

# Thurston County, WA Flood Hazard Mitigation Plan Annual Progress Report CRS Activity 510

**Reporting Period:** *October 1, 2015 to September 30, 2016*

**Background:** Thurston County developed a flood hazard mitigation plan to reduce risk from 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. The plan can be viewed on-line at:

<http://www.co.thurston.wa.us/planning/natural-res/natural-floodplan-update.htm>

**Summary Overview of the Plan's Progress:** The performance period for the Flood Hazard Mitigation Plan became effective on December 12, 2012. The initial performance period for this plan will be 5 years, with an anticipated update to the plan to occur before December 31, 2017. As of this reporting period, the plan is considered 65% complete. The Flood Hazard Mitigation Plan has targeted 32 hazard mitigation initiatives to be pursued during the 5-year performance period. As of the reporting period, the following overall progress can be reported:

- 18 out of 32 initiative (56%) reported ongoing action toward completion.
- 13 out of 32 initiatives (41%) were reported as being complete.
- 1 out of 32 initiatives (3%) reported no action taken.

**Purpose:** The purpose of this report is to provide 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 Hazard Mitigation Plan dynamic and 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

**Flood Events within the Planning Period:** During the reporting period, there were no flood events in the planning area that had a measurable impact on people or property. However there were two minor flooding events that resulted in flood notifications being sent out; however, no property damage, injuries or loss of life occurred as a result of these events. One home that was not located within a flood hazard area was impacted by bank erosion on the Nisqually River resulting in the home being evacuated and red-tagged. Actions were taken to demolition the home before the stream bank erosion caused the home to fall into the river. This event created national level attention. The building on the subject property was not identified as within a special flood hazard area because the home was on an elevated bank along the river; however the stream bank erosion continued to erode the bank to the extent that the home was put at risk.

**Changes in Risk Exposure in the Planning Area:** There were no flood events in the planning area that would change the risk exposure of people or property.

**Mitigation Success Stories:** Thurston County continues its efforts to better understand the exposure to risk due to flooding. These efforts include the ongoing work to develop updated flood risk maps of the marine coastal areas, the Deschutes Watershed and the lower Chehalis Watershed. These new maps will help to ensure that current information is available to interested parties. Additionally, the results of flood impact modeling using Hazus-MH will be used to understand the impacts under different flood scenarios to infrastructure and properties within the County. These new data sources will allow local officials, residents, and other jurisdictions to refine the planning process and mitigate potential damage. A new FIRM was developed for the Deschutes Watershed and was adopted by Thurston County on September 2, 2016.

No mitigation projects were completed during this reporting period. Grant requests have been submitted for the elevation of 12 buildings and the purchase of 8 others in the Chehalis River Basin. A grant application has also been submitted to elevate additional structures in the Deschutes River flood hazard area including two repetitive loss properties.

**Review of the Action Plan:** Table 2 reviews the action plan, reporting the status of each initiative. Reviewers of this report should refer to the Flood Hazard Mitigation Plan for more detailed descriptions of each initiative and the prioritization process.

<b>TABLE 2. ACTION PLAN MATRIX</b>				
<b>Action Taken? (Yes or No)</b>	<b>Time Line</b>	<b>Priority</b>	<b>Status</b>	<b>Status (X,O,√)</b>
Initiative # <b>FMI-1</b> – Identify properties that are potential candidates for elevation, relocation or buyout based on an evaluation of flood risks, project feasibility, and planned flood risk reduction capital projects. A list of targeted high-priority acquisitions should be prepared and annually updated. An example of a high-priority project would be a property identified by FEMA as a repetitive loss property. Once the list is established, pursue funding opportunities to implement the projects.				
Yes	Ongoing	Medium	County staff has compiled a list of properties that are potential candidates for elevation, relocation, or buyout. This list includes repetitive loss properties and other properties that have been identified through past inspections, post-flooding evaluations, and individual inquiries. In 2016 a grant request was made through the Chehalis flood Authority to elevate 12 houses and buyout 8 properties. Additionally a study was completed through the Chehalis Flood Authority for the Chehalis and Skookumchuck River basins that identified 300 lots for future buyout or elevation. As additional funding is identified efforts will continue to mitigate at risk properties. New properties will be added to the list as additional information becomes available.	O
Initiative # <b>FMI-2</b> – Using the best available data on flood risk, conduct outreach to property owners to alert them to the risks and ways to deal with them, to inform them about potential opportunities to mitigate the risks, and to assess their interest in participation should funding be available. Property owners who are interested in participating in one of these programs should be informed that having flood insurance might help qualify them for funding assistance.				
Yes	Ongoing	High	The County continues to disseminate flood risk information through its website; targeted mailings to realtors, lenders, and insurance agencies; mailing of the annual Flood Bulletin Newsletter to properties in the flood plain and high groundwater hazard areas; mailings to repetitive loss properties; press releases to local media, and personal interaction through phone calls, permit counter inquiries and during the permit application and/or review process.	O

**TABLE 2. ACTION PLAN MATRIX Continued...**

Action Taken? (Yes or No)	Time Line	Priority	Status	Status (X,O,√)
<b>Initiative # FMI-3</b> – Continue a conservative approach to woody debris management and maintenance, using state- or County-established best management practices.				
Yes	Ongoing	High	Woody debris management and maintenance is addressed in the Thurston County Shoreline Master Plan and Critical Areas Ordinance. The County adopted a Critical Areas Ordinance in 2013 and is working to update its Shoreline Master Plan in 2017.	O
<b>Initiative # FMI-4</b> – Continue to maintain compliance and good standing with the programmatic requirements of the National Flood Insurance Program.				
Yes	Ongoing	High	Thurston County continues to meet the NFIP requirements and will work to maintain that compliance in 2016/2017.	O
<b>Initiative # FMI-5</b> – Strive to maintain Thurston County’s Community Rating System classification of no higher than Class 5, as a primary measure of successful flood risk reduction.				
Yes	Ongoing	High	Thurston County achieved a CRS classification of 2 as a result of a verification site visit conducted in 2015. The next verification site visit is scheduled for 2018.	O
<b>Initiative # FMI-6</b> – Expand multi-jurisdictional and multi-stakeholder coordination efforts and seek inter-local agreements or other contractual relationship in support of achieving long-term comprehensive flood risk reduction solutions, potentially in conjunction with salmon recovery efforts and regional flood risk reduction efforts.				
Yes	Ongoing	High	Planning efforts have occurred in several watersheds in the past few years to identify watershed problems and propose solutions. These include the Deschutes River, Woodard Creek, Black Lake, and McLane Creek watersheds. In 2014 the Chehalis Flood Authority initiated an analysis of local floodplain management programs in order to see how they could be supported and strengthened. Thurston County worked with the Chehalis River Basin Flood Authority in their efforts to develop flood hazard mitigation measures throughout the Basin including the Skookumchuck, Chehalis and, Black Rivers, and their tributaries.	O
<b>Initiative # FMI-7</b> – Undertake a feasibility study on the formation of a countywide flood control zone district. This study should focus on the following: <ul style="list-style-type: none"> <li>• What are the capital costs of flood risk reduction projects within the county?</li> <li>• What would be the costs to the constituents of Thurston County to implement a flood control zone district?</li> <li>• How would this affect other Thurston County programs?</li> <li>• What would be the benefits to the constituents of Thurston County?</li> <li>• Recommendations for structure and organization of the district.</li> </ul>				
Yes	2014-2018	Medium	Preliminary discussions of the potential for a county-wide flood control district have been initiated and alternatives considered. Additional evaluation and investigation will be conducted in the timeline of this task subject to funding and staff availability.	O
<b>Initiative # FMI-8</b> – Analyze the findings of the flood control zone district feasibility report and determine if its recommendations should be adopted. Create a prioritized list of flood risk reduction projects and programs throughout the county that could be funded under this mechanism.				
No	2018-2022	Medium	Based on the identified timeline, no action has been taken on this initiative.	X

**TABLE 2. ACTION PLAN MATRIX Continued...**

Action Taken? (Yes or No)	Time Line	Priority	Status	Status (X,O,√)
Initiative # <b>FMI-9</b> – Invest in flood prediction and forecast modeling to support all facets of the Thurston County floodplain management program, including, but not limited to, flood hazard identification, flood threat recognition in support of flood notification programs, climate change adaptation, and risk assessment.				
Yes	2013-2015	High	Hydrologic data from county monitoring locations are used to develop predictive models for stream flow, aquifer levels, and lake elevations. In the past year Thurston County hired a new hydrogeologist and invested in additional groundwater and surface water modeling software capabilities. The County is also developing a comprehensive monitoring program data base that will make data analysis, accessibility, and presentation easier. Plans are being implemented to expand the environmental monitoring program to include additional stream and groundwater monitoring, and weather stations in strategic locations throughout the county to support better flood prediction and monitor high groundwater conditions. The County will also continue to evaluate flood prediction and forecast modeling opportunities and look for funding opportunities.	O
Initiative # <b>FMI-10</b> – Complete an inventory of all publicly maintained stormwater facilities.				
Yes	Complete	High	Thurston County has completed an inventory of all publicly maintained stormwater facilities and established an Asset Management system to track maintenance.	√
Initiative # <b>FMI-11</b> – Create an inventory and establish a priority list for culvert replacement that takes into account fish passage, flood depth reduction and future losses avoided.				
Yes	Complete	High	Thurston County has completed an inventory and priority list for culvert replacement that takes into account various factors including fish passage, culvert type and condition, flood depth reduction and future losses, and frequency of flooding associated with the culvert. The Thurston County Public Works department will use this tool to assign priority to replacement of culverts.	√
Initiative # <b>FMI-12</b> – Utilizing the best available data, science and technology, enhance the existing flood notification program, striving to identify a notification protocol within systems that have real-time flood threat recognition capability.				
Yes	Complete	High	Thurston County has implemented a new ALERT SENSE flood notification system that can be used in conjunction with the Northwest River Forecast Center system as the preferred flood notification solution. The completion of this initiative occurred in 2016.	√
Initiative # <b>FMI-13</b> – Update the County emergency response plan to reflect any changes to flood notification protocol within the county.				
No	2013-2015	High	Thurston County is in the process of updating the Emergency Response Plan to reflect the changes to the flood notification protocol.	O
Initiative # <b>FMI-14</b> – Utilizing the best available data, science and technology, maintain and enhance as data becomes available the Level 2, user-defined Hazus-MH model that was constructed to support this planning effort.				
Yes	2013-2014	High	Thurston County Emergency Management worked with FEMA under the RISK MAP program to update the building stock and critical facility data in the Hazus-MH program. Depth grids were developed for the Marine Coast Areas and Deschutes Watershed in 2013/2014. Depth Grids for the Lower Chehalis and Nisqually are expected to be complete in Spring 2017 and Winter 2017 respectively.	O

**TABLE 2. ACTION PLAN MATRIX Continued...**

Action Taken? (Yes or No)	Time Line	Priority	Status	Status (X,O,√)
Initiative # <b>FMI-15</b> – Develop a post-flood disaster action plan that establishes protocols for the County such as substantial damage determination, the recording of perishable data (such as high water marks), grant support, staffing, continuity of operations, and recovery.				
Yes	2013-2014	Medium	Thurston County has a post-disaster action plan. The plan is updated continuously to adapt to fluctuating staff levels and resources. A protocol has also been developed for collecting high-water elevations following a flood event. Work continues on developing a written protocol for damage determination, grant support, etc.	O
Initiative # <b>FMI-16</b> – Perform a comprehensive assessment of floodplain restoration, reconnection and enhancement of floodplain storage opportunities in the county.				
Yes	2013-2015	Medium	Thurston County has conducted floodplain analysis for all Puget Sound drainages including Henderson Inlet, Deschutes Watershed, Totten/Eld Inlets, and the Thurston County side of the Nisqually River. This information will be used to help identify high value restoration and flood storage project opportunities. The Stormwater Utility has programmed bi-annual watershed restoration/retrofit analysis of Thurston County basins to develop projects lists for stormwater retrofits, stream restoration, and flood plain reconnection.	O
Initiative # <b>FMI-17</b> – Work with the County departments responsible for implementation and maintenance of the County’s capital improvements program to identify flood hazard mitigation projects that are eligible for hazard mitigation grants. Once projects are identified, pursue grant funding for those projects shown to be cost-effective.				
Yes	Ongoing	High	Thurston County has a multi-departmental group that maintains and implements the County’s Capital Improvement Program. Thurston County applied for grant funding to update the Natural Hazards Mitigation Plan for the Thurston County Region and was awarded funds in 2014. Work on the updated Natural Hazards Mitigation Plan is in progress with completion expected in 2016.	O
Initiative # <b>FMI-18</b> – Collaborate with Pierce County and Tacoma Power to identify appropriate operational procedures of Alder Lake Dam that will minimize the flood risk on the Nisqually River.				
No	Complete	High	Thurston County has collaborated with Pierce County and Tacoma Power on operational procedures for Alder Lake Dam. Procedures are documented in the “Water Release Notification Plan” maintained by Tacoma Power.	√
Initiative # <b>FMI-19</b> – Continue to develop and implement an annual public outreach strategy that seeks to leverage public information resources and capabilities within the county.				
Yes	Ongoing	High	The County continues to disseminate flood risk information through its website; annual targeted mailings to realtors, lenders, and insurance agencies; mailing of the annual Flood Bulletin Newsletter to properties in the flood plain and high groundwater hazard areas; annual mailings to repetitive loss properties; press releases to local media, and personal interaction through phone calls, permit counter inquiries and during the permit application and/or review process. The County also annually sponsors the Thurston County Emergency Preparedness Expo with speakers and information booths on flood and weather related topics.	O

**TABLE 2. ACTION PLAN MATRIX Continued...**

Action Taken? (Yes or No)	Time Line	Priority	Status	Status (X,O,√)
<b>Initiative # FMI-20</b> – Continue to pursue/maintain Thurston County floodplain management programs in compliance with the National Marine Fisheries Service biological opinion regarding the National Flood Insurance Program.				
Yes	Ongoing	High	Thurston County has a process to review projects and permits on a case-by-case basis for compliance with the NMFS biological opinion issued for the NFIP. Habitat assessments are required for floodplain Development.	O
<b>Initiative # FMI-21</b> – Establish a link between the Thurston County Flood Hazard Mitigation Plan and the Natural Hazards Mitigation Plan for the Thurston Region. The Flood Hazard Mitigation Plan will become the flood hazard component of the Natural Hazards Mitigation Plan upon its next update. All future updates to the two plans will occur on the same planning cycle upon plan integration.				
Yes	2014-2015	High	To meet CRS requirements, the Thurston County Flood Hazard Mitigation Plan (FHMP) was updated in 2012. During the development of the 2015 Natural Hazards Mitigation Plan (NHMP) a strategy was developed to maintain the FHMP as a separate document and include its recommendations into the NHMP. This allows the FHMP to use the planning process required by CRS which the Group determined was not necessary for the NHMP.	√
<b>Initiative # FMI-22</b> – Obtain digital data and create GIS maps of the flood inundation from possible failures of the Skookumchuck Dam on the Skookumchuck River and the Alder and LaGrande Dams on the Nisqually River. Using this data, assess the risk associated with these facilities utilizing the best available data and science.				
Yes	Complete	High	The “Dam Break Analysis and Inundation Mapping for the Skookumchuck Dam” was updated using digital topographic data provided by Thurston County in 2013. Tacoma Power updated their dam failure report for Alder Dam on the Nisqually River in 2014. Thurston County has obtained the GIS data for both watersheds.	√
<b>Initiative # FMI-23</b> – Develop evacuation plans for communities and residents downstream from the Nisqually and Skookumchuck River dams.				
Yes	2013-2015	High	Thurston County has developed general recommendations for communities in these areas, and continues to disseminate that information to residents. A notification plan has been established with TransALTA for the Skookumchuck River dam and work is being finalized on an evacuation plan for the Nisqually River.	O
<b>Initiative # FMI-24</b> – Draft a prioritized list of road segments and bridges that should be elevated above the 100-year floodplain and culverts that will fail under flood flow. Upgrade these structures if state or federal funds become available.				
Yes	Complete	High	Thurston County Public Works has completed drafting prioritized lists of culverts, road segments and bridges that should be elevated above the 100-year floodplain. Upgrade of these structures will occur on a prioritized basis as funds become available. The county also continues to work with FEMA, under the RISK MAP program to re-map and re-model flood flows and floodplains within the County. The County has submitted a letter of intent for a grant to study restrictions for Independence Road in the Chehalis River Basin.	√
<b>Initiative # FMI-25</b> – Develop a southeast flood detour plan for the Thurston County Comprehensive Emergency Management Plan.				
Yes	Complete	High	Thurston County has reached an agreement with Weyerhaeuser Company providing a southeast flood detour route through Weyerhaeuser land during emergencies.	√

**TABLE 2. ACTION PLAN MATRIX Continued...**

Action Taken? (Yes or No)	Time Line	Priority	Status	Status (X,O,√)
<b>Initiative # FMI-26 – Map the channel migration zones for all rivers in the region and the extent of high quality riparian habitat. .</b>				
Yes	Complete	Medium	High quality riparian habitat data has been compiled for the Henderson Inlet, Deschutes, Totten/Eld Inlet, and the Nisqually River basins. Channel migration mapping has been conducted and refinement of the mapping is ongoing.	√
<b>Initiative # FMI-27 – To support initiative # FMI-1, undertake a study of identified repetitive flood loss areas to determine the following:</b>				
<ul style="list-style-type: none"> <li>• Repetitive losses not captured by flood insurance data.</li> <li>• Causes of the repetitive flooding.</li> <li>• Assets impacted by the repetitive flooding (this would include assets such as livestock, out-buildings and rescue costs not already identified by FEMA)</li> <li>• Possible alternatives to remediate the repetitive flooding</li> </ul>				
Yes	Complete	Medium	An inventory of all structures within the current floodplain was completed in 2012. An analysis of repetitive loss properties and a repetitive loss area analysis report was prepared in 2015.	√
<b>Initiative # FMI-28 – Revise shoreline regulations to encourage shoreline protective structures be bioengineered.</b>				
Yes	2013-2018	High	Thurston County continues to work to update the SMP. Adoption of a plan is anticipated in 2017.	O
<b>Initiative # FMI-29 – Review the recommendations of adopted stormwater drainage basin plans to determine which ones are still relevant for implementation.</b>				
No	Complete	High	Recommendations from adopted stormwater drainage basin plans have been evaluated. A requirement to incorporate drainage basin plan recommendations into projects during plan review is incorporated into the Drainage Design and Erosion Control Manual.	√
<b>Initiative # FMI-30 – Prepare new drainage basin plans for the high groundwater areas.</b>				
Yes (Jim Bachmeier)	2014-2018	High	Thurston County has developed groundwater models in select areas including Scatter Creek and Salmon Creek (tributary to Black River). This information may be incorporated into any new basin plans for these areas.	O
<b>Initiative # FMI-31 – To support implementation of the Thurston County Critical Areas Ordinance, encourage research that establishes best management practices for bioengineering and other techniques that provide streambank protection and improve fisheries through the use of large woody debris. Support local demonstration projects that could support such research. .</b>				
Yes	Complete	Medium	The Shoreline Master Program and Critical Areas Ordinance includes preferences for bioengineering and other natural protection measures when activities are approved. Development of examples and guidelines will be included with any updates. Letters of support have been sent to local lead entities for salmon recovery and other organizations engaged in such work. Thurston County has also provided some staff support when resources have been available.	√
<b>Initiative # FMI-32 – Where feasible, consider the adoption of appropriate higher regulatory standards (including but not limited to freeboard, comp storage, lower substantial damage thresholds, setbacks and fill restrictions) as means to reduce future flood risk and support a no-adverse-impact philosophy of floodplain management.</b>				
Yes	Complete	Medium	Thurston County has adopted higher regulatory standards for freeboard, storage, damage thresholds, setbacks, and fill as outlined in the Critical Areas Ordinance and Thurston County Code.	√
<p>Completion status legend:            √ = Project Completed            O = Action ongoing toward completion            X = No progress at this time</p>				

**Changes That May Impact Implementation of the Plan:** The ability to complete the mitigation initiatives identified in the Flood Hazard Mitigation Plan within the specified time frames depends on the availability of funding and resources. Each initiative is an important component of Thurston County's strategy for mitigating damage from flooding. However, a reduction in available funding may cause a delay in the completion of these actions.

***Public review notice:** The contents of this report are considered to be public knowledge and have been prepared for total public disclosure. Copies of the report have been provided to the Thurston County governing board and to local media outlets and the report is posted on the Thurston County Flood Hazard Mitigation Plan website. Any questions or comments regarding the contents of this report should be directed to:*

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