

**Document Overview/Description**

**A. Document Overview and Description:**

This is a list of flood related projects that were extracted from flood planning documents throughout the Chehalis River Basin. This list is not prioritized, and is meant to serve as a baseline of projects for potential future funding. In the course of the next 6 weeks, ranking criteria will need to be developed and used to prioritize the projects by a panel with local expertise on flooding. Our goal is to present a

**B. How to Read This List:**

The Sources are from where the projects originated. To date, there are 15 sources that were used. Starting from the left, the numbering system is by the type of project and is crosswalked with the numbering system from version (Ver 3). The projects have been sorted into 10 different sections with respect to the "Project Type". Project Types were developed through the Chehalis River Basin Comprehensive Flood Hazard Management Plan. The Project Description, Location, and Funding were taken directly from the Project Source. The WRIA is the Watershed Resource Inventory Area, as developed by the Washington State Department of Ecology.

**C. Sources:**

- 1 [CRBFA Project List May 2011.](#)
- 2 [New Projects Proposed by Flood Authority Jurisdictions \(11/22/2010\).](#)
- 3 [Confederated Tribes of the Chehalis Reservation CFHMP \(March 17, 2009\).](#)
- 4 [Chehalis River Basin Draft Comprehensive Flood Management Plan \(June 2010\).](#)
- 5 [Centralia Comprehensive Flood Management and Natural Hazards Mitigation Plan Annual](#)
- 6 [Thurston County Annual Progress Report - Implementing Flood Hazard Mitigation Initiatives in](#)
- 7 [City of Aberdeen Public Works Master Project List \(January 2011\).](#)
- 8 [ACOE Mitigation Projects in Chehalis Basin.](#)
- 9 [Grays Harbor County Draft Hazard Mitigation Plan 2001.](#)
- 10 [City of Chehalis - Bob Nacht.](#)
- 11 [Lewis County Comprehensive Flood Hazard Management Plan.](#)
- 12 [Grays Harbor County Draft Hazard Mitigation Plan - Lee Napier.](#)
- 13 [Description of Potential Enhancement Projects in Upper Chehalis Watershed](#)
- 14 [Chehalis Basin Watershed Management Plan](#)
- 15 [Chehalis Basin Partnership - Multi-Purpose Water Storage Assessment](#)

**CRBFA Project Subcommittee Master Projects Matrix**

**FLOODPLAIN PROTECTION**

Current	Ver 3.	Project	Structural / Non-Structural	Location	Funding	Source	WRIA
---------	--------	---------	-----------------------------	----------	---------	--------	------

Current	Ver 3.	Project	Structural / Non-Structural	Location	Funding	Source	WRIA
1	8	Southside Dike (Levee) certification	Non-structural	Aberdeen		7	22
2	18	Open old migration channels to allow river braiding	Structural	Wynoochee and Satsop Rivers	Local with regional support	1,4	22
3	19	Culvert projects on Hiram Hill	Structural	Grays Harbor County	? (Local)	1,4	22
4	20	Montesano WWTP protection	Structural	Montesano	Local	1,4	22
5	21	Wellhead and water treatment protection	Structural	Montesano	Local	1,4	22
6	33	Mill Creek dam in Cosmopolis	Structural	Cosmopolis	Local / Regional	1	22
7	41	Humptulips Dike Road	Structural	Grays Harbor County		9	22
8	44	Remove road embankment fill under Baich Road approach (abandoned)	Structural	Grays Harbor County		3	22
9	45	Install culverts under South Bank River Road along approach to Sickman-Ford Bridge	Structural	Grays Harbor County		3	22
10	46	Install large-diameter culverts beneath State Road at Harris Creek	Structural	Grays Harbor County		3	22
11	48	Trail/Dike behind Burger King	Structural	Aberdeen		7	22
12	49	Dike bank of Wishkah north of Hwy.	Structural	Aberdeen		7	22
13	50	Wilson Creek flooding of highway	Structural	Aberdeen		7	22
14	51	Tide gates	Structural	Aberdeen		7	22
15	52	Raise portions of Young Street	Structural	Aberdeen		7	22
16	53	Market Street Dike	Structural	Aberdeen		7	22
17	54	Arthur/Randal bank of Wishkah	Structural	Aberdeen		7	22
18	55	Raise flood gate thresholds	Structural	Aberdeen		7	22
19	56	Mill Creek overflow kike on Schey	Structural	Aberdeen		7	22
20	57	Mill Creek flooding	Structural	Aberdeen		7	22
21	58	Frye Creek flooding	Structural	Aberdeen		7	22
22	59	Sea Level Rise Problem	Structural	Aberdeen		7	22
23	61	Install four three-sided structures in the northerly approach to the Sickman-Ford bridge	Structural	Oakville		2	22
24	94	Salzer Creek backwater control	Structural	On Salzer Creek in Lewis County	Local / Twin Cities Project	1,4,5,11	23

Current	Ver 3.	Project	Structural / Non-Structural	Location	Funding	Source	WRIA
25	95	Overtopping levee on the north end of town	Structural	Bucoda	Local / Twin Cities Project	1,4	23
26	96	Twin culverts under Main Street at 11 <sup>th</sup>	Structural	Bucoda	Local	1,4	23
27	97	Relief culvert for north side runoff	Structural	Oakville	?	1,4	23
28	99	Sickman-Ford Bridge culvert	Structural	Oakville	Remove	1,4	23
29	100	Adna levee improvement	Structural	Adna	Local with regional support	1,4	23
30	106	Regional Transportation Flood Alleviation Project Along I-5 in Lewis County	Structural	Lewis County and Centralia		5,11	23
31	107	Regional Stormwater Detention Facilities	Structural	Lewis County and Centralia		5,11	23
32	108	USACE Centralia Flood Reduction Project	Structural	Lewis County and Centralia		5	23
33	109	Port of Centralia/City of Centralia Partnership Project	Structural	Chehalis River		5	23
34	110	Complete storm and surface water utility projects at Meridian Heights, Mallard Pond Phase 2, and Evergreen Terrace (scheduled 2009)	Structural	Thurston County		2	23
35	121	Enhance the existing Airport Dike	Structural	City of Chehalis		10	23
36	123	Scheuber Road Bypass	Structural	City of Chehalis		10	23
37	124	Elevate Main Street	Structural	City of Chehalis		10	23
38	197	Porter Creek correct barrier culverts	Structural	Black Management Unit (includes Black River, Porter Creek subbasins)		13	23
39	198	Albert-Demsey Creek Tributary R7 correct barrier culverts	Structural	Black Management Unit (includes Black River, Porter Creek subbasins)		13	23

Current	Ver 3.	Project	Structural / Non-Structural	Location	Funding	Source	WRIA
40	199	Baker-Goliath Creek correct barrier culvert	Structural	Black Management Unit (includes Black River, Porter Creek subbasins)		13	23
41	200	Bailey Fish Barrier correct barrier culvert	Structural	Black Management Unit (includes Black River, Porter Creek subbasins)		13	23
42	201	Cedar Creek Road - correct barrier culvert	Structural	Black Management Unit (includes Black River, Porter Creek subbasins)		13	23
43	202	Tilley Road - replace barrier culvert	Structural	Black Management Unit (includes Black River, Porter Creek subbasins)		13	23
44	256	Wynoochee Dam Modifications	Structural			15	23
45	204	Upper Chehalis River - correct barrier culverts; improve fish passage	Structural	Boistfort Management Unit (Upper Chehalis, South Fork Chehalis, Stillman Creek, Lake Creek)		13	24
46	205	South Fork Chehalis - correct barrier culverts	Structural	Boistfort Management Unit (Upper Chehalis, South Fork Chehalis, Stillman Creek, Lake Creek)		13	24

Current	Ver 3.	Project	Structural / Non-Structural	Location	Funding	Source	WRIA
47	206	Stillman Creek - correct barrier culverts	Structural	Boistfort Management Unit (Upper Chehalis, South Fork Chehalis, Stillman Creek, Lake Creek)		13	24
48	215	Lincoln Creek - Correct barrier culverts	Structural	Lincoln Management Unit (Lincoln Creek, Independence Creek, Garrard Creek, Gaddis Creek, Rock/Williams Creek, Bunker Creek, Scammon Creek, Mill Creek, Stearns Creek)		13	24
49	216	Independence Creek - Correct barrier culverts	Structural	Lincoln Management Unit (Lincoln Creek, Independence Creek, Garrard Creek, Gaddis Creek, Rock/Williams Creek, Bunker Creek, Scammon Creek, Mill Creek, Stearns Creek)		13	24

Current	Ver 3.	Project	Structural / Non-Structural	Location	Funding	Source	WRIA
50	218	Garrard Creek (county and private properties) - Correct basrrier culverts	Structural	Lincoln Management Unit (Lincoln Creek, Independence Creek, Garrard Creek, Gaddis Creek, Rock/Williams Creek, Bunker Creek, Scammon Creek, Mill Creek, Stearns Creek)		13	24
51	219	Gaddis Creek - Correct basrrier culverts	Structural	Lincoln Management Unit (Lincoln Creek, Independence Creek, Garrard Creek, Gaddis Creek, Rock/Williams Creek, Bunker Creek, Scammon Creek, Mill Creek, Stearns Creek)		13	24
52	220	Rock/Williams Creek - Correct basrrier culverts	Structural	Lincoln Management Unit (Lincoln Creek, Independence Creek, Garrard Creek, Gaddis Creek, Rock/Williams Creek, Bunker Creek, Scammon Creek, Mill Creek, Stearns Creek)		13	24

Current	Ver 3.	Project	Structural / Non-Structural	Location	Funding	Source	WRIA
53	221	Bunker Creek - Correct basrrier culverts	Structural	Lincoln Management Unit (Lincoln Creek, Independence Creek, Garrard Creek, Gaddis Creek, Rock/Williams Creek, Bunker Creek, Scammon Creek, Mill Creek, Stearns Creek)		13	24
54	222	Scammon, Mill, and Stearns Creeks - Correct basrrier culverts	Structural	Lincoln Management Unit (Lincoln Creek, Independence Creek, Garrard Creek, Gaddis Creek, Rock/Williams Creek, Bunker Creek, Scammon Creek, Mill Creek, Stearns Creek)		13	24
55	223	Wolf-Davis Creek R6 -Correct basrrier culverts	Structural	Lincoln Management Unit (Lincoln Creek, Independence Creek, Garrard Creek, Gaddis Creek, Rock/Williams Creek, Bunker Creek, Scammon Creek, Mill Creek, Stearns Creek)		13	24

Current	Ver 3.	Project	Structural / Non-Structural	Location	Funding	Source	WRIA
56	224	Harris Creek Fish Enhancement - No other information provided	Structural	Lincoln Management Unit (Lincoln Creek, Independence Creek, Garrard Creek, Gaddis Creek, Rock/Williams Creek, Bunker Creek, Scammon Creek, Mill Creek, Stearns Creek)		13	24
57	225	Harris Creek - Correct barrier culverts	Structural	Lincoln Management Unit (Lincoln Creek, Independence Creek, Garrard Creek, Gaddis Creek, Rock/Williams Creek, Bunker Creek, Scammon Creek, Mill Creek, Stearns Creek)		13	24
58	232	North Fork Newaukum - Correct barrier culverts	Structural	Newaukum Management Unit (Newaukum Mainstem, North Fork, Middle Fork, Salzer Creek, Coal Creek, Dillenbaugh Creek, Berwick Creek, China Creek)		13	24

Current	Ver 3.	Project	Structural / Non-Structural	Location	Funding	Source	WRIA
59	233	Middle Fork Newaukum - Correct barrier culverts	Structural	Newaukum Management Unit (Newaukum Mainstem, North Fork, Middle Fork, Salzer Creek, Coal Creek, Dillenbaugh Creek, Berwick Creek, China Creek)		13	24
60	234	Salzer Creek - Correct barrier culverts	Structural	Newaukum Management Unit (Newaukum Mainstem, North Fork, Middle Fork, Salzer Creek, Coal Creek, Dillenbaugh Creek, Berwick Creek, China Creek)		13	24
61	235	Dillenbaugh Creek - Correct barrier culverts	Structural	Newaukum Management Unit (Newaukum Mainstem, North Fork, Middle Fork, Salzer Creek, Coal Creek, Dillenbaugh Creek, Berwick Creek, China Creek)		13	24

Current	Ver 3.	Project	Structural / Non-Structural	Location	Funding	Source	WRIA
62	236	Berwick Creek - Correct barrier culverts	Structural	Newaukum Management Unit (Newaukum Mainstem, North Fork, Middle Fork, Salzer Creek, Coal Creek, Dillenbaugh Creek, Berwick Creek, China Creek)		13	24
63	237	Lucas Creek - Replace culvert	Structural	Newaukum Management Unit (Newaukum Mainstem, North Fork, Middle Fork, Salzer Creek, Coal Creek, Dillenbaugh Creek, Berwick Creek, China Creek)		13	24
64	238	Lucas Creek - Replace culvert	Structural	Newaukum Management Unit (Newaukum Mainstem, North Fork, Middle Fork, Salzer Creek, Coal Creek, Dillenbaugh Creek, Berwick Creek, China Creek)		13	24
65	242	Skookumchuck River - Correct barrier culverts	Structural	Skookumchuck Management Unit (Skookumchuck River, Scatter Creek)		13	24

Current	Ver 3.	Project	Structural / Non-Structural	Location	Funding	Source	WRIA
66	244	Skookumchuck River - Twin culverts under Main St. at 11th	Structural	Skookumchuck Management Unit (Skookumchuck River, Scatter Creek)		13	24
67	175	Increased stormwater on-site detention and retention	Structural	Basin-wide	Local	1,4	22-23
68	185	Levees	Structural	Basin-wide	Regional	1	22-23
69	186	Major water retention (dams)	Structural	Basin-wide	Regional	1	22-23
70	187	Minor water retention	Structural	Basin-wide	Regional	1	22-23
71	188	Off-Channel Storage (conservation easements)	Structural	Basin-wide	Regional	1	22-23
72	190	Lewis County PUD Upstream Storage Phase 2 Studies	Structural	Basin-wide		4	22-23
73	191	Regional Flood Detention Facilities	Structural	Basin-wide		5,11	22-23
74	193	Replace the existing culvert at Harris Creek under State Street with a three-sided structure	Structural	Oakville		2	22-23
75	255	Skookumchuck Dam Modifications	Structural	Basin-wide		15	22,23
76	195	Wastewater outfall protection	Structural	Basin-wide	? (Local)	1,4	23-24
77	247	Alpha Creek	Structural			15	
78	248	Above Hanlon	Structural			15	
79	249	Lake Creek	Structural			15	
80	250	Lost Creek	Structural			15	
81	251	Charles Hump	Structural			15	
82	252	Little Elk Creek	Structural			15	
83	253	Bunker Creek	Structural			15	
84	254	Upper Deep Creek	Structural			15	

## REDUCTION OF DAMAGE TO EXISTING

1	31	Protect access to Satsop Development Park	Structural	Grays Harbor County	Local	1,4	22
2	47	Replace U.S. Highway 12 Black River Bridge	Structural			3	22
3	74	Lincoln Creek floodplain purchase	Non-structural	Lincoln Creek Road area in Lewis County	Local	1,4	23
4	104	Regrade Main Street	Structural	Bucoda	Local	1,4	23
5	177	Debris removal after a flood	Structural	Basin-wide	Local or basin-wide	1,4	22-23
6	180	Join the NFIP Community Rating System	Structural	Basin-wide	Local	1,4	22-23

Current	Ver 3.	Project	Structural / Non-Structural	Location	Funding	Source	WRIA
7	194	Evaluate or demolish homes subject to flood inundation	Structural			3	22-23
8	196	Develop a home elevation and buyout program	Structural	Basin-wide	Local / Regional	1,4	23-24
<b>BANK PROTECTION</b>							
1	22	Wynoochee River bank stabilization	Structural	Montesano	Remove	1,4	22
2	23	Mary's River Lumber bank protection	Structural	Montesano	Remove	1,4	22
3	34	Chehalis River Bank Restoration near Oakville	Structural	Grays Harbor County		9	22
4	35	Chehalis River Bank Restoration near Porter	Structural	Grays Harbor County		9	22
5	36	Satsop River Bank Stabilization near Satsop	Structural	Grays Harbor County		9	22
6	37	Satsop River Bank Stabilization near Satsop Rivera	Structural	Grays Harbor County		9	22
7	38	Keys Road Chehalis River Bank at Boat Launch near Satsop River	Structural	Grays Harbor County		9	22
8	39	West Satsop River Bank Restoration at Boat Launch	Structural	Grays Harbor County		9	22
9	102	Streambank stabilization	Structural	Bucoda	Remove	1,4	23
10	126	Install floodplain roughening along left bank of Chehalis River downstream of Sickman-Ford Bridge	Structural			3	23
11	217	Independence Road bank protection	Structural	Lincoln Management Unit (Lincoln Creek, Independence Creek, Garrard Creek, Gaddis Creek, Rock/Williams Creek, Bunker Creek, Scammon Creek, Mill Creek, Stearns Creek)		13	24

Current	Ver 3.	Project	Structural / Non-Structural	Location	Funding	Source	WRIA
12	245	Skookumchuck River - streambank stabilization	Structural	Skookumchuck Management Unit (Skookumchuck River, Scatter Creek)		13	24
13	174	Develop a technical assistance program for bank stabilization and/or debris removal	Non-structural	Lewis County		2	22-23
14	178	Biostabilization (bank stabilization with riparian vegetation)	Structural	Basin-wide	Remove	1,4	22-23
<b>CONVEYANCE CAPACITY</b>							
1	24	Open migration zone of the Satsop	Structural	Satsop River	Remove	1,4	22
2	25	Dredge Lake Sylvia	Structural	Montesano	Local	1,4	22
3	26	Open relic channel at Marys River oxbow	Structural	Grays Harbor County	Local	1,4	22
4	43	Widen Stream channel at MP 8.2 of the South Bank Road.	Structural	Grays Harbor County		12	22
5	122	Realign Dillenbaugh Creek	Structural	City of Chehalis		10	23
6	125	Remove push-up levee downstream of Sickman-Ford Bridge	Structural			3	23
7	208	Galvin Road area; downstream Grand Mound - Oxbow reconnection	Structural	Chehalis Mainstem Management Unit		13	24
8	209	Oakville backwater - Oxbow reconnection	Structural	Chehalis Mainstem Management Unit		13	24
9	210	Porter area - Oxbow reconnection	Structural	Chehalis Mainstem Management Unit		13	24
10	211	River Miles 20 to 79 - Reconnect and restore off-channel habitat	Structural	Chehalis Mainstem Management Unit		13	24
11	212	State Route 6 oxbow - Oxbow reconnection	Structural	Chehalis Mainstem Management Unit		13	24

Current	Ver 3.	Project	Structural / Non-Structural	Location	Funding	Source	WRIA
12	213	Horseshoe Lake oxbow - Oxbow reconnection	Structural	Chehalis Mainstem Management Unit		13	24
13	214	Pheasant Farm Fords Prairie - High flow side channels	Structural	Chehalis Mainstem Management Unit		13	24
14	228	Dillenbaugh Creek - Oxbow reconnection	Structural	Newaukum Management Unit (Newaukum Mainstem, North Fork, Middle Fork, Salzer Creek, Coal Creek, Dillenbaugh Creek, Berwick Creek, China Creek)		13	24
15	229	Salzer Creek - Oxbow reconnection	Structural	Newaukum Management Unit (Newaukum Mainstem, North Fork, Middle Fork, Salzer Creek, Coal Creek, Dillenbaugh Creek, Berwick Creek, China Creek)		13	24

Current	Ver 3.	Project	Structural / Non-Structural	Location	Funding	Source	WRIA
16	230	Salzer Creek - Oxbow reconnection; wetland connection	Structural	Newaukum Management Unit (Newaukum Mainstem, North Fork, Middle Fork, Salzer Creek, Coal Creek, Dillenbaugh Creek, Berwick Creek, China Creek)		13	24
17	239	Salzer Creek - Backwater control	Structural	Newaukum Management Unit (Newaukum Mainstem, North Fork, Middle Fork, Salzer Creek, Coal Creek, Dillenbaugh Creek, Berwick Creek, China Creek)		13	24
18	189	Beneficial sediment management (dredging)	Structural	Basin-wide	Regional	1	22-23

## REGULATORY PROGRAMS

1	10	Continue enforcement of existing land use regulations and permitting processes	Non-structural	Grays Harbor County		9	22
2	84	Revise shoreline regulations to encourage "shoreline protective structures" to be "bioengineered".	Non-structural	Thurston County		6	23
3	130	Floodplain conservation easement program	Non-structural	Basin-wide	Local / Regional	1,4	22-23
4	131	Improve floodplain regulations	Non-structural	Basin-wide	Local / Regional	1,4	22-23
5	132	Tax breaks for removing structures from floodplain	Non-structural	Basin-wide	Remove	1,4	22-23
6	133	Penalization for building in the floodplain	Non-structural	Basin-wide	Remove	1,4	22-23

Current	Ver 3.	Project	Structural / Non-Structural	Location	Funding	Source	WRIA
7	138	Reevaluate land uses and zoning based on new mapping	Non-structural	Basin-wide	Local	1,4	22-23
8	173	Improve floodplain and stormwater regulations	Non-structural	Centralia		2	22-23
<b>PLANNING/IMPLEMENTING AND DATA</b>							
1	1	Cumulative downstream flood impact analysis	Non-structural	Lower basin	Remove	1,4	22
2	4	Develop preliminary master plan	Non-structural	Aberdeen		7	22
3	5	Begin phased implementation	Non-structural	Aberdeen		7	22
4	7	Evaluate flooding impacts	Non-structural	Aberdeen		7	22
5	9	Revise Thurston County's Comprehensive Flood Hazard Management Plan	Non-structural	Thurston County		2	22
6	11	Evaluate revisions to FEMA mapping	Non-structural	Grays Harbor County		9	22
7	12	Continue inter-jurisdictional coordination	Non-structural	Grays Harbor County		9	22
8	16	Use new design, construction, and maintenance standards	Non-structural	Grays Harbor County		9	22
9	17	Assess and evaluate alternative solutions to address flooding between MP 1 and MP 5.	Non-structural	Grays Harbor County		12	22
10	60	Chehalis Basin Project	Structural	Aberdeen		7	22
11	62	Remap high groundwater areas	Non-structural	Thurston County	Local	1,4	23
12	63	Augment Chehalis Tribe Flood Plan with 2-, 5-, and 10-year recurrence interval maps	Non-structural	Chehalis Reservation	Remove (completed)	1,4	23
13	64	Berwick Creek Drainage Plan	Non-structural	Chehalis and Lewis County	Local (probably to be done by DOT)	1,4,11	23
14	65	China Creek Drainage Plan	Non-structural	Lewis County and Centralia	Local / Twin Cities Project	1,4,11	23
15	66	Rochester Stormwater Plan	Non-structural	Rochester	Local	1,4	23

Current	Ver 3.	Project	Structural / Non-Structural	Location	Funding	Source	WRIA
16	67	Study of fill adjacent to Harris Creek to determine if it should be removed	Non-structural	Harris Creek, Chehalis Reservation	? (Local)	1,4	23
17	69	Skookumchuck River scour potential study	Non-structural	Skookumchuck River	Twin Cities project	1,4	23
18	70	Construct a 2-D flow model	Non-structural	Chehalis Reservation specifically and basin-wide	Remove	1,4	23
19	71	Model effects of removing/modifying the Sickman-Ford Bridge Approach	Non-structural	Sickman-Ford Bridge	Local with regional support	1,4	23
20	77	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 monies become available.	Non-structural	Thurston County		6	23
21	79	Remap the floodplains for all rivers, streams, and high groundwater areas and update the Flood Insurance Rate Maps (FIRMs)	Non-structural	Thurston County		6	23
22	80	Acquire MIKE 11, a three-dimensional hydrological modeling software package and AQUARIUS, a USGS standard stream flow modeling software package.	Non-structural	Thurston County		6	23
23	81	Develop mapping products to achieve all flood maps and data sets so they can be reused at a later date.	Non-structural	Thurston County		6	23
24	83	Undertake a study of repetitive public cost losses, this would include residential structures, but also include properties such as livestock, out-buildings and rescue costs not already identified by FEMA	Non-structural	Thurston County		6	23
25	85	Reevaluate land uses and zoning based upon new floodplain maps.	Non-structural	Thurston County		6	23

Current	Ver 3.	Project	Structural / Non-Structural	Location	Funding	Source	WRIA
26	86	Work with others to determine the width and conditions of buffers along river and stream shorelines	Non-structural	Thurston County		6	23
27	87	Draft a Comprehensive Plan policy which encourages the creation and use of wetland mitigation bank.	Non-structural	Thurston County		6	23
28	88	Prepare new drainage basin in priority areas such as Salmon and Yelm Creeks	Non-structural	Thurston County		6	23
29	91	Update Hazards Data Sets/Maps, Identify Data Gaps and Collect Missing Data Sets	Non-structural	Lewis County		11	23
30	134	Channel migration zone mapping and analysis and the extent of high quality riparian habitat	Non-structural	Basin-wide	Local / Regional	1,4,11	22-23
31	135	Channel migration analysis	Non-structural	City of Chehalis to Grays Harbor County	Remove	1,4	22-23
32	136	Survey of river cross-sections	Non-structural	Basin-wide	Local / Regional (may be done by Corps or FEMA)	1,4	22-23
33	137	Remap floodplains	Non-structural	Basin-wide	Local / Regional (Being done by FEMA)	1,4	22-23
34	139	Study of woody debris in conjunction with flooding	Non-structural	Basin-wide	Local / Regional	1,4	22-23
35	140	Study of aggregates	Non-structural	Basin-wide	Local / Regional	1,4	22-23
36	142	Study of failed riprap	Non-structural	Basin-wide	Remove	1,4	22-23
37	143	Conduct studies needed to design proposed mitigation strategies	Non-structural	Basin-wide	Local / Regional	1,4	22-23
38	144	Investigate conditions near Wickett levee	Non-structural	Chehalis Reservation	Remove (completed)	1,4	22-23
39	145	Determine cause of water backup over Highway 6	Non-structural	Highway 6	State / DOT	1,4	22-23

Current	Ver 3.	Project	Structural / Non-Structural	Location	Funding	Source	WRIA
40	146	Hydraulic model	Non-structural	Basin-wide	Regional (may be done by Corps of Engineers or FEMA)	1,4	22-23
41	147	Monitoring program on channel conditions	Non-structural	Basin-wide	Remove	1,4	22-23
42	148	Study of impact of recent development of trucking and warehouse facilities	Non-structural	Basin-wide	Remove	1,4	22-23
43	149	Evaluate how groundwater impacts flooding events	Non-structural	Basin-wide	Regional (in progress by USGS and Partnership)	1,4	22-23
44	150	Riparian habitat inventory	Non-structural	Basin-wide	Partnership	1,4	22-23
45	151	Develop a floodplain property acquisition program	Non-structural	Basin-wide	Local / Regional	1,4	22-23
46	159	Seamless LiDAR	Non-structural	Chehalis mainstem and major tributaries		4	22-23
47	161	Coordinated Study (data on the Twin Cities Project)	Non-structural	Basin-wide		4	22-23
48	163	Evaluate river channel responses to influx and deposition of sediment in vicinity of the Chehalis Reservation	Non-structural	Chehalis Tribe		2	22-23
49	164	Conduct a study to determine volume, placement, and potential impacts of flood on failed riprap placed by Thurston County on the Chehalis River bank adjacent to Independence Road	Non-structural	Chehalis Tribe		2	22-23
50	165	Identify and conduct studies that would need to be accomplished in order to design the proposed mitigation strategies (such as raising Moon Road)	Non-structural	Chehalis Tribe		2	22-23

Current	Ver 3.	Project	Structural / Non-Structural	Location	Funding	Source	WRIA
51	166	Coordinate with the Flood Authority to develop a dynamic model of the middle basin to assess effects of future basin development on the flood hydrology at the Chehalis Reservation.	Non-structural	Chehalis Tribe		2	22-23
52	167	Study the surface water and runoff impact of recent large trucking and warehouse facilities built in the Basin.	Non-structural	Public Comment		2	22-23
53	168	Study groundwater/surface water interaction	Non-structural	Grays Harbor - will submit form		2	22-23
54	169	Study impacts and feasibility of upstream storage on flood elevations and summer low flows.	Non-structural	Lewis County PUD		2	22-23
55	170	A decision support tool for watershed planning	Non-structural		Chehalis River Basin	2	22-23
56	258	Forest Conservation Study	Structural	Basin-wide		15	22,23
<b>EDUCATION AND PUBLIC INFORMATION</b>							
1	90	Develop a community-wide flood hazard educational outreach program	Non-structural	Chehalis Tribe		2	23
2	152	Provide educational materials on flood hazard management	Non-structural	Basin-wide	Local	1,3,4	22-23
3	153	Provide flood proofing guidance to residents	Non-structural	Basin-wide	Local	1,4,9	22-23
4	154	Establish a Regional Flood Awareness Week	Non-structural	Basin-wide	Regional	1,4	22-23
5	257	Public Information on Beaver Reintroduction	Structural	Basin-wide		15	22,23
6	259	Agricultural Drainage Removal public information	Structural	Basin-wide		15	22,23
7	260	Low-Impact Development public information	Structural	Basin-wide		15	22,23
8	246	Inform the public about how they can best protect habitat on their own land.	Non-structural	Basin-wide		14	23,24
<b>GOVERNANCE AND MANAGEMENT</b>							
1	155	Form a flood district	Non-structural	Basin-wide	Local / Regional	1,4	22-23

Current	Ver 3.	Project	Structural / Non-Structural	Location	Funding	Source	WRIA
<b>EMERGENCY RESPONSE AND PREPAREDNESS</b>							
1	2	Flood Hazard Warning Policies	Non-structural	Grays Harbor County	Remove	1,4	22
2	3	Manage Wynoochee dam for flood control	Non-structural	Wynoochee dam	Local / Corps	1,4	22
3	6	Standby power system	Non-structural	Aberdeen		7	22
4	15	Improve flood monitoring system	Non-structural	Grays Harbor County		9	22
5	27	Improve gauge system in Grays Harbor County	Structural	Grays Harbor County	Local	1,4	22
6	28	Acquire generator for City Hall	Structural	Montesano	Local	1,4	22
7	29	Construct drinking water reservoir	Structural	Montesano	Local	1,4	22
8	30	Install generator at Grays Harbor Fairgrounds	Structural	Grays Harbor Fairgrounds	Local	1,4	22
9	72	Improve flood notification and response program	Non-structural	Bucoda	Remove	1,4	23
10	73	Manage Skookumchuck dam for flood control	Non-structural	Skookumchuck dam	Twin Cities project	1,4	23
11	76	Develop evacuation plans for communities and residents situated downstream from the Nisqually and Skookumchuck River Dams.	Non-structural	Thurston County		6	23
12	78	Develop a southeast flood detour plan for the Thurston County Comprehensive Emergency Management Plan	Non-structural	Thurston County		6	23
13	89	Implement Comprehensive Emergency Management Plan	Non-structural			3	23
14	92	Public Assistance - Flood Response	Non-structural	Lewis County		11	23
15	93	Headwaters Warning and Flood Alleviation	Non-structural	Lewis County		11	23
16	127	Acquire facilities and equipment	Structural			3	23
17	128	Add gauge just below the Wynoochee Dam	Structural	Grays Harbor County		2	23
18	129	Consider adding rain gauges	Structural	Grays Harbor County		2	23
19	156	Evaluate opportunities for flood warning systems	Non-structural	Basin-wide	In progress	1,3,4	22-23
20	157	Develop and maintain a specific flood warning program	Non-structural	Basin-wide	Local	1,4	22-23

Current	Ver 3.	Project	Structural / Non-Structural	Location	Funding	Source	WRIA
21	158	Address loss of power and cell phone coverage	Non-structural	Basin-wide	Local	1,4	22-23
22	162	Early Warning Program	Non-structural	Basin-wide		4	22-23
23	179	Establish critter pads to reduce livestock loss	Structural	Basin-wide	Local / agencies	1,4	22-23
<b>ECOLOGICAL SOLUTIONS</b>							
1	32	Camp Creek drainage improvements	Structural	Grays Harbor County	Local	1,4	22
2	111	Bank regrade, low bench, and riparian revegetation in lower 10 miles of Newaukum River, South Fork Chehalis and mainstem at River Mile <b>66-80?</b>	Structural			8	23
3	112	SR 6 Oxbow Restoration	Structural			8	23
4	113	Horseshoe Lake Oxbow Restoration	Structural			8	23
5	114	Pheasant Farm Fords Prairie Restoration	Structural			8	23
6	115	Salzer Creek from Mouth to Fairgrounds Restoration	Structural			8	23
7	116	Sewage Treatment Plant near Dillenbaugh Creek demolition	Structural			8	23
8	117	Newaukum Valley Golf Course enhancements	Structural			8	23
9	118	North Fork Newaukum riparian and floodplain restoration	Structural			8	23
10	119	Skookumchuck River upstream of river mile 10 wetlands, side channels, and floodplain restoration	Structural			8	23
11	120	Mainstem Chehalis downstream of Ground Mound Enhancement	Structural			8	23
12	261	Main Stem Schueber Ditch	Structural			15	23
13	262	SF Chehalis, RM 0-5	Structural			15	23
14	263	SF Chehalis, Chehalis Confluence	Structural			15	23
15	264	Newaukum, Chehalis Confluence	Structural			15	23
16	265	Newaukum, Stan Hedwall Park	Structural			15	23
17	266	NF/SF Newaukum Confluence	Structural			15	23
18	267	Salzer Creek, Chehalis Confluence	Structural			15	23
19	268	Salzer Creek, Frozen Foods Site	Structural			15	23
20	269	Salzer Creek, RM 3.1	Structural			15	23
21	270	Salzer Creek, RM 4.5	Structural			15	23

Current	Ver 3.	Project	Structural / Non-Structural	Location	Funding	Source	WRIA
22	203	South Fork Chehalis - Bank regrade, low bench, riparian revegetation	Structural	Boistfort Management Unit (Upper Chehalis, South Fork Chehalis, Stillman Creek, Lake Creek)		13	24
23	207	River Miles 66 to 80 - Bank regrade, low bench, riparian revegetation	Structural	Chehalis Mainstem Management Unit		13	24
24	226	Newaukum River - Bank regrade, low bench, riparian revegetation	Structural	Newaukum Management Unit (Newaukum Mainstem, North Fork, Middle Fork, Salzer Creek, Coal Creek, Dillenbaugh Creek, Berwick Creek, China Creek)		13	24
25	227	Newaukum River/Newaukum Valley Golf Course - In-channel enhancements	Structural	Newaukum Management Unit (Newaukum Mainstem, North Fork, Middle Fork, Salzer Creek, Coal Creek, Dillenbaugh Creek, Berwick Creek, China Creek)		13	24

Current	Ver 3.	Project	Structural / Non-Structural	Location	Funding	Source	WRIA
26	231	North Fork Newaukum - riparian and floodplain restoration	Structural	Newaukum Management Unit (Newaukum Mainstem, North Fork, Middle Fork, Salzer Creek, Coal Creek, Dillenbaugh Creek, Berwick Creek, China Creek)		13	24
27	240	Upstream of River Mile 10 - Potential floodplain enhancement	Structural	Skookumchuck Management Unit (Skookumchuck River, Scatter Creek)		13	24
28	241	Lower watershed - Reconnect, enhance, restore off-channel, floodplain, wetlands	Structural	Skookumchuck Management Unit (Skookumchuck River, Scatter Creek)		13	24
29	243	Scatter Creek - Sampson Wetland Enhancement Ph. 1	Structural	Skookumchuck Management Unit (Skookumchuck River, Scatter Creek)		13	24
30	160	Ecosystem Services	Non-structural	Basin-wide		4	22-23
31	181	Protect and restore critical areas	Structural	Basin-wide	Local / Regional	1,4	22-23
32	182	Provide habitat for wildlife and fish	Structural	Basin-wide	Partnership	1,4	22-23
33	183	Encourage longer rotations between tree cutting in forests	Structural	Basin-wide	Remove	1,4	22-23
34	184	Encourage improvement of forest management practices	Structural	Basin-wide	State / DNR / Ecology / Regional	1,4	22-23

Current	Ver 3.	Project	Structural / Non-Structural	Location	Funding	Source	WRIA
35	192	Establish reforested corridors along river and stream shorelines, working with landowners and others	Structural	Thurston County		2	22-23
<b>???</b>							
1	40	Wynoochee Tracts	Structural	Grays Harbor County		9	22
2	42	Walker Bottom Area	Structural	Grays Harbor County		9	22