

Thurston County, WA Flood Hazard Mitigation Plan 2023 Annual Progress Report

Reporting Period: October 1, 2022 – September 30, 2023

Date of Annual Review Meeting: October 3, 2023, from 1:00 p.m. to 3:00 p.m.

Background

The Thurston County Board of Commissioners adopted the Thurston County Flood Hazard Mitigation Plan (FHMP) on October 3, 2017. The FHMP is a blueprint for the county to reduce the impacts of flooding in unincorporated Thurston County. To prepare the plan, Thurston County organized resources, assessed risks from flooding, developed planning goals and objectives, reviewed mitigation alternatives, and developed an action plan to address probable impacts from floods. The plan and annual progress reports can be viewed on-line at:

<https://www.trpc.org/803/Flood-Hazards>

Summary Overview of the Plan's Progress: The performance period for the Hazard Mitigation Plan became effective on October 1, 2017, with the final approval of the plan by FEMA. The initial performance period for this plan will be 5 years, with an anticipated update to the plan to occur before October 1, 2024. The plan contains 20 flood hazard mitigation initiatives to be pursued during the 5-year performance period. For the 2023 reporting period, the following progress was achieved:

- 15 out of 20 initiatives (75%) reported ongoing action.
- No initiatives have reported they are fully completed.
- No significant progress was reported for five initiatives (25%) during the reporting period.

Thurston County has made progress on 15 of the plan's initiatives. The scope of work for most initiatives requires ongoing effort and interdepartmental coordination. To this effect, none of the FHMP's actions are 100 percent complete.

Five initiatives have not experienced any significant progress toward their stated purpose since the last report. However, Thurston County staff has reported that several activities have provided indirect support toward their stated purpose. A progress report for each initiative is documented in the Review of the Action Plan section.

Purpose

This annual report documents progress on the implementation of the 20 mitigation initiatives in the Thurston County Flood Hazard Mitigation Plan. The report is part of the plan's continuous implementation and evaluation process to reduce the risk of flood hazards in Thurston County. This report contains information on the following:

- Flood events that have occurred during the reporting period.
- Changes in risk exposure within the planning area.
- Mitigation success stories.

- Review of the action plan.
- Changes in capabilities that could impact implementing the plan.
- Recommendations for changes/enhancement.

The Flood Planning Committee

The Flood Planning Committee (FPC), made up of both county staff and community stakeholders within the planning area, was established during the development of the Thurston County Flood Hazard Mitigation Plan in 2017. Since the plan was adopted, new members have been invited to fill vacancies. The plan charged the FPC with conducting the annual review and providing Thurston County periodic feedback on its action plan. The FPC membership is maintained by Thurston County staff. The FPC membership for the current reporting period is shown in Table 1.

TABLE 1. FLOOD PLANNING COMMITTEE MEMBERS		
Name	Title	Affiliation
Community Members		
Katrina Sukola	Stakeholder	Water Resources Specialist, Office of the Chehalis Basin
Cal Bray	Stakeholder	Emergency Manager, Confederated Tribes of the Chehalis Reservation
Glen Connolly	Stakeholder	Natural Resources Manager, Confederated Tribes of the Chehalis Reservation
Howard Glastetter	Community Representative	Nisqually River Valley Floodplain Resident
Thurston County Staff Members		
Ashley Arai	Community Planning Manager	Community Planning and Economic Development
Cherie Carey	Emergency Management Coordinator	Emergency Services
Emily Schoendorf	Emergency Management Coordinator	Emergency Services
Stacy Klein	Public Information Officer	Community Planning and Economic Development
Kevin Hansen	Hydrogeologist	Community Planning and Economic Development
Kelly Alfaro Haugen	GIS Analyst III	Thurston GeoData
Shannon Peterson	Water Resources Utility Planner	Public Works
Tim Rubert	Plans Examiner, Floodplain Manager	Community Planning and Economic Development
Sarah Smith	GIS Analyst II	Thurston GeoData
Project Staff		
Mark Bieber	CRS Coordinator	Community Planning and Economic Development
Paul Brewster	Senior Planner	Thurston Regional Planning Council

Flood Events within the Planning Area

Winter storms, snow, and heavy rains caused major flooding on the Chehalis and Skookumchuck rivers. On January 6, the Thurston County Emergency Coordination Center activated to a Level 2 partial activation due to anticipated major flooding. On January 7, the Chehalis River near Grand Mound crested at 145 feet and the Skookumchuck River near Bucoda crested at 216 feet, both reached major flood stage. Evacuation advisements were issued for residents in affected areas. Several rescues were performed in the West Thurston Fire District. 35 county roads were closed, and 113 additional roads were signed for roadway flooding. On SR 507 near Connor Rd SE, a motorist attempted to drive through floodwater, but got stranded. South Thurston Fire assisted by Bucoda Fire rescued the driver. There were reports that semi-truck drivers ignored the road closure signs and continued using SR 507. The large trucks generated wakes that pushed flood water into garages of homes along the road.

97 residents reported over \$556,000 in uninsured losses. Flooding caused damage to crawl space HVAC systems, first floor structures and contents, and damaged or destroyed outbuildings and septic systems. A surge in demand to dispose of residential debris from the winter storm combined with road closures created a backlog of waste at disposal sites. The flooding resulted in a combined local government assessment of \$701,433 in public assistance needs.¹

On January 6, the Thurston County Sheriff's Office issued level 3 evacuation advisements for areas along the Chehalis River. The LDS Church opened as an assembly area for people before a shelter opened. A shelter was initially opened at Rochester Middle School and was later moved to the Southwest Washington Fairgrounds in Lewis County.

Issues identified included transporting evacuees from one place to another and how to deal with people stranded on an island or that couldn't drive to a shelter once rescued. The Thurston County ECC reached out to West Thurston Regional Fire Authority #1 to provide transit operators in a 6-hour window. Early and advanced planning for transport of evacuees should be identified as this will likely be an issue in the future. Coordination could be made early with Intercity Transit to have resources on standby. Red Cross Shelter training to volunteers could increase the volunteer base to open shelters.

Thurston County Emergency Management conducted an After-Action Review with organizations and personnel that were involved in the response activities for this event. The recommendations are chiefly focused on improvements to procedural and response activities. The recommendations are documented in: [January 2022 Floods: 21-5133 Winter Weather and Flooding After-Action Report/Improvement Plan. June 1, 2022](#) (on file with CPED and TCEM).

¹ Thurston County. 2022. Emergency Coordination Center Archive of Situation Reports, Public Assistance Damage Assessments, and Individual Assistance Requests. On file with Thurston County Emergency Management.

Changes in Risk Exposure in the Planning Area

The Federal Emergency Management Agency completed a RiskMAP project to update the Nisqually River Basin Flood Insurance Rate Map (FIRM). The basin was last studied in 1982. The updated map adds an estimated 790 properties in unincorporated Thurston County to the floodplain. FEMA reports that portions of 555 properties are in the floodway. A letter of final determination was issued April 19, 2023. The FIRM and Flood Insurance Study will become effective on October 19, 2023.

On June 24, 2022, FEMA released a preliminary DFIRM and Flood Insurance Study for 26 lakes in the City of Olympia and 40 Lakes in unincorporated Thurston County. The analyses included survey, hydrology, and flood risk products. FEMA estimates that the updated FIRM will remove approximately 52 properties from areas at risk of flooding. A letter of final determination is scheduled for November 8, 2023, and the new FIRM is expected to become effective six months later.

Since early 2022, Thurston County has been partnering with other jurisdictions to update the county's multijurisdictional multi-hazard mitigation plan. The plan's flood risk analysis incorporated the preliminary FIRM data from both the Nisqually River Basin and the Lakes study to evaluate flood risk for communities in Thurston County. The plan's updated flood risk assessment accounts for the entire area, population, and buildings located in unincorporated Thurston County. The plan introduced a different approach to calculating risk based on flood probability multiplied by the sum of the portion of the population affected, property exposed, and estimated damage. For a 100-year flood the county's risk rating is medium. The FHMP subjectively rated Thurston County's flood risk as high. The hazard mitigation plan's risk rating is a measured characterization of risk but does not represent an actual reduction in overall vulnerability of the county's population and its affected properties. Thurston County's updated Hazard Mitigation Plan includes two new flood mitigation initiatives:

1. **Shoreline Master Program Streambank-Riverbank Protection** promotes shoreline friendly practices to preserve and enhance vegetated areas along shorelines using regulatory and educational approaches.
2. **Relocation or Elevation of Structures within Flood Hazard Zones** will work with affected property owners whose homes are at risk within special flood hazard zones to voluntarily elevate or relocate their homes to mitigate future flood damage and losses.

Mitigation Success Stories

- Thurston County's flood mitigation investments in public information, flood mapping and regulations, flood damage reduction, and warning and response activities has earned it enough credit to earn a Class 2 Rating for the National Flood Insurance (NFIP) Program's Community Rating System (CRS). Only eight communities in the U.S. have earned a Class 1 or 2 CRS rating. The Class 2 rating affords NFIP policy holders a 40% discount on their flood insurance premiums.
- Thurston County Emergency Management has completed a draft multi-hazard mitigation plan. A draft plan is expected to be released for public comment in late October. The plan will subsequently be submitted to the state and FEMA for review by the end of October. FEMA approval of this plan will maintain Thurston County's eligibility for federal mitigation assistance grant programs including Flood Mitigation Assistance, Building Resilient Infrastructure and Communities, and the Hazard Mitigation Grant Program.
- Thurston County Public Works completed four fish passage barrier removal projects. Four undersized culverts were replaced to enhance fish habitat and reduce potential flood impacts.

Review of the Action Plan

The FPC met on October 3, 2023, to discuss the plan’s progress. Table 2 summarizes the progress reported for the action plan. A narrative account is provided for each initiative. Reviewers of this report should refer to Chapter 3 in the Flood Hazards Mitigation Plan for descriptions and details of each mitigation initiative and the prioritization process.

Prior to the meeting, Thurston County staff were asked to provide a report on each initiative and consider the following questions.

- Was any element of the initiative carried out during the reporting period?
- If no action was completed, why?
- Is the timeline for implementation for the initiative still appropriate?
- If the initiative was completed, does it need to be changed or removed from the action plan?

Completion status legend:

✓ = Project Completed

O = Action ongoing toward completion

X = No progress currently

TABLE 2. ACTION PLAN MATRIX				
Action Taken? (Yes or No)	Timeline	Priority	Status	Status (X, O, ✓)
Initiative #1 — Dam Failure Evacuation Planning and Response: Identify and sign evacuation routes and develop and train for evacuation procedures for communities downstream from the Nisqually, Yelm, and Skookumchuck hydroelectric project dams. Develop and implement a public outreach strategy to inform affected residents and businesses about routes and procedures. Leads: Emergency Services, Public Works, Sheriff’s Office, Central Services – Geo Data				
No	2017-2030, Messaging will be ongoing	Medium	Emergency Management is meeting with Tacoma Public Utilities in December 2023 to discuss possible evacuation routes, messaging, signage, and other dam failure response topics. The “Evacuation Route Planning for Catastrophic Dam Failure and Volcanic Lahar” mitigation initiative was updated in the 2023 update to the Hazards Mitigation Plan for the Thurston Region to add the need to identify routes for volcanic lahar. The initiative scored 26 (25 th percentile) with the plan update’s benefit-cost review process. Progress reported by Emily Schoendorf.	X

Initiative #2 — Flood Detours and Response Planning: Identify detour routes for areas subject to frequent flood-related closures. Update emergency plans, create operational procedures, and provide public information and outreach resources to execute the detours when needed. **Leads: Emergency Management, Public Works, Central Services – Geo Data**

No	2017- 2025	High	<p>Thurston County Water Resources division previously developed a prototype model to forecast when and where flooding is likely to occur. This tool could predict potential road inundation areas and inform public notifications about transportation route disruptions.</p> <p>Staff from CPED, TCEM, and GeoData will coordinate efforts in 2023 and 2024 to identify tasks and leads to evaluate the feasibility of reinitiating efforts to operationalize the interoperability of the model with public information services.</p> <p>Public Works updated the Debris Management Plan in March 2023, which includes planning and operations activities for response to flood-related debris in roadways.</p> <p>Ongoing efforts to increase enrollment in the TC Alert system and to prepare template messaging for public outreach on emergencies including flooding.</p> <p>Progress reported by Kevin Hansen, Emily Schoendorf, and Kelly Alfaro-Haugen.</p>	X
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Initiative #3 — Stream Culvert Replacement Flood Mitigation Program: Continue culvert replacement throughout the county for flood reduction, hazard avoidance, and to mitigate fish passage barriers. Replacement will occur as funds become available. **Leads: Community Planning and Economic Development, Public Works**

Yes	2017 – 2030, Long term	High	<p>Thurston County Public Works completed four fish passage projects in 2022. The Latigo Street project replaced two 42-inch-wide culverts with a 57-foot prefabricated bridge and replaced two 48-inch culverts with an 88.5-foot bridge and scenic overlook over the Chehalis Western Trail. The Littlerock Rd project replaced a three-foot culvert with a 16-foot concrete box culvert, and the Houston Drive project replaced a four-foot-wide oval culvert with a 12-foot-wide concrete box culvert. These structures increase stream flow capacity and will reduce the likelihood of flooding, as well as provide improved fish passage and restore habitat.</p> <p>Three projects are schedule for construction in 2024 and 2025:</p> <ul style="list-style-type: none"> • Country Club Rd at Green Cove Creek (2024) • Thompson Creek Rd SE at Thompson Creek FP (2024) • Shawn Dr SW at Dempsey Creek FP (2025) <p>Progress reported by Shannon Peterson.</p>	O
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Initiative #4 — Road Repair and Reconstruction Flood Mitigation Program: Prioritize the repair or replacement of roads and bridges that close during flood events. Upgrade these facilities as funds become available. **Leads: Community Planning and Economic Development, Public Works**

No	2017–2030, Long term	High	There has been no progress towards this initiative since completing the floodway analysis on Independence Road to determine a proper alternative to relieve annual flooding. No action has been taken towards the recommended alternative due to a lack of available grant funding. Thurston County will continue to explore funding options to reduce flood impacts on Independence Road. Progress reported by Shannon Peterson, Public Works.	X
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Initiative #5 — Flood Data Collection, Modeling, and Evaluation Program: Expand Thurston County’s flood prediction and forecast modeling capabilities for all types of flooding, including the impacts of climate change. **Leads: Community Planning and Economic Development, Emergency Management**

Yes	2017-2021, Ongoing	Medium	<p>Thurston County has performed the following data collection and analysis activities:</p> <ol style="list-style-type: none"> 1. Maintained the existing network of stream gages, weather stations and monitoring wells, as well as deprecation or deactivation of older gages and stations in annexed areas, or redundant stations. 2. Added four new stream gages at 1) the crucial upper Deschutes River at the Deschutes Falls Park; 2) Toboton Creek; 3) Upper Yelm Creek; 4) Elwanger Creek. 3. Added instrumentation: soil moisture, soil temperature, and snowfall at multiple gages. More are planned. 4. Upgraded existing instrumentation: upgraded power, software, and data storage at multiple locations. 5. Built and updated stream stage-discharge rating curves. 6. Added telemetry, especially satellite telemetry (NOAA GOES satellite telecom) for remote/rural stations reporting weather, streamflow, and groundwater levels. 7. Financial and needs planning to upgrade the main database underlying water and weather data storage, telemetry, and public-facing water dashboards (GeoData will migrate to a successor database, to be determined). 8. Climate data analysis including county Ambient Program rivers and lakes data, compared with field data and forecasting done by the USGS, University of Washington Climate Impacts Group (this will be the focus for the WRS II Hydrologist for Water year 2024). 9. Built a new countywide hydrologic model with VELMA code from the USEPA. VELMA simulates surface water hydrology, groundwater recharge, streamflow, vegetative cover effects, carbon sequestration, carbon/nitrogen/nutrient cycling, land disturbances, contaminant transport and other important systems. The hydrologic model will be applied in flood scenarios to understand the effects of land use changes, climate scenarios and disturbance/fire risk in flooding in water years 2024 to 2025rs. Hydrologic data will be integrated into existing MODFLOW groundwater simulations. 10. Planning for the addition of major basins to the NOAA/NWS Advanced Hydrologic Prediction Service (AHPS) that is used to forecast floodwater levels and inundated areas, probably starting with additional Chehalis River predictive capacity. This makes use of long-term acquisition of LiDAR terrain, and HEC-RAS and RiverFlow 2D modeling. This will also integrate the ongoing mapping of stormwater flow lines and points/culverts into predictive tools for emergency managers and first responders. <p>Progress reported by Kevin Hansen.</p>	0
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Initiative #6 — HAZUS – Flood Model Development and Maintenance Program: Maintain and operate an in-house GIS HAZUS-Flood model using local data to support flood planning activities. **Leads: Emergency Services, Central Services – GeoData**

No	2017-2025, Short term	Low	<p>HAZUS is a FEMA recommended risk analysis and loss estimation GIS-based software tool.</p> <p>Developing local Hazus modeling capabilities remains a challenge due to the specialized application of the tool. There is no change in the status of this initiative. No resources, staff, or funding has been allocated to this initiative.</p> <p>Thurston GeoData and Emergency Management will coordinate to evaluate the needs, application, and feasibility of this action in 2024. Thurston County will explore additional modeling and analysis tools to evaluate flood risks and what-if scenario potential losses as part of its 2024 FHMP update process.</p> <p>For the 2022-2023 Hazard Mitigation Plan update, TRPC contracted with Tetra Tech to perform flood loss estimates using Hazus. While flood loss estimates were developed and published in the draft plan, it did not build any internal Hazus modeling capacity for the county.</p> <p>(Progress reported by Kelly Alfaro Haugen, Thurston GeoData and Paul Brewster, Thurston Regional Planning Council).</p>	X
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Initiative #7 — RiskMAP Land Use and Development Regulation Review and Revisions: Evaluate land use and development regulations accounting for changes to special flood hazard areas resulting from FEMA’s RiskMAP process and the county’s flood studies. Consider appropriate watershed-specific revisions to zoning, development codes, and the Critical Areas Ordinance to refine flood hazard reduction strategies. **Leads: Community Planning and Economic Development**

Yes	2017-2025, Short term	High	<p>County staff completed a review of flood plain regulations (Chapter 14.38, Development in Flood Hazard Areas) in 2020 and performed minor revisions to strengthen compliance requirements to align with the National Flood Insurance Program. The new regulations became effective in January 2021. Notably, the new regulations enable the construction of elevated agricultural flood sanctuaries for livestock and field equipment.</p> <p>Thurston County is nearing the completion of the Shoreline Management Program. This plan is updating shoreline designations and their development standards to comport with most recent requirements and best available science. Additional updates to flood hazard policies and the critical areas ordinance may occur as part of the Comprehensive Plan update in June 2025. Progress reported by Ashley Arai.</p>	O
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Initiative #8 — Flood Map Refinement and Access: Update and maintain digital floodplain maps for all rivers, streams, lakes, high groundwater hazard areas, and flood of record areas. Make these maps available online. Leads: FEMA, State Ecology, Community Planning and Economic Development, Public Works, Central Services-GeoData Center, Storm and Surface Water Utility				
Yes	2017-2021, Short term	Low	<p>The Federal Emergency Management Agency completed a RiskMAP project to update the Nisqually River Basin Flood Insurance Rate Map (FIRM). A letter of final determination was issued April 19, 2023. The FIRM and Flood Insurance Study will become effective on October 19, 2023.</p> <p>On June 24, 2022, FEMA released a preliminary DFIRM and Flood Insurance Study for 40 Lakes in unincorporated Thurston County. The analyses included survey, hydrology, and flood risk products. A letter of final determination is scheduled for November 8, 2023, and the new FIRM is expected to become effective six months later.</p> <p>Thurston GeoData will update the county’s GIS database with the new DFIRM maps when they become effective.</p> <p>Progress reported by Kelly Alfaro Haugen.</p>	0
Initiative #9 — Flood Map and Data Storage and Retrieval Program: Develop protocols to document previous flood events including data, imagery, losses, and other information about conditions that contribute to flooding. Leads: Emergency Services, Central Services - GeoData, local governments, and Thurston Regional Planning Council				
Yes	2017-2021, Short term	Medium	<p>Work is ongoing. Thurston County continues to collect data as flood events occur. GeoData is evaluating extending the County contract with an aerial imagery and analytics vendor (EagleView) to be able to request data collection flights on call during flood events.</p> <p>Progress reported by Sarah Smith.</p>	0
Initiative #10 — River Channel Migration Zone and Habitat Mapping Program: Maintain up to date maps for the channel migration zones for all rivers in the region and the extent of high quality riparian habitat. Leads: Community Planning and Economic Development, Central Services – Geo Data, Public Works, Storm and Surface Water Utility				
Yes	2017-2021, Short term	Medium	<p>High quality (QL1) LiDAR is available for all of Thurston County (captured in 2017 and 2021). This new data could be leveraged to map Channel Migration Zones if resources were allocated to the effort and prioritized by an identified county department sponsor. The work could be contracted out or performed in house, appropriately staffed.</p> <p>Progress reported by Sarah Smith</p>	0

Initiative #11 — Building Inventory and Mapping Program: Update and maintain the Thurston County building footprint database to account for all existing structures such as homes, commercial buildings, barns, and other structures of value. **Leads: Thurston County Assessors Office, Central Services - Thurston GeoData**

Yes	2017-2021, Short term	Medium	<p>Data collected in winter of 2022 (3-inch countywide data) Thurston County contracted for new aerial photographs and the data was collected in Fall 2020. The flight recorded 3” resolution in the urban areas and 6” resolution countywide.</p> <p>This new countywide three-dimensional elevation data will support a variety of uses including data analysis, floodplain management, land use planning, and critical areas protection. The data will provide the most accurate building footprint data, when completed.</p> <p>New raw building footprint data is available, but the data has not been processed to create a database to support countywide data needs. Thurston GeoData must develop a strategy to build the data layer and incorporate the tool into its enterprise data program. The plan needs to include a process for making the data available and having a database maintenance program. Funding is available to perform this work, but the tasks required to perform this project are currently not scheduled on GeoData’s work program.</p> <p>Progress reported by Kelly Alfaro Haugen.</p>	O
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Initiative #12 — Vulnerable Structures and Repetitive Loss Mitigation Program: Formalize a program to evaluate repetitive flood claim loss properties and other structures subject to repetitive flooding as candidate projects for elevation, relocation, or buyout. Develop project cost estimates and a finance strategy for priority projects, and evaluate a long-term implementation plan. Develop processes to partner with candidate property owners to inform them about the program’s opportunities and benefits. Implement projects as funds become available. **Leads:** **Community Planning and Economic Development, Central Services, Emergency Services, Storm and Surface Water Utility**

Yes	2017-2030, Long term	High	<p>Thurston County’s flood repetitive loss list has not expanded since the last reporting period. The list currently includes 23 properties. Priority is based on the number of losses a property owner has reported.</p> <p>Flood mitigation improvement building cost are difficult to estimate due to market changes in construction materials.</p> <p>There is no dedicated source of county funding to offset the costs of home elevations or other flood improvements. However, the county is working with homeowners that are able to cover the cost of improvements on their own.</p> <p>The county has amended Thurston County Code 14.38, Development in Flood Hazard Areas. The amendment added a definition of free board. Thurston County defines freeboard as two feet of elevation added to the base flood elevation. It also updated the Repetitive Loss definition to “...a structure having suffered two NFIP insured flood damaged paid losses of more than one thousand dollars each in any ten-year period.” The code changes will help homeowners with flood insurance access a one-time mitigation fund of \$30,000 for increased cost of compliance. The funds can assist homeowners with the cost of elevating their homes.</p> <p>Under Risk Rating 2.0: Equity in Action, CRS discounts for flood insurance premiums, ranging from 5% to 45%, are applied consistently. The community’s CRS premium discount for properties inside the Special Flood Hazard Area (SFHA) has now been extended to all NFIP policies, regardless of their flood zone.</p> <p>Progress reported by Tim Rubert.</p>	0
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Initiative #13 — Debris and Sediment Inspection and Flood Hazard Reduction Program: Develop and implement a program to periodically inspect floodways, channel migration zones, drainage ditches, and other floodwater conveyance areas to monitor and document debris, sediment accumulation, and excess vegetation and to detect and respond to potential flood hazards, especially in areas that experience recurring flood problems. **Leads: Public Works, Community Planning and Economic Development, Emergency Services**

No	2017-2021, Short-term	Medium	<p>No changes to the County’s inspection procedures have occurred since the last reporting period. However, staff continue to inspect county infrastructure including ponds, pipes, ditches, etc. but have not expanded the effort to natural drainages, except for a few selected problem locations with a history of beaver or other debris activity.</p> <p>County staff believe this initiative should be evaluated and revised during the FHMP update so that field inspections are systematically identified by a data driven and evidenced based process to prioritize areas that are more likely to experience flooding. This approach will make better use of staff time and produce greater flood risk reduction outcomes.</p> <p>Progress reported by Shannon Peterson, Mark Biever, and Kevin Hansen.</p>	X
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Initiative #14 — Floodplain Restoration and Reconnection: Protect and connect aquatic habitat and flood ecosystem services through a variety of flood plain management activities to comply with the National Marine Fisheries Service Biological Opinion regarding the National Flood Insurance Program: 1. Research best practices with large woody debris management and other bioengineering methods to stabilize streambanks, improve channel conditions, and enhance fish and wildlife habitat; 2. Revise shoreline regulations, as appropriate, to permit bioengineering methods; 3. Convert flood acquisition properties to open space. **Leads: Community Planning and Economic Development, Public Works, Storm and Surface Water Utility, Thurston Conservation District**

Yes	2017-2030, Long-term	Medium	<p>NOAA’s biological opinion requires Endangered Species Act (ESA) habitat protection compliance in jurisdictions that contain waterways that drain to the Puget Sound. The Center for Biological Diversity has submitted a petition to the National Marine Fisheries Services (NMFS) to add coastal Chinook to the Threatened or Endangered Species list. If NMFS adds that species to the Endangered Species list, then NOAA may extend the Puget Sound Biological Opinion to the Chehalis River and other coastal rivers, or it might create a brand-new Biological Opinion to expand protection to salmon species in waterways that flow to the Pacific Ocean.</p> <p>The county is moving an update to its shoreline regulations through the legislative process. See #7 for more information Progress Reported by Ashley Arai.</p>	O
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Initiative #15 — Riparian Flood Control and Habitat Reforestation Project: Formalize a program with landowners and other stakeholders to reforest corridors along river and stream shorelines where they can provide flood protection benefits and enhance riparian habitat. **Leads: Community Planning and Economic Development, Public Works, Thurston Conservation District**

Yes	2017-2030, Long term	Medium	<p>The county used a National Estuaries Program grant to develop a program of incentives for voluntary riparian restoration. The grant enabled the Thurston County to implement five pilot projects to restore private lands that were in agricultural use or part of a single-family lot.</p> <p>Additionally, the county is partnering with the Thurston Conservation District to implement agricultural conservation practices, such as riparian restoration as part the Voluntary Stewardship Program. Program performance metrics will be captured in the upcoming five-year monitoring report that is due in June 2024.</p> <p>Progress Reported by Ashley Arai.</p>	0
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Initiative #16 — Comprehensive Flood Program Finance Strategy: Pursue a coordinated interdepartmental approach to evaluate and implement a finance strategy for the county’s flood management programs and projects. **Leads: Thurston County Manager, Department and Division Directors, Community Planning and Economic Development, Emergency Services, Public Works, Storm and Surface Water Utility, Board of County Commissioners**

Yes	2023-2024, Short term	High	<p>Staff from several county departments have convened conversations with management to reinforce support for Thurston County’s implementation of the FHMP and enrollment and participation in the CRS program. Management supports increasing staff time to maintain a flood management and hazard mitigation program.</p> <p>Additionally, the county has formed an interdepartmental water group that meets quarterly to discuss and coordinate water related projects. In Q4 2023-2024, management and staff from several departments will form a group to identify a long-term funding and staffing strategy to perform CRS program activities.</p> <p>Thurston County FPC staff members believe more work is necessary to improve interdepartmental communication about planning, projects, and activities that are located in the flood plain, have a flood mitigation component, or involve public awareness and education.</p> <p>Progress report by Mark Bieber.</p>	0
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Initiative #17 — Community Rating System Program: Strive to maintain a Class 5 or better Community Rating System (CRS) classification as a means of reducing flood risks. **Leads: Community Planning and Economic Development, Storm and Surface Water Utility, Emergency Services, Public Works**

Yes	Ongoing	High	<p>Thurston County is currently rated as a Class 2 CRS community. The CRS Program Verification was successfully completed in 2022. The County successfully maintained a Class 2 rating. Staff are also reviewing activities and programs to maintain the current rating at least until the next verification cycle in 2025. Planned activities include an update to the Flood Hazard Mitigation Plan scheduled in 2024. Preparations for the update are currently under way.</p> <p>The New Drainage Design and Erosion Control (Stormwater Manual) was adopted by the Board of County Commissioners in 2022. The new manual increases flood control methods and water quality requirements for all new stormwater and stormwater redevelopment projects.</p> <p>The county will perform a comprehensive review of the CRS program goals, cost, and action plans to appropriately determine the future framework and level of effort for the county’s participation in the program.</p> <p>Thurston County staff will engage management, the Board of County Commissioners, and community members about the county’s level of participation in the CRS Program. This will include the evaluation of the county’s ability to comply with CRS requirements and identifying a sustainable CRS Rating goal that balances the county’s available resources with the needs of people who most rely on the benefits of the CRS program.</p> <p>The review will assign staff and resources to maintain a sustainable rating Class that maximizes resources and provides the community with equitable flood insurance rates and provides reasonable development restrictions in flood-prone areas through ordinances and incentives.</p> <p>Progress report by Mark Bieber.</p>	O
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Initiative #18 — Thurston Climate Adaptation Plan Evaluation and Plan Integration: Evaluate the priority flood hazard adaptation actions from the Thurston Climate Adaptation Plan and incorporate them into the Flood Hazard Mitigation Plan and other appropriate county plans. **Leads: Community Planning and Economic Development, Storm and Surface Water Utility, Emergency Services, Public Works, Thurston Regional Planning Council, and other jurisdictions and stakeholders**

Yes	2018-2025, Short-term	Medium	<p>The County is in the process of updating its Shoreline Master Program. Thurston Climate Adaptation Plan and the subsequent Climate Mitigation Plan will be incorporated into the Comprehensive Plan update in June 2025.</p> <p>The Washington Growth Management Act (GMA) was amended in 2023 to require comprehensive plans to include a resiliency strategy to reduce natural hazard risks induced by climate change, including flood hazards.</p> <p>Key items will be translated into development codes, as required by the Growth Management Act.</p> <p>Progress report by Ashley Arai.</p>	0
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Initiative #19 — Flood Hazard Education and Hazard Reduction Public Outreach Strategy: Continue to develop and implement an annual public outreach campaign to maintain flood risk awareness and improve peoples’ understanding of resources and capabilities within the county. This includes activities for both broad audiences and direct contact with property owners affected by flooding. **Leads: Community Planning and Economic Development, Storm and Surface Water Utility, Emergency Services, Public Works, Central Services**

Yes	2017-2024	Medium	<p>Thurston County participated in the FEMA RiskMAP Flood Insurance Study and supported public outreach in Fall 2022 to inform affected residents and property owners about the FIRM changes.</p> <p>Thurston County Emergency Management coordinates the design and distribution of the annual Flood Bulletin. In September 2023, the bulletin was mailed to 9,953 flood affected residents. The bulletin is available at all TRL branches, distributed at outreach events, and is posted online each year.</p> <p>The Thurston County Emergency Management Council hosted an Emergency Preparedness Expo on September 23, 2023. Approximately 500 residents attended and could access information about property flood risks and preparedness information.</p> <p>Thurston County issues an annual Flood Awareness Week Proclamation. That proclamation is issued in the 3rd week in October of each year and has been issued for 2021 and 2022. The 2023 proclamation is scheduled to be issued on 10/17/23.</p> <p>TCEM continues to perform community outreach to increase enrollment in the TC Alert system and to prepare template messaging for public notification for emergencies including dam failure evacuation. Subscriber promotion activities include public engagement at community events such as the TC Fair and the Preparedness Expo. A billboard near I5 and US12 was used to advertise information about TC Alert benefits.</p> <p>Public education and awareness are ongoing actions. Future FHMP updates should reflect this need.</p> <p>Progress reported by Cherie Carey.</p>	0
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Initiative #20 — Flood Website Development: Revise Thurston County’s website to consolidate all flood-related information and contents to improve accessibility. Expand the use of interactive tools such as GIS story maps with flood data and other relevant information. **Leads: Community Planning and Economic Development, Storm and Surface Water Utility, Emergency Services, Public Works, Central Services**

Yes	2017-2024, Ongoing	High	<p>The county maintains 20 flood-related web pages. Notably, in the past 12 months, additional flood information was published, and current webpages were revised to become more user-friendly. Improvements include:</p> <ul style="list-style-type: none"> • New: providing specific instructions and directions for permit applicants, property owners and surveyors on how to use available tools. • Updated flood insurance information • Updated FEMA and rating information <p>Progress reported by Stacey Klein.</p>	O
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Completion status legend:
 ✓ = Project Completed
 O = Action ongoing toward completion
 X = No progress currently

Changes That May Impact Implementation of the Plan

Thurston County staff cited three issues that present challenges to the county effectively implementing the FHMP actions:

1. County policy makers and management do not prioritize flood mitigation actions and allocate the necessary resources to implement the plan’s projects, programs, and activities.
2. There is no centralized work program or strategy to manage the county’s flood management and mitigation program. The initiatives are performed by a limited number of staff from several departments. There is no flood program director or supervisor to coordinate and provide ongoing oversight of the FHMP and effectively lead the county’s enrollment in the Community Rating System as a Class 2 rated jurisdiction.
3. At present, flood programs and projects are funded opportunistically. There is no dedicated revenue stream to program flood mitigation projects and programs, such as the creation of a flood improvement district utilized by other communities. The stormwater utility supports some flood initiatives. However, the utility funds are dedicated for specific functions and are not adequate to fully fund the county’s flood planning and project needs.

Flood Planning Committee Comments

Community Member feedback

- Howard Glastetter suggested staff consider viewing the NOAA Alder Reservoir inflow graphs to evaluate potential flood hazards in the Nisqually River Basin:
<https://www.nwrfc.noaa.gov/river/station/flowplot/flowplot.cgi?ALRW1>.
- Mr. Glastetter described a Medicine Creek drainage system near the BNSF railroad mainline that was damaged or blocked in 1996. There is no apparent drainage below the railroad, and it is

prone to flooding. Staff recommended that Howard follow up and provide additional information about the affected site location for county staff to evaluate.

- Mr. Glastetter also inquired if county staff were aware of any hydrology studies associated with the potential future removal of I-5's foundation (through the Nisqually Valley), when it is reconstructed. He believes flow dynamics should be studied to determine if raising I-5 will present future flood risks, particularly considering the effects of sea level rise in the low-lying delta.

Recommendations for Changes or Enhancements

Thurston County continues to make incremental progress on its flood mitigation strategy. The Flood Planning Committee recommends that Thurston County continue to convene its water resources group to help identify a strategy to update the Flood Hazard Mitigation Plan. A few suggested changes are noted in the Action Plan Matrix, specifically as they relate to the FHMP update. A plan update is due in October 2024.

Public review notice: *The contents of this report are subject to public disclosure. Copies of the report are provided to the Thurston County Manager and shared with the Board of County Commissioners. Upon approval, the report is posted on the Thurston County Flood Hazards Mitigation Plan website. Any questions or comments regarding the contents of this report should be directed to:*

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