

Thurston County, WA Flood Hazard Mitigation Plan 2019 Annual Progress Report

Reporting Period: October 1, 2018 – December 24, 2019

Date of Annual Review Meeting: October 23, 2019 from 3:00 p.m. to 5:00 p.m.

Background

The Thurston County Board of Commissioners adopted the Flood Hazard Mitigation Plan on October 3, 2017. The plan will assist the county in reducing the impacts of flooding by identifying resources, information, and strategies for risk reduction. 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. Stafford Act. The plan 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, 2022. The Flood Hazard Mitigation Plan has 20 flood hazard mitigation initiatives to be pursued during the 5-year performance period. As of the 2019 reporting period, the following overall progress can be reported:

- 14 out of 20 initiatives (70%) reported ongoing action.
- No initiatives were reported as being complete.
- 6 initiatives (30%) reported no action taken.

Purpose

This report provided an annual update on the implementation of the action plan identified in the Thurston County Flood Hazard Mitigation Plan. The objective is to ensure that there is a continuing and responsive planning process that will keep the Thurston County Flood Hazards Mitigation Plan responsive to the needs and capabilities of Thurston County and stakeholders. This report discusses the following:

- Flood events that have occurred within the last year
- Changes in risk exposure within the planning area (all of Thurston County)
- Mitigation success stories
- Review of the action plan
- Changes in capabilities that could impact plan implementation
- Recommendations for changes/enhancement.

The Flood Planning Committee

The Flood Planning Committee (FPC), made up of stakeholders within the planning area, reviewed and approved this progress report at its annual meeting held on September 19, 2018. It was determined

through the plan’s development process that the FPC will remain in service to oversee maintenance of the plan. At a minimum, the FPC will provide review and oversight on the development of the annual progress report. FPC membership will be maintained by Thurston County staff and will be documented in the progress reports. For this reporting period, the FPC membership shown in Table 1.

TABLE 1. FLOOD PLANNING COMMITTEE MEMBERS		
Name	Title	Affiliation
Community Representatives		
Scott Boettcher	Stakeholder	Staff, Chehalis River Basin Flood Authority
Cal Bray	Stakeholder	Emergency Manager, Confederated Tribes of the Chehalis Reservation
Tris Carlson*	Community Representative	NE Thurston County Coastal Floodplain Resident, Shellfish Grower
Howard Glastetter	Community Representative	Nisqually Valley Floodplain Resident
George Walter	Stakeholder	Environmental Program Supervisor, Nisqually Indian Tribe
Thurston County Staff Representatives		
Kelly Alfaro Haugen	GIS Analyst	Thurston GeoData
Mark Biever	Environmental Monitoring Program Manager	Community Planning and Economic Development
Kevin Hansen	Hydrogeologist	Community Planning and Economic Development
Steve Johnson	Senior Civil Engineer	Public Works
Andrew Kinney	Emergency Management Coordinator	Emergency Services
Meghan Porter	Public Information Officer	Board of County Commissioners
Tim Rubert	Plans Examiner, Floodplain Manager	Community Planning and Economic Development
Facilitators/Project Staff		
Christina Chaput	Senior Planner, Former CRS Coordinator	Community Planning and Economic Development
Paul Brewster	Senior Planner	Thurston Regional Planning Council

Notes: *Was unable to attend the October 24, 2019 Annual Meeting.

Flood Events within the Planning Area

On December 20-22, 2019 Western Washington experienced heavy precipitation during a subtropical atmospheric river event. The Chehalis River Basin experienced minor to moderate flooding in southwest Thurston County. The Seattle National Weather Service issued a flood warning for the Chehalis River at Grand Mound and urban and small stream flood advisory for Thurston County. Anderson Rd, Independence Rd, Moon Rd, and Offut Lake Rd experienced flooding and were temporarily closed.

Changes in Risk Exposure in the Planning Area

Thurston County is working with FEMA’s Risk MAP program to remodel and remap floodplains. In 4th quarter 2019 or 1st quarter 2020 the remapping of the Chehalis, Skookumchuck and Black rivers and

Scatter Creek will be final and adopted by FEMA. Thurston County is already administering the remapped floodplains. There are Risk MAP projects for the Nisqually River and lakes.

The updated maps will result in both gains and losses of properties within the 100-year floodplain. The new maps for the Nisqually Basin will include floodways based on new modeling (not present in last edition – the DFIRM). FEMA staff have shown interest in supporting Thurston County with a high groundwater Risk MAP project (Andrew emailed FEMA staff contact information to Mark Biever). As is customary, Thurston County will notify property owners of changes in flood risk when updated maps are final and approved by FEMA.

Thurston County Water Resources staff report that the county’s current base water levels are lower than normal, even with wetter than normal September through October rainfall.

Mitigation Success Stories

- Thurston County received a grant from the Chehalis River Basin Flood Authority to elevate three homes.
- Two new real-time monitoring stations for Black Lake and Lake Saint Claire were installed, including a new ground water monitoring well in the Salmon Creek Basin. Data from these stations will inform hydraulic monitoring capabilities and provide data to improve the County’s understanding of conditions that contribute to flooding.
- Thurston County completed construction new structures to replace fish passage barriers. These projects will improve stream flows.
- Thurston County received a FEMA Hazard Mitigation Grant Program award to elevate two structures (anticipated for completion by November 2019). Thurston County Emergency Management is planning a public meeting to detail the elevation process for first Quarter 2020.
- Thurston County anticipates receiving a FEMA Flood Mitigation Assistance (FMA) grant to elevate three structures in the Deschutes Basin in 2020.
- Thurston County is working with Washington Department of Ecology through a Flood Control Assistance Account Program (FCAAP) grant to remove one structure and move another a further distance from the Deschutes River.
- On December 2, Thurston County Emergency Management in partnership with Thurston Regional Planning Council submitted a FEMA Pre-Disaster Mitigation grant to update the region’s all-hazards mitigation plan. A plan update will evaluate flood mitigation actions to inform the Flood Hazard Mitigation Plan.

Review of the Action Plan

Table 2 reviews the action plan, reporting the status of each initiative. The plan includes 20 flood mitigation initiatives. 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.

Address the following in the “status” column of the following table:

- *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?*

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				
	2017-2021, Short Term	Medium	2019 - Maps are complete for both Nisqually and Skookumchuck Rivers. They are available online at https://www.co.thurston.wa.us/em/ . Emergency Management is planning a public meeting for evacuation maps which should occur with the release of revised floodplain maps for Chehalis Basin and DRAFT map release for the Nisqually Basin. Additional work is required to develop signs, procedures, and public outreach strategies. Thurston County Emergency Management is recruiting a new Emergency Management Coordinator that will be involved in advancing this initiative. (Details provided by Andrew Kinney, retired Emergency Management Coordinator)	O
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				
	2017-2021, Short term	High	2019 – The Flood Planning Committee recognizes that Public Works frequently exercises flexibility to identify and notify residents of routes that are safe and suitable for flood conditions at the time of the event. As such, this initiative will likely remain an ongoing coordinated activity.	O
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	2018 - Public Works is implementing culvert replacement projects as budget allows. Six culverts were replaced with full span structures to improve fish passage in the last 12 months. These structures increase flow capacity will reduce the likelihood of flooding.	O

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**

	2017 - 2030, Long term	High	<p>A recently completed Independence Road project realigned the road away from the Chehalis River and provides a new section of Riparian zone to help reduce erosion.</p> <p>Completed overflow bypass on Gate road to alleviate flooding. This site has experienced frequent flooding with water over the roadway. (done)</p> <p>Completing floodway analysis on Independence Road to determine a proper alternative to relieve annual flooding.</p> <p>Thurston County Public Works submitted a letter of intent in Fall 2019 to the Washington Emergency Management Division to submit a FEMA Pre-Disaster Mitigation grant to fund a design and construction project for Independence Road to mitigate flood impacts. The grant was not submitted due to an insufficient score on a cost/benefit analysis performed as part of the grant submission process.</p>	0
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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>In past year, the County’s Environmental Monitoring Program (EMP) added three new stream gaging stations in 2018-19 (Spurgeon Creek, Beaver Creek and Chambers Ditch), and two new weather stations (Deschutes Falls Park and Bucoda in southeast Thurston County). The program has also completed a comprehensive data management effort that provides for current and historical stream flow, groundwater, temperature, rainfall/climate tracking, and other parameters to be accessed on-line. The upgraded database also includes water quality data. All data collection sites are automated including two lakes that have been susceptible to flooding (Black Lake and Lake St. Clair). Several new or upgraded stations are equipped with telemetry and provide real time data directly to the T.C. EMP web-site <i>and</i> are integrated into the Chehalis Flood Authority gauging network through a grant provided by the Chehalis Flood Authority. The work allows the public and other agencies to incorporate real-time data into applications and flooding/climate models or water levels.</p> <p>Emergency Management, CPED, and Geodata are seeking partners for grant opportunities to acquire Countywide, contemporaneous, QL1 LiDAR data to facilitate floodplain development around lakes and in high groundwater/standing water flooding areas. Data will also be utilized for landslide mapping and critical facility analysis. Thurston County has started a FEMA RiskMAP project on the Nisqually River. LiDAR data can be used for mapping channel migration zones and to update other natural hazard products.</p> <p>GeoData is currently working with Community Planning-Water Planning, and Environmental Health to improve the accuracy and information in our Hydrography (Waterbodies and Streams) datasets. This effort is in being coordinated with WA DNR and Ecology to be informed by and inform the National Hydrography Dataset (NHD) and DNR Stream Classification data layers. This is a multi-year process the results of which will be used in modeling and prediction of flooding. (Details provided by Mark Biever, Water Planning Interim Program Manager).</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**

	2017-2021, Short term	Low	<p>This is a time intensive project that requires training, frequent refresher training, staff time for updating and maintaining the software and data, meetings and support/direction from staff outside of GeoData. No resources, staff or funding, have been identified, or dedicated to this project. The timeline should be adjusted without adequate funding and support.</p> <p>Thurston County should consider seeking a FEMA cooperating technical partners program to update the Thurston County Flood HAZUS model.</p> <p>Thurston County Emergency Management and Thurston Regional Planning Council are partnering to submit a FEMA Pre-Disaster Mitigation grant in December 2019 to update the Thurston Region Hazards Mitigation Plan. The proposed scope of work will include the development of an updated HAZUS flood model. (Details provided 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**

	2017-2021, Short term	High	<p>County staff is scheduled to review regulations in 2020 and perform minor revisions to strengthen compliance requirements to align with funding sources. Additional revisions may be performed on high groundwater flooding language. (Details provided by Kelly Alfaro Haugen, Thurston GeoData).</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**

	2017-2021, Short term	Low	<p>Updating High Ground Water mapping. Reviewing preliminary flood mapping from FEMA. Created and now maintain a Flood of Record Monument dataset that relates back to photos and surveys of previous flood events. All data is available online for both internal county staff and the public via www.geodata.org. The monument survey information is also available on the Community Planning and Economic Development website.</p> <p>Review of FEMA flood mapping is ongoing. No changes in the last year. (Details provided by Kelly Alfaro Haugen, Thurston GeoData).</p>	O
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<p>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</p>				
	2017-2021, Short term	Medium	Work is ongoing. Data will be collected as flood events occur. The Flood Planning Committee discussed exploring the use of aerial drones to collect flood data. No change since the last review. (Details provided by Kelly Alfaro Haugen, Thurston GeoData).	O
<p>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</p>				
	2017-2021, Short term	Medium	This is a time intensive project that requires dedicated staff and subject matter expertise. It could be contracted out or done in house, appropriately staffed. No resources or staff have been identified for mapping Channel Migration Zones. Without adequate funding and support, the timeline should be adjusted. Need more scope details for cost estimate and timeline. (Details provided by Kelly Alfaro Haugen, Thurston GeoData).	X
<p>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</p>				
	2017-2021, Short term	Medium	This is a time intensive project that requires dedicated staff and, ideally, the acquisition of new LiDAR data (~\$50K). It could be contracted out or done in house. Currently no resources or staff have been identified for updating this data. Without adequate funding and support. It is unlikely the initiative will be completed within the existing timeline. (Details provided by Kelly Alfaro Haugen, Thurston GeoData).	O
<p>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</p>				
	2017-2030, Long term	High	A volunteer interest form was created and distributed – The County continues to maintain a list of prospective candidates for projects. The repetitive loss list was updated. There are staff questions about the long-term role of Emergency Management supporting the flood elevation projects.	X

<p>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</p>				
No	2017-2021, Short-term	Medium	Staff continues 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.	X
<p>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</p>				
	2017-2030, Long-term	Medium	Upper Deschutes River Smith Farm project. Restore habitat that was altered for agriculture use. Project includes restoration of wetlands, natural springs, 100 flood zone stream channel and riparian buffers. The County is in the process of updating its Shoreline Master Program and will be considering information in the Biological Opinion as part of that update. The county has a grant for a 3-year program to evaluate floodplain restoration on the Deschutes.	O
<p>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</p>				
	2017-2030, Long term	Medium	No progress to report. The Chehalis Tribe performed a riparian restoration project along Black River – could be a project to explore for county application.	X
<p>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</p>				
	2017-2019, Short term	High	County staff conversations with management continue to reinforce support for the CRS program. Management continues to support increasing staff time to perform field work and engage with community members affected who live in or are affected by flooding. (Details provided by Tim Rubert, Community Planning and Economic Development).	X

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**

	Ongoing	High	<p>The CRS Program verification visit was completed in April 2019. Staff is also reviewing county activities and programs to try to maintain the current Class 2 rating for the next three years.</p> <p>The County identified a new CRS coordinator, Senior Planner Christina Chaput, from Community Planning and Economic Development. Staff completed a NFIP Floodplain Managers Course in October.</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**

	2018-2021, Short-term	Medium	<p>The County is in the process of updating its Comprehensive Plan and Shoreline Master Program. Thurston Climate Adaptation Plan actions and strategies are being evaluated to add to the Comprehensive Plan. No final action has been taken on the plan.</p> <p>In 2020, an effort is planned to incorporate relevant components of the Climate Adaptation Plan into the Comprehensive Plan and subsequently key items will be translated to development code, where applicable.</p>	O
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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**

	2017-2021	Medium	<p>The Board of County Commissioners issued an October Flood Awareness Month (2019) proclamation to inform the community of potential flood hazards and encourage residents to acquire flood insurance prior to the onset of flooding.</p> <p>Emergency Management tested a flood warning notification through the Thurston Community Alert System. On September 30, the County participated in the 2019 Emergency Preparedness Expo and staffed a booth in share flood information and resources with Expo attendees. Emergency Management also produced and distributed the 2019 Flood Bulletin to residents in the 100-year floodplain.</p> <p>Thurston County partnered with FEMA to produce a video and audio recordings about the County’s Flood Hazard Mitigation programs (https://www.thurstoncountywa.gov/planning/Pages/flood-dev-regs.aspx).</p> <p>The County will continue to provide flood education and awareness messaging through social media.</p>	O
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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**

	2017-2019, Short term	High	2019 – The County developed a new flood website, https://www.thurstoncountywa.gov/planning/Pages/flood.aspx . A variety of flood information is consolidated to one page including state and federal partner flood information links. Thurston County is undergoing an organization-wide effort to update the website and additional flood-related web development activities will occur in 2020-2021.	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 and members of the Flood Planning Committee did not identify any issues that would adversely impact implementation of the plan. Committee member Howard Glastetter sent staff email messages about Nisqually Valley flood concerns (attached to this report). The other committee members did not believe there was a need to change the existing mitigation initiatives to respond to Mr. Glastetter’s observations.

Recommendations for Changes or Enhancements

Thurston County continues to make incremental progress on its flood mitigation strategy. The Flood Planning Committee did not recommend any changes to the mitigation initiatives.

Public review notice: *The contents of this report are subject to public disclosure. Copies of the report are provided to the Thurston County Board of County Commissioners and 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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