

2019-21 Local Flood Hazard Reduction Project Proposals (ordered, prioritized)

Tier I -- Continues/Completes Existing Project				
Project	Primary Benefits	Additional Benefits	Construction	Planning
Aberdeen -- Fry Creek Flood Restoration & Flood Hazard Reduction (Phase IIb, New Pump Station)	<p>* Replaces aging 60-CFS pump with modern 400-CFS pump. Pump reduces 100-year flood event surface waters 35%, while pump and related restoration work reduce 67%.</p> <p>* Benefits 400 homes, 40 commercial properties, several churches, medical facility, senior home, and Grays Harbor PUD.</p> <p>* Prerequisite to other flood reduction actions, outcomes. E.g., Fry Creek daylighting between Simpson and Sumner Aves and Cherry St culvert reconstruction will increase flood capacity, lower water surface elevations by 2.75 feet for 100-year rainfall event. Note: This correlates with creek no longer overtopping its banks.</p> <p>* Identified as a Timberworks Master Plan project and is agreement with ASRP (habitat improvement, fish enhancement, fish mortality reduction).</p> <p><b>Note -- If no WCRI funds, then project is \$3.2M short.</b></p>	<p>* Habitat improvement -- Wetlands enlarged with benefit to fish, foraging, flood flow regulation, rearing.</p> <p>* Fish enhancement -- Offers refugia to juvenile fish, and likely to benefit chum, Coho, searun cutthroat, steelhead.</p> <p>* Fish mortality reduction -- New pump has fish screens.</p> <p>* Public open space improvement.</p>	\$ 3,000,000	\$ -
Centralia -- China Creek Flood and Habitat Mitigation (Phase 2)	<p>* Phase 1 and 2 will slow, store runoff from upper watershed during high flow. Delaying peak flow from upper basin (70% of watershed, 40% of flow) will enable evacuation of middle basin flood waters (15% of watershed, 50% of flow) and reduce frequency, intensity of downtown flooding.</p> <p>* Benefits 26 businesses, 1 hotel, Centralia/Chehalis School District's Bus Coop, Centralia College, more than 100 homes. Reduces lost business revenue, travel and emergency services disruption.</p> <p>* Reduction in flood levels are anticipated to be immediate with increased storage from the project.</p> <p>* Project is in agreement with ASRP (habitat improvement, fish enhancement, fish mortality reduction).</p>	<p>* Enhances native fish, wildlife habitat, including coho salmon and rare species (Olympia mud minnow). Riparian plantings will grow, stabilize banks, provide shade to cool water, and offer nutrients for aquatic ecosystem.</p> <p>* Improves recreational fishing and wildlife viewing opportunities.</p>	\$ 2,500,000	\$ -

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<p>Hoquiam -- West Hoquiam Flood Protection Levee</p>	<p>* ~ 2,000 parcels protected by future levee and other flood system improvements. Parcels (\$200M+) include multiple schools, fire stations, police station, etc. and provide 1,000+ full time jobs.</p> <p>* Project will upgrade City's undersized and aging drainage system (as part of FEMA CLOMR) to manage, minimize human, environmental risk from flood waters.</p> <p>* Project is continuation of Timberworks Master planning process and North Shore Levee process to provide comprehensive flood hazard, risk reduction throughout majority of community and is in agreement with ASRP (habitat improvement, fish enhancement, fish mortality reduction).</p> <p>* Hoquiam citizens paid over \$1.1M in annual flood insurance premiums in 2014. Since 1978, total paid claims have totaled less than \$3.7M. Levee will curb this substantial long-term economic loss while protecting community, emergency facilities.</p>	<p>* Project benefits water quality (and fish) through updated, enhanced interior drainage control that prevents flood event from inundating pollution-generating streets, industrial areas.</p>	<p>\$ - \$ 800,000</p>
<p>Chehalis -- Flood Storage and Habitat Enhancement Master Plan (Phase II)</p>	<p>* Planning process will evaluate storage volumes, costs. Hydraulic modelling will determine flows, storage, reductions in stage and done in iteration with design. Final design will quantify benefits, including # of people/structures benefitting, level of flood stage reduced, and will include recreation, habitat restoration, off-channel habitat for fish species.</p> <p>* Project is intended to be in agreement with ASRP goals including restoration of riparian habitat, development of off-channel habitat, reconnection of the river to historic floodplain (removal of fill), and creation/restoration of riparian wetlands.</p>	<p>* Restoration of riparian habitat, removal of infrastructure from the floodplain, creation of off-channel habitat, and creation/restoration of riparian wetlands will benefit fish species within the Chehalis River.</p>	<p>\$ - \$ 487,991</p>

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<p>GHC -- Keys Road Flood Protection</p>	<p>* Keys Road is key infrastructure providing access to multiple residences, farms, and businesses. Provides 700+ vehicle trips per day, 20%+ being commercial trucks for agricultural, commercial businesses. Provides one of two access routes to Satsop Business Park (400+ jobs, 200+ acres developable land, ~547,000 sq. ft. commercial, warehouse buildings).</p> <p>* Keys Road is threatened with loss, damage due to oncoming Satsop River. Loss of Keys Road would be very costly.</p> <p>* Keys Road is part of larger Lower Satsop planning process being implemented like Timberworks process. Project and Lower Satsop planning process are intended to be consistent with the ASRP (e.g., early-action reach restoration process underway in Satsop is being monitored for connection, incorporation into Lower Satsop planning process).</p>	<p>* Likely proposed future work will be located above ordinary high water mark and not likely to impact fish and/or fish habitat.</p>	<p>\$ - \$ 375,000</p>
<p>Port of Chehalis -- Berwick Creek Flood Reduction, Restoration</p>	<p>* Project reduces flood hazard to Pacific Power Plant and local residential properties.</p> <p>* Project continues ASRP project 18-1947 (design removal/replacement of fish barrier culvert under Bishop Road south, adjacent to Project area) that provides flood hazard reduction benefits through creek structure rehabilitation, construction of side channels, retention areas. Existing stream channel can not support minimal flood flows (5 year flood events frequently overflow into Pacific Power Plant and local residences).</p> <p>* Project is in agreement with ASRP (habitat improvement, fish enhancement, fish mortality reduction).</p>	<p>* Coho and Steelhead are the affected species benefiting from the project.</p> <p>* Side channels (as well cleaning of the channel for an overgrowth of invasive plant species) will prevent flooding and improve aquatic habitat.</p>	<p>\$ 500,000 \$ -</p>

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<p>CRBFCZD -- Chehalis River Basin Comprehensive Flood Hazard Management Plan</p>	<p>* Comprehensive Flood Hazard Management Plan (CFHMP) collates current flood hazard reduction plans into single cohesive guidance document managed by Chehalis Basin Flood Control Zone District (FCZD).</p> <p>* CFHMP is prerequisite under RCW 86.15 for FCZD to plan, develop, implement, and expend funds on capital projects. CFHMP will identify and prioritize capital projects using FEMA Cost-benefit Analysis tools and be consistent with NFIP Community Rating System.</p> <p>* CFHMP will be developed through a public process to guide, vet FCZD activities, projects, operations.</p>	<p>\$ - \$ 275,000</p>	
<p>Thurston -- Weather and Stream Flood Hazard Monitoring Telemetry</p>	<p>* Project reduces flood hazards in basin by improving early warning as well water modeling accuracy.</p> <p>* Integrating additional weather, stream monitoring sites into basin's existing network will enable modelling, forecasting interests to generate more reliable, accurate products.</p> <p>* Sites will be equipped with telemetry to notify key personnel when important triggers are reached, such as sudden intense rainfall or spikes in river stage.</p>	<p>* Project benefits accuracy of models (e.g., HEC-RAS) which in turn can have innumerable additional benefits.</p> <p>* Project leads to improved weather and water datasets that themselves can lead to better outcomes.</p>	<p>\$ 49,835 \$ -</p>
<p>WCSSF -- Chehalis Basin Habitat Work Schedule Documentation and Implementation</p>	<p>* Project is to provide an informational data, mapping service by entering, tracking flood and fish projects in the basin from multiple entities.</p> <p>* Flood benefits come from being able to track and see historical and recent modifications taken upstream of a flooding area. This in turn allows basin managers to better understand and mitigate for potential contributing factors, as well avoid creating further impacts.</p>	<p>* Fish, habitat benefits come from restoration engineers, ecologists being able to plan effective restoration projects by knowing historical, recent landscape modifications across the basin.</p>	<p>\$ 85,464 \$ -</p>
<p>\$ 6,135,299 \$ 1,937,991</p>			

**Flood Authority Discussion Document  
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Tier II -- Starts New Project				
	Primary Benefits	Additional Benefits	Construction	Planning
Lewis -- Multi-Jurisdictional Flood Warning and Response Plans	* Project is to prepare a Chehalis Basin multi-jurisdictional flood warning and emergency response plan (Part I) and dam failure emergency warning and response plan (Part II) and do so consistent with FEMA's Community Rating System (Activity 610 -- Flood Warning and Response) and (Activity 630 -- Dams) for CRS credit.	* Key additional benefit is knowledge transfer and documentation.	\$ -	\$ 130,000
Boistfort Valley Water -- Water System Plan Update	* Project is to develop Water System Plan Update (WSP) for BVW. WSP will look at potential alternative to water system delivery including moving Adna treatment plant out of floodway (current location). "If the Adna plant is left as-is, it will most likely be damaged or destroyed by future floods that occur every 3 to 5 years."	* Moves key infrastructure out of the floodway benefits water system users, emergency personnel and downstream interests.	\$ -	\$ 150,000
Thurston CD -- Allen Creek Hydrologic Assessment	* Project will conduct a hydraulic assessment of Allen Creek flooding, impacts, and access issues to Scott Lake Community (1,400 population, 580 homes, 55 landowners adjacent Allen Creek). "(P)ast severe floods are congruent with 50 Year floods and have happened regularly."	* Project takes a phased approach (study, assessment first) for a sizable Thurston County population center.	\$ -	\$ 62,500
Lewis -- Unnamed Tributary to Stearns Creek (Pleasant Valley Road MP 4.25) Stream Realignment	* Project replaces undersized culvert that annually floods road from hours to days. Average daily traffic count at location of project is 520 vehicles per day.  * Project is anticipated to reduce road flooding to 10 yr storm frequency or lower.	* Removing barrier culvert and re-aligning 1,200 feet of fishbearing stream will allow for fish passage of all life stages of coho salmon, cutthroat trout, and will minimize bank erosion.	\$ 846,000	\$ -
Montesano -- South 9th Street Culvert Replacement	* Replaces existing undersized 24" culvert that causes localized flooding and impacts local business and home.	* Project will include clearing and restoration of associated drainage ditches.	\$ 140,000	\$ -
			<b>\$ 986,000</b>	<b>\$ 342,500</b>

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Tier III -- Warrants Reassignment to Another Funding Approach				
	Primary Benefits	Additional Benefits	Construction	Planning
Thurston -- Elevates or Buy Outs	* Reduces risk to priority properties through elevation or buy-out.	* Assists individuals who'd otherwise be forced to live with flood risk.	\$ 500,000	\$ -
GH CD -- Wynoochee Home Relocation	* Reduces risk to priority properties through elevation and relocation.	* Assists individuals who'd otherwise be forced to live with flood risk.	\$ 104,033	\$ -
			<b>\$ 604,033</b>	

2019-21 Proposed Local Projects Costs			
	Construction	Planning	Total
Tier I -- Continues/Completes Existing Project	\$ 6,135,299	\$ 1,937,991	\$ 8,073,290
Tier II -- Starts New Project	\$ 986,000	\$ 342,500	\$ 1,328,500
Tier III -- Warrants Reassignment to Another Funding Approach	\$ 604,033	\$ -	\$ 604,033
	<b>\$ 7,725,332</b>	<b>\$ 2,280,491</b>	<b>\$ 10,005,823</b>

<b>Note:</b>		
See project locations --> <a href="https://arcg.is/PqfTv">https://arcg.is/PqfTv</a>		
Read project descriptions --> <a href="https://www.ezview.wa.gov/site/alias_1492/28124/library.asp">https://www.ezview.wa.gov/site/alias_1492/28124/library.asp</a>		
Table legend -->	Construction	Planning