Summer 2022 Community Hazards Resiliency Survey revealed that a majority of Thurston County residents currently receive or prefer to receive information about natural hazards from their local governments, in addition to local or regional news media. Regular messaging and outreach activities should provide useful information for social service providers, households, businesses, and major employers to improve their understanding of natural hazards and the effects of climate change to help people and organizations minimize losses. Information should be regularly disseminated through a variety of modes:

1. Sharing information with social service providers and housing shelters
2. Convening an annual fall season in-person Emergency Preparedness Expo
3. Hosting annual summer and winter weather hazard seminars
4. Facilitating hazard mitigation and emergency planning seminars for elected officials and staff
5. Staffing and information sharing at a variety of regularly occurring community events
6. Publishing information on social media and websites
7. Distributing the Thurston County Flood Bulletin and other local agency e-newsletters
8. Cross-promotion partnerships with other area agencies

Relates to Plan Goal(s) and Policies: 1B, 5B, 6A, 6B, 9A, 9B

Lead: Thurston County Emergency Management Council in partnership with the tribes, state and federal agencies, county, cities, fire districts, and other special purpose districts.

Estimated Cost: Low on an annual basis.

Time Period: Ongoing

Funding Source: General funds, grant program funds for specific projects

Source and Date: 2009 Natural Hazards Mitigation Plan

Initiative and Implementation Status: In 2023, this existing initiative was revised to become an ongoing action. Emergency Preparedness Expos were held in 2018 and 2019, but paused in 2020-2022 as a safety precaution during the COVID Pandemic. The expo will resume in-person in Fall 2023. In 2022, staff attended over a dozen community events to perform outreach on hazard mitigation. The Emergency Management Council convened its annual Executive Seminars every year through the pandemic (online meetings) and resumed in-person meetings in 2022. Thurston County Emergency Management hosted online summer and winter weather hazard seminars. The plan partners conducted a countywide resiliency survey in Summer 2022 as part of the Hazard Mitigation Plan update process.

CW-WH-2: Community Wildfire Protection Plan

Benefit-Cost Review Score: 36 **Status:** New

Hazard Addressed: Wildland Fire

Category: Plan Coordination and Implementation

Background and Need: Thurston County wildfire frequency and size have trended upward over the last 15 years. On September 8, 2020, a 268-acre fire in southwest Thurston County, intensified by sustained high speed winds, destroyed two homes and two outbuildings near Mima and Bordeaux Roads SW. The fire forced area residents to evacuate. The incident resulted in Thurston County receiving immediate federal fire management assistance, an uncommon wildfire declaration for communities in Western Washington lowlands.

The effects of climate change will make summers warmer, drier, and longer. Climate change combined with the region's growing population will increase the likelihood of more frequent, larger, and perhaps more severe wildfires. Planning is necessary to understand the wildfire risks for current and future households and businesses located in wildland urban interface and intermix areas. In addition, wildfire smoke will adversely impact people who suffer from chronic respiratory diseases or people who are exposed and unable to seek indoor refuge.

Building on the momentum of the 2023 Wildfire Ready Neighbors Program partnership and the 2023 Assessing Structural Ignition Potential courses hosted by Thurston County Emergency Management, the region will pursue the development of a multijurisdictional countywide Community Wildfire Protection Plan. The planning process will involve a whole community approach to engage a variety of stakeholders to identify areas of the community, especially underserved communities, that are at greatest risk for wildfire losses and establish a collaborative framework for communities to identify strategies for hazardous fuels management, wildfire response, hazard mitigation, and community education and preparedness.

Relates to Plan Goal(s) and Policies: 3C, 5C, 6A, 6B, 7B, 7D, 7E, 9A, 9B

Lead: The Association of Thurston County Fire Chiefs in partnership with the tribes, county, cities, special purpose districts, Wash. Dept. of Natural Resources, the US Forest Service, TRPC, the public, and other stakeholders.

Estimated Cost: Medium, $100,000 to $300,000

Time Period: 2024-2028

Funding Source: Wash. Dept. of Natural Resources Community Wildfire Defense Grant

Source and Date: 2023 Natural Hazards Mitigation Plan

Initiative and Implementation Status: This is a new initiative. Information about this initiative's status will be reported during the next plan update.

CW-SH-2: Extreme Heat Incident Response and Illness Prevention Plan

Benefit-Cost Review Score: 32 **Status:** New

Hazard Addressed: Storm/Weather

Category: Plan Coordination and Implementation

Background and Need: Long-term climate science and forecasts reveal that by mid-century, warming will be outside of the range of historical variation. The June 2021 Heat Dome event portends future extreme heat impacts on Thurston County communities. Six residents died from heat related injuries, 74 Thurston County residents visited local Emergency Departments, and 272 individuals were sheltered by the Hazardous Weather Task Force. People in the maritime Pacific Northwest are unaccustomed to extreme heat and most households lack air conditioning. Outdoor workers, older adults, the very young, people experiencing homelessness, people with limited English proficiency, people who are uninsured/underinsured, and people with mental illness and chronic disease are at highest risk for heat related illnesses and injuries (HRIs).

The region's Emergency Medical System (EMS), emergency rooms, intensive care units, urgent care clinics, and social service agencies are potentially unprepared to respond to a prolonged heat event that would produce surge in people who will suffer heat related illnesses and injuries (HRIs). The development and implementation of a whole community Extreme Heat Incident Response and Illness Prevention Plan can prepare public and private health care systems and social service providers to respond in future events more effectively.

This initiative will convene a general interagency planning workgroup consisting of representatives from public and private health institutions, Medic One, fire service, TCOMM 911, Emergency Management, social service providers, public information officers, utilities, community climate-focused nonprofit organizations, and others. There will be two sub-working groups, one focused on emergency services response and planning, and the other on community education and pre-incident mitigation interventions. The scope of the general workgroup will be as follows:

1. Identify areas and populations within the community that are most vulnerable to HRIs.
2. Identify mechanisms and thresholds for plan activation.
3. Identify interventions for emergency coordination, public communications, health care preparedness, and social services.
4. Evaluate and propose changes for existing interagency agreements for heat related emergency response interventions, if necessary.
5. Develop a pre-heat event education and heat illness prevention strategy.
6. Develop an operational plan with leads, roles, responsibilities, and partners. Plans will proceed along two separate but parallel and coordinated tracks: emergency response and pre-event mitigation along with education.
7. Identify the funding to implement the plan's components.
8. Identify the means to exercise, evaluate, and maintain the plan.

Relates to Plan Goal(s) and Policies: 1A,1B, 6B, 7D, 7E, 9A

Lead: Thurston County Public Health and Social Services and Thurston County Emergency Services

Estimated Cost: Low to Medium; $100,000 to $250,000

Time Period: 2024-2028

Funding Source: CDC Climate-Ready States & Cities Initiative and other grants and local agency funds

Source and Date: 2023 Natural Hazards Mitigation Plan Update

Initiative and Implementation Status: This is a new initiative. Progress will be reported during the next plan update.

CW-MH-13: Ongoing Hazard Mitigation Planning Workgroup Coordination

Benefit-Cost Review Score: 30 **Status:** New

Hazard Addressed: Multi Hazard

Category: Plan Coordination and Implementation

Background and Need: FEMA requires local governments update their Hazard Mitigation Plans every five years to maintain eligibility for federal mitigation assistance funding. Periodic monitoring and maintenance of multijurisdictional mitigation strategies and risk assessments, performed by the plan partners, increases opportunities for plan implementation and evaluation.

This action will initiate ongoing and regular coordination of the Hazard Mitigation Workgroup and other stakeholders. The workgroup will meet at least once a year to report on the status of mitigation strategies, review potential changes in threats, and consider revisions to mitigation strategies, if necessary, to address socially vulnerable and underserved communities, changes in development, and the effects of climate change to strengthen the planning partners' resiliency from hazard impacts.

The meetings will facilitate peer discussions between plan update cycles and enhance the region's hazard mitigation capabilities. Jurisdictions will benefit by staying informed about federal and state mitigation guidance, grant opportunities, and orient new staff representatives to the region's hazard mitigation planning process.

A mid-cycle evaluation report will be prepared halfway through the five-year timeline to summarize the progress on the countywide mitigation actions and all other changes or major issues identified by the Workgroup. The report and all meeting notes will be published on the project webpage. In addition, findings or updates identified by the Workgroup can inform the Emergency Management Council's Executive Seminars and public outreach activities related to CW-MH-6, Hazard Mitigation Public Outreach Strategy.

Relates to Plan Goal(s) and Policies: 6A, 6B, 6C, 7F, 8A, 8C, 9A

Lead: Thurston County Emergency Management Council in partnership with the Hazard Mitigation Plan partners, WAEMD, FEMA Region X, and other stakeholders.

Estimated Cost: Low

Time Period: A minimum of one meeting per year or additionally as needed, from 2024-2028

Funding Source: In-kind local agency staff time

Source and Date: 2023 Natural Hazards Mitigation Plan for the Thurston Region

Initiative and Implementation Status: This is a new initiative.

CW-DH 1: Evacuation Route Planning for Catastrophic Dam Failure and Volcanic Lahar

Benefit-Cost Review Score: 26 **Status:** Modified

Hazard Addressed: Dam Failure

Category: Plan Coordination and Implementation

Background and Need: Emergency Action Plans are available for the Skookumchuck and the Nisqually hydroelectric projects. Communication protocols between the operators, Tacoma Public Utilities and TransAlta, and essential emergency management and public safety personnel exist. However, there are no established operational plans for evacuations and protocols for notifying affected residents and property owners for the inundation areas in Thurston County should a dam failure incident or volcanic lahar occur. The combined Nisqually Hydroelectric Project and the TransAlta Project inundation areas and lahar areas affect populations with a medium high to high overall social vulnerability1. Evacuation routes must be planned in coordination with affected residents and businesses and other key local, state, and federal stakeholders. Work is needed to plan for effective alert notification protocols, evacuation plans, signs, staging areas, public education, emergency sheltering needs for people who may become displaced, and training for organizations and personnel who would be involved in executing the evacuation operations. The action will also identify a timeline to review the routes and plans.

Relates to Plan Goal(s) and Policies: 1A, 1B, 1C, 1D, 5C, 6A, 6B, 7C

Lead: Thurston County Emergency Management in partnership with dam operators, Nisqually Tribe, WAEMD, WSDOT, City of Yelm, and other stakeholders.

Estimated Cost: Medium, $500,000 to $1,000,000

Time Period: 2024-2028

Funding Source: Building Resilient Infrastructure and Communities grant program

Source and Date: 2003 Natural Hazards Mitigation Plan for the Thurston Region.

Initiative and Implementation Status: This initiative, previously identified as CW-FH 1 (flood hazard), is recoded as CW-DH-1 as it addresses a dam failure hazard. The action category is updated from "Data Collection and Mapping" to "Plan Coordination and Implementation" to reflect some revision to the proposed action's scope of work. Thurston County Emergency Management performed some preliminary planning and mapping of affected routes. In 2022 Thurston County participated in both Tacoma Public Utilities and Trans Alta in their Federal Energy Regulatory Commission Emergency Action Plan exercises.

[1]2020. Centers for Disease Control Agency for Toxic Substances and Disease Registry Social Vulnerability Index. Overall SVI Washington: Statewide Comparison by Census Tract. https://www.atsdr.cdc.gov/placeandhealth/svi/interactive_map.html

CW-MH-11: Countywide Emergency Shelter Capacity and Operational Assessment

Benefit-Cost Review Score: 34 **Status:** Modified

Hazard Addressed: Multi Hazard

Category: Data Collection and Mapping

Background and Need: Thurston County communities have identified faith-based community facilities, schools, and other public facilities that can serve as short- or long-term emergency shelters. However, no comprehensive assessment of the shelters' suitability and capacity for multi-hazard events (cooling, warming, housing for disaster displaced households) and special needs (companion pets, people experiencing homelessness, people suffering mental health or drug addiction) has been performed and documented. A pre-disaster assessment to evaluate staffing requirements, support services, material resources, funding, and agreements to sustain shelter operations for a range of capacities, durations, and needs will position communities to coordinate and fulfill emergency sheltering demands more effectively. In addition, operations planning to communicate shelter availability, coordinate transportation, and other logistics should be considered.

Relates to Plan Goal(s) and Policies: 1B, 6B, 9B

Lead: Thurston County Emergency Management and Public Health and Social Services, in partnership with cities, school districts, faith-based organizations, and social service providers, shelter operators, and other stakeholders

Estimated Cost: Low to Medium; $100,000 to $500,000

Time Period: 2024-2028

Funding Source: Grants and local agency general funds

Source and Date: 2017 Natural Hazards Mitigation Plan

Initiative and Implementation Status: The American Red Cross performed a baseline inventory of sheltering facilities in Thurston County

CW-MH-4: Develop a Regional Transportation Resiliency Plan

Benefit-Cost Review Score: 28 **Status:** Existing

Hazard Addressed: Multi Hazard

Category: Data Collection and Mapping

Background and Need: A Regional Transportation Resiliency Plan will assist communities with a variety of hazard mitigation, post-disaster route restoration and recovery, and long-term infrastructure resiliency investments. The plan will assess future population and demand on the region's most critical routes. The process will identify surface transportation system vulnerabilities and prioritize projects to strengthen resiliency and mitigate system disruptions. The vulnerability assessment will evaluate potential flood, earthquake, landslide, tsunami, wildfire, and other hazards. Routes, conditions, and other attributes will be mapped in a GIS. GIS database development will more readily enable state and local transportation partners to access, share, and communicate transportation lifeline priority needs. The plan will identify a process for plan monitoring and maintenance.

Relates to Plan Goal(s) and Policies: 1C, 2A, 2B, 5C

Lead: Thurston County Emergency Management. Partners include tribes, WSDOT and city and county public works transportation divisions, fire districts, Intercity Transit, school districts, TRPC and public and private utilities.

Estimated Cost: Medium, $100,000 to $500,000

Time Period: 2023-2028

Funding Source: FHWA Surface Transportation Block Grant or PROTECT Grant

Source and Date: 2023 Natural Hazards Mitigation Plan for the Thurston Region

Initiative and Implementation Status: Thurston County and the cities have identified their primary snow routes. In June 2022, Thurston County, WSDOT, and the cities participated in a Cascadia Rising transportation recovery exercise. The exercise tested the participants ability to identify, assess, and restore critical transportation corridors for disaster recovery. The participants recognized the need to continue coordination and collaboration on lifeline transportation route planning.

CW-MH-12: Hazard Modeling and Loss Estimation Capacity Building

Benefit-Cost Review Score: 28 **Status:** Modified

Hazard Addressed: Multi Hazard

Category: Data Collection and Mapping

Background and Need: Having ready access to tools to estimate potential losses from hazard scenarios can significantly increase communities' understanding of their hazard risks and impacts. Relying on outside expertise to develop and run models for resiliency planning is costly. Thurston County communities would benefit from building intraregional capacity and technical skills to develop, run, and maintain community-specific GIS-based hazard modeling tools that can incorporate local and regional data on existing conditions and forecast data on the region's population, employment, and land use. Best practices in model development for flood, earthquake, landslide, lahar, tsunami, and wildfire hazards will be evaluated. Models developed using local data with local expertise produce the most effective results to inform planning and decision making for hazard mitigation, emergency management, and disaster training.

Relates to Plan Goal(s) and Policies: 7A,B,C,D,E

Lead: Thurston County Emergency Management in partnership with Thurston GeoData, the tribes, cities, special purpose districts, and TRPC

Estimated Cost: Medium for initial development costs, $100,000 to $500,000. Low for long-term annual maintenance costs, less than $100,000 per year.

Time Period: 2024-2028

Funding Source: Hazard Mitigation Grant Program and local agency general funds

Source and Date: 2023 Natural Hazards Mitigation Plan Update

Initiative and Implementation Status: During the 2023 Hazard Mitigation Plan update, this initiative was recoded from CW-EH-1 to CW-MH-12. It is modified to expand modeling capacity from earthquake to multiple hazards. Several Hazus model scenarios for earthquake, flood, dam failure, and sea level rise were developed by a contractor to inform the updated plan's risk assessment. The 2022-2023 data and model scenarios will be housed with Thurston County Emergency Management for future application and future model development.

CW-MH-1: Critical Infrastructure Inventory

Benefit-Cost Review Score: 28 **Status:** Ongoing

Hazard Addressed: Multi Hazard

Category: Data Collection and Mapping

Background and Need: Tracking critical infrastructure and facilities information is essential for hazard mitigation, emergency management, and resiliency planning activities. Maintaining an accurate and comprehensive critical infrastructure database will improve communities' ability to conduct risk assessments, identify vulnerabilities, maintain situational awareness, and prioritize the restoration of essential lifeline services in a post-disaster recovery situation. This action will coordinate data collection and inventory with the tribes, state, county, cities, special purpose districts, and private utilities. Planning partners will identify data definitions and storage, mapping, reporting, permissions, and database maintenance needs.

Relates to Plan Goal(s) and Policies: 2D, 6C, 7B, 8A

Lead: Emergency Management Council of Thurston County in partnership with tribes, state, county, cities, special purpose districts, and private utilities

Estimated Cost: Low, $100,000 to $500,000

Time Period: 2024-2028

Funding Source: To be determined

Source and Date: 2003 Natural Hazards Mitigation Plan for the Thurston Region

Initiative and Implementation Status: In 2023 this action's status was updated to "Ongoing." Essential facilities and critical assets data collection and database development was performed as part of the 2023 Hazard Mitigation Plan Update. Future data collection efforts need to strive for a more consistent accounting of similar assets among all the critical facility owners.

CW-LH-1: Countywide Landslide Hazards Mapping

Benefit-Cost Review Score: 22 **Status:** New

Hazard Addressed: Landslide

Category: Data Collection and Mapping

Background and Need: Enroll in the Washington Geological Survey Landslide Hazards Program to accurately inventory and map the county and cities' landslide hazards. Thurston County communities will seek technical assistance from the Washington Geological Survey Landslide Hazards Program to accurately inventory and map landslide hazards throughout the Thurston Region. The data will be used to assist communities with assessing landslide hazard areas, mitigating potential future losses, and updating comprehensive plans, zoning codes, development regulations, and policies.

Relates to Plan Goal(s) and Policies: 7B, 8B

Lead: Thurston County, cities, tribes, special purpose districts, Washington Department of Natural Resources Washington Geological Survey, US Geological Survey, and other stakeholders.

Estimated Cost: $100,000

Time Period: 2024-2028

Funding Source: Washington Geological Survey Landslide Hazards Mapping Program and local agency general fund and in-kind staff participation

Source and Date: 2023 Natural Hazards Mitigation Plan Update.

Initiative and Implementation Status: This initiative was identified during the 2023 Hazard Mitigation Plan update process. Progress on this initiative will be reported during the next plan update.

CW-MH-7: Critical Asset Management System

Benefit-Cost Review Score: 23 **Status:** Existing

Hazard Addressed: Multi Hazard

Category: Hazard Preparedness

Background and Need: During disasters, supplemental and/or specialized resources are in demand by affected communities. Examples of shared assets include personnel, specialized teams, and equipment. Ready access to a system of available critical resources and a means to request them can minimize losses or expedite recovery. This initiative proposes a coordinated phased approach to: 1) Convene partners to identify appropriate locally owned assets and resources that can be shared; 2) Evaluate the need for pre-executed interlocal agreements for resource sharing; 3) Develop or acquire an online tool to support requests and procurement; and 4) Maintain the system. This tool will streamline resource requests, tracking, and allocation.

Relates to Plan Goal(s) and Policies: 1D, 5D

Lead: Thurston County Emergency Management in partnership with tribes, cities, fire districts, school districts, utilities, and other regional stakeholders

Estimated Cost: Low, up to $100,000

Time Period: 2024-2028

Funding Source: Grants and local agency general funds

Source and Date: 2009 Natural Hazards Mitigation Plan for the Thurston Region

Initiative and Implementation Status: Some critical assets are inventoried in WebEOC. Implementing this project has been challenged by budget constraints, personnel changes, and COVID 19 response.

CW-SL-1: Olympia Sea Level Rise Response Plan Implementation

Benefit-Cost Review Score: 32 **Status:** New

Hazard Addressed: Sea Level Rise

Category: Hazard Damage Reduction

Background and Need: Downtown Olympia is a regional social, cultural, historic, and economic center in Thurston County. The Port of Olympia's Marine Terminal, the LOTT Clean Water Alliance Budd Inlet Wastewater Treatment Plant, state agencies, the Intercity Transit Downtown Station, and other regional critical facilities are located downtown.

Downtown Olympia is vulnerable to flood hazards from sea level rise (SLR). With only a 12-inch increase in SLR, a 100-year flood event could occur every other year. The recognition of this increased flood risk created a need for the City of Olympia, the Port of Olympia and the LOTT Clean Water Alliance to form a collaborative partnership and produce the 2019 "Olympia Sea Level Rise Response Plan."

The Olympia SLR Response Plan's vulnerability and risk assessment identified the key assets and services that would be adversely impacted during king tide and storm surge flooding events for several SLR scenarios ranging from zero to 68 inches.

During high flow events in the Deschutes River watershed, as observed in January 2022, assets along the Capitol Lake shoreline are exposed to flooding. An extreme coastal storm surge event could also cause flooding along the Percival Landing and Isthmus shorelines, as occurred in December 2022. In addition, flooding of the combined sewer system could convey floodwaters to the Budd Inlet Wastewater Treatment Plant and overwhelm the plant, resulting in an increased likelihood of untreated or partially treated wastewater being discharged directly to Budd Inlet.

This initiative would address the physical, operational, governance and information strategies outlined in the Olympia SLR Response Plan. Examples of capital projects, operational, governance and information strategies include, but are not limited to:

- Construct a berm at Heritage Park
- Install raised planters along Columbia Street and 4th Avenue
- Raise vulnerable Budd Inlet Treatment Plan components
- Raise Billy Frank Jr. Trail
- Consolidate stormwater outfalls and construct a stormwater discharge pump station
- Protect Percival Drinking Water Pump station
- Conduct emergency response activities during flooding events
- Develop and implement a sea level rise community and stakeholder strategy

Relates to Plan Goal(s) and Policies: 1B, 2A, 2B, 2D, 5B, 6A, 6B, 7D, 8A, 9A, 9B

Lead: The Sea Level Rise Collaborative: The City of Olympia, LOTT Clean Water Alliance and the Port of Olympia in partnership with downtown businesses, residents, and a variety of stakeholders.

Estimated Cost: Full implementation of all capital projects and recommendations is estimated at $190M to $350M (2018 planning estimate)

Time Period: 2023 – 2100

Funding Source: General funds, grant program funds for specific projects

Source and Date: Olympia Sea Level Rise Response Plan, March 2019

Initiative and Implementation Status: To implement the Olympia SLR Response Plan and inform its evolution, the partnership formed the Olympia Sea Level Rise Response Collaborative (Collaborative) through an Interlocal Agreement. The Collaborative has adopted an annual budget and work plan and its short-term focus is on conducting a groundwater study, a land subsidence survey and investigating funding mechanisms.

Mitigation Initiatives Removed from the Regional Mitigation Strategy

The plan update process removed five initiatives (Table 2.3) from the Countywide Mitigation Strategy:

- Two initiatives were completed
- One initiative was replaced
- Three initiatives were removed because they are no longer relevant

Additional details about why the initiatives were removed are shown in each initiative's implementation status in the pages that follow.

Table 2.3 Former Mitigation Initiatives Removed from the Countywide Mitigation Strategy

Initiative	Status	Former Ranking
Data Collection and Mapping		
CW-HW-1 Map the Region's High Risk Wildland Urban Interface Communities	Completed	6 of 12
CW-MH-9 Map Transportation Infrastructure subject to flooding and landslide hazards	Replaced	10 of 12
CW-MH-10 Develop and Adopt a Climate Adaptation Plan	Completed	11 of 12
Hazard Preparedness		
CW-SH-1 Develop a Debris Management Strategy	Completed	5 of 12
CW-MH-8 Strengthen Capabilities and Situational Awareness of Health and	Removed	12 of 12

CW-SH-1: Develop a disaster debris management strategy

Hazard Addressed: Storm/Weather **Status:** Completed

Category: Hazard Preparedness

Background and Need: Storms such as the January 2012 Winter Storm, the 1996 Ice Storm, and the 1993 Inaugural Day Windstorm each generated significant vegetative and building damage debris. HAZUS estimates of earthquake and flood debris generation also highlight the need for a coordinated debris management plan. This plan will improve coordination between local agencies, utility providers, and affected individuals and organizations to manage clean-up efforts.

Relates to Plan Goal(s) and Policies: 5C, 5D, 6B, 7C

Lead: Thurston County, cities, Port of Olympia, Washington State Department of Ecology, Olympic Region Clean Air Authority, Puget Sound Energy, and private contractors

Estimated Cost: Low

Time Period: 2017-2021

Funding Source: Grants and local match

Source and Date: 2003 Hazard Mitigation Plan

Initiative and Implementation Status: This initiative was the 5th ranked priority in the previous plan. In 2016, Thurston County initiated the development of a debris management strategy. This initiative was removed from the plan as it was completed. Future monitoring and maintenance of this strategy will be performed independent of the regional hazard mitigation planning process.

CW-WH-1: Map the region's high risk wildland urban interface communities

Hazard Addressed: Wildland Fire **Status:** Completed

Category: Data Collection and Mapping

Background and Need: The methodology for determining risk for wildfire relies on outdated analysis performed by the Washington State Department of Natural Resources (DNR) and forms the basis of the wildland urban interface fire risk assessment in this plan. Local protection fire districts need updated data and maps that reflect areas of the community that are at risk for wildland fires. This information would assist communities in developing wildfire protection plans, community education, and mitigation activities.

Relates to Plan Goal(s) and Policies: 1B, 3A, 7B

Lead: Thurston County Association of Fire Chiefs, DNR, Emergency Management Council, and TRPC

Estimated Cost: Low

Time Period: 2017-2021

Funding Source: Grants and in-kind staff resources from local fire districts and community development and planning departments

Source and Date: 2009 Natural Hazards Mitigation Plan

Initiative and Implementation Status: This initiative was the 6th ranked priority in the previous plan. In 2019, the Washington State Department of Natural Resources prepared a statewide map of Wildland Urban Interface and Intermix areas. This data was used for updating the region's wildland fire risk assessment as part of the plan update. This initiative was removed and will be replaced by a new initiative, CW-WH-2 Community Wildfire Protection Plan.

CW-MH-9: Map transportation infrastructure that is subject to frequent flooding or is prone to landslide hazards

Hazard Addressed: Multi Hazard **Status:** Replaced

Category: Data Collection and Mapping

Background and Need: There are numerous road segments and culverts that experience flooding or the effects of landslides during periods of above normal rainfall. These facilities are routinely closed for public safety, resulting in temporary or prolonged detours that delay travelers and the delivery of emergency services. Public Works maintenance crews have first-hand knowledge of these locations, but they are not systematically mapped. Developing a GIS database of these facilities would assist with planning transportation projects and mitigating potential hazardous situations. This data would also be used for assessing vulnerability and increased risks to transportation infrastructure from the effects of climate change. This initiative's activities will consist of data collection, mapping, and vulnerability analysis.

Relates to Plan Goal(s) and Policies: 2A, 2B, 8B

Lead: TRPC and regional stakeholders.

Estimated Cost: Low

Time Period: 2017-2021

Funding Source: National Estuary Program and Watershed Protection and Restoration Grant and TRPC Regional Transportation Program Funding

Source and Date: 2017 Natural Hazards Mitigation Plan

Initiative and Implementation Status: This was the 10th ranked initiative in the previous plan. This task was completed under the development of a Thurston Climate Adaptation Plan. Additional work is necessary to develop a longer-term multi-hazard assessment of the region's critical transportation infrastructure. This initiative will continue under the revised CW-MH-4 Lifeline Transportation Resiliency Route Planning and Mapping.

CW-MH-10: Develop and adopt a Climate Adaptation Plan

Hazard Addressed: Multi Hazard **Status:** Completed

Category: Plan Coordination and Implementaion

Background and Need: Preparing for and adjusting to the effects of a warming world — is now "unavoidable," the Intergovernmental Panel on Climate Change (IPCC) — the United Nations' climate research arm — concluded in its 2007 climate assessment. Even the most stringent efforts to reduce greenhouse gases "cannot avoid further impacts of climate change in the next few decades," the report explained. TRPC received a U.S. EPA National Estuary Program (NEP) grant administered by the Washington Department of Commerce to draft a watershed-based climate adaptation plan that will recommend actions Thurston County stakeholders could take to prepare for and cope with floods, droughts, wildfires, and other climate change-exacerbated hazards in the decades ahead. The planning work — which began in late 2015 and will conclude in late 2017 — includes: researching and analyzing climate change projections; assessing regional climate change vulnerabilities and risks; developing adaptation strategies and conducting benefit-cost analyses; and, presenting TRPC policymakers a draft plan with adaptation recommendations.

Relates to Plan Goal(s) and Policies: 4A, 4B, 4C, 5B, 7D, 8B

Lead: TRPC and regional stakeholders.

Estimated Cost: $270,000

Time Period: 2015-2018

Funding Source: National Estuary Program grant and TRPC Regional Transportation Program funding (funding secured)

Source and Date: Creating Places Preserving Spaces, a Sustainable Development Plan for the Thurston Region and the 2017 Natural Hazards Mitigation Plan

Initiative and Implementation Status: This was the 11th ranked initiative in the previous plan. TRPC adopted the Climate Adaptation Plan in 2018. In addition, Thurston County and the cities of Lacey, Olympia, and Tumwater adopted a Climate Mitigation Plan in 2020. In 2023 the Washington Legislature passed HB 1181 which requires communities planning under the Growth Management Act to incorporate climate resiliency into comprehensive plans.

CW-MH-8: Strengthen the capabilities to establish and to maintain situational awareness of health and medical system and resource coordination during an emergency

Hazard Addressed: Multi Hazard **Status:** Removed

Category: Hazard Preparedness

Background and Need: Prior to an emergency, the public health and health care system in Thurston County must work together to meet the needs of residents. The accurate coordination of information supports decision making processes of local, state, tribal, and private sector partners to carry out effective response measures to reduce harm and exposure to residents. Partner's use of an information system will provide multi-agency coordination and better assessment of risk, so effective mitigation and response strategies can be implemented. Resources available include patient movement tools such as Region 3 Healthcare Preparedness Coalition Disaster Medical Coordination Center, National Disaster Medical System, and Washington State Disaster Medical Control Center.

Relates to Plan Goal(s) and Policies: 1D, 5B, 5D

Lead: Thurston County Health and Social Services Department of Health 7 Region 3 Healthcare Preparedness Coalition

Estimated Cost: Low

Time Period: 2017-2021

Funding Source: Grants and local match

Source and Date: 2009 Natural Hazards Mitigation Plan

Initiative and Implementation Status: This was the 12th ranked initiative in the previous plan. The COVID 19 pandemic resulted in substantial changes to the processes and capabilities of Thurston County Public Health and Social Services and the Region 3 Healthcare Preparedness Coalitions ability to track disease metrics and response activities. This initiative was removed from the plan update. It is included in Thurston County's Comprehensive Emergency Management Plan in Emergency Support Function 8.

Figure 2.3 Regional Hazad Mitigation Initiatives Benefit-Cost Review Score Results

Mitigation Initiative	Hazard Risk Rating	Project Cost	HMP Goals and Objectives	Life/Safety	Social Vulnerability	Changes in Development	Climate Change	Geographic Impact	Total Score
Public Outreach and Information									
CW-MH-6 Regional Hazard Mitigation Public Outreach Strategy	5	5	5	3	5	3	5	5	36
Plan Coordination and Implementation									
CW-WH-2 Countywide Multijurisdictional Community Wildfire Protection Plan	5	3	5	3	5	5	5	5	36
CW-SH-2 Extreme Heat Incident Response and Illness Prevention Plan	3	3	5	5	5	1	5	5	32
CW-MH-13 Ongoing Hazard Mitigation Planning Workgroup Coordination	5	5	5	1	1	5	3	5	30
CW-DH-1 Develop Emergency Evacuation Routes for Potential Catastrophic Dam Failure	1	1	5	5	5	1	3	5	26
Data Collection and Mapping									
CW-MH-11 Countywide Emergency Shelter Capacity and Operational Assessment	5	3	3	5	5	3	5	5	34
CW-MH-4 Develop a Regional Transportation Resiliency Plan	5	3	5	1	3	3	3	5	28
CW-MH-12 Hazard Modeling and Loss Estimation Capacity Building	5	3	5	1	1	5	3	5	28
CW-MH-1 Critical Infrastructure Inventory and Data Development	5	3	5	1	1	3	1	5	24
CW-LH-1 Countywide Landslide Hazards Mapping	3	5	1	1	1	5	1	5	22
Hazard Preparedness									
CW-MH-7 Interjurisdictional Critical Asset Management System Development	5	5	3	1	3	0	1	5	23
Hazard Damage Reduction									
CW-SL-1 Olympia Sea Level Rise Response Plan Implementation	3	3	5	3	3	5	5	5	32

Benefit Review Criteria Points Explanation: High: 5 points; Medium: 3 points; Low: 1 point; No benefit: 0 points.