

3rd EDITION

HAZARDS MITIGATION PLAN

FOR THE THURSTON REGION

**The Emergency Management Council
of Thurston County**

April 2017

Prepared by Thurston Regional Planning Council



Emergency Management Council of Thurston County

The Emergency Management Council was created in 1993 via an interlocal agreement to coordinate emergency management activities with the county, cities, and tribes. The nine-member council includes the emergency management representatives from Thurston County, the Town of Bucoda, the cities of Lacey, Olympia, Rainier, Tenino, Tumwater, and Yelm, the Confederated Tribes of the Chehalis Reservation, and the Nisqually Indian Tribe. The council addresses a wide array of issues related to emergency preparedness, response, recovery, and mitigation.

Town of Bucoda	Alan Carr, Mayor
Confederated Tribes of the Chehalis Reservation	Cal Bray, Emergency Manager
City of Lacey	Joe Upton, Police Commander
Nisqually Indian Tribe	Ken Choke, Emergency Management Director
City of Olympia	Greg Wright, Deputy Fire Chief
City of Rainier	Randy Schleis, Randy Schleis, Mayor
Thurston County	Kurt Hardin, Vice Chair, Director of Emergency Services
City of Tumwater	Scott LaVielle, Fire Chief
City of Yelm	Todd Stancil, Chair, Chief of Police

Hazards Mitigation Workgroup

Cities/Town/County	
Bucoda	Katrina Van Every, Associate Planner
Lacey	Bracy DiLeonardo, Human Resources Analyst, and Tom Palmateer, Management Analyst, Public Works
Olympia	Greg Wright, Deputy Fire Chief, and Patrick Knouff, Emergency Management Senior Program Specialist
Rainier	Katrina Van Every, Associate Planner
Tenino	Katrina Van Every, Associate Planner
Tumwater	David Ginther, Senior Planner
Yelm	Todd Stancil, Chief of Police
Thurston County	Sandy Eccker, Emergency Manager; Andrew Kinney, Emergency Management Coordinator; Vivian Eason, Emergency Management Coordinator, and James Yates, Emergency Management Coordinator
School Districts	
Griffin	Randy Martin, Facilities Supervisor
North Thurston	Brian Eko, Director of Facilities, and Robbi Wright, Loss Prevention Coordinator/Risk Management
Olympia	Wendy Couture, Safety & Risk Reduction Manager
Rochester	Larry Quarnstrom, Maintenance Director
Tenino	Brock Williams, Principal, Parkside Elementary School
Tumwater	Mel Murray, Supervisor of Construction & Capital Projects
Yelm	Chris Hansen, Director of Facilities
Fire Districts	
Fire District No. 8, South Bay	Brian Van Camp, Chief
Fire District No. 17, Bald Hills	Beverly Wright, Lieutenant
Other Special Districts	
Port of Olympia	Bill Helbig, Director of Engineering
Thurston County PUD No. 1	Carrie Bowen, Administrative Assistant
Timberland Regional Library	Bill Wilson, Director of Facilities
Intercity Transit	Jessica Brandt, Environmental & Sustainability Coordinator
Higher Education	
South Puget Sound Community College	Robert Shailor, Director of Safety & Security
The Evergreen State College	William Mikesell, Emergency Response Coordinator, and Matt Lebens, Environmental Health & Safety Coordinator
Workgroup Facilitator	
Thurston Regional Planning Council	Paul Brewster, Senior Planner

Thurston Regional Planning Council

Hazards Mitigation Plan Development Staff

Paul Brewster	Senior Planner, Project Manager
Michael Ambrogi	Senior GIS Analyst
Michael Burnham	Senior Planner
Rosalie Bostwick	Office Manager
Erin Cahill	Communications & Outreach Specialist II
Scott Carte	GIS Coordinator
Burlina Montgomery	Communications & Outreach Specialist I
Karen Parkhurst	Programs & Policy Director
Dave Read	IT Manager
Sarah Selstrom	Administrative Assistant

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Chapter 1.0

Introduction

Hazards Persist, But Disasters Can Be Avoided

The third edition of the Hazards Mitigation Plan for the Thurston Region results from a multi-jurisdictional process to develop a mitigation strategy to reduce the risks of the most destructive hazards that threaten the region. This plan specifically addresses communities and special districts within Thurston County. The region has endured earthquakes, landslides, severe storms, floods, wildland fires, volcanic events, and other less common hazards and threats.



When hazards affect areas that are undeveloped or uninhabited by people, there may be destruction within the natural environment, but such events are rarely characterized as disasters. When hazards adversely affect developed areas, the impacts to the safety and security of people, property, and infrastructure can be great. Such events often lead to a state of emergency, evacuations, and a Federal Disaster Declaration. Thurston County has received multiple disaster declarations:

- Between 1965 and 2016, Thurston County received 22 federal disaster declarations.
- Only 147 counties or U.S. Census designated places have received 20 or more federal disaster declarations; only four percent of counties or U.S. places share this distinction.
- As of 2016, eight counties in Washington State have experienced 20 or more disaster declarations.
- Thurston County has the 5th highest rate of declarations in the state.

Recovery from prolonged disruptions are costly to communities, the state, and the federal government. Hazard mitigation attempts to break the disaster cycle by identifying and implementing sustained actions that eliminate long-term risks to life and property.

The plan's mitigation strategy:
**Chapter 2: Mitigation Strategy:
Goals, Objectives, and Initiatives**

What's the difference between preparedness, response, and mitigation?

Using flood as an example...

Preparedness: activities such as planning or staging of supplies or personnel in anticipation of an emergency. Preparedness involves rescue training, maintaining equipment, and procuring supplies — knowing that response efforts will be necessary in the future.

Response: actions taken during an emergency to protect life and property such as sandbagging, performing rescue or evacuation operations, pumping water to protect assets, or providing emergency shelters to displaced residents.

Mitigation: actions that reduce the demand for preparedness and response activities by minimizing the impacts of flooding. Mitigation activities may include elevating or removing structures in areas that periodically experience flooding. Mitigation can also regulate future development in areas that are prone to flooding.

Hazards in the Pacific Northwest

Thurston County, located at the south end of the Puget Sound in central Western Washington, is cherished by its residents for its natural beauty and the quality of life its communities offer. The region is surrounded with marine shorelines, rivers, lakes, tree-covered hills, prairies, and views of snow-capped mountains. Proximity to beauty however, comes with a price. The region is predisposed to recurrent natural hazards.

*Information about the Thurston Region: **Chapter 3: Thurston County Community Profile***

Washington is one of the most geologically active states of the United States. The Puget Sound Region's geologic past was dominated by prolonged periods of glaciation. Massive glaciers over 3,000-feet tall expanded and retreated across the landscape, carving and crushing the earth's surface in the South Sound. This process left behind a variety of sediment deposits and land forms that are extremely vulnerable to the effects of ground shaking, liquefaction, and landslides.

Washington is directly above the Cascadia Subduction Zone, a major boundary of colliding tectonic plates and source of earthquake activity. Multiple major fault lines cross the state. The region has experienced major earthquakes in 1949, 1965, and in 2001.



Image courtesy of NASA.

The 2001 Nisqually Earthquake caused region wide destruction, particularly damaging older buildings and infrastructure in the state's Capital City.

There are five active volcanoes in Washington State. The May 18, 1980 eruption of Mount St. Helens killed 57 people, destroyed hundreds of miles of roadways, blanketed several Eastern Washington communities with ash, and destroyed tens of thousands of acres of prime forest lands

The state's pronounced mountainous terrain and its immediacy to the vast Pacific Ocean strongly influences the dynamics of the region's weather and hydrologic cycle. The Pacific Northwest frequently experiences intense seasonal precipitation events that result in major lowland flooding, and mudslides and landslides in heavily developed and rural areas. In addition, high speed windstorms frequently buffet Western Washington resulting in region wide power outages, and structural damage that generates tons of debris.

*Information about the hazards
that threaten the Thurston Region:*
Chapter 4: Risk Assessment

- Hazard Mitigation Assistance – funding for measures designed to reduce future losses to public and private property

The Disaster Declaration Process

Local and state governments share the responsibility for protecting communities during disaster events. A local government's capacity to respond to emergencies is often overwhelmed when the natural disaster impacts a significant portion of the population or infrastructure. When the state's capacity to respond to disasters is exceeded, the Governor can request federal assistance. The Stafford Disaster Relief and Emergency Assistance Act requires that "All requests for a declaration by the President that a major disaster exists shall be made by the Governor of the affected State." The Governor makes the request through the regional Federal Emergency Management Agency (FEMA) office. If the President declares that a major disaster or emergency exists, that activates an array of federal programs to assist in the response and recovery effort. The three general categories of assistance:

- 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

The Disaster Mitigation Act of 2000

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

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 addresses local government mitigation plans. Part 201.7 addresses tribal mitigation plans.

Federal Hazard Mitigation Assistance

Local governments simply lack sufficient personnel and the funds necessary to respond to and to recover from recurrent natural disasters, mitigate hazard prone private properties, and reinforce or replace all aging public infrastructure. The Stafford Act can provide local governments some disaster proofing assistance through hazard mitigation

grants. Pre-Disaster Mitigation grants are offered annually and Hazard Mitigation Grant Program funds become available to states only after a federal disaster declaration.

Local governments with an adopted and federally approved hazard mitigation plan may apply for mitigation grants through the state. The Washington State Military Department Emergency Management Division acts as the grantee, with responsibility for notifying potential applicants of the availability of funding, defining the project selection process, ranking and prioritizing projects, and forwarding the projects to FEMA for

funding. The applicant or sub-grantee carries out approved projects. With some restrictions, the federal government will provide up to 75 percent of the cost of a mitigation project with both programs. The remaining 25 percent must be matched by the local government or in some instances, the state. Other federal revenue sources cannot be used as match.

Appendix D and the Washington State Emergency Management Division's website: <http://mil.wa.gov/grants> contain more information about federal mitigation assistance programs.

Authorities

Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), 42 U.S.C. 5165, as amended by the Disaster Mitigation Act of 2000 (DMA) (P.L. 106-390), provides for States, Tribes, and local governments to undertake a risk-based approach to reducing risks to natural hazards through mitigation planning. The National Flood Insurance Act of 1968, as amended, 42 U.S.C. 4001 et seq, reinforced the need and requirement for mitigation plans, linking flood mitigation assistance programs to State, Tribal, and Local Mitigation Plans.

FEMA has implemented the various hazard mitigation planning provisions through regulations at 44 CFR Part 201. These reflect the need for States, Tribal, and local governments to closely coordinate mitigation planning and implementation efforts, and describes the requirement for a State Mitigation Plan as a condition of pre- and post-disaster assistance, as well as the mitigation plan requirement for local and Tribal governments as a condition of receiving FEMA hazard mitigation assistance.

The regulations governing the mitigation planning requirements for local mitigation plans are published under 44 CFR §201.6. Under 44 CFR §201.6, local governments must have a FEMA-approved Local Mitigation Plan to apply for and/or receive project grants under the following hazard mitigation assistance programs:

- Hazard Mitigation Grant Program (HMGP)
- Pre-Disaster Mitigation (PDM)
- Flood Mitigation Assistance (FMA)
- Severe Repetitive Loss (SRL)

Hazard Mitigation Activities

Of the four stages of disaster response – mitigation, preparedness, response, and recovery, only mitigation serves to directly eliminate losses from the effects of hazards. The other stages all occur in reaction to or anticipation of impacts from disaster events. Hazard mitigation planning identifies and prioritizes sustained measures that, if enacted, will reduce or eliminate long-term risk to people and property from hazards and their effects. In the long term, mitigation measures reduce personal loss, save lives, and reduce the cost to local, state, and federal governments for responding to and recovering from recurrent or unusual hazard events.

FEMA identifies six broad categories of actions that constitute hazards mitigation:

1. **Prevention** – Government administrative or regulatory actions or processes that influence the way land and buildings are developed and built. These actions also include public activities to reduce hazard losses. Examples include planning and zoning, building codes, capital improvement programs, open space preservation, and storm water management regulations.
2. **Property Protection** – Actions that involve the modification of existing buildings or structures to protect them from a hazard, or removal from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
3. **Public Education and Awareness** – Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and school-age and adult education programs.
4. **Natural Resource Protection** – Actions that, in addition to minimizing hazard losses, preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
5. **Emergency Services** – Actions that protect people and property during and immediately after a disaster or hazard event. Services include warning systems, emergency response services, and protection of critical facilities.
6. **Structural Projects** – Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, levees, floodwalls, seawalls, retaining walls, and safe rooms.



The Role of Hazard Mitigation Planning in Building Safe Communities

Population

Thurston County's population is estimated to reach nearly 393,700 by the year 2040 – more than 100,000 more people than live in the region today. Hazards mitigation planning can be used to support local decision making for managing growth to maintain public safety and achieve community goals. As communities grow, local governments are challenged with managing growth to providing safe and cost-effective public services. Response to and recovery from disasters draws valuable resources and personnel away from the normal business of governance and supporting the economy. Avoiding growth in areas that are vulnerable to liquefaction, flooding, or landslides is in the long-term interest of communities to avoid disaster costs and safeguard residents and businesses.

Hazards mitigation planning must also consider special needs populations. Some people are at greater risk to the effects of hazards because of their age, physical or mental ability, or language. They may lack the resources and capabilities to respond to hazards to safeguard themselves, their loved ones, or their property.

Aging and Vulnerable Infrastructure

Many of Thurston County's cities, towns, and unincorporated rural places are some of the oldest communities in the state. These jurisdictions' aging and deteriorating infrastructure, including government office buildings, community centers, roads, bridges, water systems, sewers, and stormwater conveyance systems, is vulnerable to the effects of hazards.

Historic development occurred in flood plains, on shorelines, and along marine bluffs. Not all construction in hazard prone areas was the result of poor planning, but rather the lack of familiarity and knowledge about what constituted a threat to neighborhoods. Each earthquake, flood, or major winter storm reveals the vulnerability of older infrastructure. Chimneys in Olympia's South Capitol Neighborhood and unreinforced masonry in downtown Olympia crumble with each earthquake. Homes, businesses, and farms in southwest Thurston County suffer each time the Chehalis River crests its banks. In these instances, seismic retrofits, elevation, relocation, or other mitigation activities can mitigate losses.

Information Gaps

Thurston County communities continue to invest in studies to increase their understanding of the region's geology and hydrology. However, these communities need more research, data, and forecasting tools at the local level to create accurate maps of hazard areas, protect public health and safety, and protect the environment. Computer models, aerial photos, and satellite imaging technology have advanced, but acquiring, developing and maintaining local data is expensive.

Mitigation through Regulation

Municipalities can ensure new construction withstands the destructive forces of earthquakes, wind storms, and other hazards by maintaining and enforcing current building codes. An effective approach to mitigating hazards is preventing new development from occurring in hazard prone areas. Local land use authority, zoning codes, the Shoreline Management Act, the Washington State Growth Management Act, and Critical Area Ordinances provide local governments essential regulatory mechanisms to restrict new development in areas that pose risks.



Examples of mitigating flood prone properties

Elevation: Depending on the nature of the flood threat, elevating a structure or incorporating other floodproofing techniques to meet National Flood Insurance Program criteria may be the most practical approach to flood damage reduction. Communities can apply for grants to offer funding programs to property owners to cover the increased construction costs incurred in elevating a home.

Relocation: In some cases, it may be viable to physically move a structure to a new location. Relocated structures must be placed on a site located outside of the 100-year floodplain, outside of any regulatory erosion zones, and in conformance with any other applicable State or local land use regulations.

Acquisition and demolition: Under this approach, the community purchases the flood-damaged property and demolishes the structure. The property owner uses the proceeds of the sale to purchase replacement housing on the open market. The local government assumes title to the acquired property and maintains the land as open space in perpetuity.

Hazards Mitigation Planning in the Thurston Region

In 2003, 15 communities and special districts in Thurston County convened to develop and adopt one of Washington State’s first multijurisdictional hazards mitigation plans. In 2009, 17 jurisdictions adopted the second edition. Jurisdictions participated as stakeholders in this third edition.

Federal mitigation planning requirements stipulate that communities update and reapprove local mitigation plans every five years to maintain eligibility for federal mitigation assistance program funds. The five-year update also allows communities to:

- Periodically assess the hazards that affect the planning area
- Educate and promote awareness about mitigation planning
- Consider diverse interests of stakeholders
- Update the mitigation strategy
- Build consensus around mitigation strategy priorities

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

*Information about implementing the plan: **Chapter 5: Adoption, Implementation, Monitoring, and Maintenance***

Terms Used to Describe Participants to this Plan

The terms community, plan partner, agency, local government, and jurisdiction refers to:

Tribe, county, city, town, school district, fire district, transit agency, utility district, special district, or other forms of local government.

“Thurston Region” and “Thurston County” are sometimes used interchangeably when describing the affected planning area. Region is a collective term that refers to more than one or all the local governments, communities, places, as well as the physical geography within the borders of the county. Thurston County is also the municipal government that is a partner to the plan.

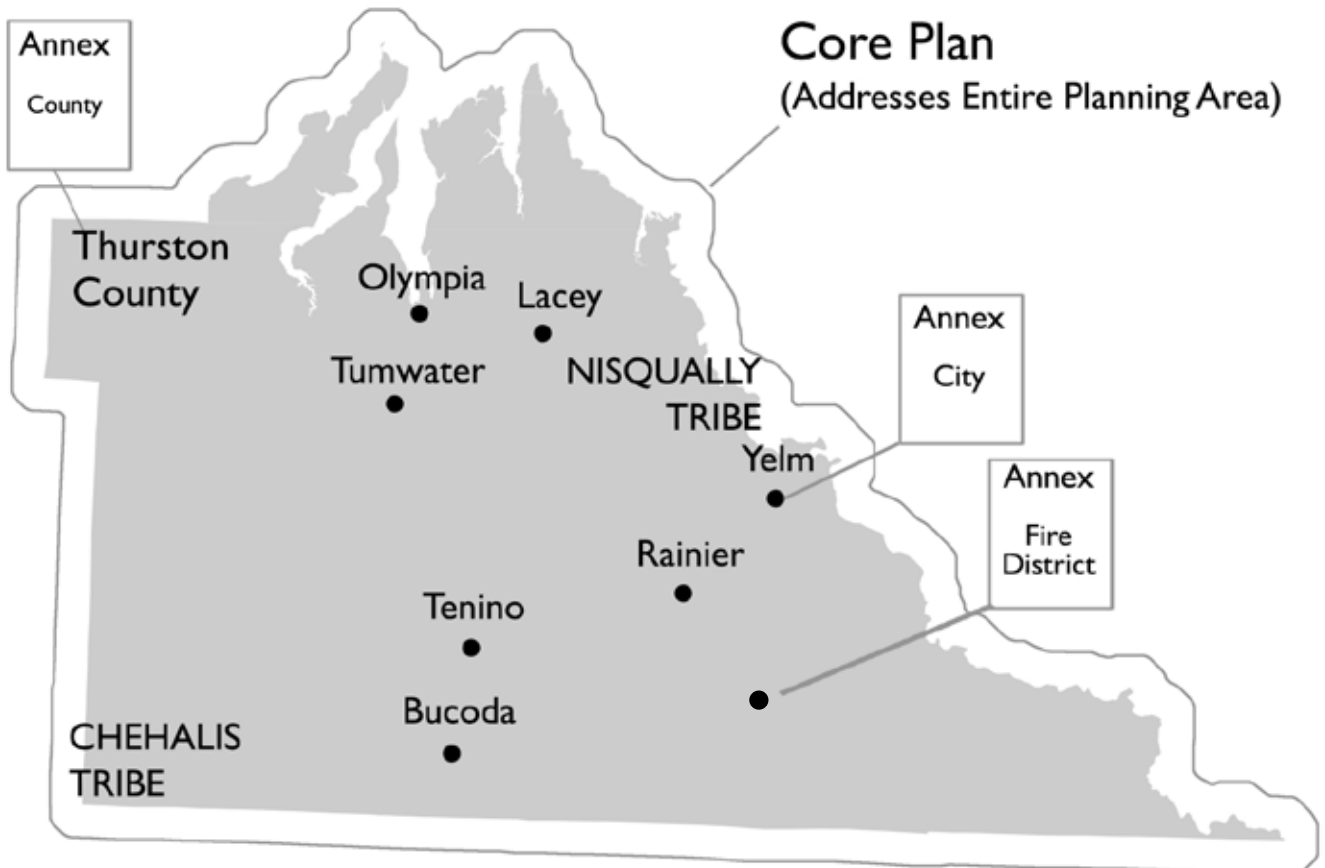
*Information about how this plan was developed: **Chapter 6: Plan Process and Development.***

Plan Structure

The plan meets Federal Disaster Mitigation Act hazard mitigation planning requirements for both the multi-jurisdictional and individual jurisdictional planning requirements. The core plan is divided into six chapters plus appendices. Each participating jurisdiction prepared a plan annex. Outline of plan’s contents:

	Chapter	Contents
Core Countywide Multi-Jurisdiction Plan	1. Introduction	An overview of hazard mitigation planning, federal planning requirements, federal mitigation funding, the contents of the plan.
	2. Mitigation Strategy	Mitigation goals and objectives, and countywide recommendations to reduce or prevent impacts from hazards.
	3. Thurston County Community Profile and Capability Assessment	A narrative and statistical profile of Thurston County including information on population, demographics, the environment, development trends, and community services. This chapter also includes an assessment of federal, state, and local mitigation planning capabilities.
	4. Risk Assessment	A comprehensive risk assessment of the hazards that threaten Thurston County and its communities, divided into six hazard profiles: Earthquake, Storm, Flood, Landslide, Wildland Fire, and Volcanism.
	5. Adoption, Implementation, Monitoring, and Maintenance	A description of the plan’s implementation, evaluation, and maintenance processes.
	6. Plan Process and Development	A description of the plan’s development process.
	Appendices	Public outreach materials and other references, forms and templates, risk assessment data and methodology, and grant program information.
Annex	Annex or Local Plan	A subset of the plan that contains information specific to a single jurisdiction: the mitigation actions, plan process details, variations to the countywide risk assessment, if appropriate, and evidence of adoption.

Figure 1.0.1: Components of the Hazards Mitigation Plan for the Thurston Region, Core Plan and Annexes



Endnotes

¹ Thurston Regional Planning Council. The Profile. Data available online: www.trpc.org/theprofile.