

Whatcom County

COUNTY COURTHOUSE 311 Grand Avenue, Ste #105 Bellingham, WA 98225-4038 (360) 778-5010

Agenda Bill Report

File Number: AB2023-605

File ID:

AB2023-605

Version:

Status: Approved

File Created:

09/13/2023

Entered by:

jsmiley@co.whatcom.wa.us

Department:

Public Works Department

File Type:

Resolution (FCZDBS) Requiring a Public Hearing

Assigned to:

Council

Final Action: 10/10/2023

Agenda Date:

10/10/2023

Enactment #: RES 2023-030

Related Files:

Primary Contact Email: SDraper@co.whatcom.wa.us

TITLE FOR AGENDA ITEM:

Resolution adopting the 2024-2029 Six-Year Water Resources Improvement Program (WRIP) by the Whatcom County Council (Council acting as the Whatcom County Flood Control Zone District Board of Supervisors)

SUMMARY STATEMENT OR LEGAL NOTICE LANGUAGE:

Resolution by the Whatcom County Flood Control Zone District Board of Supervisors adopting the Six-Year Water Resources Improvement Program (WRIP) for 2024-2029. The adoption by resolution is pursuant to the Revised Code of Washington (RCW 86.15.110)

HISTORY OF LEGISLATIVE FILE

Date:	Acting Body:		Action:	Sent To:
09/26/2023	Council		INTRODUCED FOR PUBLIC HEARING	Council
	A	Aye: 7	Buchanan, Byrd, Donovan, Elenbaas, Fr	razey, Galloway, and Kershner
	N	Nay: 0		
10/10/2023	Council		APPROVED	
	A	Aye: 7	Buchanan, Byrd, Donovan, Elenbaas, Fr	azey, Galloway, and Kershner
	N	vay: 0		

achments:	Memo, Resolut	ion, Exhibits			
	,				

PROPOSED BY:			
INTRODUCED:_	9/26	/23	

RESOLUTION NO. 2023 - 030

(A Resolution of the Whatcom County Flood Control Zone District Board of Supervisors)

WHATCOM COUNTY FLOOD CONTROL ZONE DISTRICT SIX-YEAR WATER RESOURCES IMPROVEMENT PROGRAM FOR THE YEARS 2024 THROUGH 2029

WHEREAS, pursuant to RCW 86.15.110, flood control or storm water control improvements may be extended, enlarged, acquired, or constructed by a flood control zone pursuant to a resolution adopted by its Board of Supervisors; and

WHEREAS, Whatcom County Public Works Department on behalf of the Whatcom County Flood Control Zone District has prepared a Six-Year Water Resources Improvement Program for adoption; and

WHEREAS, pursuant to RCW 86.15.120, the Supervisors shall hold a public hearing prior to adopting the resolution; and

WHEREAS, the Six-Year Water Resources Improvement Program attached hereto as Exhibit "A" has been reviewed and determined to be consistent with Whatcom County's comprehensive plan and is consistent with the following plans:

- Lower Nooksack River Comprehensive Flood Hazard Management Plan, October 1999
- Jones Creek Debris Flow Study, March 2004
- WRIA 1 Salmon Recovery Plan, October 2005
- Birch Bay Comprehensive Stormwater Plan, July 2006
- Lake Whatcom Comprehensive Stormwater Plan, March 2008
- Lake Samish Basin Comprehensive Stormwater Plan, July 2012
- Birch Bay Central North Subwatershed Master Plan, December 2013
- Birch Bay Central South Subwatershed Master Plan, January 2015
- Nooksack River System-Wide Improvement Framework, June 2016

- Birch Point, Terrell Creek Urban Area, and Point Whitehorn Sub-watershed
 Master Plan, November 2016
- Lake Whatcom Comprehensive Plan: Stormwater Capital Program Update,
 September 2017
- Lake Whatcom Management Program 2020-2024 Work Plan, July 2020; and
- Lake Whatcom East Geneva Sub-watershed Master Plan, January 2021

WHEREAS, pursuant to RCW 86.15.110, the preliminary engineering studies for constructed improvements are on file with the Whatcom County Public Works Department; and

WHEREAS, pursuant to RCW 86.15.110, the estimated cost of the acquisition or construction of the improvement, together with supporting data, is included in the Six-Year Water Resources Improvement Program; and

WHEREAS, the improvements will benefit one or more flood control zones, subzones and the county as a whole;

NOW, THEREFORE, BE IT RESOLVED by the Whatcom County Flood Control Zone District Board of Supervisors as follows:

That the Whatcom County Flood Control Zone District Six-Year Water Resources Improvement Program for the years 2024 through 2029, which is attached hereto as Exhibit "A", is hereby adopted.

Supervisors

Flood Control Zone District Board of

WHATCOM COUNTY, WASHINGTON

APPROVED this 10th day of October , 2023.

of the Council

Christopher Quinn, Senior Deputy Prosecuting Attorney - Civil Division

WHATCOM COUNTY FLOOD CONTROL ZONE DISTRICT 2024-2029 SIX-YEAR WATER RESOURCES IMPROVEMENT PROGRAM EXHIBIT A

HAIC	OM COUNTY FLOOD CONTROL ZONE	DISTRIC	. 1		2024-2029 SIX-Y	EAR WATER RESOURCES	IMPROVEMENT PROGRAM				EXHIBIT	
Item	Project Description	Database ID No	BES	Previous Expenditures	2024	2025	2026	2027	2028	2029	Total	
No.	Providentario V. Carl	No.		Amount Source	Phase Source	Phase Amount Seque	Bryse Amount Source	their Amount Scotte	Photo Source	Place Amount Source		
*********				5 1,935,000 REET/LWSU	E \$ 25,000 LWSU	PE PE	PE	PE	PE	PE		
1	SWP #SWLW23-04 Academy Road Stormwater Improvements: Evaluate the water quality performance of the existing Academy	20-005	63.9		IW	RW	RW	RW	RW	PE RW	\$ 2,030,000	
1	stormwater system and provide recommended retrofits.	20.005	63.9		N	CN	CN	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	CN	CN	5 2,030,000	
			ļ		N S 70,000 LWSU	CN	CN	CN	CN	CN		
1	SWP #SWLW23-03 Geneva Bioretention Pilot Project: Install new		1	\$ 1,000,000 REET/Grant/LWSU	E IW	PE RW	PE RW		PE RW	PE		
2	water quality treatment media, evaluate the effectiveness and	20-006	63.9	1	N S 90,000 ECY Grant	CN	CN	CN	CN	RW CN	\$ 1,112,000	
	constructability of new water quality treatment media				ON \$ 22,000 REET			CN	CN	CN		
-			1		PE S 40,000 LWSU	CN PE	CN DE	PE PE	PE PE	DE DE		
Ι.	SWP #SWLW23-01 Silver Beach Creek Stormwater Improvements			230,000 111.7 1430	W 5 20,000 REET	RW	PE RW	RW	RW	RW	1	
3	Phase 2: Main channel restoration below Hillsdale using natural vegetation	07-095	60.5		N S 600,000 REET	CN	CN !	CN	CN	CN	\$ 1,160,000	
	vegetation				N S 250,000 LWSU PE S 280,000 REET	PE PE	CN PE RW	CN PE	CN	CN		
1	Eagleridge Stormwater Improvements: Install a water quality	Ì		\$ 15,000 LWSU	PE 5 280,000 REET RW 5 15,000 LWSU	RW	PE	RW	PÉ RW	PE RW	1	
4	system to treat stormwater from the Eagleridge development.	20-007	61.4		N .	CN 5 500,000 LWSU	CN	CN	CN	CN	\$ 810,000	
l					N .	CN	CN	CN	CN	CN	11	
Γ,	Austin Court Stormwater Improvements: Install water quality	20-008	58.8		E \$ 200,000 LWSU	PE	PE RW	PE	PE	PE		
5	system on the discharge from Austin Court.	20-008	58.8		RW S 25,000 REET	RW CN	CN S 450,000 LWSU		RW CN	RW CN	\$ 675,000	
_			1			PE	PF Tables Eviso		PF	PF .		
	SWP #SWLW23-05 Cedar Hills Culvert Replacement: Replacement of				PE S 60,000 FEMA PE S 100,000 REEY	PE	PÉ	PE PE	PE PE	PE	1	
6	culvert damaged during the 2021 flooding event with FEMA funding	23-001	44.2		RW 5 15,000 LWSU	RW S 180,000 FEMA	RW	RW	RW	RW CN	\$ 392,000	
1	contribution.				IN I	CN S 180,000 FEMA CN S 25,000 REET	ICN ICN	CN CN	CN CN	CN CN		
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2	Strawberry Point/Lake Whatsom Blvd Stormwater Improvements:	12.00			RW	RW JOSEPH STATE OF THE PROPERTY OF THE PROPERT	RW 5 35,000 LWSU	RW JOCOB CHISO	RW	RW	1	
1 ′	System upgrades to improve water quality including vaults, biofiltration swales, and channel restoration	17-001	62.2		IN I	CN	CN		CN	CN	S 1,170,000	
L.	sionitation states, and channel restoration		L		N .	CN	CN	CN S 300,000 EWST	CN	CN		
Г	Geneva Street & Lake Louise Road Culvert Replacement: Replace				PE PE	PE	PE	PE S 70,000 REET	PE	PE		
8	culverts along Geneva Street and Lake Louise Road to improve water	20-010	58.8		PE RW	PE RW	PE RW	PE RW	PE RW	PE Dist	\$ 270,000	
1	quality and conveyance		1					<del></del>	<del>  </del>	RW	1	
			1		CN	CN	CN	CN	CN 5 200,000 LWSU	CN		
1	Lake Whatcom Boulevard Media Filter Drain (EG-1): Install media		1		PE	PE	PE	PE \$ 180,000 LWSU	PE	PE	1	
9	filter drain or other water quality system along west side of Lake	22-006	58.8		RW	RW	RW	RW 5 25,000 REET	RW	RW	\$ 835,000	
1	Whatcom Blvd to improve water quality.		1		CN	ICN	cn cn	CN	CN S 630,000 REET	CN	1	
					PE	PE	PE \$ 10,000 LWSU	PE S 200,000 LWSU	PE S 60,000 REET	PE		
10	Sudden Valley Stormwater Improvements No. 2: Construct drainage	22-007	49.0			PE	PE	PÉ RW	PE	PÉ RW	PE	
10	system upgrades and retrofits in the Sudden Valley area of the Lake Whatcom watershed.	22-007	49.0		RW CN	RW CN		RW S 10,000 REET		RW CN	s 1,260,000	
1	whatcom watersned.				CN CN	CN	CN CN	ICN	CN S 480,000 LWSU	ICN I	1	
			T		PE	PE	PÉ	PE	PE S 200,000 REET	PÉ		
11	Lake Whatcom Boulevard Water Quality Vault (EG-4); install a water quality system to remove phosphorus and other pollutants from	22-008	57.1		PE	PE	PE RW	PE	PE .	PE RW	S 225,000	
1 **	residential runoff prior to entering Lake Whatcom.	22-000	37.3		RW	RW		RW	RW S 25,000 LWSU	RW .	1 22,000	
L_	The state of the s				CN	CN	CN	CN	CN	ICN I	1	
	Viewhaven Lane Water Quality & Conveyance Improvements:											
					PE	PE	PE	PE	PE	PE S 100,000 LWSU		
12	Install water quality systems and improve conveyance near	20-009	58.8		RW	RW	PE RW CN	RW CN	RW CN	PE \$ 100,000 LWSU RW \$ 15,000 LWSU	\$ 115,000	
12		20-009	58.8		PE RW CN CN CN		PE RW CN CN CN CN	RW CN	RW	PE \$ 100,000 LWSU RW \$ 15,000 LWSU CN CN	\$ 115,000	
12	Install water quality systems and improve conveyance near	20-009	58.8		RW CN CN	RW CN CN	CN CN	RW CN CN	RW CN CN	RW \$ 15,000 LWSU CN CN	\$ 115,000	
	Install water quality systems and improve conveyance near Viewhaven Lane.  SWP #SWBB23-02 Charel Terrace Stormwater Outfall Repair.	Araki 			RW CN	RW CN CN	CN CN	RW CN CN	RW CN CN	RW \$ 15,000 LWSU CN CN	-	
12	Install water quality systems and improve conveyance near Viewhaven (ane.  SWP #SWBB23-02 Charel Terrace Stormwater Outfall Repair: Marine outfall stabilization to protect a bluff slope (emergency repair	20-009 20-011	58.8	S 290,000 BBWARM / FEMA	RW CN CN	RW CN	CN CN	RW CN	RW CN CN	RW \$ 15,000 LWSU	\$ 115,000 \$ 750,000	
	Install water quality systems and improve conveyance near Viewhaven Lane.  SWP #SWBB23-02 Charel Terrace Stormwater Outfall Repair.	Araki 		\$ 290,000   BBWARM / FEMA	RW   CN   CN   CN   CN   CN   CN   CN   C	RW CN CN CN RW RW RW	CN CN PE RW	RW CN CN CN PE RW	RW CN CN CN RW RW	RW \$ 15,000 LWSU CN CN PE RW	-	
	Install water quality systems and improve conveyance near Vewhaven Lane.  SWP 5WBB23-02 Charel Terrace Stormwater Outfall Repair.  Marine outfall Sublikation to protect a bluf slope (emergency repair 2022) and permanent stabilization (2023).	Araki 		S 290,000 BBWARM / FEMA S 140,000 BBWARM	RW CN 5 60,000 FEMA RW CN 5 350,000 BEWARM PS 5,000 BEWARM PS 5,000 BEWARM	RW	CN CN PE 8W CN PE	RW   CN   PE   PE   CN   PE   PE   PE   PE   PE   PE   PE   P	RW   CN   CN   PE   RW   CN   PE   RW   CN   PE   RW   CN   CN   PE   RW   CN   CN   PE   RW   CN   RW   RW   RW   RW   RW   RW   RW   R	S   15,000   LWSU   CN	-	
	Install water quality systems and improve conveyance near Verwhaven Lane.  See 24 MACH 15 (20 20 12) 135 SCHOOL 15	Araki 		\$ 290,000 BBWARM / FEMA	RW	RW	CN	RW   CN   CN   CN   CN   CN   CN   CN   C	RW CN CN PE RW CN FRW	RW   S   15,000   LWSU	\$ 750,000	
13	Install water quality systems and improve conveyance near Vewhaven Lane.  SWP 5WBB23-02 Charel Terrace Stormwater Outfall Repair.  Marine outfall Sublikation to protect a bluf slope (emergency repair 2022) and permanent stabilization (2023).	20-011	29.8	\$ 290,000 BBWARM / FEMA	RRV CN S 60,000 FEMA RW CN S 300,000 BBWARM RW CN S 50,000 BBWARM RW CN S 50,000 BBWARM RW CN S 300,000 BBWARM RW CN S 300,000 BBWARM BWARM CN S 300,000 BBWARM BWARM CN S 300,000 BBWARM BWARM CN S 300,000 BBWARM CN S 300,000 B	RW CN	CN CN PE 8W CN PE	RW   CN   PE   PE   CN   PE   PE   PE   PE   PE   PE   PE   P	RW   CN   CN   PE   RW   CN   PE   RW   CN   PE   RW   CN   CN   CN   CN   CN   CN   CN   C	S   15,000   LWSU	-	
13	Install water quality systems and improve conveyance near Verbaven Inn.  SWP PSWBB23-02 Charel Terrace Stormwater Outfall Repair. Manine cutall salisation to protect a fluid sipse (emergency repair 2022) and permanent stabilisation (2023)  SWP PSWBB23-03 Holeman Avenue Stormwater Improvements (PW-1): Replace Cut, supies culverts, re-establish ditch on Holeman Ave near Birch Bay Or	20-011	29.8	\$ 290,000   BBWARM / FEMA	RW CN	RW	CN	RW CN	RW CN CN PE RW CN FRW	RW 5 15,000 LW5U CN	\$ 750,000	
13	Install water quality systems and improve conveyance near Verwhaven Lann.  SSVP PSWBB23-02 Chard Transaction of the Conference Stormwater Outfall Repair. Marine outfall stabilization to protect a floud floor feet groups or pair. 2022 and permanent stabilization (2023). 2022 and permanent stabilization (2023). EVER PSWBB23-0 Storman Avenue Stormwater Improvements (PW-1): Replace CRs. upsize culverts, re-establish ditch on Holeman Aven near Birch Bay Dr. SSVP PSWBB23-04 Semishimoo Drive South & Outfall Improvements.	20-011	29.8	\$ 290,000   BBWARM / FEMA	RW CN	RW   CN   CN   CN   CN   CN   CN   CN   C	CN	RW   CN   CN   CN   CN   CN   CN   CN   C	RW	RW 5 15,000 [W5U] CN   FE   FE   FE   RW   CN   CN   CN   FE   RW   CN   FE   FE	S 750,000 S 905,000	
13	Install water quality systems and improve conveyance near Verbarven Inan.  SWP PSWBBB3-02 Charal Terrare Stormwater Outfall Repair. Manine cutall salisation to protect a labif dape (emergency repair 2022) and permanent stabilisation (2023)  SWP PSWBB23-03 Holeman Anorue Stormwater Improvements Web-12 Replace CSs, upsize culverts, re-establish ditch on Holeman Ave near Sirch Bay Dr.  SWP PSWBB23-04 Stemishamoo Drive South & Outfall Improvements (DP-2, BP-5) by Distr culverts and re-establish roadside dicth on east	20-011 07-242	29.8	\$ 290,000   BBWARM / FEMA	RW CN S 50,000 BBWARM PR S 5,000 BWARM CN S 300,000 BWARM CN S 5,000 RET	RW   CN   CN   CN   CN   CN   CN   CN   C	CN	RW CN	RW   CN   CN   CN   CN   CN   CN   CN   C	RW 5 15,000 LW5U CN	\$ 750,000	
13	Install water quality systems and improve conveyance near Verwhaven Lann.  SSVP PSWBB23-02 Chard Transaction of the Conference Stormwater Outfall Repair. Marine outfall stabilization to protect a floud floor feet groups or pair. 2022 and permanent stabilization (2023). 2022 and permanent stabilization (2023). EVER PSWBB23-0 Storman Avenue Stormwater Improvements (PW-1): Replace CRs. upsize culverts, re-establish ditch on Holeman Aven near Birch Bay Dr. SSVP PSWBB23-04 Semishimoo Drive South & Outfall Improvements.	20-011	29.8	\$ 290,000   BBWARM / FEMA   \$ 140,000   BBWARM   \$ 320,000   BBWARM	RW CN	RW   CN   CN   CN   CN   CN   CN   CN   C	CN	RW   CN   CN   CN   CN   CN   CN   CN   C	RW	RW 5 15,000 [W5U] CN   FE   FE   FE   RW   CN   CN   CN   FE   RW   CN   FE   FE	S 750,000 S 905,000	
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13	Install water quality systems and improve conveyance near Verwhaven Lann.  SSC 54.00 MOLTES (180.00 AD) Install SC 52.00 Co. MICR (190.00 AD) Ins	20-011 07-242 18-009 18-010	29.8 37.8 50.3	\$ 290,000   BBWARM / FEMA   \$ 140,000   BBWARM   \$ 320,000   BBWARM   \$ 320,000   BBWARM   \$ 280,000   BBWARM	RW CN S 50,000 FEMA CN S 50,000 BWARM CN S 300,000 BWARM CN S 50,000 BWARM CN S 15,000 BWARM CN S 15,000 BWARM CN S 15,000 BWARM CN S 15,000 BWARM	EW CN	CN	RW   CN   PE   RW   CN   CN   FE   FE   FE   FE   FE   FE   FE   F	RW   CN   CN   CN   CN   CN   CN   CN   C	RW S 15,000 LWSU CN PE RW CN PE RW CN C	\$ 750,000 \$ 905,000 \$ 1,355,000	
13	motal water quality systems and improve conveyance near Verbraven Iam.  SWP PSWBB23-02 Charat Terrace Stormwater Outfall Repair.  Manine outfall substaction to protect a bild slope (emergency repair 2022) and permanent stabilisation (2023).  SWP PSWBB23-03 Holeman Avenue Stormwater Improvements PWH-1; Replace CSL, upsize culverts, re-establish ditch on Holeman Avenue SWP PSWBB23-04 Seminations of Drive South & Outfall Improvements PWP-28 PSWBB23-04 Seminations of Prive South & Outfall Improvements PWP-28 PSWBB23-04 Seminations of Prive South & Outfall Improvements Improvements of PSWBB23-04 Seminations of Prive South & Outfall Improvements USA (PS-2, PS-5): Upsize culverts and re-establish roads-de-ditch on east side of Seminimoo Drive.	20-011	29.8	\$ 290,000   BBWARM / FEMA   \$ 140,000   BBWARM   \$ 320,000   BBWARM   \$ 320,000   BBWARM   \$ 280,000   BBWARM	RW CN	EW   CN   CN   CN   CN   CN   CN   CN   C	CN	RW   CN   PE   PE   PW   PE   PW   PE   PW   PE   PW   PE   PW   PW	RW   CN   CN   CN   CN   CN   CN   CN   C	RW 5 15,000 [W5U CN ]	S 750,000 S 905,000	
13	mical lawser quality systems and improve conveyance near Verbareon Land.  SWP PSWBBB3-02 Charact Terrace Stormwater Outfall Repair.  Manine cutalls substantion to protect a bild slope (emergency repair 2022) and permanent stabilisation (2023).  SWP PSWBB23-03 Holeman Avenue Stormwater Improvements PWP-1; Replace CSs, upsite culverts, re-stabilish ditch on infolman Are near Broft-Bay Dr.  SWP PSWBB23-04 Semishmoo Drive South & Outfall Improvements (PP-2, BP-3): beginz culverts and re-estabilish roadsded erich on east uside of Semishmoo Drive.  SWP PSWBB23-05 Normar Place Stormwater Improvements (BP-3): Upstep piose; replace CSs and install energy dissipator at proportional (BP-3): Upstep piose; replace CSs and install energy dissipator at proportional Upstep piose; replace CSs and install energy dissipator at proportional Upstep piose; replace CSs and install energy dissipator at proportional Upstep piose; replace CSs and install energy dissipator at proportional Upstep piose; replace CSs and install energy dissipator at proportional Upstep piose; replace CSs and install energy dissipator at proportional Upstep piose; replace CSs and install energy dissipator at proportional Upstep piose; replace CSs and install energy dissipator at proportional Upstep piose; replace CSs and install energy dissipator at proportional Upstep piose; replace CSs and install energy dissipator at proportional Upstep piose; replace CSs and install energy dissipator at proportional Upstep piose; replace CSs and install energy dissipator at proportional Upstep piose; replace CSs and install energy dissipator at proportional Upstep piose; replace CSs and install energy dissipator at proportional Upstep piose; replace CSs and install energy dissipator at proportional Upstep piose; replace CSs and install energy dissipator at proportional Upstep piose; replace CSs and install energy dissipator at proportional Upstep piose; replace CSs and Install energy dissipator at proportional Upstep piose; replace CSs and Inst	20-011 07-242 18-009 18-010	29.8 37.8 50.3	\$ 290,000 BBWARM / FEMA  \$ 140,000 BBWARM  \$ 320,000 BBWARM  \$ 280,000 BBWARM	RW CN	EW   CN   CN   CN   CN   CN   CN   CN   C	CN	RW   CN   CN   CN   CN   CN   CN   CN   C	RW   CN   CN   CN   CN   CN   CN   CN   C	RW S 15,000 LWSU CN PE RW CN PE RW CN C	\$ 750,000 \$ 905,000 \$ 1,355,000	
13	Incall Water quality systems and improve conveyance near Verwhaven Lane.  SSES SAWAYAL SSESSE AND SAME SECRET STATES SAWAYAL SSESSES AND SAWAYAL SSESSES SAWAYANAYAL SSESSES SAWAYAL SSESSES SAWAYANAYAL SSESSES SAWAYANAYANAYA SAWAYANAYANAYANAYANAYANAYANAYANAYANAYANAY	20-011 07-242 18-009 18-010	29.8 37.8 50.3	\$ 290,000 BBWARM / FEMA  \$ 140,000 BBWARM  \$ 320,000 BBWARM  \$ 280,000 BBWARM  \$ 280,000 BBWARM	RW CN	SW   CN   CN   CN   CN   CN   CN   CN   C	CN	RW   CN   CN   CN   CN   CN   CN   CN   C	RW   CN   CN   CN   CN   CN   CN   CN   C	RW 5 15,000 [W5U CN ]  EN	\$ 750,000 \$ 905,000 \$ 1,355,000	
13 14 15	Install water quality systems and improve conveyance near Verwhaven Lane.  382.84 AVAILS (180.9-20.13) (180.5-20.5-20.5-20.5-20.5-20.5-20.5-20.5-2	20-011 07-242 18-009 18-010	29.8 37.8 50.3	\$ 290,000 BBWARM / FEMA  \$ 140,000 BBWARM  \$ 320,000 BBWARM  \$ 280,000 BBWARM  \$ 280,000 BBWARM	RW CN	EW   CN   CN   CN   CN   CN   CN   CN   C	CN	EW CN CN PE EW CW	RW CN CN PE RW	RW 5 15,000 [W5U CN ]	5 750,000 5 905,000 5 1,355,000 5 1,160,000	
13	Incall Water quality systems and improve conveyance near Verwhaven Lann.  SSVP SSWBBB3-02 Charal Terrace Stormwater Outfall Repair. Manne cutall assistation to protect a bild dage (emergency repair 2022) and permanent stabilisation (2023). 2022 Per SSWBB3-03 Charal Terrace Stormwater improvements (PW-1): Bophac CBs. update culvers, re-establish distant in foliation Aven ear Brich Bay Dr.  SSVP SSWBB3-04 Sermilahmon Drive South & Outfall Improvements (BP-2, BP-3): Update culvers and re-establish roadsde disch on east side of Semilahmon Drive.  SSVP SSWBB23-05 Normar Place Stormwater improvements (BP-1): Update pipes, replace CBs and install inergy dissipater at prop outfall on Normar Place.  SSVP SSWBB23-06 Lora Lann Drailinge & Tide Cast Modifications (TC-2): Replace to de gate structure and repair embankment); install	20-011 07-242 18-009 18-010	29.8 37.8 50.3	\$ 290,000 98WARM / FEMA  \$ 140,000 98WARM  \$ 320,000 98WARM  \$ 280,000 98WARM  \$ 6,500 98WARM	RW CN	RW   CN   CN   CN   CN   CN   CN   CN   C	CN	RW   CN   CN   CN   CN   CN   CN   CN   C	RW CN	RW 5 15,000 [W5U CN ]  EN	\$ 750,000 \$ 905,000 \$ 1,355,000	
13 14 15	Install water quality systems and improve conveyance near Verwhaven Lane.  382.84 AVAILS (180.9-20.13) (180.5-20.5-20.5-20.5-20.5-20.5-20.5-20.5-2	20-011 07-242 18-009 18-010	29.8 37.8 50.3	\$ 290,000 BSWARM / FEMA  \$ 140,000 BSWARM  \$ 320,000 BSWARM  \$ 320,000 BSWARM  \$ 5 6,500 BSWARM	RW CN	SW   CN   CN   CN   CN   CN   CN   CN   C	CN	RW   CN   CN   CN   CN   CN   CN   CN   C	RW CN	RW 5 15,000 [W5U CN ]  EN	5 750,000 5 905,000 5 1,355,000 5 1,160,000	
13 14 15	motal water quality systems and improve conveyance near  Verwhaven Lane.  SSEP 2-MOVALES-SEP 2-MOVAL	20-011 07-242 18-009 18-010	29.8 37.8 50.3	\$ 290,000 BSWARM / FEMA  \$ 140,000 BSWARM  \$ 320,000 BSWARM  \$ 320,000 BSWARM  \$ 5 6,500 BSWARM	RW CN	SW   CN   CN   CN   CN   CN   CN   CN   C	CN	RW   CN   CN   CN   CN   CN   CN   CN   C	RW   CN   FE   FE   FE   FE   FE   FE   FE   F	RW 5 15,000 [W5U CN ]    P   P   RW     RW     RW     CN     F   RW     CN     CN	5 750,000 5 905,000 5 1,355,000 5 1,160,000	
13 14 15 16	Incall water quality systems and improve conveyance near Verwhaven Lann.  SWP #SWBBB3-02 Charact Terrace Stormwater Outfall Repair. Manine could lastication to protect a bild dape (emergency repair 2022) and permanent stabilisation (2023).  SWP #SWBB23-03 Holeman Avenue Stormwater Improvements (PW-1): Replace CSs, upsize culverts, re-stabilish ditch on infolman Are near Broft-Bay Dr.  SWP #SWBB23-04 Semishamoo Drive South & Outfall improvements (PP-2, BP-3): Upsize culverts and re-erab bilds roadsold ditch on east saide of Semishmoo Drive.  SWP #SWBB23-05 Normar Place Stormwater Improvements (BP-1): Upsize pipes; replace CSB and install energy dissipator at pipe outfall on Normar Place  SWP #SWBB23-06 Lora Lane Drainage & Tide Gate Modifications (TL-12): Perplace did gate structure and repair embanisment; rissall "type 2 CSB and cluster under Brich Bay."	20-011 07-242 18-009 18-010 19-004	29.8 37.8 50.3 52.0	\$ 290,000 BSWARM / FEMA  \$ 140,000 BSWARM  \$ 320,000 BSWARM  \$ 320,000 BSWARM  \$ 5 6,500 BSWARM	RW CN	EW   CN   CN   CN   CN   CN   CN   CN   C	CN	RW   CN   CN   CN   CN   CN   CN   CN   C	RW   CN   CN   CN   CN   CN   CN   CN   C	RW 5 15,000 [W5U CN ]  EN	5 750,000 5 905,000 5 1,355,000 5 1,160,000 5 1,716,500	
13 14 15	Incall water quality systems and improve conveyance near Verwhaven Land.  SSP 25/800/14.5/8/8/2.2/3/16/3/5/2/3/3/8/3/3/3/8/3/8/3/8/3/8/3/8/3/8/3/8	20-011 07-242 18-009 18-010	29.8 37.8 50.3	\$ 290,000   DOWASTA / FEMA   \$ 140,000   BEWARM   \$ 320,000   BEWARM   \$ 280,000   BEWARM   \$ 5 260,000   BEWARM	RW CN	SW   CN   CN   CN   CN   CN   CN   CN   C	CN	RW   CN   CN   CN   CN   CN   CN   CN   C	RW   CN   CN   CN   CN   CN   CN   CN   C	RW 5 15,000 [W5U CN ]    P   P   RW     RW     RW     CN     F   RW     CN     CN	5 750,000 5 905,000 5 1,355,000 5 1,160,000	
13 14 15 16	Incall water quality systems and improve conveyance near Verwhaven Lann.  SWP #SWBBB3-02 Charact Terrace Stormwater Outfall Repair. Manine could lastication to protect a bild dape (emergency repair 2022) and permanent stabilisation (2023).  SWP #SWBB23-03 Holeman Avenue Stormwater Improvements (PW-1): Replace CSs, upsize culverts, re-stabilish ditch on infolman Are near Broft-Bay Dr.  SWP #SWBB23-04 Semishamoo Drive South & Outfall improvements (PP-2, BP-3): Upsize culverts and re-erab bilds roadsold ditch on east saide of Semishmoo Drive.  SWP #SWBB23-05 Normar Place Stormwater Improvements (BP-1): Upsize pipes; replace CSB and install energy dissipator at pipe outfall on Normar Place  SWP #SWBB23-06 Lora Lane Drainage & Tide Gate Modifications (TL-12): Perplace did gate structure and repair embanisment; rissall "type 2 CSB and cluster under Brich Bay."	20-011 07-242 18-009 18-010 19-004	29.8 37.8 50.3 52.0	\$ 140,000 BSWARM / FEMA  \$ 140,000 BSWARM  \$ 320,000 BSWARM  \$ 280,000 BSWARM  \$ 6,500 BSWARM	RW CN	EW   CN   CN   CN   CN   CN   CN   CN   C	CN	RW   CN   CN   CN   CN   CN   CN   CN   C	RW   CN   CN   CN   CN   CN   CN   CN   C	RW 5 15,000 [W5U CN ]    P   P   RW     RW     RW     CN     F   RW     CN     CN	5 750,000 5 905,000 5 1,355,000 5 1,160,000 5 1,716,500	
13 14 15 16	Install water quality systems and improve conveyance near  Verwhaven Lane.  382.8 AWAILS (180.9 AWAILS) (180.5	20-011 07-242 18-009 18-010 19-004	29.8 37.8 50.3 52.0	\$ 140,000 BSWARM / FEMA  \$ 140,000 BSWARM  \$ 320,000 BSWARM  \$ 280,000 BSWARM  \$ 6,500 BSWARM	RW CN	FW   CN   CN   CN   CN   CN   CN   CN   C	CN	RW   CN   CN   CN   CN   CN   CN   CN   C	RW   CN   CN   CN   CN   CN   CN   CN   C	RW 5 15,000 [W5U CN ]    P   P   RW     RW     RW     CN     F   RW     CN     CN	5 750,000 5 905,000 5 1,355,000 5 1,160,000 5 1,716,500	
13 14 15 16 17 18 18	Incall water quality systems and improve conveyance near  Verwhaven Lane.  SSESSAWATAL SIGNER AND	20-011 07-242 18-009 18-010 19-004 18-008	29.8 37.8 50.3 52.0 42.5	\$ 290,000 BSWARM / FEMA  \$ 140,000 BSWARM  \$ 320,000 BSWARM  \$ 320,000 BSWARM  \$ 6,500 BSWARM	RW CN S 5,000 EMA CN S 5,000 BWARM CN S 15,000 BWARM CN S 10,000 BWARM CN S 20,000 B	SW   CN   CN   CN   CN   CN   CN   CN   C	CN	RW	RW   CN   CN   CN   CN   CN   CN   CN   C	RW 5 15,000 [W5U CN ]    PE     RW     FE     RW     CN     FE     RW     CN     CN     FE     RW     CN     CN     FE     RW     CN     CN	\$ 750,000 \$ 905,000 \$ 1,355,000 \$ 1,716,500 \$ 970,000	
13 14 15 16	Install water quality systems and improve conveyance near Verwhaven Lann.  302.3 AVM ALL STOP 302.0 AVM ALL STOP STOP SYSTEMS AVM ALL STOP 302.0 AVM ALL STOP SYSTEMS AVM ALL ST	20-011 07-242 18-009 18-010 19-004	29.8 37.8 50.3 52.0	\$ 290,000 BBWARM / FEMA  \$ 140,000 BBWARM  \$ 320,000 BBWARM  \$ 280,000 BBWARM  \$ 6,500 BBWARM	RW CN	EW   CN   CN   CN   CN   CN   CN   CN   C	CN	RW   CN   CN   CN   CN   CN   CN   CN   C	RW   CN   CN   CN   CN   CN   CN   CN   C	S   15,000   LWS U	5 750,000 5 905,000 5 1,355,000 5 1,160,000 5 1,716,500	
13 14 15 16 17 18 18	Incall water quality systems and improve conveyance near  Verwhaven Lane.  SSESSAWATAL SIGNER AND	20-011 07-242 18-009 18-010 19-004 18-008	29.8 37.8 50.3 52.0 42.5	\$ 290,000 BSWARM / FEMA  \$ 140,000 BSWARM  \$ 320,000 BSWARM  \$ 320,000 BSWARM  \$ 5 6,500 BSWARM	RW CN	SW   CN   CN   CN   CN   CN   CN   CN   C	CN	RW	RW CN	RW 5 15,000 [W5U CN ]	\$ 750,000 \$ 905,000 \$ 1,355,000 \$ 1,716,500 \$ 970,000	
13 14 15 16 17 18 18	Install water quality systems and improve conveyance near Verwhaven Lann.  302.3 AVM ALL STOP 302.0 AVM ALL STOP STOP SYSTEMS AVM ALL STOP 302.0 AVM ALL STOP SYSTEMS AVM ALL ST	20-011 07-242 18-009 18-010 19-004 18-008	29.8 37.8 50.3 52.0 42.5	\$ 290,000 BBWARM / PEMA  \$ 140,000 BBWARM  \$ 320,000 BBWARM  \$ 280,000 BBWARM  \$ 6,500 BBWARM	RW CN	EW   CN   CN   CN   CN   CN   CN   CN   C	CN	RW	RW CN	RW 5 15,000 LW5U CN	\$ 750,000 \$ 905,000 \$ 1,355,000 \$ 1,716,500 \$ 970,000	
13 14 15 16 17 18 18	Incal Justice quality systems and improve conveyance near Verwhaven Land.  SSPP SWB23-02 Charat Terrace Stomwater Outfall Repair Manie cudils Substance for provided the Milk State of State (State State St	20-011 07-242 18-009 18-010 19-004 18-008	29.8 37.8 50.3 52.0 42.5	\$ 290,000 BSWARM / FEMA  \$ 140,000 BSWARM  \$ 320,000 BSWARM  \$ 280,000 BSWARM  \$ 6,500 BSWARM	RW CN	RW   CN   CN   CN   CN   CN   CN   CN   C	CN	RW	RW	RW 5 15,000 [W5U   CN   CN   CN   CN   CN   CN   CN   C	\$ 750,000 \$ 905,000 \$ 1,355,000 \$ 1,716,500 \$ 970,000	
13 14 15 16 17 18 18 19	Install water quality systems and improve conveyance near  Verwhaven Lane.  382.63.40VALLS-182.6.2.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.	20-011 07-242 18-009 18-010 19-004 18-008 21-001	29.8 37.8 50.3 52.0 42.5 33.3	\$ 290,000 BSWARM / FEMA  \$ 140,000 BSWARM  \$ 320,000 BSWARM  \$ 280,000 BSWARM  \$ 6,500 BSWARM	RW CN	SW   CN   CN   CN   CN   CN   CN   CN   C	CN	RW	RW CN	RW 5 15,000 [WSU   CN   CN   CN   CN   CN   CN   CN   C	5 750,000 5 905,000 5 1,355,000 5 1,716,500 5 2,600,000	
13 14 15 16 17 18 18	Incall water quality systems and improve conveyance near Verwhaven Land.  SSPP SWBB23-02 Charat Terrace Stormwater Outfall Repair Manie cudils Substance for provide a field single (mergency repair 2022) and permanent stabilisation (2023).  2022) and permanent stabilisation (2023).  2022 In Storm Stormwater Improvements (PW-1): Replace CRs, upsize culvers, re-establish dilch on Holeman Aven near Broth Bay Dr.  SWP SWBB23-04 Semishmoo Drive South & Outfall Improvements (BP-2): BS-3): Upsize culvers and re-erab lish roadsde dirich on east side of Semishmoo Drive.  SWP SWBB23-05 Stormar Place Stormwater Improvements (BP-2): Upsize pipes, replace CRs and install energy dissipator at pipe outfall on Normar Place  SWP SWBB23-06 Lora Lane Drainage & Tide Caste Modifications (TCC-2): Replace did get and culvers under Broth Ray Dr.  SWP SWBB23-06 Lora Lane Drainage & Tide Caste Modifications (TCC-2): Replace did get structure and repair embankment; install Type 2 CR and culvert under Broth Ray Dr.  SWP SWBB23-06 Lora Lane Drainage & Tide Caste Modifications (TCC-2): Replace did get structure and repair embankment; install Type 2 CR and culvert under Broth Ray Dr.  SWP SWBB23-06 Broth Point Road Stormwater & Outfall Improvements (Si-2): Address drainage concerns in Richmond Park Stormwater (Improvements (Si-2): Address drainage concerns in Richmond Park by creating istormwater down Shintafer Road to a Bloth Bay urface united in the recolors.  Roger's Stough Drainage Improvements: Re-gade diddes, install one work of the Coulvert on work outleast in the conserte box culvert.	20-011 07-242 18-009 18-010 19-004 18-008	29.8 37.8 50.3 52.0 42.5	\$ 290,000 BSWARM / FEMA  \$ 140,000 BSWARM  \$ 320,000 BSWARM  \$ 280,000 BSWARM  \$ 6,500 BSWARM	RW CN S 5,000 REMA CN S 5,000 BWARM CN S 50,000 BWARM CN S 70,000	SW   CN   CN   CN   CN   CN   CN   CN   C	CN	RW	RW	RW 5 15,000 [WSU CN	\$ 750,000 \$ 905,000 \$ 1,355,000 \$ 1,716,500 \$ 970,000	
13 14 15 16 17 18 18 19	Install water quality systems and improve conveyance near  Verwhaven Lane.  382.63.40VALLS-182.6.2.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.63.40VAJLS-182.	20-011 07-242 18-009 18-010 19-004 18-008 21-001	29.8 37.8 50.3 52.0 42.5 33.3	\$ 290,000 BBWARM / FEMA  \$ 140,000 BBWARM  \$ 320,000 BBWARM  \$ 280,000 BBWARM  \$ 6,500 BBWARM	RW CN	SW   CN   CN   CN   CN   CN   CN   CN   C	CN	RW	RW CN	RW 5 15,000 [W5U] CN	5 750,000 5 905,000 5 1,355,000 5 1,716,500 5 2,600,000	
13 14 15 16 17 18 18 19	Incall water quality systems and improve conveyance near Verwhaven Land.  SSPP SWBB23-02 Charat Terrace Stormwater Outfall Repair Manie cudils Substance for provide a field single (mergency repair 2022) and permanent stabilisation (2023).  2022) and permanent stabilisation (2023).  2022 In Storm Stormwater Improvements (PW-1): Replace CRs, upsize culvers, re-establish dilch on Holeman Aven near Broth Bay Dr.  SWP SWBB23-04 Semishmoo Drive South & Outfall Improvements (BP-2): BS-3): Upsize culvers and re-erab lish roadsde dirich on east side of Semishmoo Drive.  SWP SWBB23-05 Stormar Place Stormwater Improvements (BP-2): Upsize pipes, replace CRs and install energy dissipator at pipe outfall on Normar Place  SWP SWBB23-06 Lora Lane Drainage & Tide Caste Modifications (TCC-2): Replace did get and culvers under Broth Ray Dr.  SWP SWBB23-06 Lora Lane Drainage & Tide Caste Modifications (TCC-2): Replace did get structure and repair embankment; install Type 2 CR and culvert under Broth Ray Dr.  SWP SWBB23-06 Lora Lane Drainage & Tide Caste Modifications (TCC-2): Replace did get structure and repair embankment; install Type 2 CR and culvert under Broth Ray Dr.  SWP SWBB23-06 Broth Point Road Stormwater & Outfall Improvements (Si-2): Address drainage concerns in Richmond Park Stormwater (Improvements (Si-2): Address drainage concerns in Richmond Park by creating istormwater down Shintafer Road to a Bloth Bay urface united in the recolors.  Roger's Stough Drainage Improvements: Re-gade diddes, install one work of the Coulvert on work outleast in the conserte box culvert.	20-011 07-242 18-009 18-010 19-004 18-008 21-001	29.8 37.8 50.3 52.0 42.5 33.3	\$ 290,000 BBWARM / FEMA  \$ 140,000 BBWARM  \$ 320,000 BBWARM  \$ 280,000 BBWARM  \$ 6,500 BBWARM	RW CN S 50,000 RMARM RW S 50,000 BWARM RW S 70,000 BWARM	SW   CN   CN   CN   CN   CN   CN   CN   C	CN	RW   CN   CN   CN   CN   CN   CN   CN   C	RW CN	RW 5 15,000 [WSU CN	5 750,000 5 905,000 5 1,355,000 5 1,716,500 5 2,600,000	
13 14 15 16 17 18 18 19	Incal Justice quality systems and improve conveyance near Verwhaven Land.  SSPP SWB223-02 Charat Terrare Stormwater Outfall Repair Manie cudils Substance for provide the Mild Store (Progressy) of the Mild Store (Prog	20-011 07-242 18-009 18-010 19-004 18-008 21-001	29.8 37.8 50.3 52.0 42.5 33.3	\$ 290,000 BSWARM / FEMA  \$ 140,000 BSWARM  \$ 320,000 BSWARM  \$ 280,000 BSWARM  \$ 6,500 BSWARM	RW CN	SW   CN   CN   CN   CN   CN   CN   CN   C	CN	RW	RW CN	RW 5 15,000 [W5U] CN	5 750,000 5 905,000 5 1,355,000 5 1,716,500 5 2,600,000	
13 14 15 16 17 18 19 20	incal lavate quality systems and improve conveyance near  Verwhaven Lane.  SSE/SAWATLES (1807-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3) (1805-8-20/3	20-011 07-242 18-009 18-010 19-004 18-008 21-001 22-010	29.8 37.8 50.3 52.0 42.5 70.2	\$ 290,000 BBWARM / FEMA  \$ 140,000 BBWARM  \$ 320,000 BBWARM  \$ 280,000 BBWARM  \$ 6,500 BBWARM	RW CN	SW   CN   CN   CN   CN   CN   CN   CN   C	CN	RW	RW   CN   FE   FE   FE   FE   FE   FE   FE   F	RW 5 15,000 [WSU CN ]  CN	5 750,000 5 905,000 5 1,355,000 5 1,716,500 5 1,716,500 5 2,600,000	
13 14 15 16 17 18 19 20	Incall water quality systems and improve conveyance near Verwhaven Land.  SWP PSWBB23-02 Charat Terrace Stormwater Outfall Repair Manine cudils Substaction to protect is full disper (emproyer personal control of the	20-011 07-242 18-009 18-010 19-004 18-008 21-001 22-010	29.8 37.8 50.3 52.0 42.5 70.2	\$ 290,000 BBWARM / FEMA  \$ 140,000 BBWARM  \$ 320,000 BBWARM  \$ 280,000 BBWARM  \$ 6,500 BBWARM	RW CN	SW   CN   CN   CN   CN   CN   CN   CN   C	CN	RW	RW CN	RW 5 15,000 [WSU   WSU   CN   WSU   WSU   CN   WSU   WSU	5 750,000 5 905,000 5 1,355,000 5 1,716,500 5 1,716,500 5 2,600,000	
13 14 15 16 17 18 18 19 20 21	incal lawser quality systems and improve conveyance near  Verwhaven Land.  SSPE SAWATLES (1972-2013) and improve conveyance near  Verwhaven Land.  SSPE SAWATLES (1972-2013) and SSPE SAWATLES (1972-2013) and  Manne outfall sublication to protect a bullf slope (emergency repair  2012) and permanent sublikation (2013).  2012 had permanent sublikation (2013).  SSPE PSSW8823-00 Stemiahmoo Drive South & Outfall improvements  (8P-2, BP-5) Upsize culverts, re-establish ditch on Holeman  Ane near Brich Bay of  SSPE PSSW8823-00 Semiahmoo Drive South & Outfall improvements  (8P-2, BP-5) Upsize culverts and re-establish roadsde ditch on east  seed of Semiahmoo Drive.  SSPE PSSW8823-05 Semiahmoo Drive South & Outfall improvements  (BP-2, BP-5) Upsize culverts and re-establish roadsded ditch on east  seed of Semiahmoo Drive.  SSPE PSSW8823-05 Normar Place Stormwater improvements  (BP-2, BP-5) Upsize pines, replace Cilis and install energy dissipater at pipe outfall  on Normar Place.  SSPE PSSW8823-05 Lors Lane Drainage & Tride Gate Modifications  (TLC-12): Beplace tide gate stucture and repair embankment; install  Type 2 Cili and culvert under Burch Bay Dr   SSPE PSSW8823-07 Birch Point Road Stormwater & Outfall  improvements (BP-2, BP-6); Upsize culverts and replace outfall to  the beach to reduce bull feroson  SSPE PSSW8823-08 Birchmood Park Stormwater improvements  (Sit-2) Address drainage concerns in Richmood Park by re-outling.  Reger's Stough Drainage improvements: Upsize existing culvers  and install new pipe and carich basins in Birch Bay Village to reduce  mododing.  Bay Ridge Estates Drainage improvements: Upsize and install new  and mistall new pipe and carich basins in Birch Bay Village to reduce  mododing.	20-011 07-242 18-009 18-010 19-004 18-008 21-001 22-010 23-002	29.8 37.8 50.3 52.0 42.5 70.2 52.9	\$ 290,000 BBWARM / FEMA  \$ 140,000 BBWARM  \$ 320,000 BBWARM  \$ 5,000 BBWARM  \$ 6,500 BBWARM	RW CN	SW   CN   CN   CN   CN   CN   CN   CN   C	CN	RW	RW   CN   FE   FE   FE   FE   FE   FE   FE   F	RW 5 15,000 [WSU CN ]  CN	5 750,000 5 905,000 5 1,355,000 5 1,716,500 5 2,600,000 5 2,600,000 5 2,650,000	
13 14 15 16 17 18 19 20	Incall water quality systems and improve conveyance near Verwhaven Land.  SWP PSWBB23-02 Charat Terrace Stormwater Outfall Repair Manine cudils Substaction to protect is full disper (emproyer personal control of the	20-011 07-242 18-009 18-010 19-004 18-008 21-001 22-010	29.8 37.8 50.3 52.0 42.5 70.2	\$ 290,000 BBWARM / FEMA  \$ 140,000 BBWARM  \$ 320,000 BBWARM  \$ 5,000 BBWARM  \$ 6,500 BBWARM	RW CN	SW   CN   CN   CN   CN   CN   CN   CN   C	CN	RW	RW	RW 5 15,000 [WSU CN	5 750,000 5 905,000 5 1,355,000 5 1,716,500 5 1,716,500 5 2,600,000	

201	OM COUNTY FLOOD CONTROL ZONE	Database ID		Previous Expenditures		2044"2023 317"11	AN W	TIER RESOURCES IN	/IPRO	/EMENT PROGRAM					I man and a second seco		N. V. C.
	Project Description	No.	BES		Phase	Amount Source	Plane	Ambent Seette	Physic	Amount Source	Phase	Amount Searce	Phase	Amount Source	Photo Amount	Source	To
	RIVER & FLOOR			S 18,000 FCZD	O.C.		PF		lar I		»E				Tec -		
-			l 1	\$ 1,054,000 FEMA/State	PE		PE		PE		E S		PF PF		PE PE		Projec
1	Everson Overflow Pipeline Bank Stabilization (720009): Stabilize	20.002	66.3	S 37,500 Pipeline			PE		PE		E 3		PE PE		PE		
ı	bank at erosion site from 2020 flood at pipeline crossing	20-002	66.3		CN S	1,000 FCZD	CN		CN		N		CN		CN		FCZD
ı					CN S		CN		CN		N.		CN		CN		\$
1			1		CN		CN		CN		N.		CN		CN		
1				S 6,131,000 FCZD	PE S	FCZO	PE PE		PE PE		PE I		PE		IPE I		0
-				\$ 350,000 FEMA/State grant \$ 3,879,000 FbD grant	RW S	- Roads - FCZD	RW		RW		RW .		RW		RW RW		Projec
ì	Jones Creek Debris Flow Risk Reduction (712004): Construct			3 3,879,000 780 Blant	RW 5	· FbD grant	CN		CN		N.		CN		CN		3
	deflection berms and realign roadway	07-105	70.6		CN S	5,000 FCZD	CN		CN		IN		CN		CN		FCZC
	- ·				CN 5	18,000 FbD grant	CN		CN		CN N		CN		CN		5
					CN S	- Roads	CN		CN		IN		CN		CN		
_					CN S	- Utilities	CN		CN PE		N		CN		CN		
	Marine Drive Emergency Levee Repair (720004): Repair crest and		1	5 121,000 FCZO 5 2,181,000 FEMA	PE PE		PE		PE		7E		PE		PE		Proje
	backstope flood damage	20-001	61.4	\$ 121,000 State	CN S	2,000 FCZD	CN		PE CN		EN .		PE CN		CN		FCZI
	овсклоре ноод салтаде		1 1	3 223,000 Sate	CN S	38,000 FEMA/State	CN		CN		IN I		CN		CN		3 7021
				S 37,000 FCZD .	PE S	1,400 FCZD	PE		PE		PE		PE		PE		Proje
į	Truck Road Bank Stabilization (720008): Phase 1 emergency		1 1	\$ 1,345,000 FEMA	PE S	54,600 FEMA/State	PE		PΕ		PE		PE		PE		5
	construction in 2022 and Phase 2 road rehab and environmental	20-003	59.4	S 75,000 State	PE S	1,400 Roads	PE		PE		PE		PΕ		PE		
	mitigation in 2023	25.005	1	5 37,000 Roads	CN S	58,500 FCZD	CN 5	1,400 FCZD	CN CN		CN		CN		CN		FCZ
					CN S	2,224,900 FEMA/State	CN S	54,600 FEMA/State	CN		CN CN		CN		CN		S
I			+	S 375 FC2D		58,600 Roads 375 FCZD		1,400 Roads	CN PE						DT.		Da. C.
	Hudson Rd Bridge No. 132 Repair (722006): Repair Nov 2021			\$ 7,125 FEMA/State	PE S	7,125 FEMA/State	PE PE		PE		PE PE		PE PE		PE PE		Proje
	damages to bridge approaches	22-001	38.9	2 7,123 PEMA/SIATE	CN 5		CN S	125 FCZD					CN	<del></del>	CN	ļ	S FCZ
	annual of printing about the party of		1		CN S		CN S	2,375 FEMA/State	CN CN		CN CN		CN		CN		3 742
			$\vdash$	S 12,000 FC2D	PE S	104,500 FEMA/State	PE S	2,375 FEMA/State	PE PE		PE		PE		PE	<del></del>	Proje
			1	3 12,000 PCZU	CN		CN				CN		CN		CN	<u> </u>	ار ترواد
	Timon Levee USACE Rehabilitation (722001): USACE to repair Nov	22-002	64.5			1.621.000 USACE	CN		CN		CN		CN		CN	<del></del>	) (See
	2021 flood damages.	22.002			CN S	405,000 FCZD	CN		CN		CN		CN		CN	<del> </del>	FC
			1		CN S	25,000 LE Subzone	CN		CN		CN		CN		CN		1 70
			1 1	S 5,000 FC2D	PE S	23,300   CC 3002Onc	PE		PE		PE		PE		PE		Proje
				- 2,000 1000	CN		CN		CN		CN		CN		CN	<del> </del>	1 5
	Upper Hampton USACE Levee Rehabilitation (722008): USACE to	22-004	58.7			1,109,000 USACE	CN		CN		CN		CN		CN	<del> </del>	Sec
	repair Nov 2021 flood damages.					222,000 FCZD	CN	· · · · · · · · · · · · · · · · · · ·	CN		CN		CN		CN		FC
			1		CM C	25 000 LE Subzone	CN		CN				CN				s
			+	5 109,000 FC20	PE S	32,500 FCZD	PE		PE		PE P		PE		CN PE		Proje
	Cougar Creek and Neevel Levee Improvement (720010): Stabilize			5 117,000 NOAA grant	PE		PE		PE		PE I		PE		PE		s
	oversteepened section of levee (SWIF project) with new flood gate	16-008	59.4	5 77,000 FbD grant	PE		RW		RW		RW		RW		RW		
	and restoration (FLIP project)	15-000			RW		CN 5	1,608,235 FCZD	CN		PE		PE		PE		
					CN S	45,000 FCZD	CN S	386,235 EQUIP	CN		CN		CN		CN	<u> </u>	FCZ
		-	+	6 (1) 000 5636	CN C	120 200 5522		20 000 0000	CN		CN		CN		CN		5 Proi
	Abbott Levee Protection and Improvement (718010): Interim			5 655,000 FCZD 5 443,000 Roads	PE S	138,300 FCZD 138,300 Roads	PE S	25,000 FCZD 25,000 Roads	PE PE		PE		PE		PE PE	<u> </u>	e Proje
	erosion protection measures for levee & road (Ph. 1); Extend and	16-007	70.4	3 443,000 R080S	PE S	1.10,300 NU20\$	PE S CN S	25,000   Roads 1,000,000   FCZD	CN	\$ 7,500 FCZD	PE CN		PE CN		CN CN	<del> </del>	FCZ
	realign upstream end of levee (Ph. 2 - SWIF project)			<del></del>	RW		CN S	1,300,000 Roads	CN	S 7,500 Roads	CN		CN		CN	<del> </del>	5
					PE S	14,225 FCZD	PE 9	FC20	159	- 7,000 110003	<del></del>			<u> </u>	1		Proje
	Acme Woody Revetment Repair (723008): FEMA funded repair to		1.	h	PE S	270,275 FEMA/State	PE	FEMA/State					$\vdash$		1-1		5
	Acme Early Chinook Restoration Project	23-005	67.7		12 13	E ( O) E ( O) PO ( O) PO ( O)	CN S	S0.000 FCZO	-				$\vdash$			<del> </del>	FCZ
	,						CN S	950,000 FEMA/State	-				-		<del>  </del>		5
-	Bertrand Creek Levee Stabilization (721002): Restore right and left		-	S 7,000 FCZD	PE S	30,000	PE S	S.000 FCZD	PΕ		PE		PΕ		PE		Proje
	levee prisms and install bank protection (SWIF project)	16-005	54.4	7,000 1.00	CN	30,000	CN S	225,000 FCZD	CN		CN		CN		CN		5
	( , , , , , , , , , , , , , , , , , , ,	_			CN		CN S	25,000 DD#4?	CN		CN		CN		CN		1
-	Devries Levee Improvements: Widen and establish full crest width				PE S	10,000	PE S	25,000	PE		PE		PE		PE	_	Proje
	and backslope levee (SWIF project)	19-001	49.3		CN		CN S	200,000	CN				CN		CN		5
	<u> </u>			S 171,000 FCZD	PF S	96,000 FCZD	PE 5	20,000 FC2D		\$ 50,000	CN FE S	50,000	PE	5 50,000	PE		Cons
	Ferndale Levee Improvement (719008): Reconstruct and realign Ferndale and Treatment Plant Levees to improve level of protection	07-104	68.9	S 805,000 FbD grant	PE S	384,000 FbD grant	PE S	80,000 FbD grant	PE RW		RW		RW		RW		Ex
	and address deficiencies	07-104	1 50.9		RW		RW 5	100,000 FCZD	CN		CN		CN		CN		in 2
	and address denciencies				CN		RW S	400,000 FbD grant	CN	\$ 1.520,000 FbD grant	CN 5	5,000,000	CN	5 1,000,000	CN		
				S 413,000 FCZD	PE 5	116,600 FCZD	PE S	40,000 FCZD	PE	\$ 40,000 FCZD	PE PE	FCZD	PE		PE		Con
	Glacier-Gallup Alluvial Fan Restoration (718007): Remove all or part	l		\$ 413,000 FCZD \$ 1,079,000 FbD grant	PE S	466,400 FbD grant	PE S PE S RW S	160,000 FbD grant	PĒ	5 160,000 FbD grant	PE	FbD grant	PE RW		PE		E
	of Glacier Creek levee and construct setback levee along Gallup	18-006	88.9	<del></del>	RW 5	120,000 FCZD 480,000 FbD grant	RW S	200,000 FCZD 800,000 FbD grant	RW.	FC20 Fb0 grant	RW RW	FCZD	RW		8W		20
	Creek. Interim revetment fix in 2023		1		CN S	400,000 FBD grant	CN S	FCZD FED grant	CN	FDU grant FCZD	CN S	1,000,000 FCZD	CN	\$ 1,000,000 FCZD	CN	-	20
		l	1		CN		CN		CH							-	+
-		<b></b>	+					FbD grant	CN		CN S		CN		CN	<del> </del>	H
	Dahlberg Wetland Mitigation Site (719006): Develop advanced			5 873,000 FCZD	PE S	15,000 FCZO	PE 5	240,000 FCZD	PE		PE		PE	\$ 100,000	PE		Proj
	mitigation site for future impacts from Flood and Road projects	20-004	66.3		CN		CN		CN		CN S	1,000,000	CN		CN \$ 500,000		->
	(likely phased implementation as projects are permitted)	1			CN		lcn		CN.		rn ]	ļ	CN		CN		1
	Upper Hampton Levee Improvements: Widen levee crest and flatten		1	S 6,000 LE Subzone	PE		PE S	5,000	PE		PE		PE		IPE I		Pro
	backslope at two sites and seepage at retaining wall deficienies (SWIF	16-006	70.4	Under Lynden project	RW		RW		RW		PE RW		PE RW		PE RW		S
	project)	L			CN		CN 5	25,000 FCZD/LE Subzone	CN		CN		CN		CN	1 -	
				\$ 236,000 FCZD	RW S	1,100,000 FC20	RW 5	5,000,000	RW	\$ 5,000,000	RW		RW		RW		L
	Floodplain Acquisition: Acquire key properties for future levee		1	\$ 943,000 FbD grant	RW S	4,400,000 FbD grant 9,600,000 FEMA/CBDG	$\perp$										
	reconfiguration to reduce risk and improve habitat	07-002	79.6		RW S	9,600,000 FEMA/CBDG							$\Box$		4		
			1	le	I I.		PW/		L	1			PW		I		1
			+	5 843,000 Commerce grant 5 663,000 FCZD	RW S	866,000 Commerce grant	RW I		RW		RW		RW (		RW	<u> </u>	+
	Marietta Acquisition: Acquire properties in repetitive flood loss area		1	5 663,000 FCZD S 1,044,000 FEMA/State		\$5,000	RW S	100.000	RW	5 100.000	RW C		RW	S 100.000	RW RW	-	Total
	and remove structures	07-002	79.6	S 145,000 ESRP grant	RW S	>>,UUU	CN S	25,000	CN		RW S	100,000 25,000	CN	\$ 100,000 \$ 25,000	IRW ICN		Ş FC
		İ	1	- A-2,000   East Spain	CN		CN S	23,000	CN	- 27,000	CN S	23,000	CN		CN		S rc.
	High Creek Sediment Trap (720005): Annual clean out of sediment	****	1	S 137,000 FC2D	CN		CN		CN		CN		CN		CN	$\vdash$	FCZD
	traps	22-005	58.8	5 105,000 FEMA/State	CN S	115,000 FCZD	CN S	120,000 FCZO	CN	S 125,000 FC2D	CN S	130,000 FCZD	CN	\$ 135,000 FCZD	CN 5 140,000	FCZD	5
		-	_	1		25,000 FCZD	PE S	25,000 FCZD	PE	S 25,000 FC20	PE S					FCZD	t
	Emergency/New Projects: Typically repair projects that result from	08-003	Varies		PE S		RW		RW		PE S RW		PE RW		RW		Tot
		1 00-003	varies		CN S	50,000 Local sponsor 350,000 FCZD	CN S	50,000 Local sponsor 350,000 FCZD	CN	5 50,000 Local sponsor 5 350,000 FCZD	CN S	50,000 Local sponsor 350,000 FCZD	CN CN	S 50,000 Local sponsor	CN 5 50,000 CN 5 350,000	Local sponsor	5
	new damage, as needed	f			CN S												

Numbers in italitis are placeholders for projects still being conceived.

Previous expenditures includes work contracted in 2022 that will continually appropriate into 2023.

Note 1: Estimated tools project cost includes work done by U.S. Army Corpts of Engineers (USACE) and funded directly by USACE.

# Academy Road Stormwater Improvements Database ID No. 20-005

#### Construction Funding Year(s):

2024

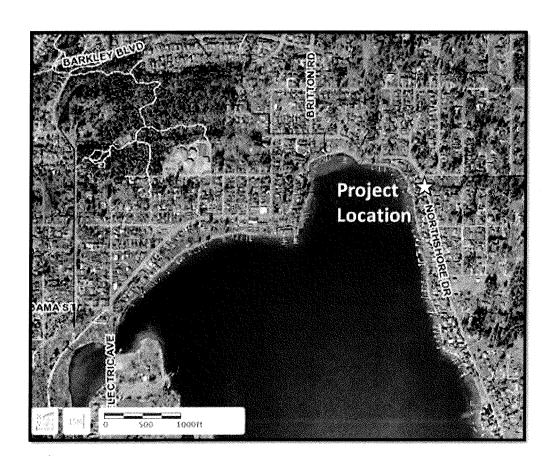
#### **Project Narrative:**

Whatcom County and the City of Bellingham jointly developed this project to improve water quality from the approximate 80-acre Academy sub-basin of the Lake Whatcom Watershed. This stormwater treatment facility project was originally constructed in 2015 and will be retrofitted to improve phosphorus removal based upon recently completed evaluations of stormwater treatment performance. City of Bellingham will adopt the facility for future operation and maintenance after the retrofit improvements are completed by Whatcom County in 2024.

#### Project Status:

Design and permitting is being completed in 2023 and construction scheduled to take place in the summer of 2024.

Initial 2015 completed project cost: \$ 1,204,000 2024 retrofit project cost: \$ 826,000 **Total Estimated Project Cost**: \$ 2,030,000



# Geneva Bioretention Pilot Project Database ID No. 20-006

Construction Funding Year(s):

2023

#### **Project Narrative:**

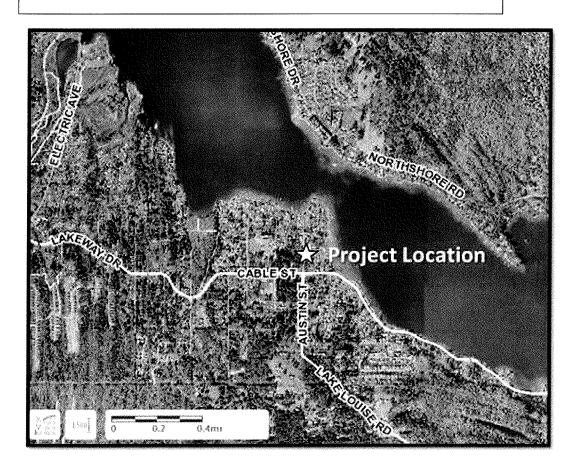
This project will utilize a Washington State Department of Ecology grant to install and monitor the performance of new bioretention soil media. The existing swales are approaching the end of the media's effective life. New media will be required to replace the existing depleted media in the near future.

A portion of the existing swales will be used to test the new media, which is designed to reduce the amount of phosphorus and other pollutants entering the lake. Preliminary testing has shown the new media is much more effective in removal of phosphorus than more traditional media. If tests show significant improvement over the original media, the media will be adopted as a Best Management Practice (BMP) and be included in the updated WDOE Stormwater Manual.

### Project Status:

Design is occurring in 2021-2022, construction in 2023, and monitoring performance in 2024-2026.

Total Estimated Project Cost: \$1,112,000 (without monitoring costs)



# Silver Beach Creek Stormwater Improvements Phase 2 Database ID No. 07-095

**Construction Funding Year(s):** 

2024

#### Project Narrative:

This project will address the stream bank erosion found on Silver Beach Creek and other tributaries. The project will reduce the amount of erosion and bank material that has been generally associated with the sediment-laden phosphorus loading to Lake Whatcom. The project will reconfigure approximately 950 linear feet of stream channels with a more stable cross-section to reduce erosion and the export of sediment.

## **Project Status:**

Design is underway and construction scheduled to take place in 2024.

Total Estimated Project Cost: \$1,160,000



# Eagleridge Stormwater Improvements Database ID No. 20-007

### Construction Funding Year(s):

2025

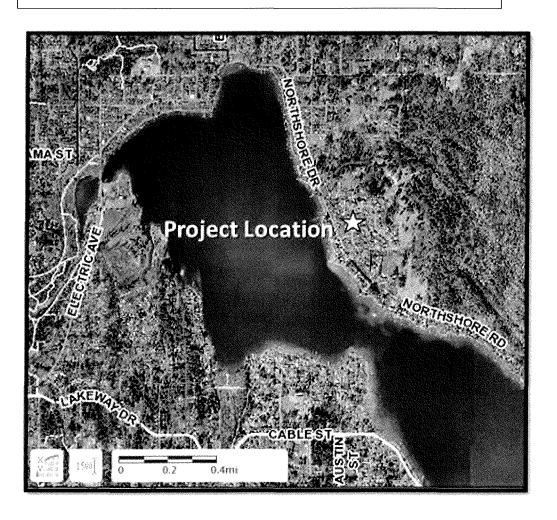
#### **Project Narrative:**

This project includes the installation of a water quality treatment facility associated with the Eagleridge neighborhood in the Lake Whatcom watershed. The Eagleridge development is approximately 34 acres and runoff from this development will be routed through a water quality facility to help remove sediments and phosphorus before entering Lake Whatcom.

# Project Status:

Design is anticipated in 2023-2024 and construction scheduled to take place in 2025.

**Total Estimated Project Cost:** \$810,000



# Austin Court Stormwater Improvements Database ID No. 20-008

Construction Funding Year(s):

2026

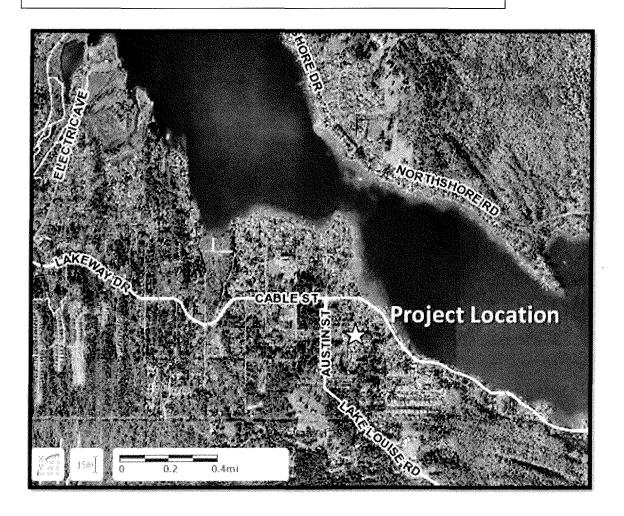
#### **Project Narrative:**

This project includes the installation of a large filter vault to improve water quality in the existing Austin Court stormwater system. The tributary area is approximately three acres and the water quality system will remove sediments and phosphorus prior to entering Lake Whatcom.

### Project Status:

Design is anticipated in 2023-2024 and construction scheduled to take place in 2026.

Total Estimated Project Cost: \$675,000



# Cedar Hills Culvert Replacement Database ID No. 23-001

Construction Funding Year(s):

2025

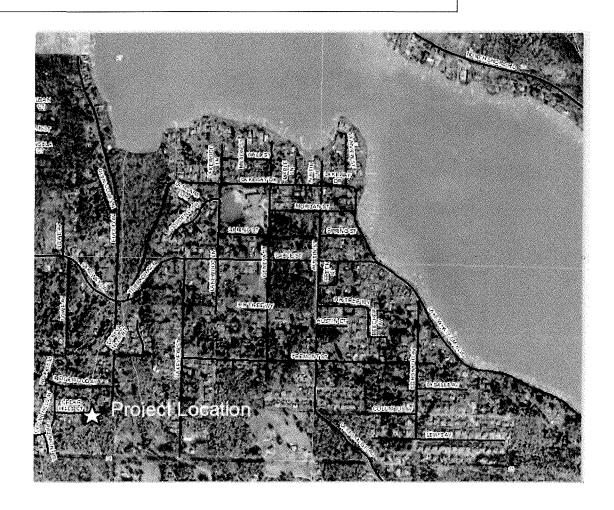
#### **Project Narrative:**

This project includes the replacement of a culvert that was damaged during the 2021 flooding event with a new upsized 100-linear feet long 36-inch diameter culvert. The work shall also include the modification of the culvert inlet to enhance erosion and sediment control, along with re-grading and armoring the downstream channel to provide improved conveyance capacity. This will be funded by FEMA, REET and the Lake Whatcom utility.

## Project Status:

Design is anticipated in 2024-2025 and construction scheduled to take place in 2025.

**Total Estimated Project Cost:** \$392,000



# Strawberry Point/ Lake Whatcom Blvd Stormwater Improvements Database ID No. 17-001

## Construction Funding Year(s):

2027

#### **Project Narrative:**

This project will involve the installation of a water quality facility to treat approximately three acres of residential area. Project elements may include: bio-infiltration swales, filter vaults, media filter drains, and rain gardens in order to improve water quality.

#### Project Status:

Design is anticipated in 2025-2026 and construction scheduled to take place in 2027.

**Total Estimated Project Cost:** \$1,170,000



# Geneva Street & Lake Louise Road Culvert Replacement Database ID No. 20-010

Construction Funding Year(s):

2028

#### **Project Narrative:**

Project will improve conveyance of roadside ditches and culverts along Geneva Street and Lake Louise Road. This will improve water quality. The project will replace approximately 200 linear feet of undersized or damaged culverts.

### Project Status:

Design is anticipated in 2027 and construction scheduled to take place in 2028.

Total Estimated Project Cost: \$270,000



# Lake Whatcom Boulevard Media Filter Drain (EG-1) Database ID No. 22-006

### Construction Funding Year(s):

2028

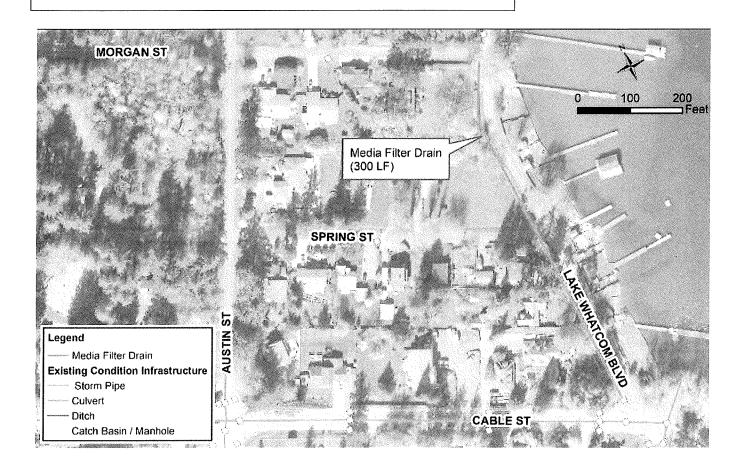
### **Project Narrative:**

The project would install Media Filter Drain (MFD), or other appropriate water quality system, along approximately 300 linear feet of roadway on the west side of Lake Whatcom Blvd. Stormwater runoff from approximately 8.5 acres on the west side of Lake Whatcom Blvd. is collected in a shallow roadside ditch, this project would treat this water prior to discharging to Lake Whatcom.

#### **Project Status:**

Design is anticipated in 2027 and construction scheduled to take place in 2028.

**Total Estimated Project Cost:** \$835,000



# Sudden Valley Stormwater Improvements No. 2 Database ID No. 22-007

#### Construction Funding Year(s):

2028

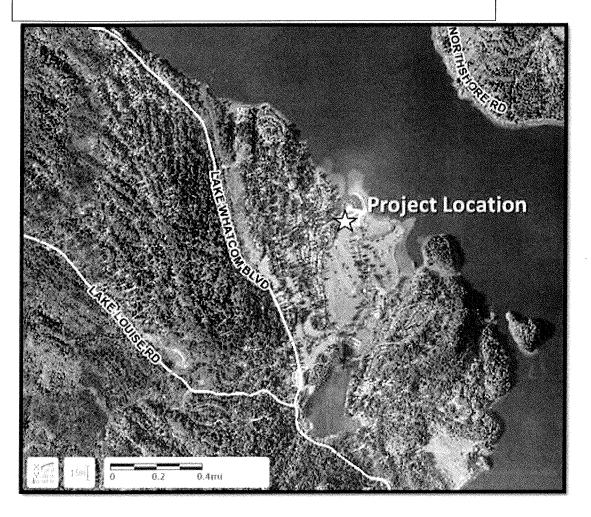
#### **Project Narrative:**

A project, to be determined, will be constructed within the Sudden Valley area as the second water quality improvement project focused on removing sediment and treating phosphorus in a continued collaboration with the Sudden Valley community. The project will include drainage system upgrades and retrofits to the existing stormwater infrastructure. Details will be forthcoming as Whatcom County works with representatives of the Sudden Valley Community Association.

## Project Status:

Design is anticipated in 2026-2027 and construction scheduled to take place in 2028.

**Total Estimated Project Cost:** \$1,260,000



# Lake Whatcom Boulevard Water Quality Vault (EG-4) Database ID No. 22-008

## Construction Funding Year(s):

2030

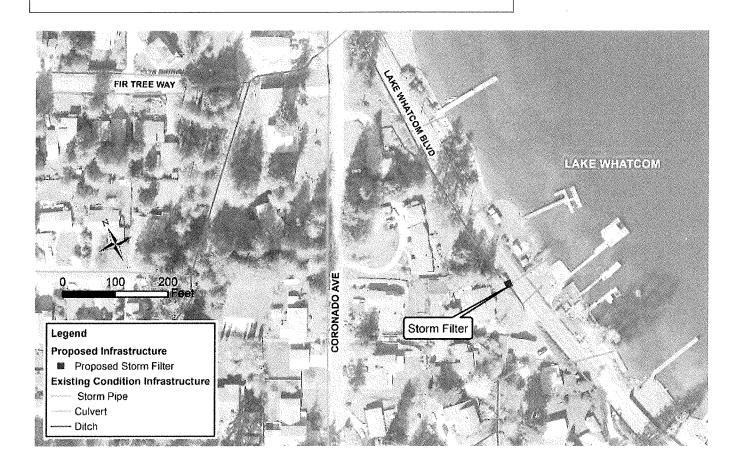
#### **Project Narrative:**

This project includes the installation of a filter vault to improve water quality in the existing Lake Whatcom Blvd stormwater system. The water quality system will remove sediments and phosphorus from approximately 3 acres of residential runoff prior to entering Lake Whatcom.

#### **Project Status:**

Design is anticipated in 2028-2029 and construction scheduled to take place in 2030.

Total Estimated Project Cost: \$650,000



# Viewhaven Lane Water Quality & Conveyance Improvements Database ID No. 20-009

Construction Funding Year(s):

2030

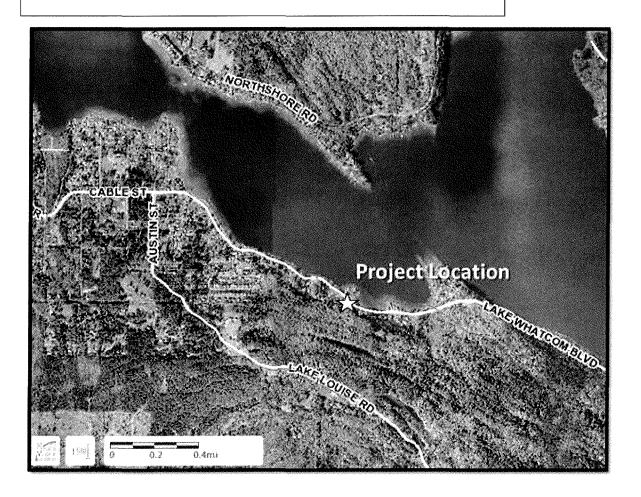
## **Project Narrative:**

This project will improve conveyance and water quality near Viewhaven Lane and Lake Whatcom Blvd intersection. Project will include approximately 100 linear feet of conveyance improvements by replacing two undersized culverts and regrading a ditch. The project will also install approximately 135 linear feet of water quality facility. Project elements may include: bioinfiltration swales, filter vaults, media filter drains, and rain gardens.

# **Project Status:**

Design is anticipated in 2029-2030 and construction scheduled to take place in 2030.

**Total Estimated Project Cost:** \$475,000



# Charel Terrace Stormwater Outfall Repair Database ID No. 20-011

Construction Funding Year(s):

2024

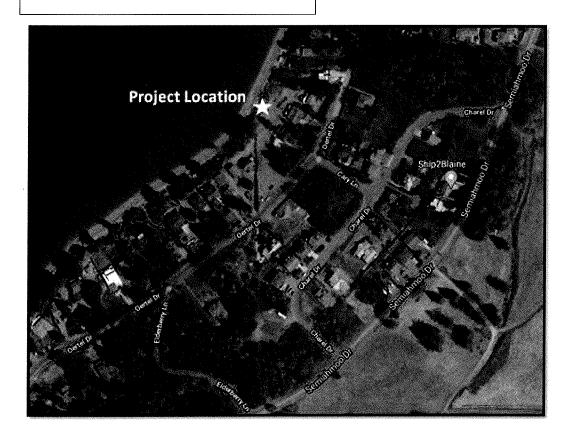
#### **Project Narrative:**

The December 20, 2018 "Solstice Eve" windstorm caused damage to the stormwater outfall on Birch Point installed as part of the Charel Terrace project in 2011. In March 2019 a "Major Disaster Declaration" that covered Whatcom County for the December storm was granted. In December 2019, the Consolidated Resource Center approved the Washington State Emergency Management Division's \$110,887 request for Architectural & Engineering Services to assess the site and develop conceptual design options. An RFP was advertised by Whatcom County in March 2020 and Herrera Environmental Consultants completed a preliminary study that assessed the outfall stabilization approaches to maintain a functional outfall. From this study, a temporary repair was constructed in fall 2022 to secure the catch basin to the bluff and reposition the outfall tee. The permanent repair will be constructed in the summer of 2024.

#### **Project Status:**

Design occurring in 2021-2023 and construction is scheduled to take place in 2024.

Total Estimated Project Cost: \$750,000



# Holeman Avenue Stormwater Improvements (PW-1) Database ID No. 07-242

### Construction Funding Year(s):

2024

#### **Project Narrative:**

The project goal is to reduce roadway flooding on Holeman Avenue by replacing undersized pipe and catch basins and re-establish existing ditch to match pipe invert elevations. This area is particularly sensitive due to the steep, unstable bluff along the shoreline and the concern is that flooding could lead to bluff failure and property damage. This is a critical public safety issue.

### **Project Status:**

Design is occuring in 2022-23 and construction is scheduled to take place in 2024.

Total Estimated Project Cost: \$905,000



# Semiahmoo Drive South & Outfall Improvements (BP-2, BP-5) Database ID No. 18-009 & 18-010

## Construction Funding Year(s):

2025

### **Project Narrative:**

This project will improve the stormwater conveyance system at the south end of Semiahmoo Drive by upsizing the cross culvert to reduce flooding and increase traffic safety, and reconstruct the outfall conveyance system to the Strait of Georgia damaged during the November 2021 extreme rainfall event.

### Project Status:

Design and permitting is occurring 2021 to 2024 and construction scheduled to take place in 2025.

**Total Estimated Project Cost:** \$1,355,000



# Normar Place Stormwater Improvements (BP-1) Database ID No. 19-004

## Construction Funding Year(s):

2025

## **Project Narrative:**

This project involves upsizing pipes, replacing catch basins and installing an outfall pipe over the bluff with an energy dissipater at Normar Place to reduce roadway flooding, scour and sediment transport.

### **Project Status:**

Design is anticipated in 2023-2024 and construction in 2025.

**Total Estimated Project Cost:** \$1,160,000



# Lora Lane Drainage & Tide Gate Modifications (TC1-2) Database ID No. 18-008

### Construction Funding Year(s):

2026

#### **Project Narrative:**

The purpose of this project is to replace the existing 48" corrugated metal culvert under Birch Bay Drive with an 8-ft wide fish passable box culvert, replace the existing tide gate on the water side of Birch Bay Drive with a new side hinge tide gate, and install shoreline armoring at the outfall area. This project will collaborate with the Design and Construction Division of Whatcom County Public Works.

#### **Project Status:**

Preliminary engineering design concluded in 2021. Permanent repair design will begin 2024 and construction is anticipated for 2026.

**Total Estimated Project Cost:** \$1,716,500



# Birch Point Road Stormwater & Outfall Improvements (BP-3 & BP-6) Database ID No. 21-001

Construction Funding Year(s):

2027

### **Project Narrative:**

A corrugated metal outfall pipe over a steep bluff on Birch Point collapsed due to erosional undermining. The driveway culverts, ditches and upstream storm drain system leading to the outfall are undersized and cause flooding and erosion during storm events. This project will involve upsizing culverts, reestablishing ditches and replacing and anchoring the outfall pipe and construction of pipe-end energy dissipater.

#### **Project Status:**

Design will be completed in 2025-26. Construction is scheduled to take place in 2027.

**Total Estimated Project Cost:** \$970,000



# Richmond Park Stormwater Improvements (SH-2) Database ID No. 22-010

### Construction Funding Year(s):

2028

### **Project Narrative:**

This project will address drainage concerns in Richmond Park by re-routing the large volume of water that currently moves through the development down Shintaffer Road to an outfall in Birch Bay. It would involve replacing 1,640 feet of ditch/culvert on Shintaffer Road with 36" diameter HDPE pipe, installing 13 type 2 catch basins and building a new outfall into Birch Bay.

### **Project Status:**

Design will occur in 2026-2027 and construction is scheduled to take place in 2028.

**Total Estimated Project Cost:** \$2,600,000



# Roger's Slough Drainage Improvements Database ID No. 23-002

### Construction Funding Year(s):

2029

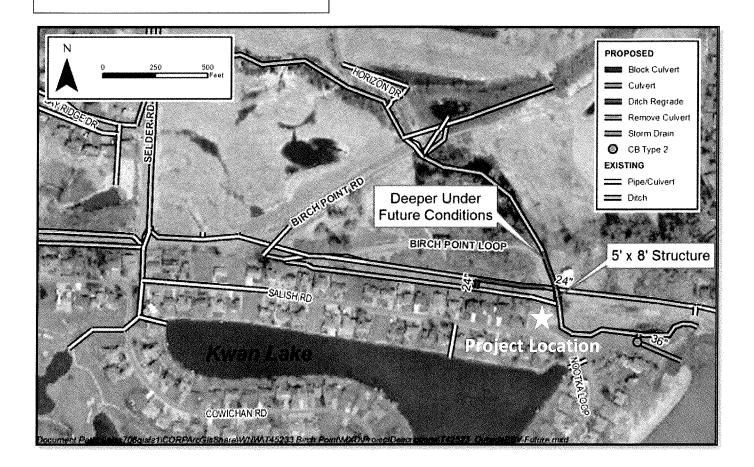
#### **Project Narrative:**

This project will address drainage and flooding issues in Birch Bay Village, Birch Bay Drive and Birch Point Loop Road. It will involve replacing twin 30" diameter culverts that direct water under Birch Bay Drive into Roger's Slough with a fish-passable concrete box culvert, installing 285 feet of pipe, regrading 500 feet of ditch, and installing a new type 2 catch basin and overflow pipe near the mouth of Roger's Slough.

#### **Project Status:**

Design will occur in 2027-2028 and construction is scheduled to take place in 2029.

**Total Estimated Project Cost:** \$2,850,000



# Birch Bay Village Drainage Improvements Database ID No. 23-003

Construction Funding Year(s):

2030

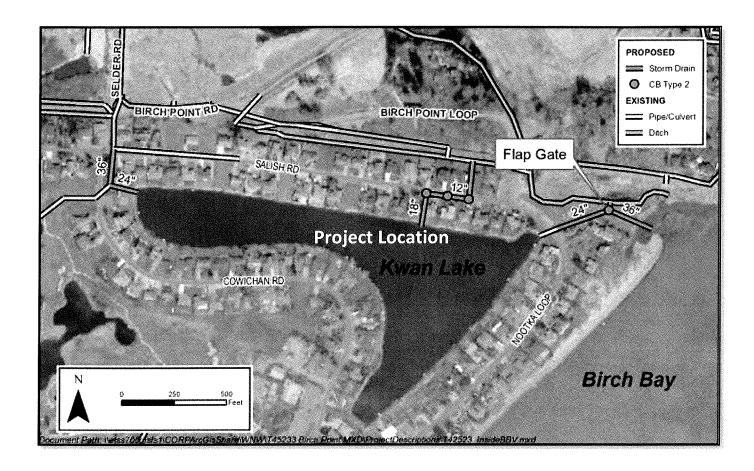
### Project Narrative:

This project will address drainage and flooding issues in Birch Bay Village in the vicinity of Salish Road and Kwan Lake. It will involve installing or replacing 1,400 lineal feet of pipe, installing four new catch basins along Nootka Loop and Salish Road and installing a new 36" diameter flap gate near Nootka Loop to reduce tidal backwatering.

## **Project Status:**

Design will occur in 2028-2029 and construction is scheduled to take place in 2030.

**Total Estimated Project Cost:** \$1,185,000



# Bay Ridge Estates Drainage Improvements Database ID No. 23-004

### Construction Funding Year(s):

2031

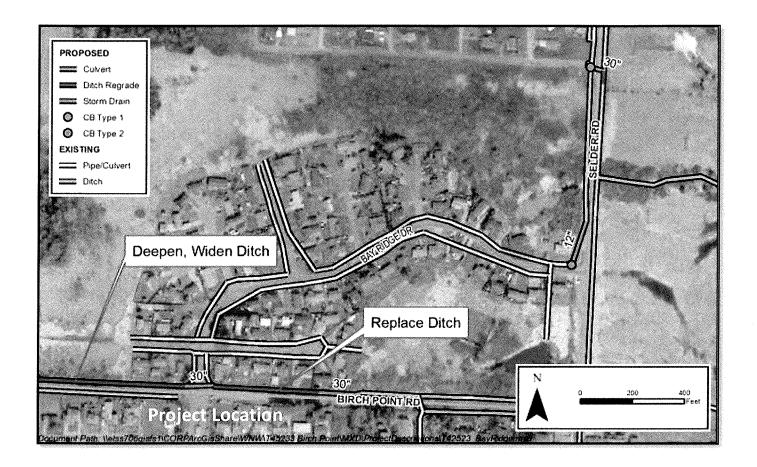
#### **Project Narrative:**

This project will address drainage and flooding issues in Bay Ridge Estates and along Selder Road. It will involve installing or replacing 500 lineal feet of pipe, regrading 1,000-feet of ditch, and installing two new catch basins on Selder Road and Birch Point Road.

## **Project Status:**

Design will occur in 2029-2030 and construction is scheduled to take place in 2031.

**Total Estimated Project Cost:** \$770,000



# Everson Overflow Pipeline Bank Stabilization Database ID No. 20-002

#### **Construction Funding Year(s):**

2023

### **Project Narrative:**

A portion of the bank within the Everson overflow corridor was damaged during the 2020 flood season, this erosion was further exacerbated during the November 2021 flood events. The damage site is located near a petroleum pipe crossing the Nooksack River. The FCZD 's project will stabilize the bank and protect the high ground divide that controls how much overflow occurs at Everson.

## Project Status:

The project is designed and construction is anticipated to be complete in 2023. The FCZD anticipates that FEMA and the State will fund 95% of the project through the Public Disaster Assistance Program.

Total Estimated Cost: \$1,129,500

**Expenditures to Date:** \$1,109,500



# Jones Creek Debris Flow Risk Reduction Database ID No. 07-105

#### Construction Funding Year(s):

2023

### **Project Narrative:**

This project includes acquisition of residential properties in the high hazard area of the Jones Creek alluvial fan and construction of setback deflection berms to reduce the risk of debris flow damage to the town of Acme. The project includes realignment of Turkington Road at the location where it crosses the proposed berm.

#### **Project Status:**

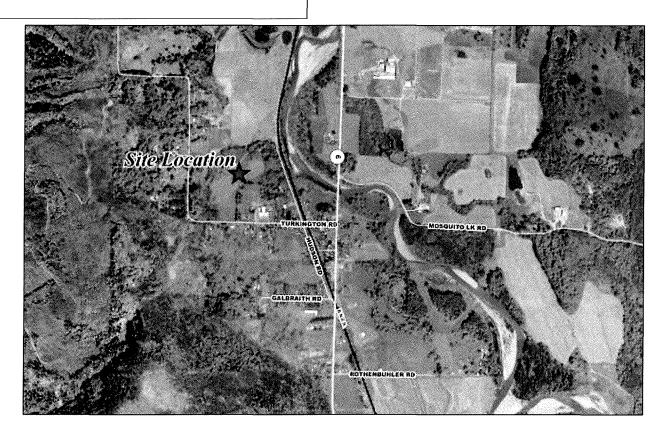
All property acquisition, design and construction for the project is complete. A Department of Ecology Floodplains by Design Grant provided 80% funding for the acquisition of two properties and construction. The Road Fund and Acme Water District No. 18 is also providing funding towards construction of the project. Planting will take place in 2024.

**Total Estimated Cost:** 

\$10,383,000

**Expenditures to Date:** 

\$10,360,000



# Marine Drive Emergency Levee Repair Database ID No. 20-001

#### Construction Funding Year(s):

2023

### **Project Narrative:**

The Marine Drive Levee provides flood protection during smaller, more frequent floods to the Marietta area and Slater Road. The levee is located on property owned by the Washington Department of Wildlife who is managing the property for wildlife. The levee was damaged in several locations during flooding in 2020, 2021, and 2022. The project involves restoring the levee crest and backslope.

### **Project Status:**

The project is designed and construction is anticipated to be complete in 2023. An interim project was completed to temporarily stabilize the damage areas prior to the repair. The FCZD is utilizing FEMA funds to partially fund the project.

Total Estimated Cost: \$2,463,000

**Expenditures to Date:** \$2,423,000



# Truck Road Bank Stabilization Database ID No. 20-003

Construction Funding Year(s):

2022 and 2024

#### **Project Narrative:**

The project is located along Truck Road about 0.3 miles easterly from Mt. Baker Highway (SR 542). During high-water events of the 2017/2018 winter, the North Fork Nooksack River eroded the unprotected bank of Truck Road to within 13 feet of the roadway surface. This prompted an emergency project to construct a passive riprap revetment underneath a section of the roadway to provide immediate protection. Flooding during 2020 eroded the remaining bank exposing the recently constructed riprap revetment and destabilizing a portion of the north bound lane. Jersey barriers were placed by county crews to block off this lane to traffic. Additional erosion sustained the November 2021 floods, threatened the road downstream of the previous damage area. The FCZD undertook an emergency project to address the immediate threat to truck road. Additional work is needed to provide environmental mitigation for that action and to repair and realign the damaged section of road.

#### **Project Status:**

The FCZD has completed the emergency repair and is currently designing and permitting the associated Phase 2 project that will provide environmental mitigation and road repair. Construction of the Phase 2 project is anticipated to occur in 2024. The FCZD anticipates that FEMA and the State will fund 95% of the project through the Public Disaster Assistance program

Total Estimated Cost: \$3,951,000

Expenditures to Date: \$1,494,000



# Hudson Road Bridge No. 132 Repair Database ID No. 22-001

Construction Funding Year(s):

2024

### **Project Narrative:**

The project is located along near the dead end of Hudson Rd in Acme, WA. The FCZD recently purchased the property at the end of this road as a part of the Jones Creek Debris Flow Risk Reduction Project. The approaches to the bridge that serves the property were damaged during the November 2021 flood events. The project will provide for repair to the bridge approaches.

#### **Project Status:**

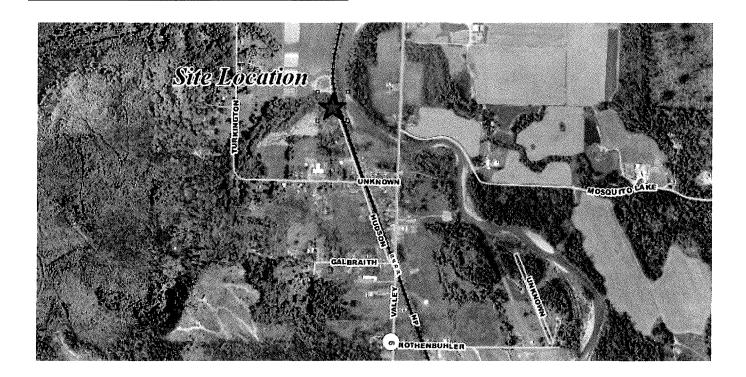
The FCZD has provided FEMA with the damages and cost estimate to repair the project. Design and permitting for the project will be conducted in the winter of 2023/2024. Construction is anticipated to occur in 2024. The FCZD anticipates that FEMA and the State will fund 95% of the project through the Public Disaster Assistance program.

Total Estimated Cost:

\$125,000

**Expenditures to Date:** 

\$7,500



# Timon Levee USACE Levee Rehabilitation Database ID No. 22-002

Construction Funding Year(s):

2024

### Project Narrative:

The Timon Levee is located near Northwood Rd, southeast of Lynden WA. The levee is eligible for the Public Law (PL) 84-99 Levee Rehabilitation program with the US Army Corps of Engineers (USACE). This program allows for the USACE to repair damages to the levee and requires a 20% local cost-share. The Timon Levee was damaged during the November 2021 flood events. The FCZD worked with the USACE to flood fight the damage during the event, this emergency flood fight was funded 100% by the USACE. This project provides for the USACE to conduct permanent repairs at the site.

#### **Project Status:**

USACE anticipates construction of the project in 2024. The FCZD local share of costs is 20%. Total project cost includes USACE construction as a direct contribution.

**Total Estimated Cost:** 

82 030 000

**Expenditures to Date:** 

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# Upper Hampton USACE Levee Rehabilitation Database ID No. 22-004

Construction Funding Year(s):

2024

#### **Project Narrative:**

The Upper Hampton Levee is located near Northwood Rd, southeast of Lynden WA. The levee is eligible for the Public Law (PL) 84-99 Levee Rehabilitation program with the US Army Corps of Engineers (USACE). This program allows for the USACE to repair damages to the levee and requires a 20% local cost-share. The Upper Hampton Levee was damaged during the November 2021 flood events. This project provides for the USACE to conduct permanent repairs at the site.

#### **Project Status:**

USACE anticipates construction of the project in 2024. The FCZD local share of costs is 20%. Total project cost includes USACE construction as a direct contribution.

**Total Estimated Cost:** 

\$1,410,000

**Expenditures to Date:** 

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# Cougar Creek Early Action / Neevel Levee Bank Stabilization Database ID No. 16-008

Construction Funding Year(s):

2025

## **Project Narrative:**

The Neevel Levee provides varying levels of protection to a significant amount of agricultural land. Approximately 250 feet of the levee running along Cougar Creek is over-steepened and experiencing sloughing of the riverward face. A stabilization project incorporating large woody debris at the toe and reducing the slope of the riverward face is proposed in the System-wide Improvement Framework (SWIF) to resolve the deficiency identified by the US Army Corps of Engineers and keep the levee eligible for repair under the Public Law (PL) 84-99 Program. An early action project developed through the Floodplain Integrated Planning (FLIP) process includes replacement of the Cougar Creek flood gate and installation of large woody debris in the channel downstream.

#### **Project Status:**

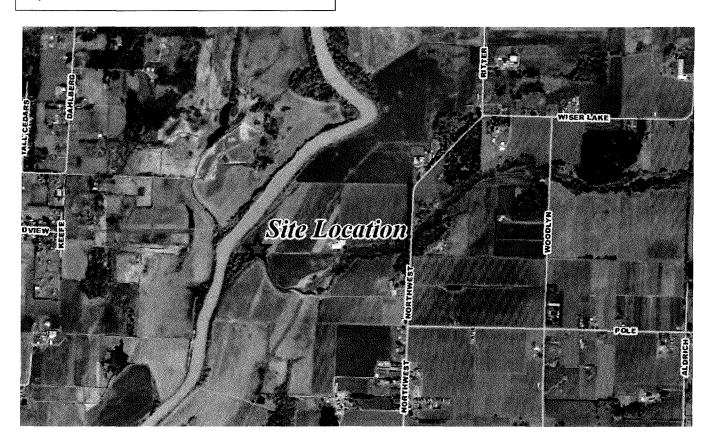
Design of the project has been finalized. Construction is anticipated for 2025 with funding through NRCS's EQIP program, additional outside funding for construction has not yet been identified.

Total Estimated Cost:

\$2,375,000

**Expenditures to Date:** 

\$303,000



## Abbott Levee Protection and Improvement Project Database ID No. 16-007

Construction Funding Years:

2021 and 2025

## **Project Narrative:**

The project is located along Abbott Road about 1.7 miles east of Hannegan Road. Recent erosion along the Nooksack River has removed a section of riprap that previously protected the land adjacent to the Abbott Levee and Abbott Road. Phase1 of this project addressed the ongoing erosion in this location. The FCZD is also investigating possible road and levee setback options to improve the upstream tie-in of the levee and address a deficiency identified by the US Army Corps of Engineers to maintain the levee's eligibility in the PL 84-99 Levee Rehabilitation Program. This work will be implemented as a second phase of the project.

#### **Project Status:**

Construction of Phase 1 was completed during Summer or 2021. The FZCD is working with the project consultant on Phase 2. Phase 2 will include a reach assessment to provide the technical basis for developing alternatives for upstream improvements. The FZCD will utilize this reach scale analysis to develop a capital project for Phase 2. Phase 2 construction is anticipated during 2025.

Total Estimated Cost: \$3,740,000

**Expenditures to Date:** \$1,098,000



## Acme Woody Revetment Repair Database ID No. 23-005

Construction Funding Year(s): 2025

#### **Project Narrative:**

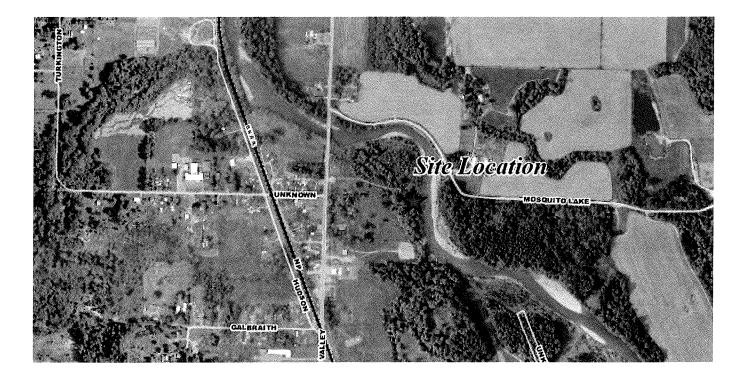
The project site is an approximately 1/4-mile long section of eroding bank located along the left bank of the South Fork Nooksack River in the unincorporated community of Acme in Whatcom County. In 2009 and 2010 the Flood Control Zone District constructed multiple log jams and woody revetments to discourage lateral erosion and stabilize the lower reach of Landingstrip Creek for the purpose of enhancing critical habitat for ESA listed species and providing flood protection to the Acme community and the SR 9 bridge. Flooding in November 2021 eroded the lower portion of the project, destabilized the wood structures, and eroded the streambank. The proposed project will repair the woody revetment along the new stream alignment.

#### **Project Status:**

Design is anticipated to start in 2024 and construction is anticipated in the Summer of 2025 with funding through FEMA and FCZD.

Total Estimated Cost: \$1,285,000

Expenditures to Date: \$0



## Bertrand Creek Levee Stabilization Database ID No. 16-005

## **Construction Funding Year(s):**

2025

## **Project Narrative:**

The Bertrand Creek right and left bank Levees are designed to overtop during larger floods, but provide protection to agricultural land during the growing season. The left bank levee has a 250 foot long section where erosion is threatening the levee prism. The right bank levee face is sloughing at three locations with a total length of approximately 250 feet. The levees will have to be repaired to remain eligible for rehabilitation through the US Army Corps of Engineers Public Law (PL) 84-99 Levee Rehabilitation Program.

## Project Status:

A conceptual design has been developed as part of the System-wide Improvement Framework (SWIF) planning process. The project will be designed by the FCZD. Construction is anticipated in the Summer of 2025.

**Total Estimated Cost:** 

\$292,000

**Expenditures to Date:** 

\$7,000



# Devries Levee Improvements Database ID No. 19-001

## Construction Funding Year(s):

2025

## Project Narrative:

This project involves widening the levee crest and backsloping the levee to meet the US Army Corps of Engineers's levee geometry standards for levees in the Public Law (PL) 84-99 Levee Rehabilitation Program (SWIF project).

## Project Status:

A conceptual design has been developed as part of the SWIF planning process. Detailed design has not been initiated vet.

Total Estimated Cost: \$225,000

**Expenditures to Date:** \$0



## Ferndale Levee Improvement Project Database ID No. 07-104

Construction Funding Year(s):

2026 - 2028

## **Project Narrative:**

Two levee segments, one sponsored by the City of Ferndale and one by the FCZD and Diking District #1 in the US Army Corps of Engineer's Public Law (PL) 84-99 Levee Rehabilitation Program, provide protection to the three treatment facilities along Ferndale Road. The US Army Corps of Engineers has identified several deficiencies along these two levee segments, including a gap in which super sacks filled with sand have been placed. The 1999 Comprehensive Flood Hazard Management Plan recommended improving these levees to provide 100-year protection to the City and the treatment facilities. The System-wide Improvement Framework (SWIF) also includes this project to address the identified levee deficiencies.

#### **Project Status:**

This project is currently in the design phase. A preferred alternative for the levee and road alignment has been selected. A 60 percent design level plan of the proposed levee configuration is anticipated Fall of 2023. A 100 Percent design level plan is anticipated in 2024. Grant funding through the State's Floodplain's by Design program has been secured to complete the design. Construction is anticipated to be phased with construction beginning in 2026 and lasting through 2028.

Total Estimated Construction Cost: TBD

Expenditures to Date: \$976,000



## Glacier-Gallup Creeks Alluvial Fan Restoration Database ID No. 18-006

Construction Funding Year(s): 2023 and 2027

## **Project Narrative:**

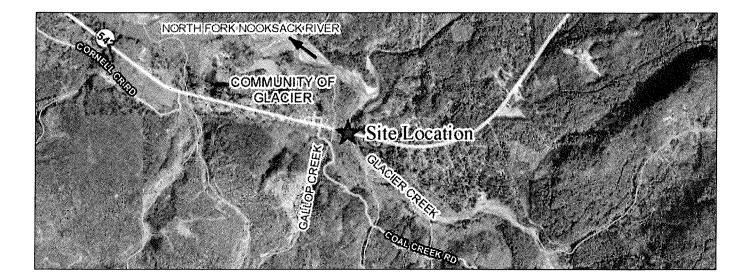
The Glacier Creek Levee on the left (west) bank of the creek was constructed in the 1960s to prevent overflows into Gallup Creek and damage to State Route (SR) 542. Since construction, the levee has been subject to ongoing damage. Constriction of the Glacier-Gallup channel migration zone (CMZ) has exacerbated aggradation upstream of SR 542 and severely degraded fish habitat. WSDOT replaced the Gallup Creek bridge in 2010 and is working to construct a new bridge over Glacier Creek and the alluvial fan between the two creeks. The FCZD is developing a project in coordination with WSDOT and is evaluating the feasibility of full or partial removal of levees blocking natural channel migration on the Glacier and Gallup Creeks alluvial fan and construction of a setback levee on Gallup Creek to protect the Community of Glacier.

#### **Project Status:**

A feasibility study and alternatives analysis for evaluating levee removal and setback alternatives was initiated in late 2018. Preliminary design of the preferred alternative will be initiated once the preferred alternative is selected. Construction of an interim project to address levee damage was completed in 2023. Construction of the levee removal and setback is anticipated to occur concurrently with the Glacier Creek bridge replacement in 2027 and 2028.

Total Estimated Project Cost: TBD

**Expenditures to Date:** \$1,492,000



## Dahlberg Wetland Mitigation Site Database ID No. 20-004

Construction Funding Year(s): 2026 - 2028

## **Project Narrative:**

The FCZD purchased a property northeast of Ferndale as a mitigation site for future projects having wetland or riparian impacts. The property contained a dilapidated farm house.

## **Project Status:**

FCZD purchased the subject property and demolished the farm house in Fall of 2020. The FCZD has installed a groundwater monitoring network on the site to support developing a long-term restoration plan for the site.

Total Estimated Cost: TBD

**Expenditures to Date:** \$873,000

Site Location

# Upper Hampton Levee Improvements Database ID No. 16-006

## Construction Funding Year(s):

2027

## **Project Narrative:**

Several deficiencies were identified by the US Army Corps of Engineers on the Upper Hampton Levee. Improvements to the levee geometry are proposed in two locations and improvement to address seepage is proposed at a third location.

## Project Status:

A conceptual design has been developed as part of the System-wide Improvement Framework (SWIF) planning process. Detailed design has not been initiated yet. However, we were able to complete a portion of the levee backsloping work at one site using excess material generated at the 2021 Abbott and Lynden Levee Improvement projects.

Total Estimated Cost:

TBD

**Expenditures to Date:** 

\$6,000



## Floodplain Acquisition Database ID No. 07-002

## Acquisition Funding Year(s):

2017- TBD

## **Project Narrative:**

Reach-scale projects to reconfigure flood infrastructure are being evaluated through the integrated planning processes that started with the System-wide Improvement Framework (SWIF) and has transitioned into the Floodplain Integrated Planning (FLIP) process. The goal of this work is to reduce flood risk and expenditures and restore habitat and the processes that form it.

Voluntary acquisition of lands is proposed to enable future levee reconfigurations to reduce flood risk and future levee repairs, while improving habitat.

#### **Project Status:**

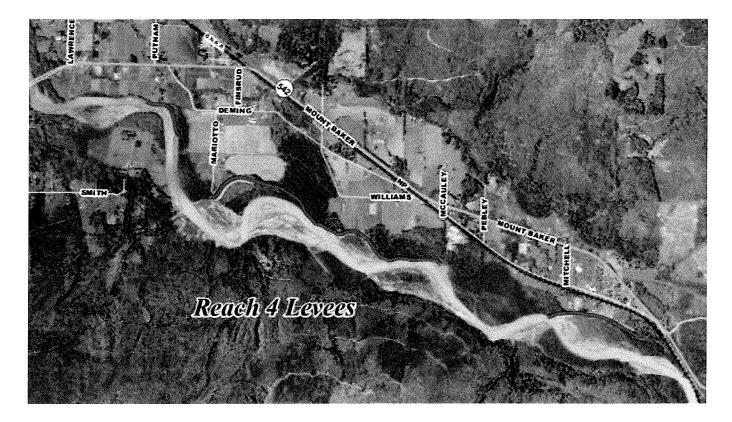
Acquisition of one property in Reach 4 was completed in 2020. Discussions with additional property owners will occur in 2021 and 2022.

**Total Estimated Cost:** 

TBD

**Expenditures to Date:** 

\$1,128,000



## Marietta Acquisition Database ID No. 07-002

## Construction Funding Year(s):

2001 - Present

## **Project Narrative:**

Acquisition of residential properties in the frequently-flooded repetitive flood loss area of Marietta, removal of existing structures and restoration of properties with native vegetation.

## **Project Status:**

Property acquisition began in 2001 and is ongoing. As properties are acquired, structures are removed and native vegetation is planted. All acquisitions are voluntary and the project is ongoing as current property owners decide to sell their properties. Total project cost will need to include funding for cleanup of up to four former gas stations, though the exact nature of the work is still undefined.

**Total Estimated Project Cost:** 

TBD

**Expenditures to Date:** 

\$1,852,000



## High Creek Sediment Trap Database ID No. 22-005

#### Construction Funding Year(s):

**Annually** 

## **Project Narrative:**

High Creek flooding damaged nearby homes and closed Mount Baker Highway in the mid-1990's. A legal settlement resulting from that event directs Whatcom County to prepare a creek management plan. Sediment management in the watershed including the 3400 feet of County owned right of way east of Kendall Creek is an important plan element along with fish habitat mitigation. State permits for future maintenance dredging are dependent on consistency with the final management plan. A management plan was developed and recommended the construction of two sediment traps, one sited upstream of Mount Baker Highway to trap coarser material and one by the confluence with Kendall Creek to trap finer material. The sediment traps were constructed in 2018. The project provides for the annual clean out of those sediment traps.

## **Project Status:**

The 2023 clean out is anticipated to be complete in September 2023 for a cost of \$80,000. Total Estimated Cost is for annual estimated cleanout costs funded by the FCZD.

Total Estimated Cost: \$135,000

Expenditures to Date: --

Site Location

Alternoons

# Emergency/New Projects Database ID No. 08-003

Construction Funding Year(s):

2024 - 2029

## **Project Narrative:**

This item provides funding to address unanticipated projects resulting from new damage to flood control facilities.

## Project Status:

Design and construction to occur as necessary.

Total Estimated Project Cost: \$425,000/year

**Expenditures to Date:** \$425,000/year

Due to the nature of this item, no map exists. Board of Supervisors review and prioritization will be sought at the appropriate time.