
<p>Chelan County</p> <p>Comprehensive Flood Hazard Management Plan</p> <p>Annual Progress Report</p>	<p>December</p> <p>2018</p>
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Annual report on evaluating progress toward implementing flood hazard mitigation benefits in Chelan County. The progress report must be submitted to the governing body, released to the media, made available to the public and will be included as part of the community's annual Community Rating System (CRS) recertification.



Chelan County Flood Control Zone District
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Reporting Period: *November 2017 – December 2018*

Background: Chelan County developed a Comprehensive Flood Hazard Management Plan (CFHMP) to reduce risk from flooding through identified resources, information, and strategies. To prepare the plan, Chelan 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 to public infrastructure. The plan can be viewed on-line:

<http://www.co.chelan.wa.us/flood-control-zone-district>

Purpose: The purpose of this report is to provide an annual update on the implementation of the action plan identified in the CFHMP. The objective is to ensure that there is a continuing and responsive planning process that will keep the floodplain management plan dynamic and responsive to the needs and capabilities of Chelan County and its stakeholders. This report discusses the following:

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

Flood Events within the Planning Area: During the reporting period, there was one (1) flood event in the planning area that had a measurable impact on people or property. A summary of this event is as follows:

Colockum Flood Event – May 15, 2018

The Colockum Basin, specifically land above the Malaga-Alcoa Highway, experienced a short duration event that produced a high intensity rain (thunderstorm). That evening the Public Works Department was notified that mud, rock, and debris were sent over and on top of the road near MP 10.0 - plugging culverts, filled/eroded ditches, caused public and private property damage and other similar problems that are typically witnessed during flood event of this nature. There was evidence that the 2013 Colockum – Tarps wildfire played a role in this event with increasing runoff velocities, decreasing infiltration rates, and overall hydrologic response.

Changes in Risk Exposure in the Planning Area:

Cougar Creek Fire¹

The Cougar Creek Fire was primarily within the Mad River and Entiat River watersheds. The primary watershed responses of the Cougar Creek Fire area are expected to include 1) an initial flush of ash; 2) rill and gully erosion in drainages and on steep slopes within the burned area; 3) floods with increased peak flows and sediment deposition; 4) debris flows. The watershed responses are dependent on the occurrence of storm and snow melt events and should be greatest with initial storm events. The disturbances will become less evident as vegetation is reestablished, providing ground cover and increasing surface roughness.

The primary hydrologic mechanisms of damage are flooding, debris flows, and debris jams. After a field reconnaissance, the Burned Area Emergency Response (BAER) team identified the Mad River, Potato Creek, and Windy Creek of particular concern. The soil burn severity map and modeling coupled with field observations were used to assess the level of threat and risk to the values at risk in and adjacent to the burned area, and to develop treatment recommendations.

The combination of moderate and high burn severities was used to indicate the hydrologic response because it is these severity ranges that produce the majority of the post-fire runoff. Thirty percent of the Mad River at the burn perimeter burned at high and moderate severity. Modeled post-fire runoff indicates an increase of two-times the pre-fire flow. This increase in flow for the Mad River poses a potential threat to roads, Pine Flat Campground and downstream private residences. The USGS has completed an assessment of post-fire debris flow hazards for the Cougar Creek Fire; the interactive map to locate information for this fire is available at http://landslides.usgs.gov/hazards/postfire_debrisflow.

¹ Summary courtesy of U.S. Forest Service Cougar Creek Fire BAER Assessment – Hydrology Resource Report, September 2018

Mitigation Success Stories: Chelan County continues its efforts to better understand the exposure to risk due to flooding and provide outreach material to the public about these risks. In 2018, these efforts included:

- Updated Flood Control Zone District webpage
- Informative flyer to all floodplain property owners
- Developed a draft 2018 FCZD newsletter
- Post-wildfire workshops

Several mitigation projects are either under development or have been completed during this reporting period.

- Slide Ridge (Lake Chelan) – Early stages of design to replace undersized culvert (FEMA Hazard Mitigation Grant awarded for construction).
- No. 1 Canyon Debris Basins #2 – Approximately at 90% design completed, which includes four basins to detain and release flood waters.
- No. 1 Canyon Gap Analysis – Currently running hydraulic modeling of the canyon conveyance system from the county through the city. Ultimately, mitigation strategies will be developed where problems areas are identified.
- No. 1 Canyon Conveyance Improvements (completed) – Replaced an undersized pipe at the end of the roadway to aid in flood conveyance.

Changes That May Impact Implementation of the CFHMP: No significant changes in the planning area occurred in 2018 that would have a profound impact on the implementation of the CFHMP or with public outreach efforts. No technical or financial capabilities identified during the plan's development have changed.

A 2015 Community Assistance Visit (CAV) by the Department of Ecology identified the lack of a Flood Development Permit as a deficiency in the county's flood program and as a result not in compliance with the National Flood Insurance Program (NFIP). The FCZD assisted Chelan County Community Development to create and implement a Flood Development Permit based upon Chelan County Code chapter 3.20. On August 1, 2018, the Department of Ecology closed the CAV and found the county in compliance with the NFIP.

COMPREHENSIVE FLOOD HAZARD MANAGEMENT PLAN PROGRESS

Summary Overview of the Flood Plan's Progress: The performance period for the floodplain management plan became effective on November 13, 2017, with the adoption of the CFHMP by the Chelan County FCZD Board of Supervisors. The initial performance period for this plan will be 5 years, with an anticipated update to the plan to occur before November 2022. The CFHMP has targeted 38 flood hazard mitigation actions to be pursued during the 5-year performance period. As of the reporting period, the following overall progress can be reported:

22 out of 38 actions (58%) reported ongoing action toward completion.

1 out of 38 actions (3%) were reported as being complete.

15 out of 38 actions (39%) reported no action taken.

The Floodplain Management Plan Steering Committee: The CFHMP steering committee, made up of stakeholders within the planning area, determined through the plan’s development process that a steering committee would remain in service to oversee maintenance of the plan. At a minimum, the Steering Committee will provide technical review and oversight on the development of the annual progress report. It is anticipated that there will be turnover in the membership annually, which will be documented in the progress reports. For this reporting period, the Steering Committee membership is as indicated in Table 1.

Table 1: Steering Committee Members

Name	Title	Jurisdiction/Agency
Herb Amick	Director of Public Works	City of Leavenworth
Steve Croci	Director of Operations	City of Cashmere
Jessica Shaw	Environmental Manager	City of Wenatchee
RJ Lot	Senior Planner	City of Entiat
Mike Cooney	Mayor	City of Chelan
Dave Kuhl	Director/Floodplain Administrator	Chelan County Community Development
Mike Kaputa	Director	Chelan County Natural Resource Department
Kent Sisson	Sergeant	Chelan County Emergency Management
Matt Gerlach	Floodplain Management Specialist	Department of Ecology
Mike Cushman	Director	Cascadia Conservation District
David Morgan	Watershed Coordinator	Chelan-Douglas Land Trust
Dave Toften	Hydraulics Engineer	WSDOT
Katherine Rowden	Service Hydrologist	National Weather Service
Jason Peterson	Engineering Staff Officer	U.S. Forest Service
Jennifer Burns	Environmental Coordinator	Chelan PUD
Bob Whitehall		Citizen
Aaron Young		Citizen

Phylisha Olin		Citizen
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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 CFHMP for more detailed descriptions of each initiative and the prioritization process.

Table 2: Action Plan Matrix

Action Taken (Yes/No)	Description	Priority	Timeline	Status (X, O, ✓)
1	Define regional flood hazard management consistency pursuant to RCW 86.12 for the planning area. This definition will strive to exceed minimum National Flood Insurance Program standards and will be developed thru a facilitated planning effort with all cities within Chelan County.			
Yes	Chapter 5 of Chelan County's Comprehensive Flood Hazard Management Plan details regional consistency and are further expanded upon within the policies (Chapter 12). Cities within Chelan County should review regional consistencies to ensure compliance.	High	Ongoing	O
2	Chelan County will continue with the Community Rating System (CRS) application and classification process and will mentor Chelan County cities that show interest in CRS participation.			
Yes	The Insurance Service Office (ISO) conducted a CRS verification visit on August 1, 2018. Joining the CRS program is anticipated to occur in 2019.	High	Ongoing	O
3	Define floodplain mapping criteria that takes into account future flood hazard conditions and/or expected worst case conditions to be applied to all future flood studies within the planning area.			
No	This action item has yet to begin.	High	Unknown	X
4	Identify alternative sources of funding to leverage Flood Control Zone District funding to perform new flood studies in identified areas of need based on risk.			
Yes	The FCZD continually seeks out alternative sources of funding through agencies such as FEMA, Department of Ecology, Army Corps of Engineers, and the Chelan County Surface and Stormwater Management Utility.	High	Ongoing	O

Action Taken (Yes/No)	Description	Priority	Timeline	Status (X, O, ✓)
5	Inform all future mapping by maintaining a database on known flood risk that tracks historical flood conditions to include, but not limited to: high water marks, recorded damages, photos, observed flood conditions, etc.			
Yes	The FCZD anticipates developing a protocol for mapping and maintaining a database on known flood risks.	Medium	2019	X
6	Continue to implement the Stormwater Management Program that includes facility identification, design, construction and maintenance within the stormwater utility jurisdictional authority.			
Yes	Chelan County's Stormwater Management Program was updated in 2018. The County continues to improve upon asset management tracking within the utility boundary.	High	Ongoing	O
7	For areas outside of the Stormwater Utility, clearly define the stormwater management program based on existing programs and capabilities.			
Yes	Chelan County Code chapter 13.16 – Stormwater Management for Chelan County, provides stormwater guidance on development projects throughout the county. Stormwater infrastructure data is gathered as time allows and entered into GIS as a means for asset management.	Medium	Ongoing	O
8	Develop a facility maintenance operations and maintenance protocol for Flood Control Zone District funded facilities as they are developed			
Yes	As part of the new debris basins being designed for the No. 1 Canyon basin, an Operation and Maintenance plan will be developed.	Medium	Ongoing	O
9	Investigate solutions to issues associated with modification to the landscape that increase runoff, including sediment, to adjacent properties and infrastructure.			
No	A type of a land use modification tracking system may be considered in the near future as a means to minimize sediment-laden runoff leaving properties.	Medium	2019	X

Action Taken (Yes/No)	Description	Priority	Timeline	Status (X, O, ✓)
10	When requested, the Flood Control Zone District may act as the applicant agent for mitigation grant opportunities for private property requesting to participate in the grant program.			
No	At this time there hasn't been an opportunity to act as the applicant agent for a private property mitigation grant. If the opportunity presents itself, the District Administrator and Board of Supervisors may consider this opportunity.	Medium	Not Applicable	X
11	Develop a flood informational website on the Flood Control Zone District web page.			
Yes	In 2018, an updated FCZD webpage was developed to provide useful information to the citizens of Chelan County. It can be accessed at www.co.chelan.wa.us/food-contro-zone-district	High	Ongoing	O
12	Deploy public information and outreach program targeting at risk properties within the planning area.			
Yes	The County continues to disseminate flood risk information through its website; support direct mailings to properties within the special flood hazard area (100-year floodplain); press releases to local media; and personal interaction through phone calls, permit counter inquiries and during the permit application and/or review process.	High	Ongoing	O
13	Coordinate with FEMA Region X on deploying flood insurance workshops for agents, lenders and citizens within the performance period for this plan.			
No	At this time, coordination with FEMA Region X has not occurred. The county is awaiting results of the CRS application, which may change opportunities.	High	Not Applicable	X
14	Investigate feasible, cost-effective solutions to flood issues within No. 1 Canyon.			
Yes	Currently, the FCZD is at 90% design for four new debris basins within the drainway. Funding for construction is being investigated through various state and federal grant opportunities. Construction may occur as soon as 2020.	High	Ongoing	O

Action Taken (Yes/No)	Description	Priority	Timeline	Status (X, O, ✓)
15	Identify a feasible, cost-effective solution to Slide Ridge debris flow issues.			
Yes	The FCZD project team has completed a 30% design to improve Slide Ridge. Additionally, a FEMA grant of \$1.3 million has been awarded for the construction of this design.	High	Ongoing	O
16	Investigate feasible, cost-effective solutions to flood issues within No. 2 Canyon.			
No	Work has not begun on this action item.	High	Unknown	X
17	Investigate feasible, cost-effective solutions to flood issues within Dry Gulch (south of City of Wenatchee).			
No	Work has not begun on this action item.	High	Unknown	X
18	Investigate feasible, cost effective solutions to flood issues within Mission Creek.			
No	Work has not begun on this action item.	High	Unknown	X
19	Investigate feasible solutions to flood issues within Ski Hill Basin.			
Yes	Within the 2019 FCZD budget, funding has been dedicated to begin investigating the Ski Hill Basin.	High	2019-2020	O
20	Coordinate with City of Cashmere on options for the maintenance and management of the levee system within the City and County.			
Yes	The Cashmere Levee Management Plan was completed in May 2018 and environmental permitting is ongoing.	High	Ongoing	O
21	Maintain database of flood control needs within the planning area as needs become identified for incorporation into future updates and progress reporting to this plan.			
Yes	The FCZD attempts to investigate flood control needs throughout Chelan County when needed. If warranted, new information will be added to future updates and progress reporting.	High	Ongoing	O

Action Taken (Yes/No)	Description	Priority	Timeline	Status (X, O, ✓)
22	Mitigate flood related risk to publicly owned county bridges.			
Yes	Chelan County maintains a robust bridge management program that includes inspection and a maintenance schedule on necessary bridges. Mitigating flood risk to county bridges is part of this program and is undertaken as funding allows.	Medium	Ongoing	O
23	Maintain the county Critical Areas Ordinance (CAO) pursuant to the requirements of the State Growth Management Act.			
Yes	Chelan County's Critical Area Ordinance found in Title 11 of the county code is currently in compliance with the State Growth Management Act.	High	Complete	✓
24	Identify feasible opportunities with like goals for natural resource protection within identified flood risk areas based on available funding.			
No	This opportunity has not presented itself and has not occurred in 2018.	High	Unknown	X
25	Coordinate with watershed planning and program implementation to identify opportunities to leverage available funding for like goals between watershed and Flood Control Zone District plans and programs.			
No	In 2018, opportunities were lacking to coordinate with watershed planning units.	High	Unknown	X
26	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	Chelan County continues to maintain a series of rain gages that provide the National Weather Service with real-time data to issue emergency alerts. Currently, additional stream and rain gages are being investigated for the Mad River drainage as a result of the Cougar Creek Fire.	Medium	Ongoing	O

Action Taken (Yes/No)	Description	Priority	Timeline	Status (X, O, ✓)
27	Update the County emergency response plan to reflect any changes to flood notification protocol within the County.			
No	Once Chelan County Emergency Management updates the county's emergency response plan, flood notification protocols will be added.	High	Unknown	X
28	Conduct annual exercises of the County Emergency Operations Plan in compliance with National Incident Management System standards, such that flood response actions of the County are reviewed, evaluated, and adapted based on observations from the exercises.			
Yes	The FCZD and its partner, the county's Public Works Department, cooperatively coordinate with Emergency Management and the Sheriff's Office in an annual tabletop exercise.	High	Ongoing	O
29	Draft a prioritized list of road segments and bridges that should be elevated above the 100-year flood hazard area and culverts that will fail under flood flow. Upgrade these structures if funding become available.			
No	Chelan County Public Works will need to complete a prioritized list of culverts, road segments, and bridges that should be elevated above the 100-year floodplain. Once this list is complete, prioritization will need to occur in order to determine where funding should be obligated. The county should also continue to work with FEMA, under RiskMAP program, for assistance on flood mapping.	Medium	Unknown	X
30	Integrate the Chelan County Comprehensive Flood Hazard Management Plan into other appropriate plans and programs that can support or enhance the County's efforts to reduce flood risk as these plans and programs are updated. Examples of such plans/programs would include, but are not limited to: Chelan County Hazard Mitigation Plan, Chelan County Comprehensive Plan, and Chelan County Shorelines Master Plan.			
Yes	In December 2018, the Chelan County Comprehensive Plan formally adopted by reference, the Comprehensive Flood Hazard Management Plan. In 2019, Chelan County will be completing the Hazard Mitigation Plan, which will utilize information found within the Comprehensive Flood Hazard Management Plan.	Medium	Ongoing	O

Action Taken (Yes/No)	Description	Priority	Timeline	Status (X, O, ✓)
31	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.			
No	At this time, this action item has not been addressed.	Medium	Unknown	X
32	Establish a sediment management program that includes expanded channel monitoring, establishment of thresholds to trigger actions, and analysis of sediment management action alternatives.			
No	The FCZD has not begun to address this action item.	High	Unknown	X
33	As Flood Control Zone District projects are constructed, monitor projects using identified performance measures and adaptive management to track the effectiveness of completed projects to inform the design and implementation of future projects.			
No	Since the FCZD inception in 2014 and the adoption of the Comprehensive Plan in 2017, construction projects funded by the FCZD have not yet been completed.	High	Not Applicable	X
34	Respond to inquiries and complaints from citizens and other public and private agencies and tracking per Community Rating System requirements.			
Yes	The county's Community Development and Public Works Departments, in coordination with the FCZD, field and respond to questions/complaints from other public and private agencies. A standard countywide tracking system per CRS requirements will be implemented in 2019.	High	2019	O
35	Maximize federal, state, and local funding opportunities through grant application submittals in support of capital improvement projects, technical studies, and other flood hazard management activities.			
Yes	Chelan County's FCZD staff continually seeks out applicable grant opportunities.	High	Ongoing	O

Action Taken (Yes/No)	Description	Priority	Timeline	Status (X, O, ✓)
36	Continue to provide flood hazard management technical support to all Chelan County departments and cities proposing activities or projects that affect floodplain functions.			
Yes	The FCZD proactively coordinates with necessary departments within Chelan County to provide necessary flood hazard management technical support. Cities have the ability to contact the FCZD when activities or projects arise that may affect floodplain functions.	High	Ongoing	O
37	Continue to maintain good standing under the National Flood Insurance Program by implementing programs that meet or exceed the minimum National Flood Insurance Program requirements. Such programs include enforcing an adopted flood damage prevention ordinance, participating in floodplain mapping updates, and providing public assistance and information on flood hazard requirements and impacts.			
Yes	Chelan County continues to meet the NFIP requirements and will work to maintain compliance in 2019.	High	Ongoing	O
38	Develop and implement a stand-alone floodplain development permit for all new development and/or substantial improvements within the unincorporated County regulated floodplain.			
Yes	Chelan County's Flood Development Permit was implemented August 1, 2018 and is being overseen by the Floodplain Administrator in the Community Development Department with engineering support provided by the FCZD.	High	Ongoing	O

Recommendations for Changes or Enhancements: Based on the review of this report by the floodplain management plan Steering Committee, the following recommendations will be noted for future updates or revisions to the plan:

- To be provided at a later date.
- _____
- _____
- _____
- _____

PUBLIC REVIEW NOTICE

The contents of this report are considered to be public knowledge and have been prepared for public disclosure. Copies of the report have been provided to the FCZD Board of Supervisors and to local media outlets and the report is posted on the floodplain management plan website. Any questions or comments regarding the contents of this report should be directed to:

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