

WHATCOM COUNTY COUNCIL
SURFACE WATER
WORK SESSION
Revision II

September 18, 2018

**WHATCOM COUNTY
PUBLIC WORKS DEPARTMENT**

**JON HUTCHINGS
Director**



NATURAL RESOURCES

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MEMORANDUM

TO: The Honorable Jack Louws, Whatcom County Executive, and
Honorable Members of the Whatcom County Council

THROUGH: Jon Hutchings, Director

FROM: Gary S. Stoyka, Natural Resources Program Manager

DATE: September 11, 2018

RE: September 18, 2018 Council Surface Water Work Session

Please refer to the proposed agenda below for the next Surface Water Work Session. Additional supporting documents may be distributed at or before the meeting.

AGENDA

Date:	Tuesday, September 18, 2018		
Time:	10:30 a.m. to 12:00 p.m.		
Place:	Civic Center Garden Level Conference Room		
Time	Topic	Council Action Requested	Background Information Attached
10:30 AM – 10:45 AM	Water Planning Update	Discussion	None
10:45 AM – 11:15 AM	2019-2024 Water Resources Improvement Program	Discussion	2019-2024 Water Resources Improvement Program list of projects
11:15 AM – 12:00 PM	Proposed 2019 Flood Control Zone District Budget	Discussion	Proposed 2019 Flood Control Zone District Budget

If you have questions, please feel free to call me at (360) 778-6218.

cc: Mike McFarlane Joe Rutan Paula Harris John Wolpers Mike Donahue
Beth Bushaw Jeff Hegedus John Thompson Kraig Olason Erika Douglas
Tyler Schroeder Josh Fleischmann Karen Frakes Jennifer Schneider Jill Nixon
Sue Blake Roland Middleton Dana Brown-Davis Atina Casas Cathy Craver
George Boggs Ryan Ericson Lonni Cummings Kristi Felbinger Mark Personius

Item No.	Project Description	Database ID No.	BES	Previous Expenditures			2019			2020			2021			2022			2023			2024			Total
				Phase	Amount	Source	Phase	Amount	Source	Phase	Amount	Source	Phase	Amount	Source	Phase	Amount	Source	Phase	Amount	Source	Phase	Amount	Source	
LAKE WHATCOM STORMWATER																									
1	Agate Heights Estate/Bay Lane, Phases 2 (LW CSP# CIP-11, CIP-12): System upgrades to improve water quality--bioinfiltration swales, reduce ditch erosion, media filter drains, and treatment vaults	07-102	60.5	PE \$ 150,000	REET	PE \$ 50,000	REET	PE		PE		PE		PE		PE		PE		PE		PE		\$ 900,000	
				RW		PE		PE		PE		PE		PE		PE		PE		PE		PE			
				CN		CN \$ 700,000	REET	CN		CN		CN		CN		CN		CN		CN		CN			
2	Northshore Drive,Edgewater Lane (LW CIP-18): System upgrades to improve water quality-biofiltration swales, reduce ditch erosion	14-002	62.2	PE		PE \$ 160,000	REET	PE		PE		PE		PE		PE		PE		PE		PE		\$ 620,000	
				RW		RW \$ 10,000	REET	RW		RW		RW		RW		RW		RW		RW		RW			
				CN		CN		CN \$ 450,000	REET	CN		CN		CN		CN		CN		CN		CN			
3	Silver Beach Creek (LW CSP# CIP-04, CIP-06): Main channel restoration below Hillsdale using natural vegetation	07-095	60.5	PE		PE \$ 20,000	REET	PE \$ 100,000	REET	PE \$ 30,000	REET	PE \$ 120,000	REET	PE \$ 20,000	REET	PE		PE		PE		PE		\$ 1,160,000	
				RW		RW \$ 10,000	REET	PE		PE		RW \$ 20,000	REET	RW		PE		RW		PE		RW			
				CN		CN		RW		CN \$ 260,000	REET	CN		CN		CN		CN		CN		CN \$ 600,000	REET		
4	Sudden Valley (LW CSP# CIP-16, CIP-17): Drainage systems upgrades and outfall retrofits	13-004	46.3	PE		PE \$ 15,000	REET	PE \$ 30,000	REET	PE \$ 120,000	REET	PE		PE		PE		PE		PE		PE		\$ 750,000	
				RW		RW		RW \$ 10,000	REET	RW		RW		RW		RW		RW		RW		RW			
				CN		CN		CN		CN \$ 575,000	REET	CN		CN		CN		CN		CN		CN			
5	Lowell Drive and Cedarbrook Court (LW CIP-19): Construction 2022. End of pipe, media filtration, and natural drainage system improvements	14-003	62.2	PE		PE		PE		PE \$ 125,000	REET	PE \$ 75,000	REET	PE		PE		PE		PE		PE		\$ 790,000	
				RW		RW		RW		RW \$ 10,000	REET	RW		RW		RW		RW		RW		RW			
				CN		CN		CN		CN		CN		CN		CN		CN		CN		CN \$ 580,000	REET		
6	Glen Cove Lane/Lakeside Street (LW CIP-20): Construction 2023. System upgrade to improve water quality-bioinfiltration swales, filter vaults, media filter drains, and rain gardens	15-002	58.2	PE		PE		PE		PE \$ 125,000	REET	PE \$ 75,000	REET	PE		PE		PE		PE		PE		\$ 620,000	
				RW		RW		RW		RW \$ 10,000	REET	RW		RW		RW		RW		RW		RW			
				CN		CN		CN		CN		CN		CN		CN		CN		CN		CN \$ 410,000	REET		
7	South Bay Drive: Constriction 2024. System upgrades to improve water quality -biofiltration swales, reduce ditch erosion	16-010	62.2	PE		PE		PE		PE		PE		PE		PE		PE		PE		PE		\$ 220,000	
				RW		RW		RW		RW		RW		RW		RW		RW		RW		RW			
				CN		CN		CN		CN		CN		CN		CN		CN		CN		CN			
8	Strawberry Point/Lake Whatcom Blvd: Constriction 2025. System upgrades to improve water quality-vaults, biofiltration swales, channel restoration	17-001	62.2	PE		PE		PE		PE		PE		PE		PE		PE		PE		PE		\$ 125,000	
				RW		RW		RW		RW		RW		RW		RW		RW		RW		RW			
				CN		CN		CN		CN		CN		CN		CN		CN		CN		CN			
BIRCH BAY WATERSHED & AQUATIC RESOURCES MANAGEMENT																									
9	Birch Bay Drive Outfall Improvement (PW-3) & Birch Bay Drive & Petticote Lane Storm Drain Improvements (PW-2): Replace CBs, upsize pipes, clean and re-establish roadside ditches on Birch Bay Drive from Holeman Avenue to Pt. Whitehorn Rd	07-242	37.8	PE \$ 137,000		PE \$ 122,500	BBWARM	PE		PE		PE		PE		PE		PE		PE		PE		\$ 1,064,500	
				RW		RW \$ 10,000	BBWARM	RW		RW		RW		RW		RW		RW		RW		RW			
				CN		CN \$ 200,000	REET	CN		CN		CN		CN		CN		CN		CN		CN			
				CN		CN \$ 50,000		CN \$ 545,000	BBWARM	CN		CN		CN		CN		CN		CN		CN			
10	Harborview Road Drainage Improvements Phase 1 (CR-1): Install new low-level system along Birch Bay Drive (CR-2, HL-1): Upsize culverts and install new high level system along Harborview Road to carry upland water directly to Birch Bay	07-217	52.0	PE \$ 269,000		PE \$ 36,000	BBWARM	PE \$ 200,000	BBWARM	PE \$ 30,000	BBWARM	PE \$ 200,000	REET	PE		PE		PE		PE		PE		\$ 1,685,000	
				RW \$ 30,000		RW		RW \$ 30,000	BBWARM	RW		RW		RW		RW		RW		RW		RW			
				CN		CN		CN \$ 200,000	REET	CN		CN		CN		CN		CN		CN		CN			
				CN		CN		CN \$ 920,000	BBWARM	CN		CN		CN		CN		CN		CN		CN			
11	Lora Lane Drainage & Tide Gate Modifications (TC1-2): Replace existing tide gate structure and repair embankment, install Type 2 CB and culvert under Birch Bay Drive	18-008	42.5	PE		PE \$ 66,000	BBWARM	PE \$ 34,500	BBWARM	PE \$ 15,000	BBWARM	PE \$ 200,000	REET	PE		PE		PE		PE		PE		\$ 450,500	
				RW		RW		RW		RW		RW		RW		RW		RW		RW		RW			
				CN		CN		CN		CN \$ 135,000	BBWARM	CN		CN		CN		CN		CN		CN			
12	Semiahmoo Drive Drainage Improvements - North (BP-2): Upsize culverts and re-establish roadside ditch on east side of Semiahmoo Drive	18-009	50.3	PE		PE \$ 50,000	BBWARM	PE		PE		PE		PE		PE		PE		PE		PE		\$ 200,000	
				RW		RW		RW		RW		RW		RW		RW		RW		RW		RW			
				CN		CN		CN		CN \$ 150,000	BBWARM	CN		CN		CN		CN		CN		CN			
13	Holeman Avenue Storm Drain Improvements (PW-1): Replace CBs, upsize culverts, re-establish ditch on Holeman Ave near Birch Bay Drive	07-242	37.8	PE		PE		PE \$ 85,000	BBWARM	PE		PE		PE		PE		PE		PE		PE		\$ 285,000	
				RW		RW		RW		RW		RW		RW		RW		RW		RW		RW			
				CN		CN		CN		CN		CN		CN		CN		CN		CN		CN			
14	Wooldridge Ave/Sunset Dr Drainage Improvements (TC-2): Improve drainage system to reduce local flooding and incorporate water quality treatment	13-007	52.2	PE		PE		PE		PE \$ 200,000	REET	PE		PE		PE		PE		PE		PE		\$ 1,220,000	
				RW		RW		RW		RW		RW		RW		RW		RW		RW		RW			
				CN		CN		CN		CN		CN		CN		CN		CN		CN		CN			
				CN		CN		CN		CN		CN		CN		CN		CN		CN		CN \$ 200,000	REET		
				CN		CN		CN		CN		CN		CN		CN		CN		CN		CN \$ 800,000	BBWARM		
15	Semiahmoo Drive Drainage Improvements - South (BP-5): Upsize culverts and re-establish roadside ditch on east side of Semiahmoo Drive	18-010	48.6	PE		PE		PE		PE		PE		PE		PE		PE		PE		PE		\$ 65,000	
				RW		RW		RW		RW		RW		RW		RW		RW		RW		RW			
				CN		CN		CN		CN		CN		CN		CN		CN		CN		CN			
16	Birch Bay Drive & Pedestrian Facility Project: BBWARM contribution toward stormwater improvements as part of larger road fund project in Birch Bay	07-030	72.1	PE		PE		PE		PE		PE		PE		PE		PE		PE		PE		\$ 250,000	
				RW		RW		RW		RW		RW		RW		RW		RW		RW		RW			
				CN		CN		CN		CN \$ 250,000	BBWARM	CN		CN		CN		CN		CN		CN			
LAKE SAMISH STORMWATER																									
17	Shallow Shore Drive Drainage Improvements	18-007	44.4	PE		PE		PE \$ 50,000	REET	PE		PE		PE		PE		PE		PE		PE		\$ 230,000	
				RW		RW		RW		RW		RW		RW		RW		RW		RW		RW			
				CN		CN		CN		CN		CN		CN		CN		CN		CN		CN			

Item No.	Project Description	Database ID No.	BES	Previous Expenditures			2019			2020			2021			2022			2023			2024			Total		
				Phase	Amount	Source	Phase	Amount	Source	Phase	Amount	Source	Phase	Amount	Source	Phase	Amount	Source	Phase	Amount	Source	Phase	Amount	Source			
RIVER & FLOOD																											
18	Marietta Acquisition -- Acquire properties in repetitive flood loss area	07-002	79.6	RW	\$ 334,000	FCZD	RW	\$ 83,000	FCZD	RW			RW			RW			RW			RW		Total through 2019: \$2,046,000 FCZD Total: \$585,000			
				RW	\$ 706,000	FEMA Fed/State grant	RW	\$ 233,000	FEMA Fed/State grant	RW	\$100,000		RW	\$100,000		RW	\$100,000		RW	\$100,000		RW	\$100,000				
				RW	\$ 117,000	ESRP grant	RW			RW			RW			RW			RW			RW				RW	\$100,000
				CN	\$ 151,000	FCZD	CN	\$ 17,000	FCZD	CN	\$25,000		CN	\$25,000		CN	\$25,000		CN	\$25,000		CN	\$25,000			CN	\$25,000
				CN	\$ 258,000	FEMA Fed/State grant	CN	\$ 119,000	FEMA Fed/State grant	CN			CN			CN			CN			CN				CN	
19	Truck Road Emergency Erosion Protection -- Install passive riprap to protect road; mitigation needed in 2019	18-002	59.4	PE	\$ 16,000	FCZD/Roads (50/50)	PE	\$ 20,000	FCZD/Roads (50/50)	PE			PE			PE			PE			PE		Project Total: \$541,000			
				CN	\$ 455,000	FCZD/Roads (50/50)	CN	\$ 50,000	FCZD/Roads (50/50)	CN			CN			CN			CN			CN					
20	Marine Drive Levee Repair -- Repair eroded areas of levee crest and backslope	15-004	61.4	PE	\$ 49,000	FCZD	PE	\$ 5,000	FCZD	PE			PE			PE			PE			PE		Project Total: \$286,000			
				CN	\$ 30,000	WDFW	CN			CN			CN			CN			CN			CN					
				CN	\$ 202,000	FCZD	CN			CN			CN			CN			CN			CN				CN	
21	High Creek -- Recommended projects to address ongoing sedimentation	07-125	57.1	PE	\$ 429,000	FCZD	PE			PE			PE			PE			PE			PE		Project Total: \$1,564,000			
				RW	88,000	FCZD	RW			RW			RW			RW			RW			RW					
				CN	\$ 987,000	FCZD	CN	\$ 60,000.00	FCZD	CN			CN			CN			CN			CN				CN	
22	Hannegan Levee Rehabilitation (USACE) -- Repair of levee slope and riprap protection along approximately 300 ft of levee	18-003	60.5	PE	\$ 5,000	FCZD	PE	\$ 5,000	FCZD	PE			PE			PE			PE			PE		Project Total: \$491,000 FCZD Total: \$74,000			
				PE			PE	\$ 27,000	USACE	PE			PE			PE			PE			PE					
				CN			CN	\$ 64,000	FCZD	CN			CN			CN			CN			CN				CN	
				CN			CN	\$ 362,000	USACE	CN			CN			CN			CN			CN				CN	
				CN			CN	\$ 28,000	LE Subzone	CN			CN			CN			CN			CN				CN	
23	Sande-Williams (DD#2/USACE) -- Cost-share to DD#2 for repair of levee slope and riprap protection along approximately 680 ft of levee	18-004	39.5	CN			PE	\$ 29,000	USACE	PE			PE			PE			PE			PE		Project Total: \$521,000 FCZD Total: \$70,000			
				PE			CN	\$ 70,000	FCZD	CN			CN			CN			CN			CN					
				CN			CN	\$ 392,000	USACE	CN			CN			CN			CN			CN				CN	
				CN			CN	\$ 30,000	DD#2	CN			CN			CN			CN			CN				CN	
24	Abbott Levee Erosion Protection -- Construct passive riprap erosion protection along approximately 500 ft of levee	18-005	66.5	PE	\$ 25,000	FCZD/Roads (50/50)	PE	\$ 135,000	FCZD	PE			PE			PE			PE			PE		Project Total: \$1,160,000 FCZD Total: \$577,500			
				CN			CN	\$ 430,000	FCZD	CN			CN			CN			CN			CN					
				CN			CN	\$ 550,000	Roads	CN			CN			CN			CN			CN				CN	
				CN			CN	\$ 20,000	LE Subzone	CN			CN			CN			CN			CN				CN	
25	Rayhorst Levee Improvements -- Widen levee crest and flatten backslope (SWIF project)	16-001	60.5	PE	\$ 5,000	FCZD	PE	\$ 25,000	FCZD	PE			PE			PE			PE			PE		Project Total: \$90,000			
				CN			CN	\$ 60,000	FCZD/DD1	CN			CN			CN			CN			CN					
26	Red River Levee Stabilization -- Restore levee prism and bank protection (SWIF project)	16-004	52.9	PE	\$ 10,000	FCZD	PE	\$ 35,000	FCZD	PE			PE			PE			PE			PE		Project Total: \$245,000			
				CN			CN	\$ 200,000	FCZD/DD1	CN			CN			CN			CN			CN					
27	Twin View Levee Improvements -- Widen levee crest and flatten backslope (SWIF project)	16-002	50.3	PE			PE	\$ 5,000	FCZD	PE	\$ 25,000		PE			PE			PE			PE		Project Total: \$90,000			
				CN			CN			CN	\$ 60,000		CN			CN			CN			CN					
28	Lynden Levee Improvement -- Combine drainages and replace two culverts through levee with one larger culvert (SWIF project)	16-003	64.5	PE	\$ 30,000		PE	\$ 80,000	FCZD	PE	\$ 40,000		PE			PE			PE			PE		Project Total: \$1,150,000			
				PE			PE			PE			PE			PE			PE			PE					
				RW			CN			CN	\$1,000,000		CN			CN			CN			CN				CN	
				CN			CN			CN			CN			CN			CN			CN				CN	
29	Bertrand Creek Levee Stabilization -- Restore right and left levee prisms and install bank protection (SWIF project)	16-005	54.4	PE			PE			PE			PE	\$ 20,000		PE	\$ 20,000		PE			PE		Project Total: \$190,000			
				CN			CN			CN			CN			CN	\$ 150,000		CN	\$ 150,000		CN					
30	Upper Hampton Levee Improvements -- Widen levee crest and flatten backslope at two sites and address seepage at a third site (SWIF project)	16-006	70.4	PE			PE			PE			PE			PE			PE	\$ 25,000		PE	\$ 100,000	Construction Expected in 2025			
				RW			RW			RW			RW			RW			RW			RW	\$ 75,000				
				CN			CN			CN			CN			CN			CN			CN				CN	
31	Abbott Levee Upstream Tie-In -- Extend and realign upstream end of levee (SWIF project)	16-007	70.4	PE			PE			PE			PE	\$ 25,000		PE	\$ 100,000		PE	\$ 25,000		PE		Project Total: \$975,000			
				RW			RW			RW			RW			RW	\$ 25,000		RW			RW					
				CN			CN			CN			CN			CN			CN	\$ 800,000		CN				CN	
32	Neevel Levee Bank Stabilization -- Stabilize oversteepened section of levee (SWIF project)	16-008	49.3	PE			PE			PE			PE	\$ 20,000		PE	\$ 20,000		PE	\$ 20,000		PE		Project Total: \$190,000			
				CN			CN			CN			CN			CN	\$ 150,000		CN	\$ 150,000		CN					
33	Floodplain Acquisition -- Acquire key properties for future levee reconfiguration to reduce risk and improve habitat	07-002	79.6	RW	\$ 100,000	FCZD	RW	\$ 300,000	USFW	RW	\$ 1,000,000		RW	\$ 1,000,000		RW			RW			RW					
				RW			RW			RW			RW			RW			RW			RW					
34	Jones Creek Debris Flow Protection -- Construct deflection berm and address local access	07-105	70.6	PE	\$ 475,000	FCZD	PE	\$ 105,000	FCZD	PE	\$ 50,000		PE	\$ 50,000		PE			PE			PE					
				RW	\$ 126,000	FCZD	RW	\$ 125,000	FCZD	RW	\$ 500,000		RW	\$ 100,000		RW			RW			RW					
				RW	\$ 350,000	FEMA/State grant	RW			RW			RW			RW			RW			RW				RW	
				CN	\$ 26,000	FCZD	CN			CN			CN	\$ 250,000		CN	\$ 2,250,000		CN			CN				CN	
				CN	\$ 13,000	FEMA/State grant	CN			CN			CN			CN			CN			CN				CN	
35	Ferndale Levee Improvement -- Reconstruct and realign Ferndale and Treatment Plant Levees to improve level of protection and address deficiencies	07-104	68.9	PE			PE	\$ 225,000	FCZD	PE	\$ 200,000		PE	\$ 250,000		PE	\$ 250,000		PE	\$ 100,000		PE	\$ 50,000	Construction Expected in 2024 to 2026			
				RW			RW			RW			RW			RW			RW	\$ 100,000		RW					
				CN			CN			CN			CN			CN			CN			CN	\$ 2,000,000			CN	
				CN			CN			CN			CN			CN			CN			CN					
36	Glacier-Gallup Alluvial Fan Restoration - Remove all or part of Glacier Creek levee and construct setback levee along Gallup Creek	18-006	88.9	PE	\$ 125,000	FCZD	PE	\$ 130,000	FCZD	PE	\$ 75,000		PE	\$ 75,000		PE	\$ 75,000		PE	\$ 75,000		PE	\$ 75,000	Construction Expected in 2026			
				RW			RW			RW			RW			RW			RW			RW					
				CN			CN			CN			CN			CN			CN			CN					
37	Emergency/New Projects -- Typically repair projects that result from new damage, as needed	08-003	Varies	PE			PE	\$ 25,000	FCZD	PE	\$ 25,000		PE	\$ 25,000		PE	\$ 25,000		PE	\$ 25,000		PE	\$ 25,000	Total/year: \$425,000			
				RW			RW			RW			RW			RW			RW			RW					
				CN			CN	\$ 350,000	FCZD	CN	\$ 350,000		CN	\$ 350,000		CN	\$ 350,000		CN	\$ 350,000		CN	\$ 350,000			CN	
				CN			CN	\$ 50,000	Local sponsor	CN	\$ 50,000		CN	\$ 50,000		CN	\$ 50,000		CN	\$ 50,000		CN	\$ 50,000			CN	
NOTE: Numbers in italics are placeholders for projects still being conceived.																											

Flood Control Zone District 2019 Budget

OVERALL BUDGET SUMMARY

Budget Program Code	Original 2018 Budget		Supplemented 2018 Budget		2018 Year End Projection		Proposed 2019 Budget with ASR's	
	Revenues	Expenditures	Revenues	Expenditures	Revenues	Expenditures	Revenues	Expenditures
169100 Administration	\$ 3,646,272	\$ 615,572	\$ 3,646,272	\$ 615,572	\$ 5,021,712	\$ 615,572	\$ 4,980,712	\$ 730,746
169100 Transfers - To Stormwater		\$ 1,103,449		\$ 1,103,449		\$ 1,103,449		\$ 1,258,997
169102 Flood Response	\$ -	\$ 110,000	\$ -	\$ 110,000	\$ -	\$ 110,000	\$ -	\$ 110,000
169104 Flood Planning	\$ -	\$ 482,160	\$ 500,000	\$ 1,363,640	\$ 440,000	\$ 916,603	\$ 350,000	\$ 820,000
169106 Technical Assistance	\$ -	\$ 86,000	\$ -	\$ 86,000	\$ -	\$ 76,000	\$ -	\$ 75,000
169108 NFIP and CRS	\$ 15,000	\$ 185,000	\$ 15,000	\$ 185,000	\$ 16,000	\$ 140,000	\$ 16,000	\$ 175,000
169110 Early Warning	\$ 4,100	\$ 128,500	\$ 4,100	\$ 204,961	\$ 4,100	\$ 177,958	\$ 4,225	\$ 131,000
169112 Repair and Maintenance	\$ 80,000	\$ 682,439	\$ 80,000	\$ 1,042,257	\$ 80,000	\$ 1,039,257	\$ 730,600	\$ 2,184,439
169114 Flood Hazard Reduction	\$ 407,217	\$ 2,975,356	\$ 407,217	\$ 2,907,909	\$ 41,280	\$ 1,879,275	\$ 633,830	\$ 1,672,200
169119 Natural Resources	\$ 437,550	\$ 1,700,953	\$ 511,604	\$ 1,775,007	\$ 511,604	\$ 1,775,007	\$ 582,500	\$ 1,892,628
169120 Aquatic Invasive Species	\$ -	\$ 131,750	\$ -	\$ 131,750	\$ -	\$ 131,750	\$ -	\$ 131,750
169121 Water Planning	\$ 264,793	\$ 532,378	\$ 264,793	\$ 570,918	\$ 314,793	\$ 570,918	\$ 131,265	\$ 388,079
169700 NPDES	\$ -	\$ 187,580	\$ -	\$ 187,580	\$ -	\$ 187,580	\$ -	\$ 187,480
TOTAL	\$ 4,854,932	\$ 8,921,137	\$ 5,428,986	\$ 10,284,043	\$ 6,429,489	\$ 8,723,369	\$ 7,429,132	\$ 9,757,319
(DECREASE)/INCREASE IN FUND BALANCE	\$ (4,066,206)		\$ (4,855,058)		\$ (2,293,880)		\$ (2,328,188)	

Notes:

Assumes fall flood in 2018; 2019 budget includes funding for flood response and new repair

Starting Balance	9,279,228	BOY 2018
Projected Net Annual Activity	<u>-2,293,880</u>	
Projected Balance	6,985,348	BOY 2019
Budgeted Net Annual Activity (with ASR)	<u>-2,328,188</u>	
Add back expense lapse of 20%	<u>1,951,464</u>	
Projected Balance	6,608,624	BOY 2020

**Flood Control Zone District
2019 Budget
Work Plan and Supporting Documentation**

DETAIL FOR FCZD PROGRAM AREAS

FLOOD MAINTENANCE AND OPERATIONS									
Flood Response (169102)									
	Original 2018 Budget		Supplemented 2018 Budget		2018 Year End Projection		Proposed 2019 Budget		Assumptions/Notes
	Revenues	Expenditures	Revenues	Expenditures	Revenues	Expenditures	Revenues	Expenditures	
Wage and Benefits		\$ 10,000		\$ 10,000		\$ 10,000		\$ 10,000	
Sand and sandbags		\$ 35,000		\$ 35,000		\$ 35,000		\$ 35,000	Includes pre-deployed and sand bags for training
Preparedness training		\$ 5,000		\$ 5,000		\$ 5,000		\$ 5,000	Road and M&O employees and equipment
Sector observers during response		\$ 40,000		\$ 40,000		\$ 40,000		\$ 40,000	Road employees wages and benefits for 1 significant flood event
Construction contracts		\$ 20,000		\$ 20,000		\$ 20,000		\$ 20,000	During and immediately following response
TOTAL	\$ -	\$ 110,000	\$ -	\$ 110,000	\$ -	\$ 110,000	\$ -	\$ 110,000	Budget based on 2009 flood with cost & wage increases
NET IMPACT TO FUND BALANCE	\$ (110,000)		\$ (110,000)		\$ (110,000)		\$ (110,000)		2018 YE projection assumes fall flood
Flood Planning (169104)									
	Original 2018 Budget		Supplemented 2018 Budget		2018 Year End Projection		Proposed 2019 Budget		Assumptions/Notes
	Revenues	Expenditures	Revenues	Expenditures	Revenues	Expenditures	Revenues	Expenditures	
Lower Nooksack									
Wage and Benefits		\$ 150,000		\$ 150,000		\$ 150,000		\$ 150,000	
CFHMP refinement/update									Formal process started in late 2016
Facilitation		\$ 50,500		\$ 50,500		\$ 25,000		\$ 15,000	2018 budget for projected contract balance; CA into 2019 plus new budget for amendment if needed
Hydraulic modeling/alternatives analyses		\$ -		\$ 150,000		\$ 40,000		\$ 150,000	Contracted in 2017; CA into 2018; new BA for 2019
Engineering design / Plan development		\$ 150,000	\$ 200,000	\$ 350,000	\$ 190,000	\$ 190,000	\$ 200,000	\$ 200,000	Contract consultant in 2017 for initial phase and supplement in 2018 as work is better defined; Revenues are NEP funding
Structure surveys in overflow corridors		\$ 100,000	\$ 50,000	\$ 150,000			\$ 150,000	\$ 150,000	Likely 2019 til field effort defined; Revenues are NEP funding
Geomorphic reach analyses		\$ -		\$ 48,723		\$ 48,723		\$ 50,000	Amendment in 2019 for assistance to reach teams
Sediment management		\$ 6,660		\$ 15,540		\$ 8,880		\$ -	USGS cost-share; 2017 expenditures include 2016 charges billed late; contract ends in 2018
Habitat assessment		\$ -		\$ 173,877		\$ 144,000		\$ 60,000	Contracted in 2017 and will CA into 2018; revenues from SRFB grant
Flood event mapping		\$ -		\$ -		\$ 35,000		\$ 20,000	\$6600 for 2017 contract; 2018 contract will CA into 2019
Reach 1 Sediment			\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000			NEP-funded USGS Study; contract in 2018 and CA into 2019
High water mark survey		\$ 25,000		\$ 25,000		\$ 25,000		\$ 25,000	Assumes flood each year
TOTAL	\$ -	\$ 482,160	\$ 500,000	\$ 1,363,640	\$ 440,000	\$ 916,603	\$ 350,000	\$ 820,000	2018 Supp. Budget is \$72730 less than JDE due to miscode on USGS CA for gaging under 169110
NET IMPACT TO FUND BALANCE	\$ (482,160)		\$ (863,640)		\$ (476,603)		\$ (470,000)		
Technical Assistance (169106)									
	Original 2018 Budget		Supplemented 2018 Budget		2018 Year End Projection		Proposed 2019 Budget		Assumptions/Notes
	Revenues	Expenditures	Revenues	Expenditures	Revenues	Expenditures	Revenues	Expenditures	
Wage and Benefits		\$ 85,000		\$ 85,000		\$ 75,000		\$ 75,000	
Postage for Special District reassessments		\$ 1,000		\$ 1,000		\$ 1,000		\$ -	CDID#5 to be updated in 2018 now that parcel coverage improved
TOTAL	\$ -	\$ 86,000	\$ -	\$ 86,000	\$ -	\$ 76,000	\$ -	\$ 75,000	
NET IMPACT TO FUND BALANCE	\$ (86,000)		\$ (86,000)		\$ (76,000)		\$ (75,000)		

**Flood Control Zone District
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National Flood Insurance Prgm (169108)	Original 2018 Budget		Supplemented 2018 Budget		2018 Year End Projection		Proposed 2019 Budget		Assumptions/Notes
	Revenues	Expenditures	Revenues	Expenditures	Revenues	Expenditures	Revenues	Expenditures	
Wage and Benefits		\$ 160,000		\$ 160,000		\$ 130,000		\$ 150,000	
FEMA Floodplain mapping		\$ 10,000		\$ 10,000		\$ -		\$ 10,000	New mapping in 2018 - expenditures for public meeting notice in 2019
Permit reviews	\$ 15,000		\$ 15,000		\$ 16,000		\$ 16,000		Flood permit fees
Public education/CRS activities		\$ 15,000		\$ 15,000		\$ 10,000		\$ 15,000	CRS mailings
TOTAL	\$ 15,000	\$ 185,000	\$ 15,000	\$ 185,000	\$ 16,000	\$ 140,000	\$ 16,000	\$ 175,000	
NET IMPACT TO FUND BALANCE	\$ (170,000)		\$ (170,000)		\$ (124,000)		\$ (159,000)		
Early Warning System (169110)									
	Original 2018 Budget		Supplemented 2018 Budget		2018 Year End Projection		Proposed 2019 Budget		Assumptions/Notes
	Revenues	Expenditures	Revenues	Expenditures	Revenues	Expenditures	Revenues	Expenditures	
Wage and Benefits		\$ 5,000		\$ 5,000		\$ 5,000		\$ 5,000	
Nooksack River gages - USGS		\$ 90,000		\$ 162,731		\$ 166,731		\$ 96,500	2018 exp includes CA from 2017 plus 2018 contract; 2017 CA of \$72,731 miscoded to 169104 in JDE; 3% cost increase per yr
Everson MainSt stage gage _ USGS	\$ 4,100	\$ -	\$ 4,100	\$ -	\$ 4,100		\$ 4,225		Canadians reimburse cost to maintain gage; AVZ pays for Jones gage directly
SNOTEL sites - USDA		\$ 6,000		\$ 6,000		\$ -		\$ -	2017 was last year of 5-year contract; Feds to pay in future
WWU camera on Swift Creek slide		\$ 2,500		\$ 6,230		\$ 6,227		\$ 2,500	2017 contract for 5-year duration at \$2500/yr; CA's of \$3730
Emergency access to SNOTEL		\$ 5,000		\$ 5,000				\$ 5,000	
Equipment for gage upgrades/repairs		\$ 10,000		\$ 10,000				\$ 12,000	Equip at NF gage may need replacing
Repairs and maintenance		\$ 10,000		\$ 10,000				\$ 10,000	
TOTAL	\$ 4,100	\$ 128,500	\$ 4,100	\$ 204,961	\$ 4,100	\$ 177,958	\$ 4,225	\$ 131,000	
NET IMPACT TO FUND BALANCE	\$ (124,400)		\$ (200,861)		\$ (173,858)		\$ (126,775)		
FLOOD CONSTRUCTION AND IMPROVEMENTS									
Repair and Maintenance (169112)									
	Original 2018 Budget		Supplemented 2018 Budget		2018 Year End Projection		Proposed 2019 Budget		Assumptions/Notes
	Revenues	Expenditures	Revenues	Expenditures	Revenues	Expenditures	Revenues	Expenditures	
Wage and Benefits		\$ 75,000		\$ 75,000		\$ 100,000		\$ 110,000	
Construction Projects									
Emergency/new projects as needed	\$ 50,000	\$ 250,000	\$ 50,000	\$ 250,000	\$ 50,000	\$ 250,000	\$ 50,000	\$ 350,000	Assumed costs for responding to flood/new repairs (fall 2018 flood assumed); increased due to cost of recent emergencies
Miscellaneous repair projects		\$ 50,000		\$ 50,000		\$ 50,000		\$ 50,000	Placeholder for small projects; fall 2018 flood assumed
Marine Drive Levee Repair	\$ 30,000	\$ 175,000	\$ 30,000	\$ 275,000	\$ 30,000	\$ 250,000	\$ 5,000	\$ 5,000	Revenues from WDFW; \$100,000 reappropriated from High Cr
Truck Road Emergency Bank Protection		\$ -	\$ -	\$ 250,000		\$ 250,000		\$ 25,000	50/50 cost-share with Roads; budget from emergency allocation - replenished by supplement; \$50,000 for 2019 assumed mitigation
Red River Levee Stabilization (SWIF)		\$ 10,000		\$ 10,000		\$ 10,000	\$ 63,000	\$ 200,000	Survey and permit fees in 2018; in-house design; construction in 2019; assumes 30% cost-share from DD#1 or others
Hannegan Levee Rehabilitation (USACE)							\$ 27,600	\$ 92,000	PIR local sponsor share is \$90,620 plus title reports; revenues from LE Subzone
Abbott Levee Erosion Protection							\$ 570,000	\$ 1,100,000	Assumes Roads pays 50% and LE pays \$20,000 (2%) due to declining fund balance
Sande-Williams Levee Rehabilitation							\$ 20,000	\$ 100,000	USACE cost-share split 80/20 between FCZD and DD#2
Mitigation Planning/Implementation									
Jail crew		\$ 117,439		\$ 117,439		\$ 117,439		\$ 117,439	Jail crew labor for FCZD and SWIF projects; available to diking or subzones
Reveg planning/coordination		\$ -		\$ 9,818		\$ 9,818		\$ 25,000	2017 contract with CD, CA into 2018; new contract in 2019
Reveg/misc supplies		\$ 5,000		\$ 5,000		\$ 2,000		\$ 10,000	Increased to cover plant replacement costs for Deming and other past projects as needed
TOTAL	\$ 80,000	\$ 682,439	\$ 80,000	\$ 1,042,257	\$ 80,000	\$ 1,039,257	\$ 730,600	\$ 2,184,439	2018 supp budget inc \$100,000 from High Crk
NET IMPACT TO FUND BALANCE	\$ (602,439)		\$ (962,257)		\$ (959,257)		\$ (1,453,839)		

**Flood Control Zone District
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Flood Hazard Reduction (169114)	Original 2018 Budget		Supplemented 2018 Budget		2018 Year End Projection		Proposed 2019 Budget		Assumptions/Notes
	Revenues	Expenditures	Revenues	Expenditures	Revenues	Expenditures	Revenues	Expenditures	
Wage and Benefits		\$ 220,000		\$ 220,000		\$ 175,000		\$ 190,000	
Swift Creek									
Bank stabilization/channel excavation	\$ 22,500	\$ 75,000	\$ 22,500	\$ 75,000	\$ 37,500	\$ 125,000		\$ 105,000	SNE cost-share; 2018 YE assumes Roads pays 50% of \$250k project; 2019 is transfer to new Swift Creek fund
Lower Nooksack River									
Deming levee improvement constr. (708004)		\$ 40,000	\$ -	\$ 43,314		\$ 25,000		\$ -	Planting in 2018; CA for plants \$3314; 2019 maint under 112
Marietta property acquisition & demo (FEMA FMAG-716002)	\$ 380,937	\$ 435,356	\$ 380,937	\$ 435,356		\$ 20,000	\$ 330,050	\$ 377,200	Boyd and Allen in 2017; Turk appraisals and title work in 2018 with acquisition in 2019; revenues are FEMA grant
Marietta property acquisition & demo New properties		\$ 50,000		\$ 50,000		\$ 25,000		\$ 50,000	Allocation for new properties that become available and non-grant expenses; increased allocation as mitigation for Marine Drive Levee
Leases for agriculture	\$ 3,780		\$ 3,780		\$ 3,780		\$ 3,780		River Rd and Emmerson Rd properties
Floodplain acquisition		\$ 5,000		\$ 5,000			\$ 300,000	\$ 300,000	Budget was from plant materials CA; option agreement would need to be extended for next round of Floodplains by Design funding; 2019 is for Reach 1 property with USFS funding thru WDFW
Ferndale Levee Improvement Project Phase 1		\$ 200,000		\$ 200,000		\$ -		\$ 200,000	Survey, hydraulic analysis, alternatives analysis, conceptual design in 2018/19; supplement if FbD grant awarded in 2019
Lynden Levee Improvement Project (in conjunction with USACE rehab project)		\$ 125,000		\$ 125,000		\$ 35,000		\$ 40,000	USACE rehab in 2020 to include culvert replacement; survey, hydraulics, wetland/permitting for channel relocation by FCZD
Rayhorst Levee Improvements		\$ 60,000		\$ 60,000		\$ -		\$ 60,000	Design, permit and construct project to widen and backslope levee
Jones Creek Deflection Berm (712004)									
Survey		\$ 25,000		\$ 25,000		\$ 25,000			Survey and base mapping for design
Berm and bridge design		\$ 200,000		\$ 200,000		\$ 125,000		\$ 75,000	Contract in 2018 and CA into 2019
Land/easement acquisition		\$ 100,000		\$ 105,000		\$ 35,000		\$ 125,000	Purchase of parcels/easements for berm/road construction; 2018 inc. CA for appraisal; 2019 exp for appraisals/relocation asst
Construction		\$ -		\$ -					Construction budget to be established once design is further along
High Creek Sediment Management									
Sediment trap/channel improvement design		\$ -		\$ 22,239		\$ 60,655			WSE design / construction support, 2018 CA and amendment
Sediment trap/channel imp. construction		\$ 1,300,000		\$ 1,132,000		\$ 900,000			\$100,000 reallocated to Marine Drive (169112); \$70,000 reallocated for land; \$2k CA for appraisal
Easements				\$ 70,000		\$ 88,620			Construction funding reallocated for easements; used some of Jones land budget too
Sediment trap maintenance								\$ 50,000	Includes funds for WSE to evaluate performance
Glacier-Gallup Creek Alluvial Fan Restoration									
Feasibility study/concept design						\$ 100,000			
Preliminary design								\$ 100,000	Supplement 2019 budget if FbD grant awarded
City of Lynden - Pepin Creek									
Funding for downstream analysis		\$ 140,000		\$ 140,000		\$ 140,000		\$ -	ILA executed in 2016 and CA'd into 2017 for reimbursement of City's expenses; new 2018 budget for balance, may CA into 2019
TOTAL	\$ 407,217	\$ 2,975,356	\$ 407,217	\$ 2,907,909	\$ 41,280	\$ 1,879,275	\$ 633,830	\$ 1,672,200	
NET IMPACT TO FUND BALANCE	\$ (2,568,140)		\$ (2,500,693)		\$ (1,837,995)		\$ (1,038,370)		

Flood Control Zone District
2019 Natural Resources Budget
Work Plan and Supporting Documentation

Natural Resources (169119)	Original 2018 Budget		Supplemented 2018 Budget		Year End 2018 Projection		Proposed 2019 Budget		Assumptions/Notes
	Revenues	Expenditures	Revenues	Expenditures	Revenues	Expenditures	Revenues	Expenditures	
NATURAL RESOURCES ADMINISTRATION									
Staff	\$ 7,050	\$ 328,532	\$ 7,050	\$ 328,532	\$ 7,050	\$ 328,532		\$ 306,306	Includes salary for 2.5 FTEs and overtime.
Office and operating		\$ 224,900		\$ 224,900		\$ 224,900		\$ 229,601	
TOTAL	\$ 7,050	\$ 553,432	\$ 7,050	\$ 553,432	\$ 7,050	\$ 553,432	\$ -	\$ 535,907	
NET IMPACT TO FUND BALANCE	\$ (546,382)		\$ (546,382)		\$ (546,382)		\$ (535,907)		
NATURAL RESOURCES OPERATIONS									
Salmon Recovery									
Staff		\$ 126,701		\$ 126,701		\$ 126,701		\$ 127,035	1 FTE Includes \$51,000 for WCC crew, plant survival surveys, spraying noxious weeds, and plant materials for replacement of failing plants at restoration projects WCC crew contract for maintaining previously planted projects Contracted services for activities supporting planting, fencing, culvert replacement, etc.
Restoration effectiveness monitoring, adaptive management, and stewardship		\$ 51,000		\$ 51,000		\$ 51,000		\$ 51,000	
Maintaining existing restoration projects*		\$ 25,000		\$ 25,000		\$ 25,000		\$ 32,250	
New restoration projects*								\$ 30,000	
Marine Resources Committee									
Staff	\$ 64,040	\$ 64,041	\$ 64,040	\$ 64,041	\$ 64,040	\$ 64,041	\$ 66,294	\$ 66,393	0.7 FTE
MRC restoration projects	\$ 8,960	\$ 8,960	\$ 8,960	\$ 8,960	\$ 8,960	\$ 8,960	\$ 8,706	\$ 8,607	MRC grant funding minus labor
Water Quality/Pollution Identification & Correction									
Program Coordination		\$ 126,701		\$ 126,701		\$ 126,701		\$ 127,035	Program Coordinator (1 FTE) Sampling personnel, lab contract, vehicles, equipment (1.25 FTE + extra help) WCD Data Manager WCD Farm Planners Outreach staff, WCD staff, supplies OSS and small farm cost share PDS Staff
Water Quality Monitoring		\$ 233,455		\$ 233,455		\$ 233,455		\$ 263,229	
Data Management	\$ 76,683	\$ 76,683	\$ 76,683	\$ 76,683	\$ 76,683	\$ 76,683	\$ 100,800	\$ 100,800	
Technical Assistance	\$ 116,917	\$ 155,000	\$ 190,971	\$ 199,054	\$ 190,971	\$ 199,054	\$ 206,400	\$ 206,400	
Community Outreach	\$ 83,300	\$ 95,800	\$ 83,300	\$ 95,800	\$ 83,300	\$ 95,800	\$ 94,497	\$ 135,439	
Incentives		\$ 22,000		\$ 52,000		\$ 52,000	\$ 22,000	\$ 43,000	
Compliance	\$ 80,600	\$ 80,600	\$ 80,600	\$ 80,600	\$ 80,600	\$ 80,600	\$ 83,803	\$ 83,803	
Coordination and Planning									
Lake Whatcom Homeowner Incentive Program		\$ 56,580		\$ 56,580		\$ 56,580		\$ 56,731	Staff time only (0.5 FTE); contracted services under Stormwater budget
WSU Extension outreach services		\$ 25,000		\$ 25,000		\$ 25,000		\$ -	
TOTAL	\$ 430,500	\$ 1,147,521	\$ 504,554	\$ 1,221,575	\$ 504,554	\$ 1,221,575	\$ 582,500	\$ 1,331,722	
NET IMPACT TO FUND BALANCE	\$ (717,021)		\$ (717,021)		\$ (717,021)		\$ (749,222)		
TOTAL FOR COST CENTER	\$ 437,550	\$ 1,700,953	\$ 511,604	\$ 1,775,007	\$ 511,604	\$ 1,775,007	\$ 582,500	\$ 1,867,628	
		\$ 1,263,403		\$ 1,263,403		\$ 1,263,403		\$ 1,285,128	

*Integrated Salmon Recovery/Flood Hazard Reduction capital and planning projects appear under Cost Center 169114 and 169104.

Flood Control Zone District
2019 Natural Resources Budget
Work Plan and Supporting Documentation

Acquatic Invasive Species (169120)	Original 2018 Budget		Supplemented 2018 Budget		Supplemented 2018 Budget		Proposed 2019 Budget		Assumptions/Notes
	Revenues	Expenditures	Revenues	Expenditures	Revenues	Expenditures	Revenues	Expenditures	
AIS ADMINISTRATION									
Staff	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Office and operating		\$ -		\$ -		\$ -		\$ -	Misc. Expenses
TOTAL	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
NET IMPACT TO FUND BALANCE	\$ -		\$ -		\$ -		\$ -		
AIS OPERATIONS									
Coordination and Planning									
Education and Inspection									
Interlocal Agreement (COB)	\$ -	\$ 123,000	\$ -	\$ 123,000	\$ -	\$ 123,000	\$ -	\$ 123,000	Contribution to City for AIS Program; includes COB program cost increase
AIS online education program website maintenance	\$ -	\$ 8,750	\$ -	\$ 8,750	\$ -	\$ 8,750	\$ -	\$ 8,750	Contracted services for online course/website support
TOTAL	\$ -	\$ 131,750	\$ -	\$ 131,750	\$ -	\$ 131,750	\$ -	\$ 131,750	
NET IMPACT TO FUND BALANCE	\$ (131,750)		\$ (131,750)		\$ (131,750)		\$ (131,750)		
TOTAL FOR COST CENTER	\$ -	\$ 131,750	\$ -	\$ 131,750	\$ -	\$ 131,750	\$ -	\$ 131,750	
		\$ 131,750		\$ 131,750		\$ 131,750		\$ 131,750	
Water Planning (169121)									
	Original 2018 Budget		Supplemented 2018 Budget		Supplemented 2018 Budget		Proposed 2019 Budget		
	Revenues	Expenditures	Revenues	Expenditures	Revenues	Expenditures	Revenues	Expenditures	Assumptions/Notes
WATER PLANNING ADMINISTRATION									
Staff	\$ 46,843	\$ 93,686	\$ 46,843	\$ 93,686	\$ 46,843	\$ 93,686	\$ 56,265	\$ 112,529	Hydrogeologist
Office and operating		\$ 550		\$ 550		\$ 550		\$ 550	
TOTAL	\$ 46,843	\$ 94,236	\$ 46,843	\$ 94,236	\$ 46,843	\$ 94,236	\$ 56,265	\$ 113,079	
NET IMPACT TO FUND BALANCE	\$ (47,393)		\$ (47,393)		\$ (47,393)		\$ (56,815)		
WATER PLANNING OPERATIONS									
Coordination and Planning									
Hirst Response/Watershed Planning	\$ -	\$ -	\$ -	\$ 38,540	\$ -	\$ 38,540	\$ -	\$ 200,000	Consultants
LENS Groundwater Model	\$ 50,000	\$ 270,192	\$ 50,000	\$ 270,192	\$ 100,000	\$ 270,192	\$ -	\$ -	\$336,526 Professional services contract
LIO administration	\$ 67,950	\$ 67,950	\$ 67,950	\$ 67,950	\$ 67,950	\$ 67,950	\$ -	\$ -	Administration of LIO process
Stream Gauging	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000			USGS Stream Monitoring/AESI GW Monitoring Contracts
TOTAL	\$ 217,950	\$ 438,142	\$ 217,950	\$ 476,682	\$ 267,950	\$ 476,682	\$ -	\$ 200,000	
NET IMPACT TO FUND BALANCE	\$ (220,192)		\$ (258,732)		\$ (208,732)		\$ (200,000)		
TOTAL FOR COST CENTER	\$ 264,793	\$ 532,378	\$ 264,793	\$ 570,918	\$ 314,793	\$ 570,918	\$ 56,265	\$ 313,079	
		\$ 267,585		\$ 306,125		\$ 256,125		\$ 256,815	