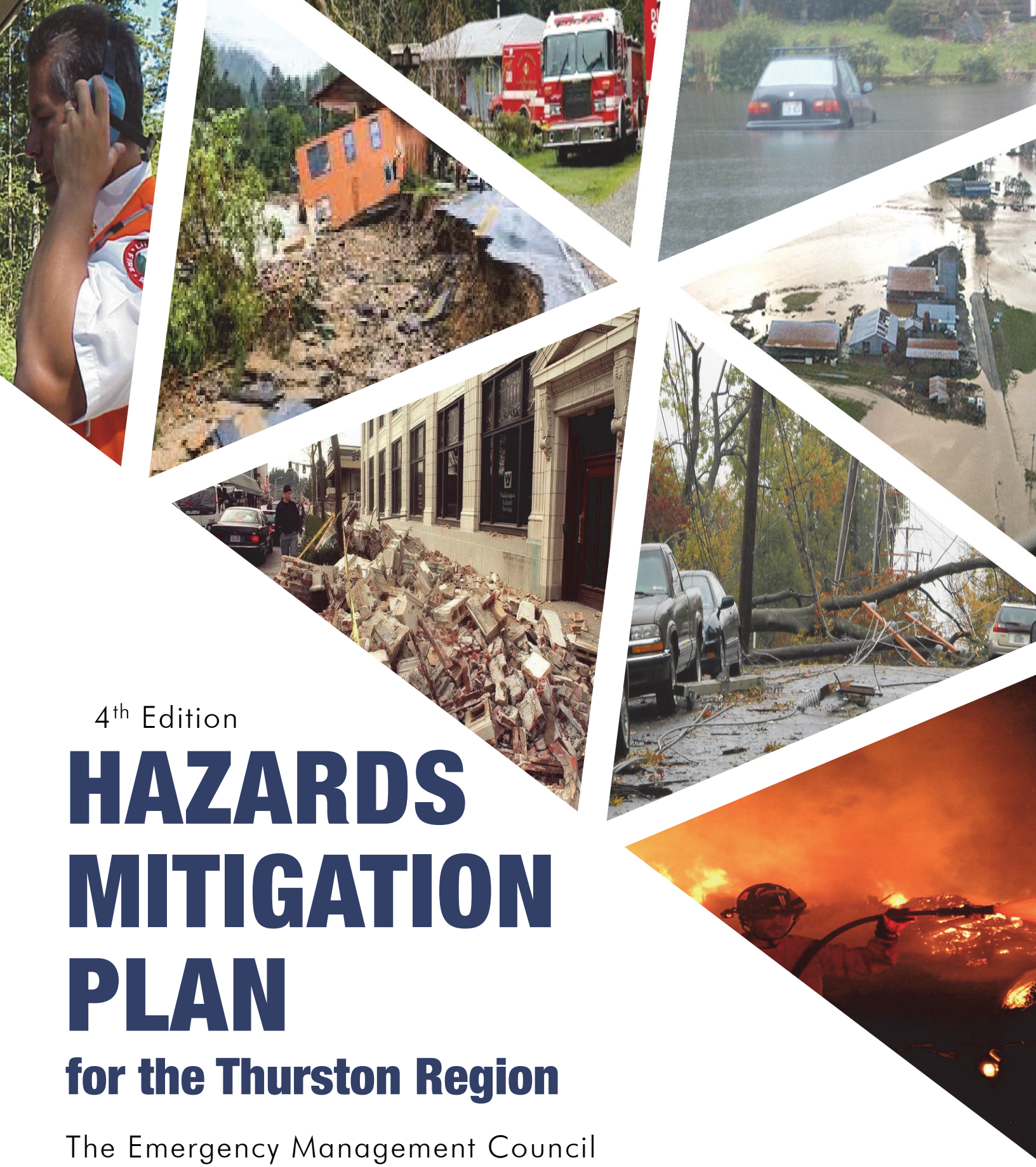

4th Edition

HAZARDS MITIGATION PLAN

for the Thurston Region

The Emergency Management Council
of Thurston County

Prepared by Thurston Regional Planning Council November 2023

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Emergency Management Council of Thurston County

The Emergency Management Council (EMC) served as the Hazards Mitigation Plan Steering Committee. The EMC was created in 1993 via an interlocal agreement to coordinate emergency management activities with the county, cities, and tribes. The EMC is involved in a wide array of issues and leadership related to emergency preparedness, response, recovery, and mitigation.

Member	Representative, (Alternate)
City of Lacey	Ed Taylor, Chair, Emergency Management and Safety Coordinator
City of Olympia	Mike Buchanan, Assistant Fire Chief
City of Rainier	Tom Arnbrister, Council Member
City of Tenino	Robert Auderer, Police Chief
City of Tumwater	Brian Hurley, Vice Chair, Fire Chief
City of Yelm	Rob Carlson, Police Chief
Confederated Tribes of the Chehalis Reservation	Cal Bray, Emergency Manager
Nisqually Indian Tribe	Jeff Choke, Emergency Manager
Thurston County	Kyle Bustad, Emergency Manager
Town of Bucoda	Rob Gordon, Mayor

Hazard Mitigation Planning Workgroup

The Workgroup served as the working body for the Hazard Mitigation Plan update process. It served in an advisory role to inform the multijurisdictional planning process and to guide the plan's contents including the goals and policies, hazard risk assessment, the regional mitigation strategy, and the plan maintenance process.

County and City Members	Representatives
Thurston County	Cherie Carey, Emergency Management Coordinator Brandon Cheney, Emergency Management Coordinator Emily Schoendorf, Emergency Management Coordinator
Town of Bucoda	Mayor Steve Purcell (former) Mike Presswood, TCEM
City of Lacey	Ed Taylor, Emergency Management and Safety Coordinator
City of Olympia	Mike Buchanan, Assistant Fire Chief Susan Clark, Water Resources Engineering and Planning Supervisor
City of Rainier	Robert Shaw, Mayor Mike Presswood, TCEM
City of Tenino	Wayne Fournier, Mayor Mike Presswood, TCEM
City of Tumwater	Ericka Smith-Erickson, Housing and Land Use Planner Brad Medrud, Long Range Planning Manager
City of Yelm	Sara Williams, Assistant Planner Rob Carlson, Chief of Police
School District Members and Stakeholders	**Representatives**
Olympia School District	Wendy Couture, Custodial Supervisor & Safety/Risk Manager Frank Wilson, Director of Facilities
Tumwater School District	Mel Murray, Director of Facilities
Rochester School District	Ed Dowell, Director of Facilities
Educational Services District 113	Dan Beaudoin, Comprehensive School Safety Coordinator
Fire District Members and Stakeholders	**Representatives**
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SE Thurston Fire Authority and Olympia Fire District #6	Brian Richardson, Captain
South Bay Fire District 8	Brian VanCamp, Fire Chief
West Thurston Regional Fire Authority	David Pethia, Commissioner Rob Smith, Fire Chief Robert Scott, Fire Chief (retired)
Special Purpose District Members and Stakeholders	**Representatives**
Intercity Transit	Jason Hanner, Safety Program Manager Emily Bergkamp, Interim General Manager
LOTT Clean Water Alliance	Julie Dufresne, Safety Manager
TCOMM 911	Wendy Hill, Director
Thurston PUD	Kim Gubbe, Director of Planning and Compliance
College Members and Stakeholders	**Representatives**
South Puget Sound Community College	Fred Creek, Director of Security
The Evergreen State College	Jackie LaVerne, Emergency Manager
Other Stakeholders	**Representatives**
Puget Sound Energy	Amy Tousley, Municipal Liaison Manager
Washington Department of Transportation	Lit Dudley, Emergency Manager

Thurston Regional Planning Council

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ONE WAY

Executive Summary

The Pacific Northwest is a beautiful place to live in. However, life in the Puget Sound Region comes with risk. Millions of people live in this geologically active corner of North America. It's not a matter of if, but when that earthquakes, tsunamis, landslides, and volcanic eruptions will impact Thurston County.

Climate science forecasts that winters in the Puget Sound Region will become warmer and wetter, altering our hydrological cycle. Changes in the timing, type, and quantity of precipitation will create adverse conditions for coastal, high groundwater, and riverine flooding. Summers will become longer, warmer, drier,

Residents highly value the natural and built environment that Thurston County offers. Photo courtesy of TRPC staff.

and exacerbate conditions for wildfire hazards and poor air quality. Extreme heat events will become more frequent resulting in more people becoming victims of heat-related injuries. Native flora, fauna, fish habitat, and agriculture will also be impacted.

The elderly, people with chronic disease or disabilities, youth, low-income households, and people who are unsheltered are most vulnerable. Hazard mitigation must provide equitable solutions and prioritize actions that protect socially vulnerable and underserved populations that typically suffer the greatest losses during natural disasters.

Hazard mitigation planning provides a framework for communities to alleviate the impacts of natural hazards. The Emergency Management Council of Thurston County has championed the region's multijurisdictional hazard mitigation plan update since the passage of the Disaster Mitigation Act of 2000. First adopted in 2003, the *Hazards Mitigation Plan for the Thurston Region* was among the first multijurisdictional hazard mitigation plans adopted in Washington. The region has updated the plan every five years to maintain an effective mitigation strategy. Revisiting the plan is a key step to make our communities more disaster resilient. The plan is divided into six chapters:

1. Introduction to Hazard Mitigation Planning
2. Mitigation Strategy – Goals, Policies, and Initiatives
3. Community Profile and Capability Assessment
4. Risk Assessment
5. Keeping the Plan Current
6. Plan Process and Development

1. Introduction

Chapter 1 provides a primer on hazard mitigation planning and its benefits. Thurston County has endured 25 Presidential Disaster Declarations since 1965. Hazard mitigation planning offers communities a useful framework to reduce future losses and minimize impacts. A federally approved hazard mitigation plan is a requirement for states, tribes, and local governments to apply for and receive federal mitigation assistance grant program funds. This chapter introduces these important grant programs.

2. Mitigation Strategy – Goals, Policies, and Initiatives

Chapter 2 presents the region's mitigation strategy. It consists of a vision, goals, policies, and actions. Working together, the Emergency Management Council and the Plan Participants have reaffirmed the plan's nine goals:

1. Protect Life
2. Protect Infrastructure
3. Protect Property
4. Protect the Environment
5. Sustain the Economy
6. Build Community Support
7. Expand Understanding of Hazards
8. Implement Effective Mitigation Strategies
9. Increase Public Awareness

Thirty-four policies will help guide communities with achieving the region's hazard mitigation vision and goals. Below is an example of the policies that support Goals 1, 2, and 3:

- Policy 1B: Prioritize mitigation actions that directly benefit underserved communities and special needs populations.
- Policy 2A: Maintain and upgrade roads, bridges, and other transportation infrastructure and services to withstand the effects of hazards without prolonged disruptions.
- Policy 3C: Safeguard objects or places that have cultural or historic significance.

VISION

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

There are 12 regional mitigation initiatives, that if enacted will improve our communities' understanding of hazards and their risks, strengthen mitigation planning capabilities, and protect people, property, and community lifelines. In addition, each plan participant developed an annex that outlines their jurisdiction-specific actions. Each action was reviewed using a set of eight criteria to evaluate its benefits versus its costs and to prioritize the actions for implementation. The top five ranked regional mitigation initiatives are as follows:

1. **Regional Hazard Mitigation Public Outreach Strategy –** 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 be focused on socially vulnerable populations who are at greater risk.

2. **Community Wildfire Protection Plan** – 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.
3. **Countywide Emergency Shelter Capacity and Operational Assessment** – 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.
4. **Extreme Heat Incident Response and Illness Prevention Plan** – 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.
5. **Olympia Sea Level Rise Response Plan Implementation** – 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.

3. Community Profile and Capability Assessment

Chapter 3 presents a profile of Thurston County's geography, population, economy, development trends, special purpose local governments, and its transportation system. Located at the southern end of the Puget Sound, and the seat of Washington's State Capitol, Thurston County is one of fastest growing areas in the state. Thurston County's population of 300,500 people makes it the 7th most populous county in the state, but it is the 32nd in size at 737 square miles. Socially vulnerable individuals typically suffer the greatest in natural disasters because they lack the resources to protect themselves and their property from the impacts of hazards. 17 percent of Thurston County's residents have an income within 150 percent of the federal poverty level, 32 percent of households are cost-burdened, and five percent do not have health insurance.

The county's small size lends to the plan participants' willingness and ability to identify solutions to problems in a cooperative fashion. Chapter 3 describes the range of federal, state, local, and organizational institutions, laws, resources, funding programs, and capabilities that support Thurston County's multijurisdictional approach to hazard mitigation planning.

Community leadership is necessary to prioritize hazard mitigation planning to make our communities safer. Photo courtesy of Thurston County Emergency Management.

4. Risk Assessment

Chapter 4 introduces how risk is measured for the nine natural hazards that are most likely to impact Thurston County communities. Hazard risk scores and ratings are calculated for each community based on the probability of a hazard occurring combined with its level of impact on people, property, and the economy.

Understanding and documenting how community assets are vulnerable to the effects of natural hazards informs the development of a community's mitigation strategy. The risk assessment includes a subchapter or profile for each hazard. Each profile describes the hazard, area of impact, extent, effects of climate change, previous incidents, and probability of occurrence. In addition, descriptions, data, and maps are provided to document each hazard's impact on people, structures and systems, community lifelines, and natural, historic, and cultural resources. Accounting for all communities' combined total risks, the following countywide risk ratings were calculated for each hazard:

Hazard Profile	Probability	Impact on People	Impact on Property	Impact on Economy	Risk Rating
4.1 Dam Failure	Low	Low	Low	Low	Low
4.2 Earthquake	Medium	High	High	Medium	High
4.3 Flood	High	Low	Low	Low	Medium
4.4 Landslide	High	Low	Low	Low	Medium
4.5 Sea Level Rise	High	Low	Low	Low	Medium
4.6 Severe Weather	High	Low	Low	Low	Medium
4.7 Tsunami	Medium	Low	Low	Low	Low
4.8 Volcanic Lahar	Low	Low	Low	Low	Low
4.9 Wildfire	Medium	High	High	Medium	High

5. Keeping the Plan Current

Chapter 5 describes the regional process for how the plan participants will monitor, evaluate, and update the hazard mitigation plan, and afford the public the means to participate in the plan update process. Additionally, it outlines the Washington State and federal review and approval process that leads to plan adoption. The plan participants and stakeholders will help foster plan implementation through monitoring and maintenance including:

1. Performing an annual review of the regional and jurisdictional mitigation actions to document progress. Successes, obstacles, and course corrections will be reported and made available to the public.
2. Conducting a mid-cycle evaluation to summarize the plan's progress, note any changes in hazard risks, identify any changes in capabilities that will affect the plan's implementation, and identify recommendations for changes to the plan.
3. Convening a post-disaster after-action review within 45-60 days after a federal disaster declaration or major hazard event that activates the Thurston County Emergency Coordination Center.

6. Plan Process and Development

Chapter 6 describes who was involved and how the plan was prepared. Thurston County Emergency Management secured a federal Pre-Disaster Mitigation Grant from the Federal Emergency Management Agency to update the region's 4th edition hazard mitigation plan. Thurston Regional Planning Council (TRPC), the Metropolitan Planning Organization for the Thurston County served as the lead entity and convener to facilitate the development of the hazard mitigation plan. The plan was produced in partnership with the Emergency Management Council and the Hazard Mitigation Planning Workgroup (workgroup) with community input.

The workgroup consists of local government representatives and stakeholders with subject matter expertise in building, community planning, K-12 and higher education, emergency management, energy utility services, fire services, law enforcement, public works and utilities, transit, and others. The workgroup met 15 times over the course of 18 months to assemble the plan. Workgroup members provided feedback and data to support the development of the plan. Each workgroup representative from a participating jurisdiction was in turn responsible for convening their jurisdiction's planning team meetings to develop an annex to the plan.

A wildfire spreads in southwest Thurston County. Photo courtesy of West Thurston Regional Fire Authority.

TRPC convened two major public outreach campaigns to solicit community feedback and support for the plan. The details of the outreach activities are documented in Chapter 6. (the results of surveys are included in Appendix E).

1. **Summer 2022 Multijurisdictional Pre-Plan Development Natural Hazards and Resiliency Survey**
   From June through July, the plan partners solicited community feedback. The survey included 12 questions about perceived risks and solicited input on mitigation actions. The survey was offered in English, Korean, Spanish, and Vietnamese.
2. **Summer 2023 Multijurisdictional Hazard Risks and Action Plan Survey**
   From July through August community members could visit an online open house to learn about hazards, their impacts, and risks. The public was invited to take a short survey to prioritize the draft regional and jurisdictional mitigation actions and share ideas for other actions.

Chapter 1
Introduction to Hazard Mitigation

Mitigation Planning Strengthens Community Resiliency

Local governments are responsible for protecting the public health, safety, and welfare of their community. Hazard mitigation directly supports this essential function by providing communities the following benefits:

- Creating greater resilience for both population and infrastructure to existing and future disaster risks
- Lessening disruptions to daily life
- Strengthening businesses and the economy
- Protecting cultural, historic, and natural assets
- Reducing the costs of disaster response and recovery

Hazard mitigation and risk management preserves revenues that are needed for other essential public services and investments. According to the National Institute of Building Sciences' "Natural Hazard Mitigation Saves: 2019" report, every dollar in federal grants that is invested in mitigation can save up to six dollars.

A Multijurisdictional Mitigation Strategy

This is the Fourth Edition *Hazards Mitigation Plan for the Thurston Region*. First adopted in 2003, the plan describes the natural hazards that pose the greatest risks to people and the region's assets. The plan's goals, policies, and actions, if implemented, will minimize losses, and protect assets from future disasters. This is a multijurisdictional hazard mitigation plan (HMP). The plan's mitigation strategy includes regional actions to improve multi-agency coordination, build mitigation capabilities, and strengthen resiliency across Thurston County. In addition, each plan participant produces an annex that prioritizes actions to minimize losses within their jurisdiction.

Federal Disaster Declarations

Disasters frequently impact communities throughout the United States. Local and state governments share the responsibility for protecting communities and providing resources during and after disaster events. A local government's ability to respond during a disaster can quickly be overwhelmed by the magnitude of the crisis. The Stafford Disaster Relief and Emergency Assistance Act governs how the federal government provides resources to states and tribes that are impacted by disasters. A state governor or a leader of a federally recognized tribe is responsible for requesting federal disaster assistance through the regional Federal Emergency Management Agency (FEMA) office. If the President of the U.S. declares that a major disaster or emergency exists, the declaration activates an array of federal programs to assist affected states, tribes, and communities with response and recovery. The three general categories of federal assistance include:

- Individual Assistance – aid to individuals and households
- Public Assistance – aid to public (and certain private non-profit) entities for certain emergency services and the repair or replacement of disaster damaged public facilities
- Hazard Mitigation Assistance – funding for measures designed to reduce future losses to public and private property

Federal Disaster Declarations for Thurston County

Washington State has received 63 Presidential Disaster Declarations since 1956. Thurston County has been included in 25 of these major declarations, including one fire management assistance declaration in 2020. Table 1.1 lists the Federal Disaster Declarations affecting Thurston County.

Table 1.1 Thurston County Federal Disaster Declarations, 1956 to 2022

Disaster Number	Declaration Date	Incident Type	Title
196	May 1965	Earthquake	Earthquake
322	February 1972	Flood	Severe storms & flooding
328	March 1972	Flood	Heavy rains & flooding
414	January 1974	Flood	Severe storms, snowmelt & flooding
492	December 1975	Flood	Severe storms & flooding
545	December 1977	Flood	Severe storms, mudslides, & flooding
623	May 1980	Volcano	Volcanic eruption, Mt. St. Helens
852	January 1990	Flood	Severe storms & flooding
883	November 1990	Flood	Severe storms & flooding
981	March1993	Severe Storm	Severe storms & high wind
1079	January 1996	Severe Storm	Severe storms, high wind, and flooding
1100	February 1996	Flood	High winds, severe storms and flooding
1159	January 1997	Severe Storm	Severe winter storms, land & mudslides, flooding
1172	April 1997	Flood	Heavy rains, snow melt, flooding, land & mud slides
1361	March 2001	Earthquake	Earthquake
1499	November 2003	Severe Storm	Severe storms and flooding
1671	December 2006	Severe Storm	Severe storms, flooding, landslides, and mudslides
1682	February 2007	Severe Storm	Severe winter storm, landslides, and mudslides
1734	December 2007	Severe Storm	Severe storms, flooding, landslides, and mudslides
1817	January 2009	Flood	Severe winter storm, landslides, mudslides, and flooding
1825	March 2009	Severe Storm	Severe winter storm and record and near record snow
4056	March 2012	Severe Storm	Severe winter storm, flooding, landslides, and mudslides
4481	March 2022	Biological	COVID-19 Pandemic
4539	April 2020	Flood	Severe Storms, Flooding, landslides, and mudslides
5359[1]	September 2020	Fire	Bordeaux Road Fire
4650	March 2022	Flood	Severe Winter Storms, Snowstorms, Straight-line Winds, Flooding

[1]FM 5359 was Thurston County's first Fire Management Assistance emergency declaration.

Statewide, flooding, severe storms, and fires comprised 55 (87 percent) of Washington's disaster declarations. In fact, flood and severe weather disaster declarations affect more communities in the state than any other type of natural hazards. Thurston County is no different. Flooding and severe storms accounted for 21 (84 percent) of the county's declarations. Thurston County is ranked seventh in the state for total declarations (tied with Clallam and Jefferson counties). Lewis County has received 32 declarations, more than any other borough or county in all of Washington, Oregon, Idaho, and Alaska (the entirety of FEMA Region 10). The number and frequency of the federal disaster declarations affecting Thurston County emphasizes the importance of local governments developing and implementing an HMP.

The Disaster Mitigation Act of 2000

To manage risk, contain costs, and promote sustainable communities, the federal government has enacted hazard mitigation planning requirements for states, tribes, and local governments in the Disaster Mitigation Act of 2000. Local governments must adopt a federally approved HMP to apply for and to receive federal hazard mitigation assistance funding.

Hazard mitigation plans must demonstrate that a community's proposed mitigation measures are based on a sound planning process that accounts for the risk to and the capabilities of the individual jurisdiction. The Code of Federal Regulations (CFR), Title 44, Part 201.6 governs

how local government mitigation plans must be developed. Part 201.7 addresses tribal mitigation plans. Local governments must conduct a planning process that satisfies federal requirements to receive FEMA plan approval.

Communities must update their HMP every five years to remain eligible. The five-year update also provides communities the opportunity to:

- Assess hazards and update the risk assessment for the planning area
- Educate and promote awareness about mitigation planning
- Consider the diverse interests of the public and stakeholders to revisit community values and identify mitigation needs
- Evaluate and update the mitigation strategy
- Build consensus around mitigation strategy priorities

A multi-jurisdictional plan brings communities together to establish a common understanding of the hazards and to partner on developing a collective mitigation strategy. Each participating jurisdiction must also review and revise their plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities.

Federal Hazard Mitigation Assistance

A federally approved HMP offers communities access to several FEMA grant programs. In general applicants submit proposals through the state. All grant programs fund 75 percent of a project's eligible costs. Applicants must provide a 25 percent non-federal match. There are three major grant programs that are issued at a national level and two programs that are only available to communities that are affected by a disaster declaration:

- Building Resilient Infrastructure and Communities (BRIC) – a nationally competitive annual grant program. It provides funding and direct technical support to states, local communities, tribes, and territories for a variety of hazard mitigation and climate resilience project types and programs. In Fiscal Year 2022, FEMA awarded $3 billion to 46 projects.
- Flood Mitigation Assistance – a competitive program that provides funding to states, local communities, federally recognized tribes, and territories. Funds can be used for projects that reduce or eliminate the risk of repetitive flood damage to buildings insured by the National Flood Insurance Program.
- Hazard Mitigation Grant Program (HMGP) – provides funding to state, local, tribal and territorial governments to develop hazard mitigation plans and rebuild in a way that reduces, or mitigates, future disaster losses in their communities. This grant funding is only available to affected states and communities after a presidentially declared disaster.
- HMGP-Post Fire – provides post fire assistance to help communities implement hazard mitigation measures after wildfire disasters.
- Pre-Disaster Mitigation Program – awards funds to state, local, tribal, and territorial governments to plan for and implement sustainable cost-effective measures to reduce the risk to individuals and property from future natural hazards, while also reducing reliance on federal funding from future disasters.

Plan Structure

This plan meets Federal Disaster Mitigation Act hazard mitigation planning requirements for both multijurisdictional and jurisdictional planning requirements. The core plan provides the multijurisdictional framework and is the centerpiece of every Thurston Region plan participant's HMP. The core plan is divided into six chapters plus appendices. Each plan participant seeking federal plan approval prepared a plan annex. Table 1.2 outline the plan's contents.

Table 1.2 Plan Contents

	Chapter		Contents
Core Regional Plan	1.	Introduction to Hazard Mitigation Planning	Overview of hazard mitigation planning Federal planning requirements Federal hazard mitigation assistance Plan structure
	2.	Mitigation Strategy	Vision, goals, and policies Regional mitigation initiatives
	3.	Community Profile and Capability Assessment	Profile of Thurston County population, demographics, and development trends Summary of the region's mitigation capabilities
	4.	Risk Assessment	Hazard profiles and risk assessments for dam failure, earthquake, flood, landslide, sea level rise, severe weather, tsunami, volcanic lahar, and wildland fire
	5.	Keeping the Plan Current	Description of the plan's monitoring, evaluation, and maintenance processes
	6.	Plan Process and Development	A description of how the plan was developed.
		Appendices	Supportive documentation
Annex		Jurisdiction's Plans	A subset of the plan that contains information specific to a single jurisdiction: process details, mitigation actions, risk assessment, and capability assessment

Endnotes

[i] https://www.nibs.org/projects/natural-hazard-mitigation-saves-2019-report

[ii] FEMA. 2016. Disaster Declarations by State/Tribal Government. Data obtained online: https://www.fema.gov/disasters/grid/state-tribal-government.