



Hazard Mitigation Plan for The Thurston Region, 2nd Edition

Public Utility District No. 1 of Thurston County

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**CERTIFIED COPY OF RESOLUTION
ADOPTED AT THE REGULAR MEETING OF THE COMMISSIONERS
OF
PUBLIC UTILITY DISTRICT NO. 1 OF THURSTON COUNTY**

The President and Secretary of Public Utility District No. 1 of Thurston County certify that this Resolution was adopted by a majority vote of the Commissioners of Public Utility District No.1 of Thurston County in attendance at the meeting held at the office of the District, 1230 Ruddell Rd SE, Lacey, Washington, 98503 on Tuesday, _____, and that said Resolution has not been revoked.

RESOLUTION NO. 23-__

RECITALS

The Public Utility District No. 1 of Thurston County (the District), as a public utility district in the state of Washington and operating in Thurston, Pierce, Lewis, Grays Harbor, Kitsap and King Counties, is vulnerable to the human and economic costs of natural disasters.

The District recognizes the importance of reducing or eliminating those vulnerabilities for the overall good and welfare of the community.

The District has been an active participant in the Thurston County Hazards Mitigation Planning Workgroup, which established a comprehensive, coordinated planning process to eliminate or decrease these vulnerabilities.

District staff have identified, justified and prioritized a number of proposed projects and programs needed to mitigate the vulnerabilities of Thurston PUD to the impacts of disasters.

The proposed projects and programs identified by the District have been incorporated into the 2016 edition of the *"Natural Hazards Mitigation Plan for the Thurston Region"* that has been prepared and issued for consideration and implementation by the communities of Thurston County.

RESOLUTION

NOW, THEREFORE, THE COMMISSIONERS OF THE DISTRICT DO HEREBY RESOLVE AS FOLLOWS:

Section 1. The District hereby accepts, approves, and adopts its designation portion of the 2023 update to the *"Natural Hazards Mitigation Plan for the Thurston Region,"* and affecting the District's operations in Thurston, Pierce, Lewis, Grays Harbor, Kitsap and King Counties.

Section 2. District Staff are requested and instructed to pursue available funding opportunities for implementation of the mitigation initiatives designated therein.

Section 3. The District will, upon receipt of such funding or other necessary resources, seek to implement the proposals contained in its section of the strategy.

Section 4. The District will continue to participate in the updating and expansion of the *“Natural Hazards Mitigation Plan for the Thurston Region,”* as needed and appropriate.

Christopher Stearns
Commissioner and President of
Public Utility District No. 1 of Thurston County

ATTEST:

Russell E. Olsen
Commissioner and Secretary

Chapter 1: Plan Development Process

1.1 Hazard Mitigation Planning Team

Primary Point of Contact

Kim Gubbe, Director of Planning and Compliance
1230 Ruddell Rd SE
Lacey WA 98503
Telephone: 360-357-8783 ext.125
e-mail Address: kgubbe@thurstonpud.org

Alternate Point of Contact

Doug Piehl, District Engineer III
1230 Ruddell Rd SE
Lacey WA 98503
Telephone: 360-890-6021
e-mail Address:
doug.piehl@thurstonpud.org

The following individuals served as the Thurston PUD Hazard Mitigation Planning Team.

Local Hazard Mitigation Planning Team Members.

Name	Title
Kim Gubbe	Director of Planning and Compliance
Doug Piehl, P.E.	District Engineer III
Jim Campbell	Director of Field Operation
Rick Sanchez	Field Technician III
John Weidenfeller	General Manager
Julie Parker	Assistant General Manager
TaSeana Tartt	Financial and Customer Service Manager

1.2 Hazard Mitigation Plan Development

The following activities supported the development and review of Thurston PUD's local hazard mitigation planning process:

Date	Attendees	Actions and Activities
2/28/2022	Thurston Hazard Mitigation Workgroup	Overview of the Hazards Mitigation Plan for the Thurston Region and Roles and Responsibilities
3/1/2022	Planning Team	Briefing on upcoming work to be done on the Thurston County hazard mitigation plan.
3/8/2022	Commissioner Meeting	Brief Commissioners on Thurston County hazard mitigation plan update project
9/8/2022	Updating Plan – Kim Gubbe	Completed updating Critical Facilities
9/27/2022	Planning Team	Briefing on upcoming work to be done on the Lewis County hazard mitigation plan.
10/2/2022	Thurston Hazard Mitigation Workgroup	Wildfire Ready Neighbors Program presentation from DNR
10/11/2022	Commissioner Meeting	Brief Commissioners on Lewis County hazard mitigation plan update project
3/27/2023	Thurston Hazard Mitigation Workgroup	Critical Facilities Risk Analysis and rating results for special purpose districts

7/10/2023	Planning Team	Completed Hazard Mitigation Initiatives for the updated plan
8/14/2023	Planning Team	Review the Draft Lewis County Hazard Mitigation Plan
8/21/2023	Lewis County Hazard Mitigation Team	Review the Draft Lewis County Hazard Mitigation Plan
8/28/2023	Planning Team	Finalized the Lewis County Plan and submitted
10/3/2023	Planning Team	Completed the benefit cost review of actions
10/10/2023	Planning Team	Review the Draft Thurston County Hazard Mitigation Plan, final review and discussion on plan maintenance
10/12/2023	Planning Team	Finalized the Thurston County Plan and submitted
10/16/2023	Kim Gubbe	Updated plan from comments received by Paul
10/17/2023	Planning Team	Reviewed updates and resubmitted plan

1.3 Thurston Region Stakeholder Involvement

Kim Gubbe from the Thurston PUD Hazard Mitigation Planning Team engaged with key stakeholders and community representatives across the Thurston Region. As representatives within the Thurston Hazard Mitigation Planning Workgroup (Workgroup), planning team members participated in multi-jurisdictional stakeholder engagement activities as outlined in Chapter 6.0 of the core plan.

Thurston PUD engaged regional stakeholders during activities outlined in the planning and development process for the core plan update. In addition to contributing to the development of the core plan, these representatives relayed information from the multi-jurisdictional planning team to the local planning team to ensure input from external stakeholders across the region was considered in the planning and development of the Thurston County annex.

1.4 Opportunities for Public Participation in the Plan Development

Throughout the planning process the planning team supported Thurston Regional Planning Council and the regional planning team to engage the public and share updates to the hazard mitigation plan with commissioners during the annual budget review and Water System Plan updates.

Date	Actions and Activities
10/19/2020	Public Meeting to provide feedback on Water System Plan Update
11/24/2020	Commissioners Approved Updated Water System Plan, Part A Umbrella
6/6-7/31/2022	2022 Pre-Planning Survey with TPRC
6/30/2022	Newsletter article encouraging customer to participate TRPC Survey
7/10/2023	Public Meeting on Updated Part A WSP including HMP
7/24-8/25/2023	Online Survey with TPRC
10/30/2023	Newsletter to customers about draft plan on website for review
TBD	Public Meeting on draft plan
TBD	Adoption of plan

2023 Multijurisdictional Hazard Risks and Action Plan Survey

TRPC hosted an online survey to gather feedback on the District's proposed mitigation actions. The District had 9 responses. The most voted on mitigation actions were:

- Public Education and Preparedness
- Remote Monitoring
- Backup Power and/or Source
- Wildfire Mitigation
- Drought Mitigation

1.5 Review and Incorporation of Existing Plans, Studies and Technical Information into the Hazard Mitigation Plan Update

Thurston PUD used documents referenced in the development of the core plan.

1.6 Integration of Hazard Mitigation Plan not other Planning Mechanisms

Thurston PUD has integrated the concepts and data developed for the Hazards Mitigation Plan into our Water System Plan, Part A Umbrella (ten year plan, approved 3/30/2021) and Capital Improvement Plan (reviewed and updated at least annually).

1.7 Plan Maintenance and Monitoring

With policy guidance provided by the Thurston County Emergency Management Council, who serves as the steering committee for the county's multi-jurisdictional hazard mitigation planning, Thurston County Emergency Management serves as the regional facilitator for monitoring and maintenance of the core plan for the Thurston region. Descriptions of the plan maintenance and monitoring activities led by the county are described in Chapter 5 of the core plan.

The District's maintenance and monitoring schedule is modeled after the process described in Chapter 5 of the core plan. Prior to the annual monitoring meetings for the core plan, the Workgroup will convene to share updates and opportunities on projects. This information will then be summarized and shared with the multi-jurisdictional Workgroup. Other meetings will be convened as needed to coordinate plan implementation and information sharing between the Workgroup and plan implementation partners.

The District will continue to promote public participation in the plan maintenance process by sharing information and updates on the plan during annual budget meetings and at public events, including those listed in Chapter 5 of the core plan.

Chapter 2: Jurisdiction Profile

2.1 Overview

Thurston PUD was officially formed in 1938 by a vote of the people. Thurston PUD provides water planning and utility services to the citizens of Thurston County, and also owns and operates water systems in Pierce, Lewis, Grays Harbor, Kitsap and King counties.

Thurston PUD's three elected Commissioners assumes responsibility for the adoption of this plan; the Planning and Compliance Department will oversee its implementation and management.

2.1.1 Mission

Provide safe, reliable, affordable, and sustainable utility services to the customers we serve.

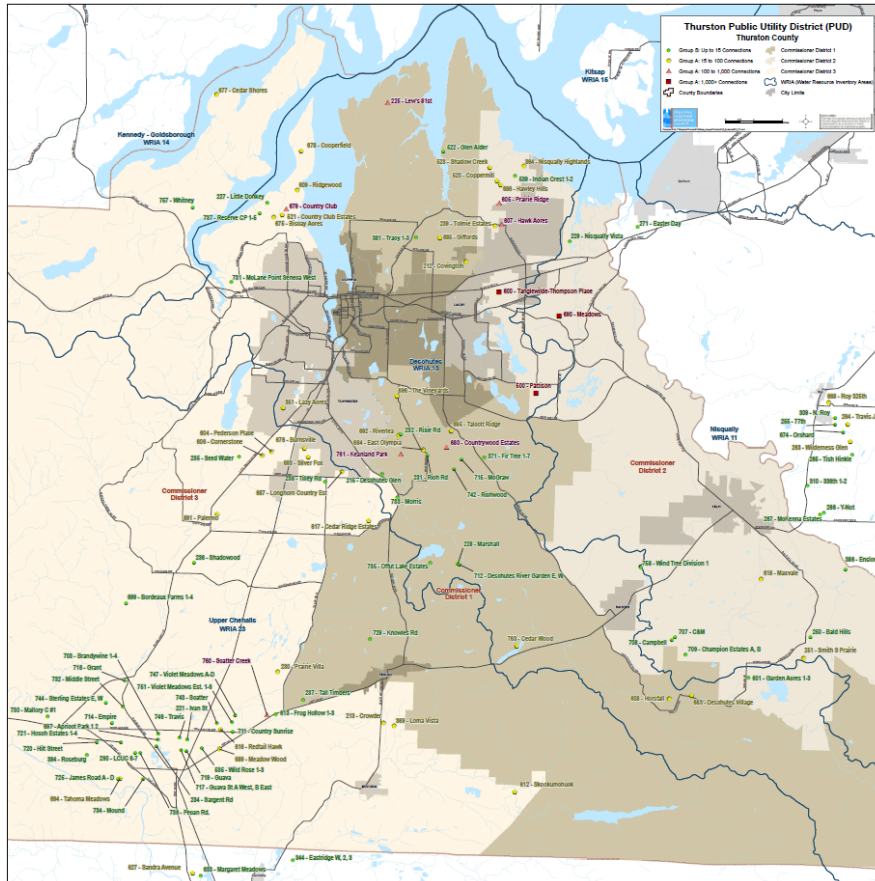
2.1.2 Strategic Goals

1. **Effectiveness:** Strive to be an effective organization.
2. **Sustainability:** Provide sustained efficient utility services to our customers and serve the citizens of Thurston County.
3. **Stewardship:** Be good stewards of the District's resources.
4. **Partnerships:** Continue to build good relationships and partnerships with Thurston County, other counties, neighboring cities, other PUDs, Port Districts, Tribes, other water purveyors, and state agencies.
5. **Growth:** Work toward steady growth in customers through the acquisition of systems with good value and periodically evaluate new lines of business to determine if entry is feasible and makes good financial sense.

2.2 Service Area

The District serves water systems throughout Thurston County:

Total Water Systems	151
Total Customer Connections	7,819
Total Estimated People Served	19,500



2.3 Community Profile

Group A Water Systems in Thurston County

Description: Water systems that have 15 or more service connections or regularly serve 2 or more people 60 or more days per year.

Total Group A Water Systems	49
Total Group A Customer Connections	7,184
Total Group A Estimated People Served	17,960

Group B Water Systems in Thurston County

Description: Water systems that have 15 or more service connections or regularly serve 2 or more people 60 or more days per year.

Total Group B Water Systems	102
Total Group B Customer Connections	635
Total Group B Estimated People Served	1,540

Assets in Thurston County

Wells	194
Miles of Water Main (approximately)	55
Reservoirs totaling 2.4 million gallons	37
Buildings	104
Total Replacement Estimate	\$158 million

Chapter 3: Risk Assessment

3.1 Introduction

Chapters 4.0 through 4.9 of the core plan include detailed descriptions and information on the nine natural hazards that have affected or are likely to affect Thurston County in the future. The Risk Assessment includes hazard profiles that describe the hazards, their causes, sources, severity, effects and impacts, probability of occurrence, historical occurrences, geographic extent or delineation, and the portion of the population, assets, and essential facilities potentially exposed to the hazard. The information is presented for general audiences and includes figures, maps, and tables.

3.2 Hazard Risk Summary

Chapters 4.0 through 4.9 of the core plan include summaries of the vulnerabilities and impacts on Thurston County communities for each of the assessed hazards. Because the core plan treats the entire county as the planning area, of which unincorporated Thurston County makes up approximately 93 percent, the core plan's risk assessment is the definitive risk assessment for Thurston County. Below is a summary of the hazard risk rankings for Thurston County:

Summary Assessment of Thurston County's Risk

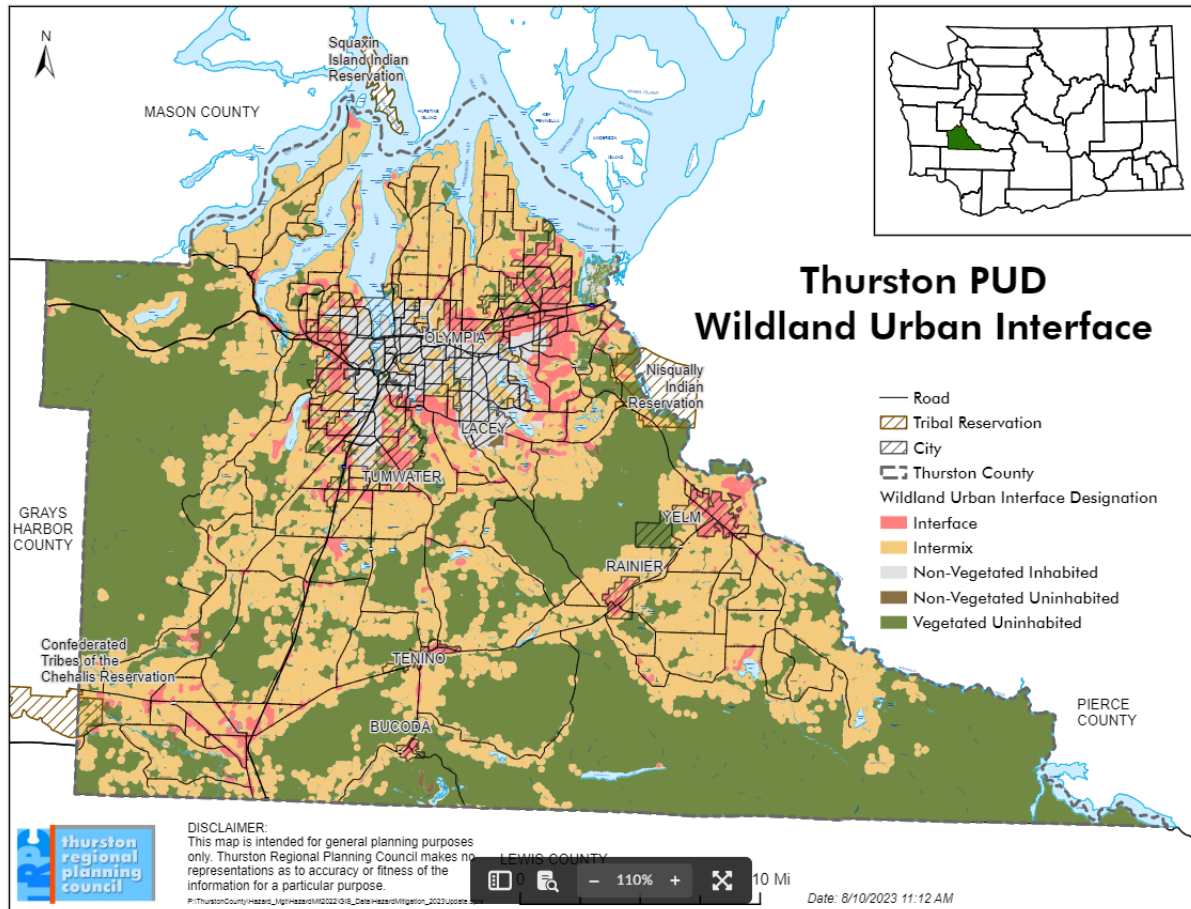
Hazard Type Risk	Ranking Score	Hazard Risk Rating
Wildfire- Intermix	36	High
Earthquake	32	Medium
Severe Weather	18	Medium
Flood	15	Low
Landslide	9	Low
Sea-Level Rise	6	Low
Volcano/Lahar	6	Low
Tsunami	6	Low
Dam Failure	6	Low

3.3 Risk Assessment per Hazard

3.3.1 Wildfire

Area of Impact

Most of the Districts water systems are in unincorporated areas of Thurston County and are prone to wildfires. See core plan Chapter 4.9.



Previous Incidents

Several of the District water systems have been affected by the September 8-11, 2020 Bordeaux Rd Fire, FM-5359 and the August 22-30, 2017 Scatter Creek Fire.

Probability of Occurrence

Probability Factor 2 - Medium probability with the hazard event likely to occur within 100 years.

Changes in Development

The District is moving towards wildfire mitigation around all assets.

Impacts

Impacts from wildfire could damage a water systems ability to serve potable water to the customers.

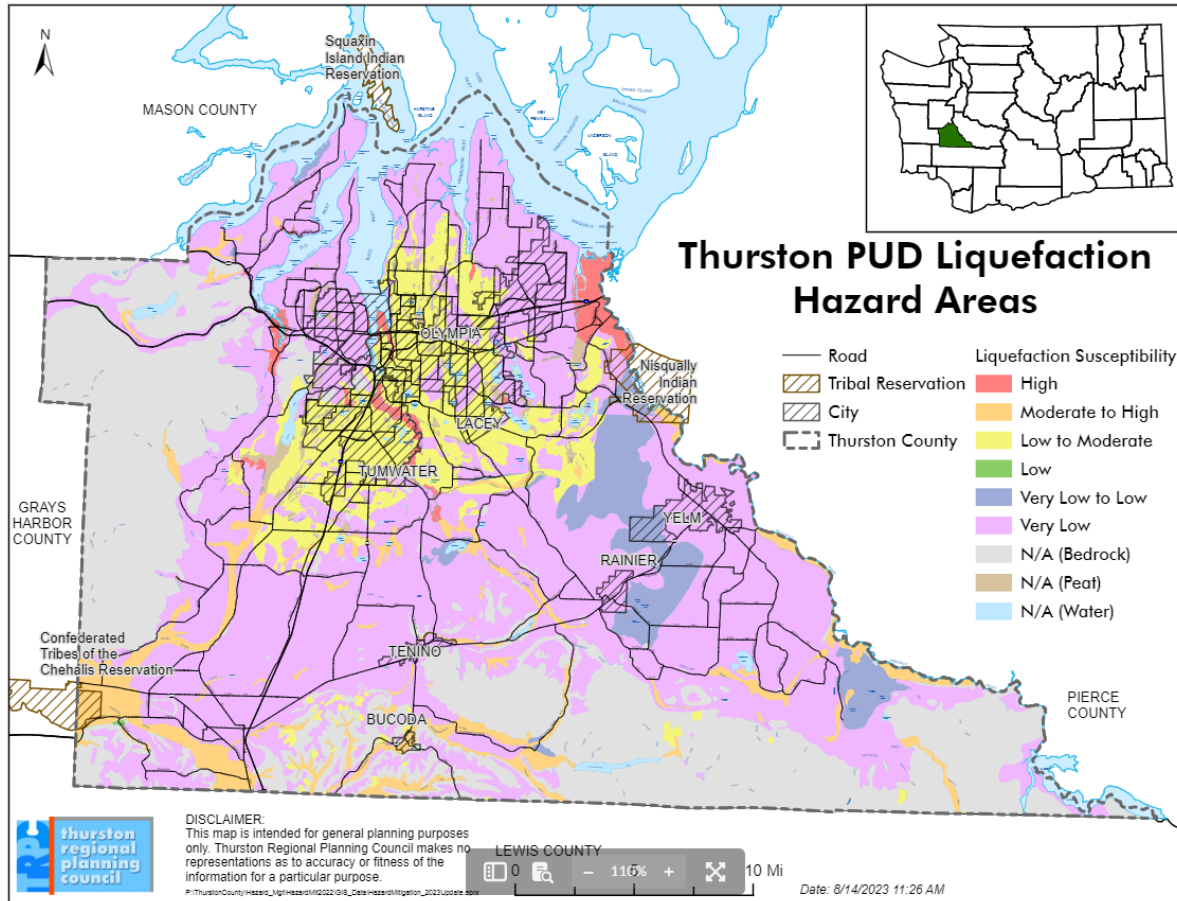
Core plan shows impacts to people, property, and economy to be high.

Impact on People	Impact on Property	Impact on Economy
High	High	High

3.3.2 Earthquake

Area of Impact

The entire service area is at risk for earthquakes. See core plan Chapter 4.2.



Previous Incidents

There have been 3 large earthquakes since 1949. The one on February 28, 2001, a 6.8 magnitude deep earthquake was centered in the Nisqually Reach northeast of Olympia. No damage was sustained at the water systems that were currently owned by the Thurston PUD.

Probability of Occurrence

Probability Factor 2 - Medium probability with the hazard event likely to occur within 100 years.

Changes in Development

The District has installed early detection equipment on the Tanglewilde-Thompson Place reservoir and will be assessing other reservoirs for this equipment in the future. The early detection equipment will allow the District to automatically close the valve from the reservoir to the distribution system reserving the water for emergency use, if needed.

Impacts

Impacts of earthquakes can damage water pipe lines, water system pump houses, older concrete reservoirs, and power systems. Roads damage will delay restoration and servicing of the water systems. Water systems without backup generators will be unable to provide water to customers should power be disrupted. Water customers may need to boil water before consumption until the water can be tested and determined to be safe for consumption.

Core plan shows impacts to people, property, and economy to be:

Impact on People	Impact on Property	Impact on Economy
High	High	Low

3.3.3 Severe Weather

Area of Impact

The entire service area is at risk for severe weather. See core plan Chapter 4.6.

Previous Incidents

The June 25-29, 2021 Heat Dome. This event had low impacts on the District's water systems.

Probability of Occurrence

Probability Factor 3 – High probability with the hazard event is likely to occur within 25 years

Changes in Development

The District received a FEMA Hazard Mitigation Grant in 2022 for 3 generators. One is being installed at the Meadows 690 water system and 2 will be portable to use for our whole service area during emergencies.

Impacts

Whether it is from wind, ice or heat, impacts from severe weather could damage a water systems ability to serve potable water to the customers.

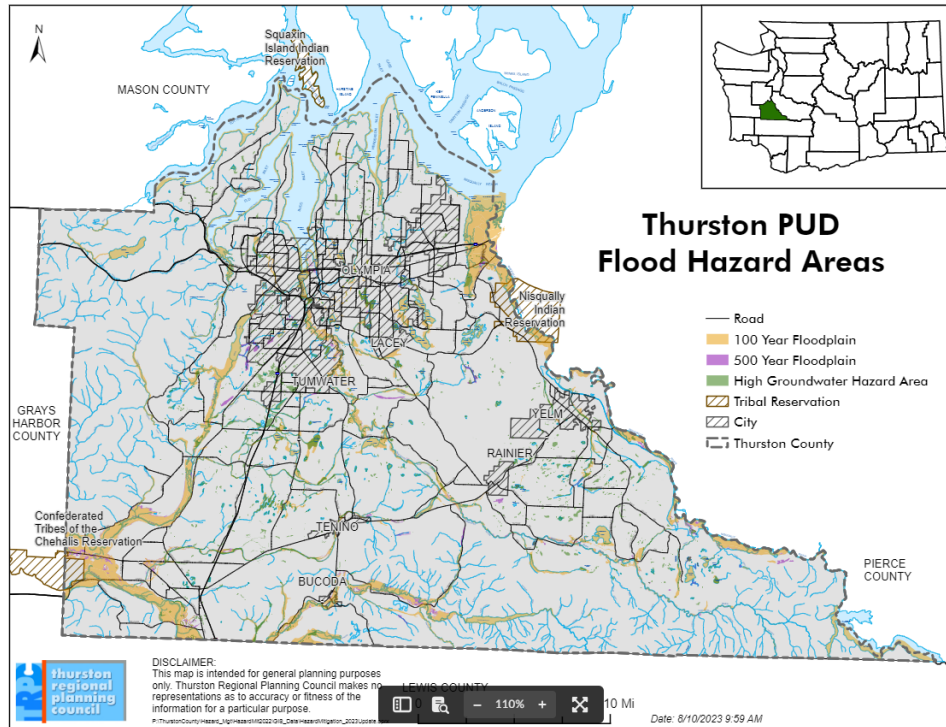
Core plan shows impacts to people, property, and economy to be:

Impact on People	Impact on Property	Impact on Economy
Low	Low	Low

3.3.4 Floods

Area of Impact

The District has several water systems next to rivers and streams like Skookumchuck and Deschutes Glen. See core plan Chapter 4.3.



Previous Incidents

December 26, 2021 – January 15, 2022, Severe Winter Storm, Straight-Line Winds, and Flooding. We were on watch at the Skookumchuck water system, but the river didn't get close.

Probability of Occurrence

Because rivers and streams cause nuisance flooding annually, and major riverine flooding occurs about every 2 to 5 years in Thurston County, there is a high probability of occurrence.

Changes in Development

The District uses National Weather Service Flood forecasting mapping to anticipate impacts to the water systems.

Impacts

Impacts of flooding on surface water systems would likely be from pump houses getting flooded due to flash and groundwater flooding. Subsequent sanitation problems could arise from contaminated potable water supplies.

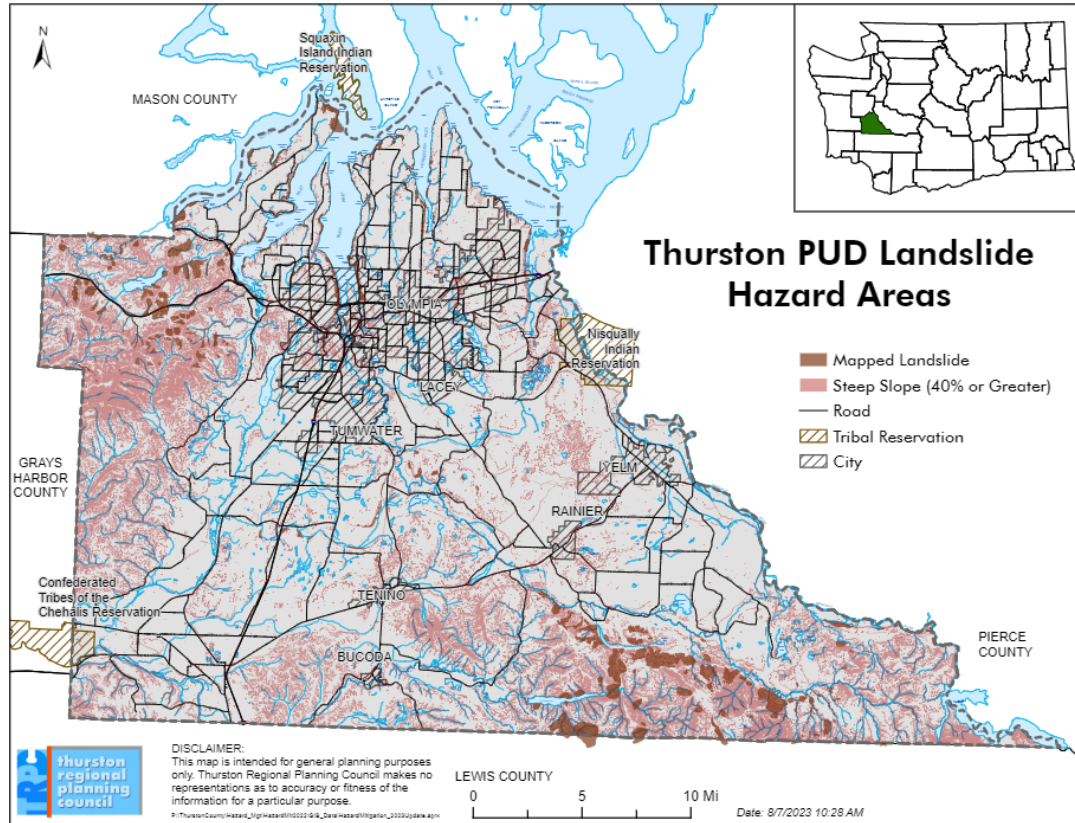
Core plan shows impacts to people, property, and economy to be:

Impact on People	Impact on Property	Impact on Economy
Low	Low	Low

3.3.5 Landslides

Area of Impact

The impact area would be water systems that are in areas with slopes that are 40 percent, or greater and Washington State Department of Natural Resources mapped know and historic landslide database. See core plan Chapter 4.4.



Previous Incidents

No significant history of landslide events has impacted the District's water systems.

Probability of Occurrence

Landslides occur nearly annually, with a high probability of occurrence overall for the District's service area.

Impacts

Possible impacts of landslides would be damaged pump houses, wellheads, smaller reservoirs, the loss of power and the subsequent loss of clean running water. Landslides could also block or erode roadways, which could prevent the District's staff from getting to some of our water systems.

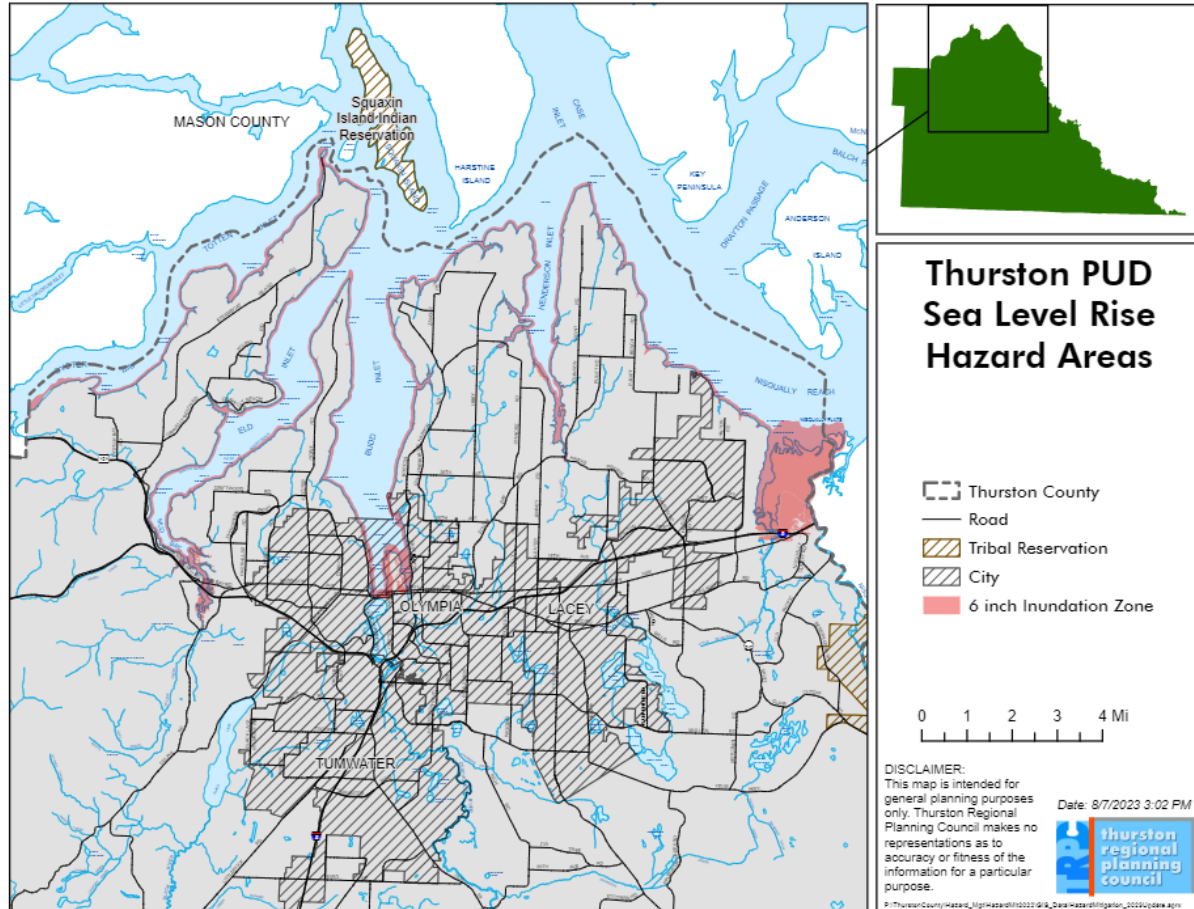
Core plan shows impacts to people, property, and economy to be:

Impact on People	Impact on Property	Impact on Economy
Low	None	None

3.3.6 Sea-Level Rise

Area of Impact

The District has no assets located in the inundation zone. See core plan Chapter 4.5.



Previous Incidents

No significant history of Sea-Level Rise events has impacted the District's water systems.

Probability of Occurrence

Probability Factor 2 - Medium probability with the hazard event likely to occur within 100 years.

Impacts

Sea level rise could pose transportation issues.

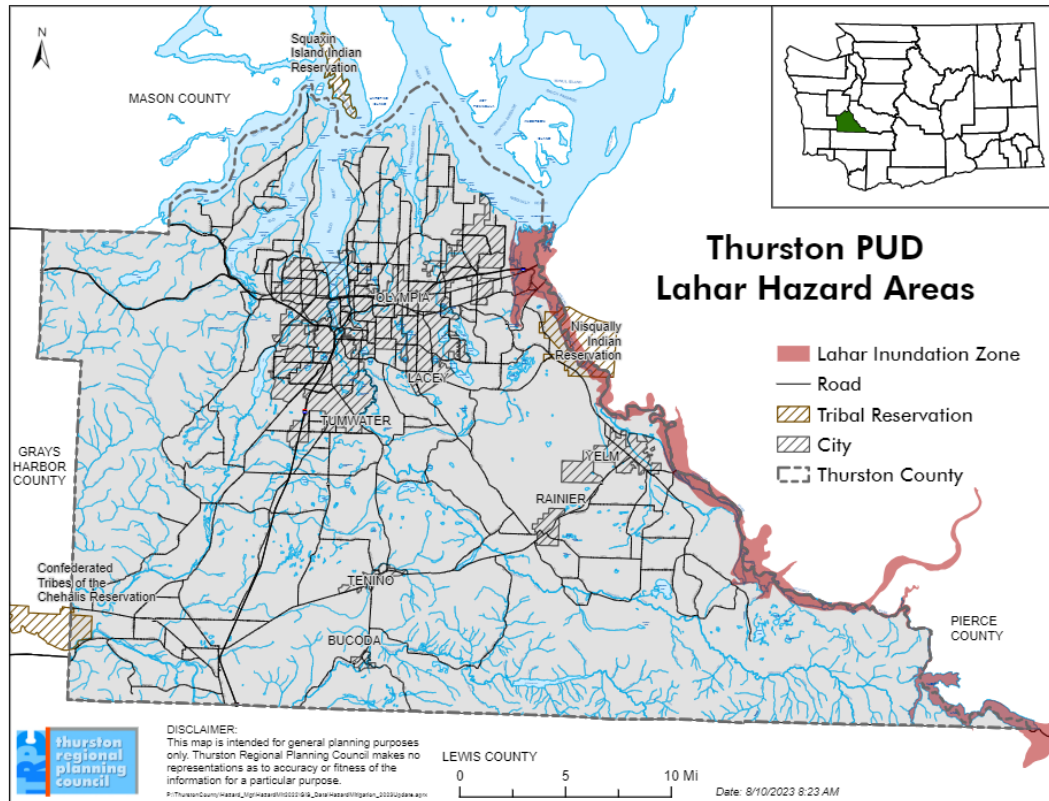
Core plan shows impacts to people, property, and economy to be:

Impact on People	Impact on Property	Impact on Economy
None	None	None

3.3.7 Volcano/Lahar

Area of Impact

The District has 4 Group B Thurston County and 5 Group B water systems within the lahar hazard area. See core plan Chapter 4.8.



Previous Incidents

May 18, 1980 Mount St. Helens Eruption. This event had no impacts to the water systems owned by the District at the time.

Probability of Occurrence

Probability Factor 2 - Medium probability with the hazard event likely to occur within 100 years.

Impacts

Impacts of an eruption of Mount Rainier and the lahar down the Nisqually River valley would impact approximately a population of 160. The lahar could damage a water systems ability to serve potable water to the customers and impacted roadways disrupting or potentially cutting off service to water systems.

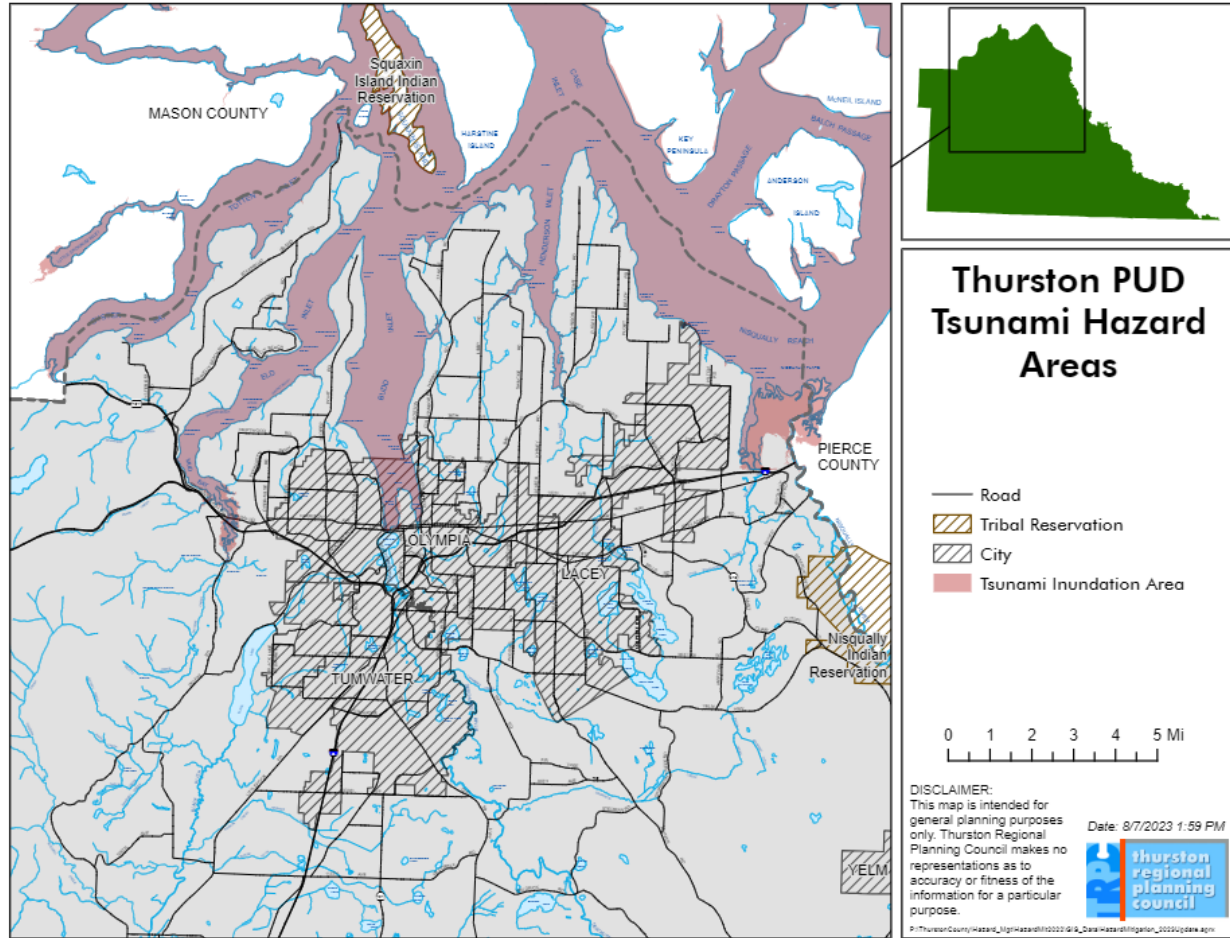
Core plan shows impacts to people, property, and economy to be:

Impact on People	Impact on Property	Impact on Economy
Low	None	None

3.3.8 Tsunami

Area of Impact

The District has no assets located in the inundation zone. See core plan Chapter 4.7.



Previous Incidents

No events.

Probability of Occurrence

Probability Factor 2 - Medium probability with the hazard event likely to occur within 100 years.

Impacts

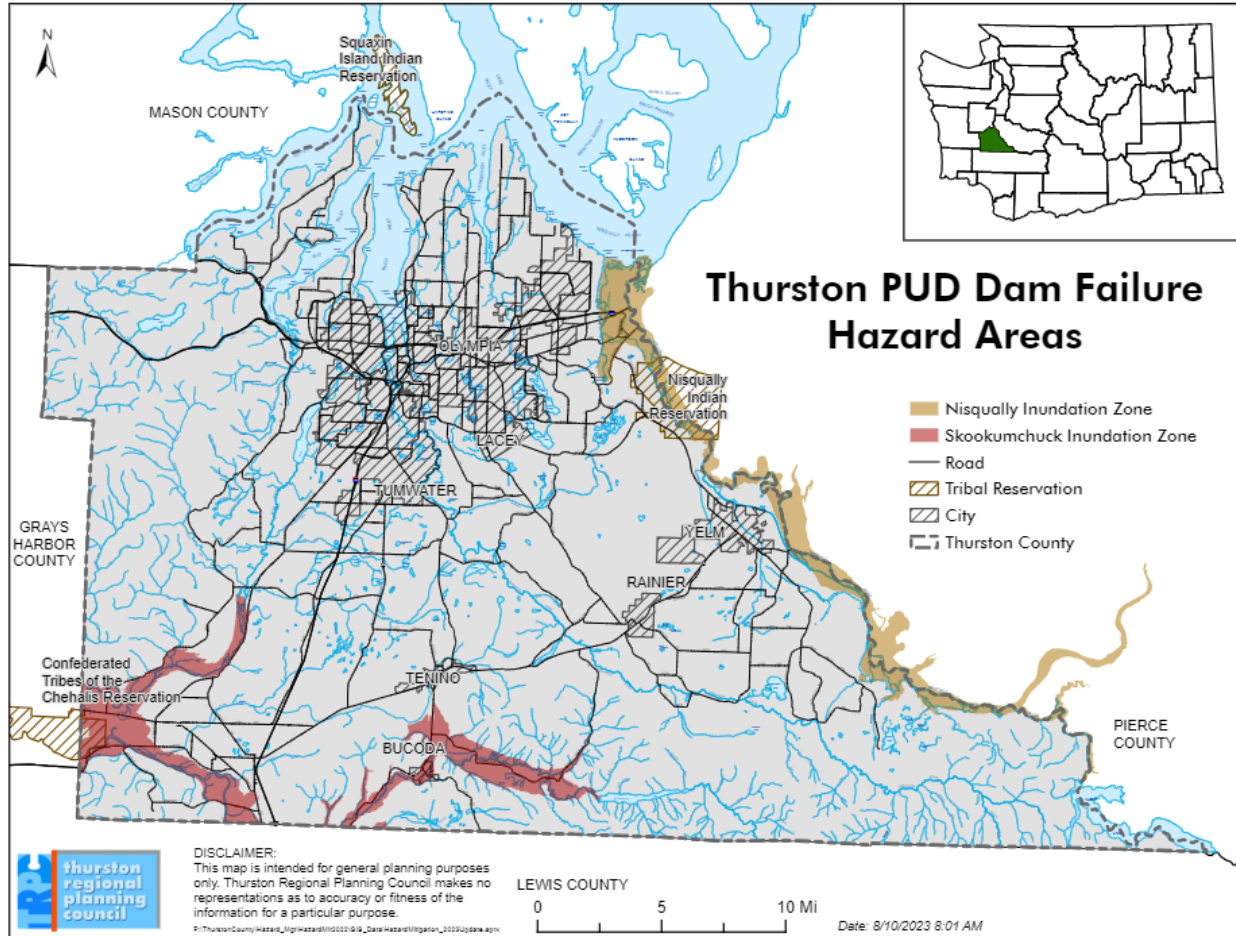
Core plan shows impacts to people, property, and economy to be:

Impact on People	Impact on Property	Impact on Economy
Low	None	None

3.3.9 Dam Failure

Area of Impact

The District has one water system, Skookumchuck, in the inundation area. See core plan Chapter 4.1.



Previous Incidents

No events

Probability of Occurrence

Probability Factor 1 - Low probability with the hazard event unlikely to occur within 100 years.

Impacts

Core plan shows impacts to people, property, and economy to be:

Impact on People	Impact on Property	Impact on Economy
Low	Low	Low

Chapter 4: Capabilities Assessment

4.1 Thurston PUD's Capabilities Assessment

This section identifies the District's existing hazard mitigation capabilities. Capabilities are organized by the following types:

- Planning and Regulatory
- Administration and Technical
- Financial
- Education and Public Outreach

4.1.1 Planning and Regulatory

Plans	In Place? Y or N	Notes:
Umbrella / Water System Plan, Part A	Yes	A water system planning document that is approved by WA Department of Health describes the District's operations, planning and emergency response plans. The plan is 10-year plan and was last approved on 3/30/2021.
Satellite Management Agency	Yes	A water system planning document is the public water system equivalent of a business plan. The plan is 6-year plan and was last approved on 3/30/2021.
Capital Facilities / Improvement Plans	Yes	Capital projects that support mitigation actions can be included in the CIP. This document is updated at least annually with the PUD budgeting process. 2024 CIP was approved 9/25/2023.
Climate Adaptation Plan	Yes	Part of the Umbrella WSP
Community Wildfire Protection Plan	No	The District procedures cover the maintenance around the pumphouse and we have updated the procedures to include wildfire protection landscaping.
Comprehensive Emergency Management Plans	Yes	Part of the Umbrella WSP
Continuity of Operations Plan	Yes	Part of the Emergency Plan in the Umbrella WSP

Legal and Regulatory Capability Summary

The District has a strong framework for running a water utility and we rely on Thurston County to maintain their strong framework of policies, laws, and programs that help mitigate impacts and reduce vulnerabilities. Thurston County also possesses a strong framework to regulate development for habitat conservation and open space preservation to protect natural lands and maintain the county's rural characteristics. This is an area where opportunities exist for county planners to consider further

incorporating hazard mitigation into existing plans, programs, and ordinances when a co-benefit exists to promote both hazard mitigation and land conservation.

4.1.2 Administrative and Technical

Administrative	In Place? Y or N	Notes
General Manager	Yes	The General Manager is the chief administrative officer and is responsible for the overall management and operation of the utility based on the policies and directives of the Board of Commissioners.
Assistant General Manager	Yes	The AGM is responsible for assisting the General Manager in overall operation of the utility, including responsibility for budgeting, finance, utility billing and customer service oversight.
Director of Planning and Compliance	Yes	The DPC ensures that all technical and regulatory requirements are met for all the District's water systems. The DPC oversees all aspects of water system-related capital improvement projects and is the responsible for securing critical grants to fund or supplement infrastructure projects.
District Engineer	Yes	The District Engineer oversees all capital improvement projects to include mitigation services and projects.
Emergency Manager	Yes	General Manager serves in the role and delegates the emergency lead to the correct department depending on the emergency.
GIS Coordinator	Yes	The DPC coordinates and the District Engineer leads the District with this new program for the District.
Technical	In Place? Y or N	Notes
Grant Writing	Yes	The AGM and DPC complete the grant writing.
Hazard data and information	Yes	DPC and District Engineer document all emergency events.
GIS Analysis	Yes	This is new program for the District and the District Engineer is the lead.
Mutual Aid Agreements	Yes	The District has many mutual aid agreements that the AGM manages.

4.1.3 Financial

Funding Resources	In Place? Y or N	Notes
Capital Improvements Project Funding	Yes	The District has established a Capital Surcharge Fee to all connections. The current fee is \$11.00 per ERU and 2024 approved fee will be \$13.50.
Community Development Block Grant	Yes	We have received this funding in the past for a failing water system.
Non-FEMA Federal Funding Programs	Yes	Drinking Water State Revolving Fund – The District has received many of these loans to replace failing infrastructure and consolidate failing water systems.
Impact Fees	Yes	The District charges a General Facilities Charge to all new connections. The current fee is \$5,000 per ERU and 2024 approved fee will be \$6,000.
State Funding Programs	Yes	Public Works Board Infrastructure loans – The District has received many of these loans to replace failing infrastructure.
Utility Fees	Yes	The District has a postage stamp water rate for all connections, it includes a base rate and tiered rates for consumption.

4.1.4 Education and Outreach

Programs or Activities	In Place? Y or N	Notes
Monthly Newsletters	Yes	Monthly newsletter includes what the District is doing to prepare for emergencies and what the customer should to do prepare for emergencies
Call Em All and Text Em All Messaging System	Yes	Messaging system that allow the District to get information out to customers quickly.

Chapter 5: Mitigation Strategy

5.1 Goals and Policies

Goals within hazard mitigation planning are broad, long-term policy and visionary statements to help guide the planning team as they develop specific mitigation actions and projects to reduce the effects of hazards. The District's changes in goals, objectives and priorities for the hazard mitigation plan were developed in conjunction with other stakeholder agencies within the Thurston Region and are described in-depth in Chapter 2 of the core plan.

5.2 Mitigation Initiatives – Adopted

The mitigation initiatives are the District's specific actions for mitigating losses and protecting life and property. They were identified during the development of the Hazards Mitigation Plan for the Thurston Region. All the District's adopted initiatives were reviewed and updated by the development team.

Priority	ID Number	Category	Initiative Title/description
1	TPUD-WH-4	Hazard Preparedness	Wildfire Prevention
2	TPUD-MH-3	Hazard Damage Reduction	Installation of New Generators on Group A Water Systems
3	TPUD-MH-5	Hazard Preparedness	Evaluate and Implement Manual Water Service After Hazard Event
4	TPUD-EH-6	Hazard Damage Reduction	District's Headquarters Evaluate and Retrofit
5	TPUD-MH-7	Hazard Preparedness	Implement a Systemwide Remote Monitoring System
6	TPUD-SH-8	Hazard Preparedness	Evaluate and Implement Mitigation to Vulnerable Wells Due to Drought
7	TPUD-MH-1	Public Information	Public Education
8	TPUD-EH-10	Hazard Damage Reduction	Retrofit Reservoirs with Seismic Equipment
9	TPUD-MH-9	Plan Coordination and Implementation	Communication Plan between Thurston PUD and Thurston County
10	TPUD-EH-2	Hazard Damage Reduction	Tanglewilde – Thompson Place System Mainline Replacement

Hazard Codes: DH=Dam Hazard; EH=Earthquake Hazard; FH=Flood Hazard; LH=Landslide Hazard; MH=Multi Hazard; SH=Storm (or Weather) Hazard; SL: Sea Level Rise Hazard; WH=Wildland Fire Hazard; and VH=Volcanic Hazard

Priority: 1 of 10

Status: New

TPUD-WH-4: Wildfire Prevention

Hazard Addressed: Multi Hazard

Category: Hazard Preparedness

Background and Need: Develop and implement a district-wide wildfire prevention strategy to remove hazardous vegetative fuels around facilities and retrofit wood framed structures with fire-resistant materials.

Relates to Plan Goal(s) and Objectives 2D, 4A, 8A

Lead: Planning and Compliance Department

Estimated Cost: Low, less than \$100,000

Time Period: 2023-2028

Funding Source: Annual Budget, HMGP, BRIC, FMA

Source and Date: Hazards Mitigation Plan, Thurston PUD Annex 2023

Initiative and Implementation Status: New

Priority: 2 of 10

Status: Existing

TPUD-MH-3: Installation of New Generators on Group A Water Systems

Hazard Addressed: Multi Hazard

Category: Hazard Damage Reduction

Background and Need: Water service is critical for the safety and health of the District's customers. Backup generator systems will provide supplemental power to operate the water systems in the event of a power disruption.

Relates to Plan Goal(s) and Objectives 1D, 4A, 5E, 8C

Implementer: Planning and Compliance Department

Estimated Cost: High cost, more than \$500k to get generators at all Group A water systems

Time Period: 2020-2028

Funding Source: HMGP, BRIC

Source and Date: Hazards Mitigation Plan, Thurston PUD Annex 2017

Initiative and Implementation Status: Existing. The District received a HMG in 2022 to purchase two mobile generators and one permanent generator at the Meadows water system. We are currently working on completing that project. We still have over 50 Group A water systems in need of backup power.

Priority: 3 of 10

Status: New

TPUD-MH-5: Evaluate and Implement Manual Water Service After Hazard Event

Hazard Addressed: Multi Hazard

Category: Hazard Preparedness

Background and Need: Evaluate the installation of manual operated pumps at all Group A water systems to provide a low-cost means to access groundwater for domestic use during emergencies with prolonged power outages, which could include emergency water sanitation kits and water tree stations, then providing public education on how to use them.

Relates to Plan Goal(s) and Objectives: 2D, 4A, 8A

Implementer: Planning and Compliance Department

Estimated Cost: Medium cost, \$100K - \$500K

Time Period: 2023 - 2028

Funding Source: Annual Budget, HMGP, BRIC, FMA

Source and Date: Hazards Mitigation Plan, Thurston PUD Annex 2023

Initiative and Implementation Status: New

Priority: 4 of 10

Status: New

TPUD-EH-6: District's Headquarters Evaluation and Retrofit.

Hazard Addressed: Earthquake Hazard

Category: Hazard Damage Reduction

Background and Need: Evaluate and retrofit the District's headquarters to serve as an emergency operations center.

Relates to Plan Goal(s) and Objectives: 2C, 3B

Implementer: General Manager

Estimated Cost: Medium cost, \$100K - \$500K

Time Period: 2023 - 2028

Funding Source: Annual Budget, HMGP, BRIC, FMA

Source and Date: Hazards Mitigation Plan, Thurston PUD Annex 2023

Initiative and Implementation Status: New

Priority: 5 of 10

Status: New

TPUD-MH-7: Implement a Systemwide Remote Monitoring System

Hazard Addressed: Multi Hazard

Category: Hazard Preparedness

Background and Need: Implement a systemwide remote monitoring system to record water pressure and flow rates, reservoir levels, disinfectant levels, power supply, security, and other parameters. Remote sensors improve the District's detection and response during emergencies.

Relates to Plan Goal(s) and Objectives: 1A, 8A, 8C

Implementer: Planning and Compliance Department

Estimated Cost: Medium cost, \$100K - \$500K

Time Period: 2023-2028

Funding Source: Annual Budget, HMGP, BRIC, FMA

Source and Date: Hazards Mitigation Plan, Thurston PUD Annex 2023

Initiative and Implementation Status: New

Priority: 6 of 10

Status: New

TPUD-SH-8: Evaluate and Implement Mitigation to Vulnerable Wells Due to Drought

Hazard Addressed: Severe Weather Hazard - Drought

Category: Hazard Preparedness

Background and Need: Evaluate and implement mitigation to vulnerable wells to determine best action to mitigate water outages due to drought which could include, but not limited to: Deepening or replacing of wells, intertying or consolidating systems to give greater redundancy and replace high-leak sections of distribution.

Relates to Plan Goal(s) and Objectives: 2B, 4A

Implementer: Planning and Compliance Department

Estimated Cost: High cost, more than \$500k

Time Period: 2023 - 2028

Funding Source: Annual Budget, HMGP, BRIC, FMA

Source and Date: Hazards Mitigation Plan, Thurston PUD Annex 2023

Initiative and Implementation Status: New

Priority: 7 of 10

Status: Ongoing

TPUD-MH-1: Public Education

Hazard Addressed: Multi Hazard

Category: Public Information

Background and Need: Create a public education service to offer tips and information to customers for hazard proofing their homes and emergency preparedness information.

Relates to Plan Goal(s) and Objectives: 9A, 9B

Implementer: Customer Service Department

Estimated Cost: Low cost, less than \$100K

Time Period: 2020 - 2028

Funding Source: Annual Budget

Source and Date: Hazards Mitigation Plan, Thurston PUD Annex 2017

Initiative and Implementation Status: The District continues to use our monthly newsletters to provide the public education to our customers. Ongoing.

Date	Actions and Activities
1/30/2020	Newsletter - Article on preparing for winter
1/30/2021	Newsletter – Preparing an emergency kit
2/28/2022	Newsletter – Preparing for Winter Storms
6/30/2022	Newsletter – Hot Weather Safety
10/30/2022	Newsletter – Preparing for Fall and Winter Storms
1/30/2023	Newsletter – Update to customers on plan actions
1/30/2023	Newsletter - Disaster Supply Kit
6/30/2023	Newsletter – Tips for Hot Weather

Priority: 8 of 10

Status: New

TPUD-EH-10: Retrofit Reservoirs with Seismic Equipment

Hazard Addressed: Earthquake Hazard

Category: Hazard Damage Reduction

Background and Need: Install seismic sensors and automatic valves on the district's largest and regionally most important reservoirs. Automatic shut off valves can preserve water in the event of a water main rupture.

Relates to Plan Goal(s) and Objectives: 1A, 2B, 4A,

Implementer: Planning and Compliance Department

Estimated Cost: Medium cost, \$100K - \$500K

Time Period: 2023 - 2028

Funding Source: Annual Budget, HMGP, BRIC, FMA

Source and Date: Hazards Mitigation Plan, Thurston PUD Annex 2023

Initiative and Implementation Status: New

Priority: 9 of 10

Status: New

TPUD-MH-9: Communication Plan between Thurston PUD and Thurston County

Hazard Addressed: Multi Hazard

Category: Plan Coordination and Implementation

Background and Need: Creating and implementing a communication plan between Thurston County Emergency Response teams and Thurston PUD.

Relates to Plan Goal(s) and Objectives: 5C, 7F

Implementer: Planning and Compliance Department

Estimated Cost: Low cost, less than \$100K

Time Period: 2023 - 2028

Funding Source: Annual Budget

Source and Date: Hazards Mitigation Plan, Thurston PUD Annex 2023

Initiative and Implementation Status: New

Priority: 10 of 10

Status: Existing

TPUD-EH-2: Tanglewilde – Thompson Place System Mainline Replacement

Hazard Addressed: Earthquake Hazard

Category: Hazard Damage Reduction

Background and Need: The Tanglewilde – Thompson Place community is in a seismic hazard area and has over 1,700 connection which include business, homes, parks and schools and serves an estimation population of 20,000 residents per day. The existing asbestos cement water main is moderately vulnerable for fracture or rupture during an earthquake. Upgrading the water main with steel pipe will reduce its vulnerability to catastrophic failure.

Relates to Plan Goal(s) and Objectives 2B, 4A

Implementer: Planning and Compliance Department

Estimated Cost: High cost, more than \$500k. Estimated Total Cost \$29 million per Asset Management Plan.

Time Period: 2018 - 2028

Funding Source: DWSRF, PW

Source and Date: Hazards Mitigation Plan, Thurston PUD Annex 2017

Initiative and Implementation Status: The District has updated the Part B Water System Plan and has hired an engineer for construction drawings for Phase 1 replacement of approximately 40,000 lineal feet of distribution. We then submitted for a Public Works Board Infrastructure Loan in the amount of \$10 million for the 2023 cycle and didn't make the list for funding. We will continue to try to find funding. Existing

5.2.1 Mitigation Actions Prioritization Process and Cost Benefit Review

The planning team conducted a cost-benefit evaluating the relative benefit of each initiative across eight benefit-cost review and prioritization criteria. The planning team used the same process and methodology that was completed at the regional level for the core plan initiatives. In instances where mitigation actions received similar scores, the planning team assigned a higher priority to the initiatives possessing the highest benefit to life safety. The figure below shows the results of the cost-benefit review

Mitigation Initiative	Hazard Risk Rating	Project Cost	HMP Goals and Policies	Life/Safety	Social Vulnerability	Changes in Development	Climate Change	Geographic Impact	Grant Eligibility	Total Score
TPUD- WH-4 - Wildfire Mitigation	Med	High	Med	Med	Low	None	High	High	Med	28
TPUD- MH-3 - Generators	Med	Low	High	High	Low	None	High	Med	High	28
TPUD- MH-5 - Emergency Preparedness	Med	Med	Med	High	Low	None	Low	Med	High	24
TPUD- EH-6 - Retrofit Headquarters	Med	Med	Med	High	Low	None	None	High	Med	23
TPUD- MH-7 - Remote Monitoring	Med	Med	Med	Med	Low	None	Low	Med	High	22
TPUD- SH-8 - Drought Preparedness	Med	Low	Med	Med	Low	None	High	Med	Med	22
TPUD-MH-1 -Public Outreach	Med	High	Med	Med	Low	None	Low	High	None	21
TPUD- EH-10 - Seismic Valves	Med	Med	Med	Med	Low	None	None	Med	High	21
TPUD- MH-9 - Plan Coordination	Med	High	Med	Med	Low	None	None	High	None	20
TPUD- EH-2 - Mainline Replacement	Med	Low	Med	High	Low	Med	None	Low	None	14
Benefit Points (High = 5, Med = 3, Low = 1)										