

<h1>CRBFA Project Subcommittee Master Projects Matrix</h1>			
<p>GOAL: “The purpose of this matrix of projects is to reflect the Chehalis River Basin Flood Authority’s priorities to provide flood relief and protection in the basin”.</p>			
<p>A.</p>	<p>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 matrix of projects is not prioritized, and is meant to serve as a baseline of projects for potential future funding. Upon approval of this list by the Chehalis River Basin Flood Authority, the goal of the Project Subcommittee will be to add details to each project, including (a.) Description, (b.) Estimated Cost, (c.) Flood Benefit, and (d.) Stage of Readiness.</p>		

<p>B.</p>	<p>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. The projects have been sorted into 9 different sections with respect to the "Project Type". Project Types were developed through the Chehalis River Basin Comprehensive Flood Hazard Management Plan; some have been modified by the CRBFA Project Subcommittee. The Project Title and Location were taken directly from the Project Source. The WRIA is the Watershed Resource Inventory Area, as developed by the Washington State Department of Ecology. The Note columns represents actions that were taken on the project by the Project Subcommittee during the course of assembling this matrix. Projects may be grouped under a main heading, i.e. "Retention Projects" or "Levies and Dikes" under Floodplain Protection. In these cases, the project heading is numbered following the project numbering sequence, and the projects under the heading are numbered in Roman Numerals. Projects highlighted in yellow are those that require some follow-up action as described in the notes column(s).</p>		
<p>C.</p>	<p>Project Source</p>		
<p>1</p>	<p>CRBFA Project List May 2011.</p>		
<p>2</p>	<p>New Projects Proposed by Flood Authority Jurisdictions (11/22/2010).</p>		
<p>3</p>	<p>Confederated Tribes of the Chehalis Reservation CFHMP (March 17, 2009).</p>		
<p>4</p>	<p>Chehalis River Basin Draft Comprehensive Flood Management Plan (June 2010).</p>		
<p>5</p>	<p>Centralia Comprehensive Flood Management and Natural Hazards Mitigation Plan Annual</p>		
<p>6</p>	<p>Thurston County Annual Progress Report - Implementing Flood Hazard Mitigation Initiatives in</p>		
<p>7</p>	<p>City of Aberdeen Public Works Master Project List (January 2011).</p>		
<p>9</p>	<p>Grays Harbor County Draft Hazard Mitigation Plan 2001.</p>		
<p>10</p>	<p>City of Chehalis - Bob Nacht.</p>		
<p>11</p>	<p>Lewis County Comprehensive Flood Hazard Management Plan.</p>		
<p>12</p>	<p>Grays Harbor County Draft Hazard Mitigation Plan - Lee Napier.</p>		
<p>13</p>	<p>Description of Potential Enhancement Projects in Upper Chehalis Watershed</p>		
<p>14</p>	<p>Chehalis Basin Watershed Management Plan</p>		
<p>15</p>	<p>Chehalis Basin Partnership - Multi-Purpose Water Storage Assessment</p>		

FLOODPLAIN PROTECTION

Number	Project Title	Structural / Non-Structural	Location	Source	WRIA	Note	Note
1	Montesano WWTP protection	Structural	Montesano	1,4	22		
2	Wellhead and water treatment protection	Structural	Montesano	1,4	22		
3	Remove road embankment fill under Baich Road approach (abandoned)	Structural	Chehalis Reservation	3	22	CTIR Chehalis Tribe Indian Reservation-No assistance from Flood Authority	Project is currently being conducted and is ongoing.
4	Wilson Creek flooding of highway	Structural	Aberdeen	7	22	Jim to check	Received comments from Larry Bledsoe - keep on the list
5	Tide gates	Structural	Aberdeen	7	22	Jim to check	Received comments from Larry Bledsoe - keep on the list
6	Raise portions of Young Street	Structural	Aberdeen	7	22	Jim to check	Received comments from Larry Bledsoe - keep on the list
7	Arthur/Randal bank of Wishkah	Structural	Aberdeen	7	22	Jim to check	Received comments from Larry Bledsoe - keep on the list
8	Raise flood gate thresholds	Structural	Aberdeen	7	22	Jim to check	Received comments from Larry Bledsoe - keep on the list
9	Mill Creek overflow dike on Schey	Structural	Aberdeen	7	22	Jim to check	Received comments from Larry Bledsoe - keep on the list
10	Mill Creek flooding	Structural	Aberdeen	7	22	Jim to check	Received comments from Larry Bledsoe - keep on the list

Number	Project Title	Structural / Non-Structural	Location	Source	WRIA	Note	Note
11	Frye Creek flooding	Structural	Aberdeen	7	22	Jim to check	Received comments from Larry Bledsoe - keep on the list
12	Sea Level Rise Problem	Structural	Aberdeen	7	22	Jim to check	Received comments from Larry Bledsoe - keep on the list
13	Salzer Creek backwater control	Structural	On Salzer Creek in Lewis County	1,4,5,11	23		
14	Regional Transportation Flood Alleviation Project Along I-5 in Lewis County	Structural	Lewis County and Centralia	5,11	23	Remove if project is closed by ACE	
15	USACE Centralia Flood Reduction Project	Structural	Lewis County and Centralia	5	23		
16	Complete storm and surface water utility projects at Meridian Heights, Mallard Pond Phase 2, and Evergreen Terrace (scheduled 2009)	Structural	Thurston County	2	23	Greg will check with Mark S.	Mark Swartout - Keep on the list
17	Scheuber Road Bypass (under Hwy 6)	Structural	City of Chehalis	10	23		
18	Elevate Main Street	Structural	City of Chehalis	10	23		
19	Increased stormwater on-site detention and retention	Structural	Basin-wide	1,4	22-23	Remove if project is closed by USACE	
20	Off-Channel Storage (conservation easements)	Structural	Basin-wide	1	22-23		
21	Determine cause of water backup over Highway 6	Non-structural	Highway 6	1,4	22-23	Moved from Planning	
22	Wynoochee Tracts/Wishkah Road	Structural	Grays Harbor County	9	22	Terry to check	
23	Walker Bottom Area/ Wishkah Road	Structural	Grays Harbor County	9	22	Terry to check	
24	Wishkah Road (Kirsh)	Structural	Grays Harbor County				

Number	Project Title	Structural / Non-Structural	Location	Source	WRIA	Note	Note
25	Retention Projects - Includes Mainstem Water Retention and Minor Water Retention	Structural	Basin-wide	1	22-23		
i	Skookumchuck Dam	Structural	Basin-wide	15	22,23	Remove if project is closed by USACE	
ii	Alpha Creek - Newaukum River	Structural - Water Storage	Lewis County	15		Hold for NRCS	
iii	Above Hanlon - South Fork Chehalis River	Structural - Water Storage	Lewis County	15		Hold for NRCS	
iv	Lake Creek - South Fork Chehalis River	Structural - Water Storage	Lewis County	15		Hold for NRCS	
v	Lost Creek - South Fork Chehalis River	Structural - Water Storage	Lewis County	15		Hold for NRCS	
vi	Charles Hump - Chehalis River	Structural - Water Storage	Lewis County	15		Hold for NRCS	
vii	Little Elk Creek - Elk Creek	Structural - Water Storage	Lewis County	15		Hold for NRCS	
viii	Bunker Creek - Deep Creek	Structural - Water Storage	Lewis County	15		Hold for NRCS	

Number	Project Title	Structural / Non-Structural	Location	Source	WRIA	Note	Note
ix	Upper Deep Creek - Deep Creek	Structural - Water Storage	Lewis County	15		Hold for NRCS	
xx	Mill Creek dam in Cosmopolis	Structural	Cosmopolis	1	22	Comments from Mark White: But I do want to know more about this mill pond in cosmopolis. I know the pond and I'm not sure how this has any impact on flooding or flood mitigation. It is a salmon bearing stream and we do not want to see it dammed again, when I don't see how it has any impact to reduce flood. Is there a study or something to show its impacts if dammed?	
xxi	Wynoochee Dam Modifications	Structural		15	23	Terry to check with Lee	
xxii	Lewis County PUD Upstream Storage Phase 3 Studies	Structural	Basin-wide	Lewis County PUD			

Number	Project Title	Structural / Non-Structural	Location	Source	WRIA	Note	Note
26	Levees and Dikes - Repair, maintenance and potential new construction	Structural	Basin-wide	1	22-23		
i	Humptulips Dike Road	Structural	Grays Harbor County	9	22	Terry to check	
ii	Trail/Dike behind Burger King	Structural	Aberdeen	7	22	Jim to check	Received comments from Larry Bledsoe - keep on the list
iii	Dike bank of Wishkah north of Hwy.	Structural	Aberdeen	7	22	Jim to check	Received comments from Larry Bledsoe - keep on the list
iv	Market Street Dike	Structural	Aberdeen	7	22	Jim to check	Received comments from Larry Bledsoe - keep on the list
v	Overtopping levee on the north end of town	Structural	Bucoda	1,4	23	Greg will check with Mark S. - keep on list. Not started due to lack of funds	
vi	Adna levee improvement	Structural	Adna	1,4	23		
vii	Enhance the existing Airport Dike	Structural	City of Chehalis	10	23		

Number	Project Title	Structural / Non-Structural	Location	Source	WRIA	Note	Note
viii	Southside Dike (Levee) certification	Non-structural	Aberdeen	7	22	Moved from Floodplain Protection, Then moved back to Floodplain Protection (comments from 3/1 Project Subcommittee meeting)	Received comments from Larry Bledsoe - work is being completed in-house and will be completed within one year

Number	Project Title	Structural / Non-Structural	Location	Source	WRIA	Note	Note
REDUCTION OF DAMAGE TO EXISTING STRUCTURES							
27	Protect access to Satsop Development Park	Structural	Grays Harbor County	1,4	22		
28	Replace U.S. Highway 12 Black River Bridge	Structural		3	22	Terry to check with Mark White	
29	Regrade Main Street	Structural	Bucoda	1,4	23	Greg will check with Mark S.	Mark S. sent to Bucoda mayor. Keep on the list.
30	Implement a home elevation and buyout program	Structural	Basin-wide	1,3,4	23-24		
31	Southside Dike (Levee) certification	Non-structural	Aberdeen	7	22	Moved from Floodplain Protection	Received comments from Larry Bledsoe - work is being completed in-house and will be completed within one year

Number	Project Title	Structural / Non-Structural	Location	Source	WRIA	Note	Note
BANK STABILIZATION							
32	Wynoochee River bank stabilization	Structural	Montesano	1,4	22		
33	Mary's River Lumber bank protection	Structural	Montesano	1,4	22	Terry to check on the name	
34	Chehalis River Bank Restoration near Oakville	Structural	Grays Harbor County	9	22		
35	Chehalis River Bank Restoration near Porter	Structural	Grays Harbor County	9	22		
36	Satsop River Bank Stabilization near Satsop	Structural	Grays Harbor County	9	22		
37	Satsop River Bank Stabilization near Satsop Rivera	Structural	Grays Harbor County	9	22		
38	Keys Road Chehalis River Bank at Boat Launch near Satsop River	Structural	Grays Harbor County	9	22		
39	Streambank stabilization	Structural	Bucoda	1,4	23	Greg will check with Mark S. - keep on list. Not started due to lack of funds	Mark S. sent to Bucoda Mayor - not started due to lack of resources
40	Install floodplain roughening along left bank of Chehalis River downstream of Sickman-Ford Bridge	Structural		3	23	CTIR-No assistance from Flood Authority	Completed
41	Independence Road bank protection	Structural	Lincoln Management Unit	13	24	Ron to check	Received comments from Bob Johnson - Keep on the list
42	Skookumchuck River - streambank stabilization	Structural	Skookumchuck Management Unit (Skookumchuck River, Scatter Creek)	13	24	Greg will check with Mark S.	Mark Swartout - Keep on the list

Number	Project Title	Structural / Non-Structural	Location	Source	WRIA	Note	Note
CONVEYANCE CAPACITY							
43	Open migration zone of the Satsop	Structural	Satsop River	1,4	22		
44	Dredge Lake Sylvia	Structural	Montesano	1,4	22		
45	Open relic channel at Marys River oxbow	Structural	Grays Harbor County	1,4	22		
46	Widen Stream channel at MP 8.2 of the South Bank Road.	Structural	Grays Harbor County	12	22	Terry to check with Lee	
47	Realign Dillenbaugh Creek	Structural	City of Chehalis/ WSDOT	10	23		
48	Remove push-up levee downstream of Sickman-Ford Bridge	Structural		3	23	CTIR-No assistance from Flood Authority	Completed
49	Beneficial sediment management (dredging)	Structural	Basin-wide	1	22-23		

Number	Project Title	Structural / Non-Structural	Location	Source	WRIA	Note	Note
PLANNING/IMPLEMENTING AND DATA COLLECTION							
50	Evaluate revisions to FEMA mapping	Non-structural	Grays Harbor County	9	22		
51	Assess and evaluate alternative solutions to address flooding between MP 1 and MP 5.	Non-structural	Grays Harbor County	12	22		
52	Remap high groundwater areas	Non-structural	Thurston County	1,4	23	Greg will check with Mark S.	Mark Swartout - Keep on the list
53	Berwick Creek Drainage Plan	Non-structural	Chehalis and Lewis County	1,4,11	23		
54	China Creek Drainage Plan	Non-structural	Lewis County and Centralia	1,4,11	23		
55	Rochester Stormwater Plan	Non-structural	Rochester	1,4	23	Greg will check with Mark S.	Mark Swartout - Keep on the list
56	Skookumchuck River scour potential study	Non-structural	Skookumchuck River	1,4	23	Remove if project is closed by ACE	
57	Model effects of removing/modifying the Sickman-Ford Bridge Approach	Non-structural	Sickman-Ford Bridge	1,4	23	Remove - Terry to check with Mark W.	CTIR-No assistance from Flood Authority
58	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	Greg will check with Mark S.	Mark Swartout - Keep on the list
59	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	Greg will check with Mark S.	Mark Swartout - Keep on the list
60	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	Greg will check with Mark S.	Mark Swartout - Keep on the list

Number	Project Title	Structural / Non-Structural	Location	Source	WRIA	Note	Note
61	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	Greg will check with Mark S.	Mark Swartout - Keep on the list
62	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	Greg will check with Mark S.	Mark Swartout - Keep on the list
63	Reevaluate land uses and zoning based upon new floodplain maps.	Non-structural	Thurston County	6	23	Greg will check with Mark S.	Mark Swartout - Keep on the list
64	Work with others to determine the width and conditions of buffers along river and stream shorelines	Non-structural	Thurston County	6	23	Greg will check with Mark S.	Mark Swartout - Keep on the list
65	Draft a Comprehensive Plan policy which encourages the creation and use of wetland mitigation bank.	Non-structural	Thurston County	6	23	Greg will check with Mark S.	Mark Swartout - Keep on the list
66	Prepare new drainage basin in priority areas such as Salmon and Yelm Creeks	Non-structural	Thurston County	6	23	Greg will check with Mark S.	Mark Swartout - Keep on the list
67	Channel migration zone mapping and analysis and the extent of high quality riparian habitat	Non-structural	Basin-wide	1,4,11	22-23		
68	Survey of river cross-sections	Non-structural	Basin-wide	1,4	22-23		
69	Study of woody debris in conjunction with flooding	Non-structural	Basin-wide	1,4	22-23		
70	Study of aggregates	Non-structural	Basin-wide	1,4	22-23		
71	Study of failed riprap	Non-structural	Basin-wide	1,4	22-23		
72	Evaluate how groundwater impacts flooding events	Non-structural	Basin-wide	1,4	22-23		

Number	Project Title	Structural / Non-Structural	Location	Source	WRIA	Note	Note
73	Evaluate river channel responses to influx and deposition of sediment in vicinity of the Chehalis Reservation	Non-structural	Chehalis Tribe	2	22-23	Terry to check with Mark White	
74	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	Terry to check with Mark White	
75	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	Terry to check with Mark White	
76	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	Terry to check with Mark White	

Number	Project Title	Structural / Non-Structural	Location	Source	WRIA	Note	Note
EDUCATION AND PUBLIC INFORMATION							
77	Develop a community-wide flood hazard educational outreach program	Non-structural	Chehalis Tribe	2	23		
78	Provide educational materials on flood hazard management	Non-structural	Basin-wide	1,3,4	22-23		
79	Provide flood proofing guidance to residents	Non-structural	Basin-wide	1,4,9	22-23		
80	Agricultural Drainage Removal public information	Structural	Basin-wide	15	22,23		
81	Low-Impact Development public information	Structural	Basin-wide	15	22,23		
82	Inform the public about how they can best protect habitat on their own land.	Non-structural	Basin-wide	14	23,24		

Number	Project Title	Structural / Non-Structural	Location	Source	WRIA	Note	Note
EMERGENCY RESPONSE AND PREPARDNESS							
83	Improve gauge system in Grays Harbor County	Structural	Grays Harbor County	1,4	22		
84	Construct drinking water reservoir	Structural	Montesano	1,4	22	Greg will check with Vickie	
85	Install generator at Grays Harbor Fairgrounds	Structural	Grays Harbor Fairgrounds	1,4	22		
86	Develop evacuation plans for communities and residents situated downstream from the Nisqually and Skookumchuck River Dams.	Non-structural	Thurston County	6	23	Ask Mark S. -Thurston County is waiting for the new FEMA H&H modeling of the two rivers	
87	Add gauge just below the Wynoochee Dam	Structural	Grays Harbor County	2	23		
88	Consider adding rain gauges	Structural	Grays Harbor County	2	23	Terry to check	
89	Address loss of power and cell phone coverage	Non-structural	Basin-wide	1,4	22-23		
90	Establish critter pads to reduce livestock loss	Structural	Basin-wide	1,4	22-23		

Number	Project Title	Structural / Non-Structural	Location	Source	WRIA	Note	Note
POTENTIAL FLOOD PROJECTS WITH ECOLOGICAL OPPORTUNITIES							
91	Camp Creek drainage improvements	Structural	Grays Harbor County	1,4	22		
92	Main Stem Scheuber Ditch Reconnection and Wetland Creation	Structural		15	23	Greg to check	Message from Bob Johnson - no one can locate the origin of these projects
93	South Fork Chehalis Revegetation and Wetland Creation, RM 0 to 5	Structural		15	23	Greg to check	Message from Bob Johnson - no one can locate the origin of these projects
94	South Fork Chehalis Reconnections and Wetland Creation, South Fork and Main Stem Chehalis Confluence	Structural		15	23	Greg to check	Message from Bob Johnson - no one can locate the origin of these projects
95	Newaukum Revegetation and Wetland Creation, at Chehalis Confluence	Structural		15	23	Greg to check	Message from Bob Johnson - no one can locate the origin of these projects
96	Newaukum Reconnection and Wetland Creation, Stan Hedwall Park	Structural		15	23	Greg to check	Message from Bob Johnson - no one can locate the origin of these projects
97	North Fork/South Fork Newaukum Confluence Connections and Wetland Creation	Structural		15	23	Greg to check	Message from Bob Johnson - no one can locate the origin of these projects

Number	Project Title	Structural / Non-Structural	Location	Source	WRIA	Note	Note
98	Salzer Creek Revegetation and Wetland Creation, Chehalis Confluence	Structural		15	23	Greg to check	Message from Bob Johnson - no one can locate the origin of these projects
99	Salzer Creek Reconnection and Wetland Creation, Frozen Foods Site	Structural		15	23	Greg to check	Message from Bob Johnson - no one can locate the origin of these projects
100	Salzer Creek Revegetation and Wetland Creation, RM 3.1	Structural		15	23	Greg to check	Message from Bob Johnson - no one can locate the origin of these projects
101	Salzer Creek Revegetation and Wetland Creation, RM 4.5	Structural		15	23	Greg to check	Message from Bob Johnson - no one can locate the origin of these projects
102	South Fork Chehalis - Bank regrade, low bench, riparian revegetation	Structural	Boistfort Management Unit	13	24		
103	River Miles 66 to 80 - Bank regrade, low bench, riparian revegetation	Structural	Chehalis Mainstem Management Unit	13	24		
104	Newaukum River - Bank regrade, low bench, riparian revegetation	Structural	Newaukum Management Unit	13	24		
105	Newaukum River/Newaukum Valley Golf Course - In-channel enhancements	Structural	Newaukum Management Unit	13	24		
106	North Fork Newaukum - riparian and floodplain restoration	Structural	Newaukum Management Unit	13	24		

Number	Project Title	Structural / Non-Structural	Location	Source	WRIA	Note	Note
107	Upstream of River Mile 10 - Potential floodplain enhancement	Structural	Skookumchuck Management Unit	13	24		
108	Lower watershed - Reconnect, enhance, restore off-channel, floodplain, wetlands	Structural	Skookumchuck Management Unit	13	24		
109	Scatter Creek - Sampson Wetland Enhancement Ph. 1	Structural	Skookumchuck Management Unit	13	24		
110	Protect and restore critical areas	Structural	Basin-wide	1,4	22-23		
111	Provide habitat for wildlife and fish	Structural	Basin-wide	1,4	22-23		
112	Encourage longer rotations between tree cutting in forests	Structural	Basin-wide	1,4	22-23		
113	Encourage improvement of forest management practices	Structural	Basin-wide	1,4	22-23		
114	Establish reforested corridors along river and stream shorelines, working with landowners and others	Structural	Thurston County	2	22-23		
115	Biostabilization (bank stabilization with riparian vegetation)	Structural	Basin-wide	1,4	22-23	Moved from Bank Protection	
116	Galvin Road area; downstream Grand Mound - Oxbow reconnection	Structural	Chehalis Mainstem Management Unit	13	24	Moved from Conveyance Capacity	
117	Oakville backwater - Oxbow reconnection	Structural	Chehalis Mainstem Management Unit	13	24	Moved from Conveyance Capacity	
118	Porter area - Oxbow reconnection	Structural	Chehalis Mainstem Management Unit	13	24	Moved from Conveyance Capacity	

Number	Project Title	Structural / Non-Structural	Location	Source	WRIA	Note	Note
119	State Route 6 oxbow - Oxbow reconnection	Structural	Chehalis Mainstem Management Unit	13	24	Moved from Conveyance Capacity	
120	Horseshoe Lake oxbow - Oxbow reconnection	Structural	Chehalis Mainstem Management Unit	13	24	Moved from Conveyance Capacity	
121	Pheasant Farm Fords Prairie - High flow side channels	Structural	Chehalis Mainstem Management Unit	13	24	Moved from Conveyance Capacity	
122	Dillenbaugh Creek - Oxbow reconnection	Structural	Newaukum Management Unit	13	24	Moved from Conveyance Capacity	
123	Salzer Creek - Oxbow reconnection	Structural	Newaukum Management Unit	13	24	Moved from Conveyance Capacity	
124	Salzer Creek - Oxbow reconnection; wetland connection	Structural	Newaukum Management Unit	13	24	Moved from Conveyance Capacity	
125	Riparian habitat inventory	Non-structural	Basin-wide	1,4	22-23	Moved from Planning	
126	Develop a floodplain property acquisition program	Non-structural	Basin-wide	1,4	22-23	Moved from Planning	
127	Open old migration channels to allow river braiding	Structural	Wynoochee and Satsop Rivers	1,4	22		

Number	Project Title	Structural / Non-Structural	Location	Source	WRIA	Note	Note
128	Correct barrier culverts - improve fish passage:						
i	Porter Creek correct barrier culverts	Structural	Black Management Unit	13	23	Move from floodplain protection	
ii	Albert-Demsey Creek Tributary R7 correct barrier culverts	Structural	Black Management Unit	13	23	Move from floodplain protection	
iii	Baker-Goliath Creek correct barrier culvert	Structural	Black Management Unit	13	23	Move from floodplain protection	
iv	Bailey Fish Barrier correct barrier culvert	Structural	Black Management Unit	13	23	Move from floodplain protection	
v	Cedar Creek Road - correct barrier culvert	Structural	Black Management Unit	13	23	Move from floodplain protection	
vi	Tilley Road - replace barrier culvert	Structural	Black Management Unit	13	23	Move from floodplain protection	
vii	Upper Chehalis River -	Structural	Boistfort Management Unit	13	24	Move from floodplain protection	
viii	South Fork Chehalis -	Structural	Boistfort Management Unit	13	24	Move from floodplain protection	
ix	Stillman Creek - correct barrier culverts	Structural	Boistfort Management Unit	13	24	Move from floodplain protection	

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x	Lincoln Creek - Correct barrier culverts	Structural	Boistfort Management Unit	13	24	Move from floodplain protection	
xi	Independence Creek - Correct barrier culverts	Structural	Boistfort Management Unit	13	24	Move from floodplain protection	
xii	Garrard Creek (county and private properties) - Correct barrier culverts	Structural	Boistfort Management Unit	13	24	Move from floodplain protection	
xiii	Gaddis Creek - Correct barrier culverts	Structural	Lincoln Management Unit	13	24	Move from floodplain protection	
xiv	Rock/Williams Creek - Correct barrier culverts	Structural	Lincoln Management Unit	13	24	Move from floodplain protection	
xv	Bunker Creek - Correct barrier culverts	Structural	Lincoln Management Unit	13	24	Move from floodplain protection	
xvi	Scammon, Mill, and Stearns Creeks - Correct barrier culverts	Structural	Lincoln Management Unit	13	24	Move from floodplain protection	
xvii	Wolf-Davis Creek R6 - Correct barrier culverts	Structural	Lincoln Management Unit	13	24	Move from floodplain protection	
xviii	Harris Creek Fish Enhancement - No other information provided	Structural	Lincoln Management Unit	13	24	Move from floodplain protection	
xix	Harris Creek - Correct barrier culverts	Structural	Lincoln Management Unit	13	24	Move from floodplain protection	

Number	Project Title	Structural / Non-Structural	Location	Source	WRIA	Note	Note
xx	North Fork Newaukum - Correct barrier culverts	Structural	Newaukum Management Unit	13	24	Move from floodplain protection	
xxi	Middle Fork Newaukum - Correct barrier culverts	Structural	Newaukum Management Unit	13	24	Move from floodplain protection	
xxii	Salzer Creek - Correct barrier culverts	Structural	Newaukum Management Unit	13	24	Move from floodplain protection	
xxiii	Dillenbaugh Creek - Correct barrier culverts	Structural	Newaukum Management Unit	13	24	Move from floodplain protection	
xxiv	Berwick Creek - Correct barrier culverts	Structural	Newaukum Management Unit	13	24	Move from floodplain protection	
xxv	Lucas Creek - Replace culvert	Structural	Newaukum Management Unit	13	24	Move from floodplain protection	
xxvi	Lucas Creek - Replace culvert	Structural	Newaukum Management Unit	13	24	Move from floodplain protection	
xxvii	Skookumchuck River - Correct barrier culverts	Structural	Skookumchuck Management Unit	13	24	Move from floodplain protection	
xxviii	Skookumchuck River - Twin culverts under Main St. at 11th	Structural	Skookumchuck Management Unit	13	24	Move from floodplain protection	
xxix	Culvert projects on Hiram Hall Road	Structural	Grays Harbor	1,4	22		

Number	Project Title	Structural / Non-Structural	Location	Source	WRIA	Note	Note
xxx	Install culverts under South Bank River Road along approach to Sickman-Ford Bridge	Structural	Chehalis Reservation	3	22	CTIR in cooperation with Grays Harbor and Watershed Co-op- No assistance from Flood Authority	Tribe is doing a hydraulic analyses and is seeking funding.
xxxi	Install large-diameter culverts beneath State Road at Harris Creek	Structural	Reservation	3	22	CTIR in cooperation with Grays Harbor- No assistance from Flood Authority	Project to be completed in 2012
xxxii	Twin culverts under Main Street at 11 th	Structural	Bucoda	1,4	23	Greg will check with Mark S. - keep on list. Not started due to lack of funds	
xxxiii	Relief culvert for north side runoff	Structural	Oakville	1,4	23	Dan T. - leave in - included in the cities Flood Hazard Mitigation Plan	Dan T. - leave in - included in the cities Flood Hazard Mitigation Plan

Number	Project Title	Structural / Non-Structural	Location	Source	WRIA	Note	Note
PROGRAMMATIC SOLUTIONS							
129	Continue enforcement of existing land use regulations and permitting processes	Non-structural	Grays Harbor County	9	22		
130	Revise shoreline regulations to encourage "shoreline protective structures" to be "bioengineered".	Non-structural	Thurston County	6	23		
131	Floodplain conservation easement program	Non-structural	Basin-wide	1,4	22-23		
132	Improve floodplain regulations	Non-structural	Basin-wide	1,4	22-23		
133	Tax breaks for removing structures from floodplain	Non-structural	Basin-wide	1,4	22-23		
134	Penalization for building in the floodplain	Non-structural	Basin-wide	1,4	22-23		
135	Reevaluate land uses and zoning based on new mapping	Non-structural	Basin-wide	1,4	22-23		
136	Improve floodplain and stormwater regulations	Non-structural	Centralia	2	22-23		
137	Join the NFIP Community Rating System	Structural	Basin-wide	1,4	22-23	Moved from Reduction of Damage	
138	Form a governance body for flood planning	Non-structural	Basin-wide	1,4	22-23	Moved from Governance and Management	