

Scott Boettcher

From: Thomas, Dawn <Dawn.Thomas@leg.wa.gov>
Sent: Tuesday, November 12, 2019 1:53 PM
To: Horn, Leanne; Tharinger, Rep. Steve
Cc: Vickie Raines; Scott Boettcher; Blake, Rep. Brian
Subject: Lower Satsop Budget Member Request Rep. Blake
Attachments: Lower Satsop member Request Form Nov 2019 Vickie Raines.docx; Lower Satsop 2020 Member Request Attachments 11-07-2019.pdf

Leanne,

TO: Representative Tharinger, Chair of the House Capital Budget Committee

RE: The Lower Satsop Project.

Please review attachments relating to Representative Blake's submission of project request for Session 2020.

Thank you for your time and assistance.

Dawn M. Thomas

Senior Legislative Assistant to **Representative Brian Blake**
Washington State House of Representatives | 19th Legislative District
437A Legislative Building | Olympia, WA 98504 | 360.786.7870

2020 Legislative Session

Member Requested Local Community Project Information Form

Request must be submitted by February 14, 2020 5:00 PM.

Important Notes:

Member-requested local/community project grants are not a formal grant program. This form provides information for the Capital Budget Committee chair to use when evaluating requests for project appropriations in the capital budget.

Funds are available on a reimbursement basis only and cannot be advanced.

Projects may be subject to state prevailing wage law (Chapter 39.12 RCW). Requesting organization are encouraged to consult the Industrial Statistician (David Soma: 360-902-5330 or somd235@lni.wa.gov) at the Washington State Department of Labor Industries to determine whether prevailing wages must be paid.

High-performance building requirements (Chapter 39.35D RCW) and Executive Order 13-03 regarding life cycle and operating costs in public works projects may also apply.

Do not directly enter the **Funding Requested** amount. Instead, enter the relevant amounts under "Requested Dollar Amount" on page 2. Then **right click the highlighted number above and select update field.**

Funding Requested: **\$927,000**

Project Name: Lower Satsop Restoration & Protection Program – Phase I, Keys Road Corridor Protection

Primary Sponsor: Rep. Brian Blake

Co-Sponsor: Rep. Jim Walsh

Where is the project physically located?

Address of Project Site: Lower Satsop River, River Mile 0.0 to River Mile 3.0

[Enter Street Address2]

Satsop WA 98583 Grays Harbor

Primary Legislative District of Project: 19

Use <http://www.mapcoordinates.net/en> or <https://www.google.com/maps/> to determine coordinates of the site.

Primary Latitude: **46.992804** Primary Longitude: **-123.482377**

Other Legislative Districts: 24

Other Project Latitude/Longitudes: [Enter Other Latitude/Longitude]

NOTE: This form may be subject to disclosure under public records laws.

Project Contact

First Name: Rob

Last Name: Wilson

Title: County Engineer

Organization: Grays Harbor County

Organization Website: www.co.grays-harbor.wa.us

Phone: 360-249-4222

E-Mail: rwilson@co.grays-harbor.wa.us

Mailing Address: 100 West Broadway, Suite 31, Montesano, WA 98563

Is the organization that will manage the funding different from the project contact organization? No

If it is different, please provide the name of the organization or fiscal agent that will manage the funding.

[Click or tap here to enter text.](#)

Organization Information

Yes/No

Is the requesting organization registered with the state as a non-profit organization? No

Is there a current or pending 501(c)(3) IRS registration? No

If answered no to either of the above, is applicant a local government? Yes

NOTE: This form may be subject to disclosure under public records laws.

Project Information:

(1) As concisely as possible, describe the entire project **and** the scope of the project for which the funds are requested:

1. The Lower Satsop River is a dynamic river system where river bank erosion, channel migration, and regular flooding are seriously impacting essential public infrastructure, property, farmland and fish habitat.
2. After years of studies, “on-again/off-again” projects, and mounting losses (impacts) from the river, community members and local leaders are frustrated and extremely fearful this flood season may be their last.
3. On November 27, 2018, an avulsion of the Lower Satsop River galvanized the needs of the community and regulatory agencies to immediately stabilize the river system to protect Keys Road and the Satsop Business Park’s potable water supply and to avoid further losses to property, farmland and fish habitat.
4. The Lower Satsop River is currently outside its historic channel migration zone and eroding soils, property and farmland locations in areas not accessed for thousands of years to the distress of local interests and authorities.
5. Since April 2019, Grays Harbor County has led an intensive emergency planning process to develop a community and regulatory agency supported design and engineering process to stabilize the Lower Satsop River and protect essential public infrastructure, property, farmland and fish habitat.
6. Grays Harbor County’s Lower Satsop Restoration & Protection Program is a balanced set of sequential actions designed and engineered to effectively and sustainably address (resolve):
 - a. Keys Road -- Steady eastward migration of river (30 to 35 ft/year average) continues to threaten County’s heavily travelled Keys Road which is main route to and from Satsop Business Park.
 - b. Port of Grays Harbor’s Satsop Business Park Potable Water Supply – Steady eastward migration of river (30 to 35 ft/year average) continues to threaten Satsop Business Park’s primary potable water supply that is essential for the Park’s 400+ full-time, regionally significant jobs.
 - c. Monte-Elma Road Bridge – Erosion and regular scour issues continue to threaten the County-owned bridge and footings requiring frequent corrective actions.
 - d. Farmland Loss – Steady westward migration of river (60 ft/year average) continues to erode and wash away irreplaceable, high-value cropping farmland also valuable for bird migration/overwintering, bird hunting/watching, aquifer recharge, open space.
 - e. Excess Erosion and Sedimentation – Excess farmland erosion contributes to heavier sediment discharges to Chehalis River and Grays Harbor. [Note: November 27, 2018 avulsion flushed down river 538K cu/yards (53,833 dump trucks) of high quality farm soil and mature riparian habitat.]
7. The Lower Satsop Restoration & Protection Program lays out a well-vetted, multi-phased sequence of immediate-term (Phase I -- 2020), medium-term (Phase II – 2021 and Phase III -- 2023), and longer-term actions and investments to protect (infrastructure, property, farmland), restore (fish habitat, natural river flow and functions) and resolve (community concerns regarding past river management practices).
8. Read more at
https://www.ezview.wa.gov/site/alias__1492/37609/lower_satsop_restoration_and_protection_program.aspx.

NOTE: This form may be subject to disclosure under public records laws.

(2) Will the entire project be completed after this funding request? No

(a) If not, describe what phase of the project will be completed with the funding from this request and how this phase will benefit the public.

Phase I (2020) of the Lower Satsop Restoration & Protection Program will be constructed and completed between May 2020 and October 2020 at a cost of \$2.2M. Benefits to the public from Phase I (2020) include: (1) Keys Road and Monte-Elma Road Bridge – Reducing immediate erosion pressures on the heavily travelled Keys Road and Monte Elma Road Bridge and forestalling the need for future costly and less habitat-friendly emergency repairs. (2) Satsop Business Park Potable Water Supply – Reducing immediate erosion pressure on the Satsop Business Park’s primary potable water supply. (3) Farmland Loss – Stopping further loss of irreplaceable, high-value cropping farmland necessary to maintaining a vital local agricultural economy. (4) Fish Habitat – Restoring habitat and floodplain features and functions lost as a result of past river management practices to benefit fish, habitat and commercial and recreational interests (fishing, guiding, birding, etc.).

(b) Describe the remaining phases and schedule for completion of the project.

Phase II (2021) and Phase III (2023) of the Lower Satsop Restoration & Protection Program are scheduled for 2021 and 2023 respectively. These phases will further stabilize the system so the river continues to stay within its historic channel migration zone. These phases are preliminary at this juncture, not yet funded, and will be finalized based on how the river specifically responds to Phase I (i.e., adaptive management).

(3) Start and Completion Dates: May 2020 to October 2020

(4) Eligible Project Type or Phase (Check all that apply to this funding request and insert requested amount.

Enter whole numbers (no \$ sign) under **Requested Dollar Amount**.

To calculate the fee and total, right-click on the highlighted number and select “Update field.”

	Requested Dollar Amount
<input type="checkbox"/> Land Acquisition	\$ [enter number]
<input type="checkbox"/> Demolition and Site Preparation	\$ [enter number]
<input type="checkbox"/> Design	\$ [enter number]
<input checked="" type="checkbox"/> New Construction	\$ 900,000
<input type="checkbox"/> Renovation	\$ [enter number]
<input type="checkbox"/> Other (describe) [Enter text]	\$ [enter number]

Total Funding Requested:

(Right-click highlighted number and select “update field”)

\$ 927,000

NOTE: **Total Funding** includes a mandatory **Commerce Administrative Fee** of up to 3% (up to \$50,000)

☒ Attachments: (Please enclose any materials that further describe the project and its financing.)

NOTE: This form may be subject to disclosure under public records laws.

Yes / No

(5) Is this a joint project?

No

(a) If yes, has a joint operating agreement been signed?

[Type Yes or No.]

(b) If yes, list the partners for the project.

[List the partners.]

(6) Is the site owned, optioned for purchase, or under a lease?

Owned

(7) Does the applicant understand and agree that any and all real property owned, optioned for purchase, or under a lease, that is acquired, constructed, or otherwise improved using state funds approved by the Legislature must be held and used for the purposes stated in this application for at least ten years from the date of the final payment made for the project?

Yes

(8) Has the applicant initiated a capital fundraising campaign?

Yes

If yes, what percent of matching funds have been secured?

60%

(9) What other sources of matching funds are being pursued? Please list all sources and amounts.

Phase I – Funds Already Secured As Match (\$1,325,024 or 60%):

- * 2019-21 State Capital Budget (\$182,225).
- * GHC .09 Local Funds (\$400,000).
- * GHC Road Fund (\$100,000).
- * Flood Authority Local Projects Reobligation Funds (\$642,799).

Phase I – Remaining Funds To Be Secured (\$900,000 or 40%):

- * Member Request 2019-21 Supplemental State Capital Budget (\$900,000).

NOTE: This form may be subject to disclosure under public records laws.

Yes / No

(10) Will the applicant submit funding request to the Senate during the 2020 legislative session?

Yes

(11) Is this project eligible for other capital budget funding?

No

(a) If yes, has the applicant applied to other programs or requested other capital budget funding?

[Type Yes or No.]

(b) Please list which ones:

[List other programs]

(12) Please list all past efforts to obtain state funding for this project, ***including year, state agency, specific fund source, and whether or not funding was obtained.***

2019 funding request of \$1.4M was made by Rep. Brian Blake. That request was not funded. See <https://www.ezview.wa.gov/DesktopModules/Documents2/View.aspx?tabID=37263&alias=1973&mid=69455&itemID=7086>.

(13) What source(s) of non-state funds exist for completion of the project? Once completed, how will the project fund its ongoing maintenance and operation?

Phase I is intended to deliver self-sustaining, maintenance free results. Should a maintenance need arise in future years it's anticipated that funds would be sought through Chehalis ASRP process or County Road funds.

(14) Public benefits of the finished project:

Phase I of the Lower Satsop Restoration & Protection Program will:

- a. Reduce immediate erosion pressures on the heavily travelled Keys Road and Monte Elma Road Bridge and forestall the need for future costly and less habitat-friendly emergency repairs.
- b. Reduce immediate erosion pressure on the Satsop Business Park's primary potable water supply.
- c. Stop further loss of irreplaceable, high-value cropping farmland necessary to maintain a vital local agricultural economy.
- d. Restore habitat and floodplain features and functions lost as a result of past river management practices to benefit fish, habitat and commercial and recreational interests (fishing, guiding, birding, etc.).
- e. Sufficiently address immediate and imminent threats in order to provide local authorities and community members with demonstrable flood relief.
- f. Preserve existing local and state revenue generation from local agricultural sales and activities (crops, inputs, harvest, etc.), commercial and recreational fishing (gear, licenses, fees, etc.), tourism (fishing, bird watching, bicycling, etc.), Satsop Business Park (call center, vehicle storage, cannabis-cultivation, compressed natural gas, truck-driving school, forestry program, emergency training, etc.), and more.

Putting the Lower Satsop River back into balance with engineered log jams, revetment removal, and improved floodplain connectivity will ensure continuation of the economically-vital Satsop Business Park, regionally-significant agricultural community, and restoration and correction of fish habitat and riverine functions long-threatened by past river management decisions.

NOTE: This form may be subject to disclosure under public records laws.

(15) Will this project have a revenue-generating component that would have community and state economic benefit? Please describe and quantify.

In addition to preserving existing sources of local and state revenue generation, \$634,500 in additional local and state taxes is expected to be generated from the project as follows:

- * Phase I work = \$173,900.
- * Phase I contractors and crew = \$225,600.
- * Phase I local timber sales = \$235,000.

(16) Please quantify any short- and long-term job creation that will result from this project.

Environmental and habitat restoration generates jobs. For every \$1 million spent on forest and watershed restoration 15.7 to 23.8 jobs are generated and \$2.2 to \$2.5 million in economic activity (source = <https://stateofsalmon.wa.gov/exec-summary/>).

For the Lower Satsop River Restoration and Protection Project, Phase IC is anticipated to generate roughly 10 full-time jobs.

(17) Are there any existing or anticipated community concerns about this project (i.e. conflict with land use, neighborhood concerns, other) that would prevent it from moving forward?

No community concerns. Construction action this Summer and Fall (July/Aug/Sept 2020) before next flood season is strongly supported.

For Office Use Only

Legislative Sponsor
(Signature)



Date November 12, 2019

Tips:

Successful past projects generally are ones in which the requested state funds: (1) are used for a facility providing an important public benefit; (2) are a small portion of the total project funding (25% or less); (3) result in a completed project or phase usable by the public for the intended purpose when the state funds are expended; and (4) are for a project that is ready for construction or renovation and will be completed within the biennium.

NOTE: This form may be subject to disclosure under public records laws.

2020 Member Request

Lower Satsop Restoration & Protection Program Phase I, Keys Road Corridor Protection

(Submitted 11/07/2019)

Attachments

- 1. Presentation (11-07-2019)**
- 2. Overview/FAQ (11-07-2019)**
- 3. Map (11-07-2019)**



LOWER SATSOP RESTORATION AND PROTECTION PROGRAM

Protect, Preserve, Restore

* Farmland * Essential Infrastructure * River/Floodplain Functions & Habitat

November 7, 2019



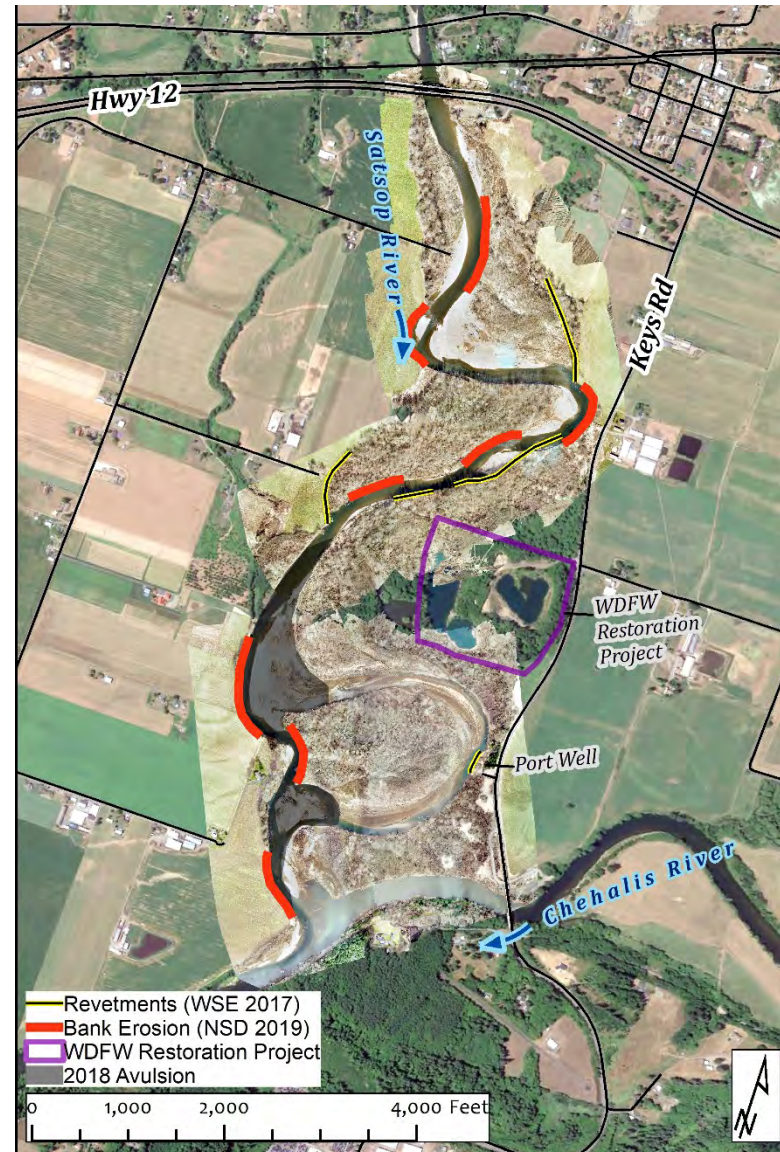
Grays Harbor
Conservation
District

your window to healthy lands

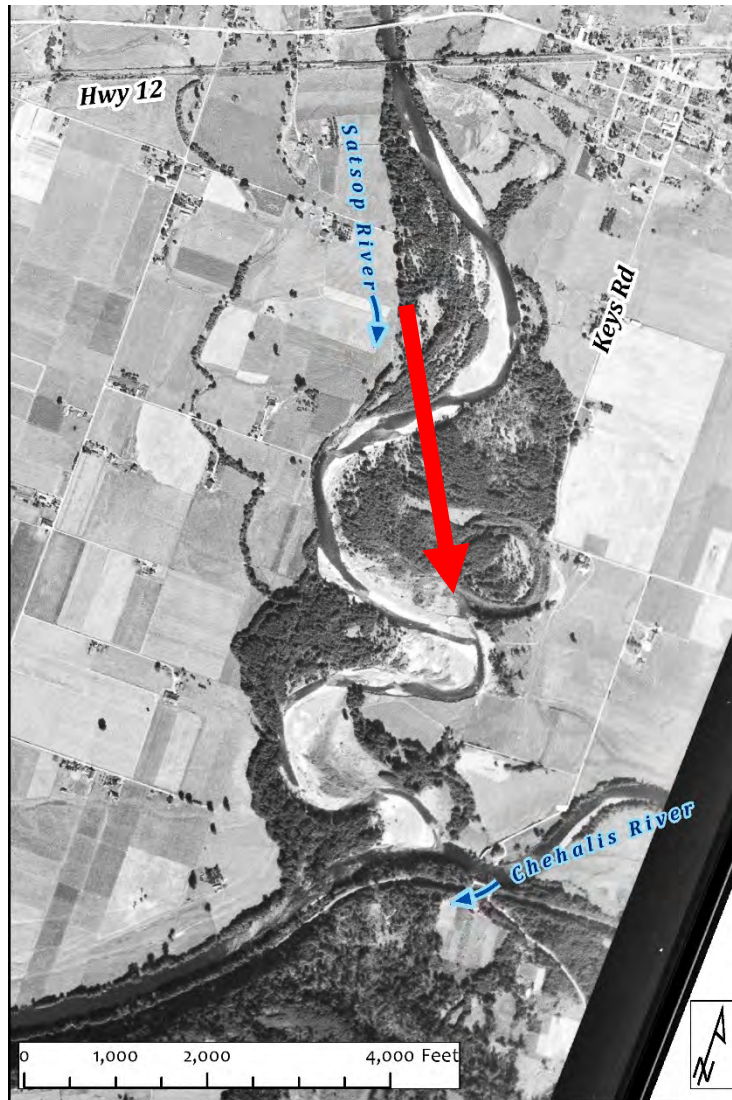


Issues

- Bank Erosion
- Revetments
- Keys Road
- Port Well
- WDFW Restoration Project
- 2018 Avulsion
- Community Frustration

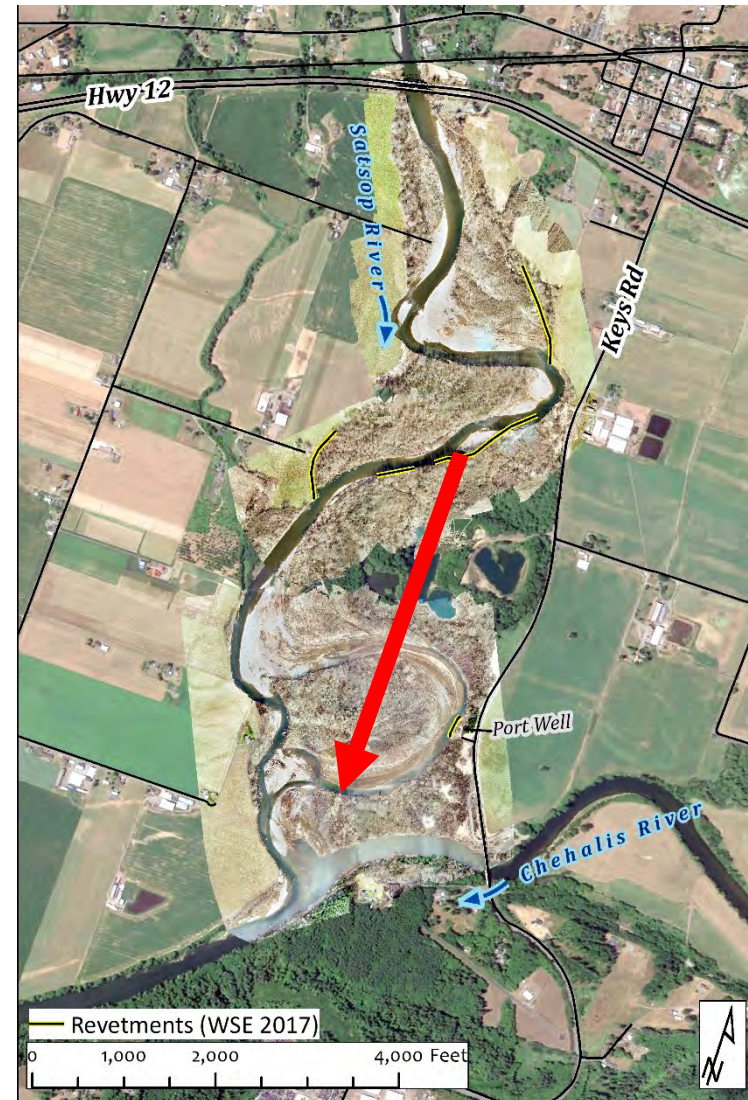


Historical Context



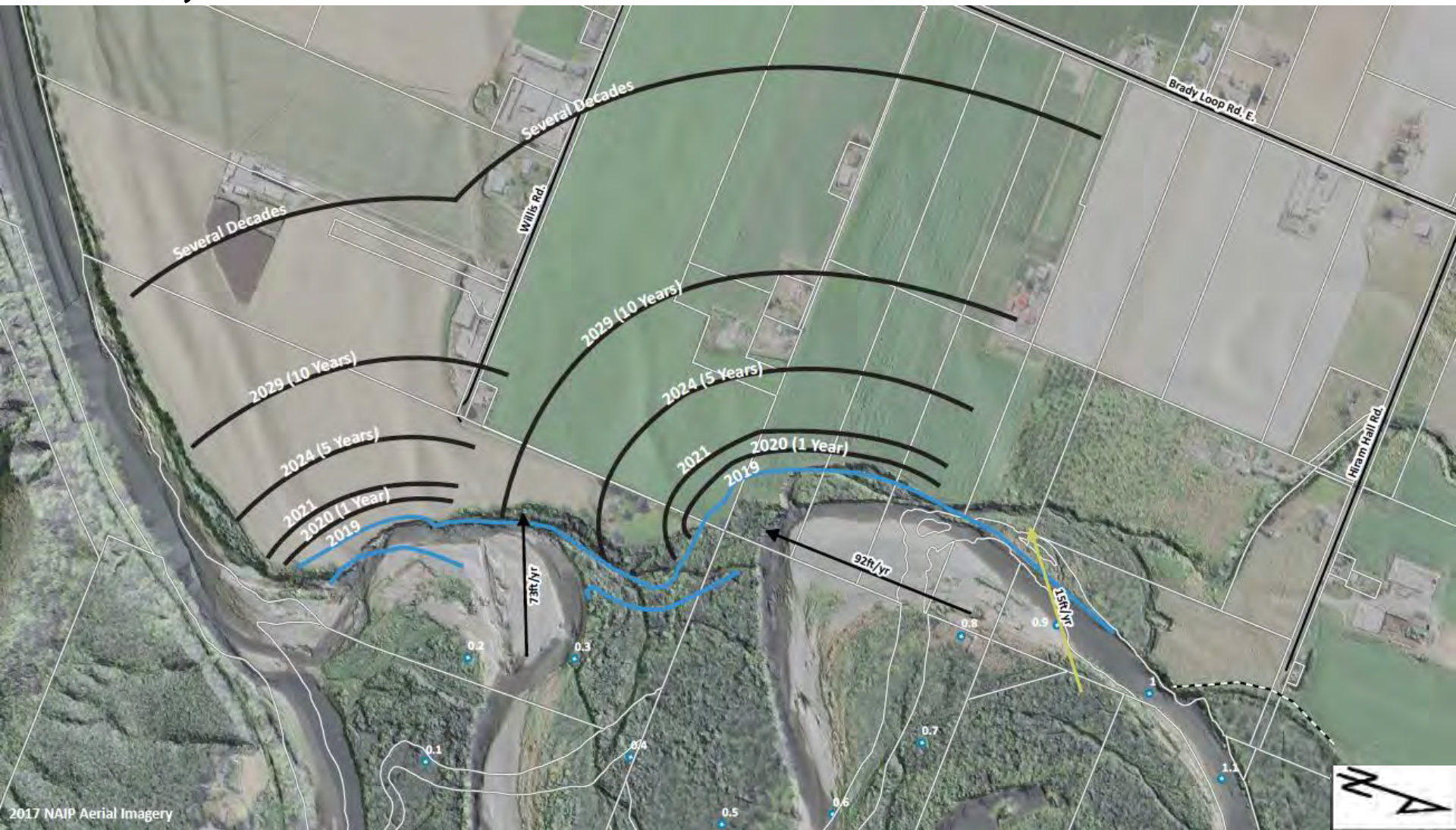
2

1953



2019

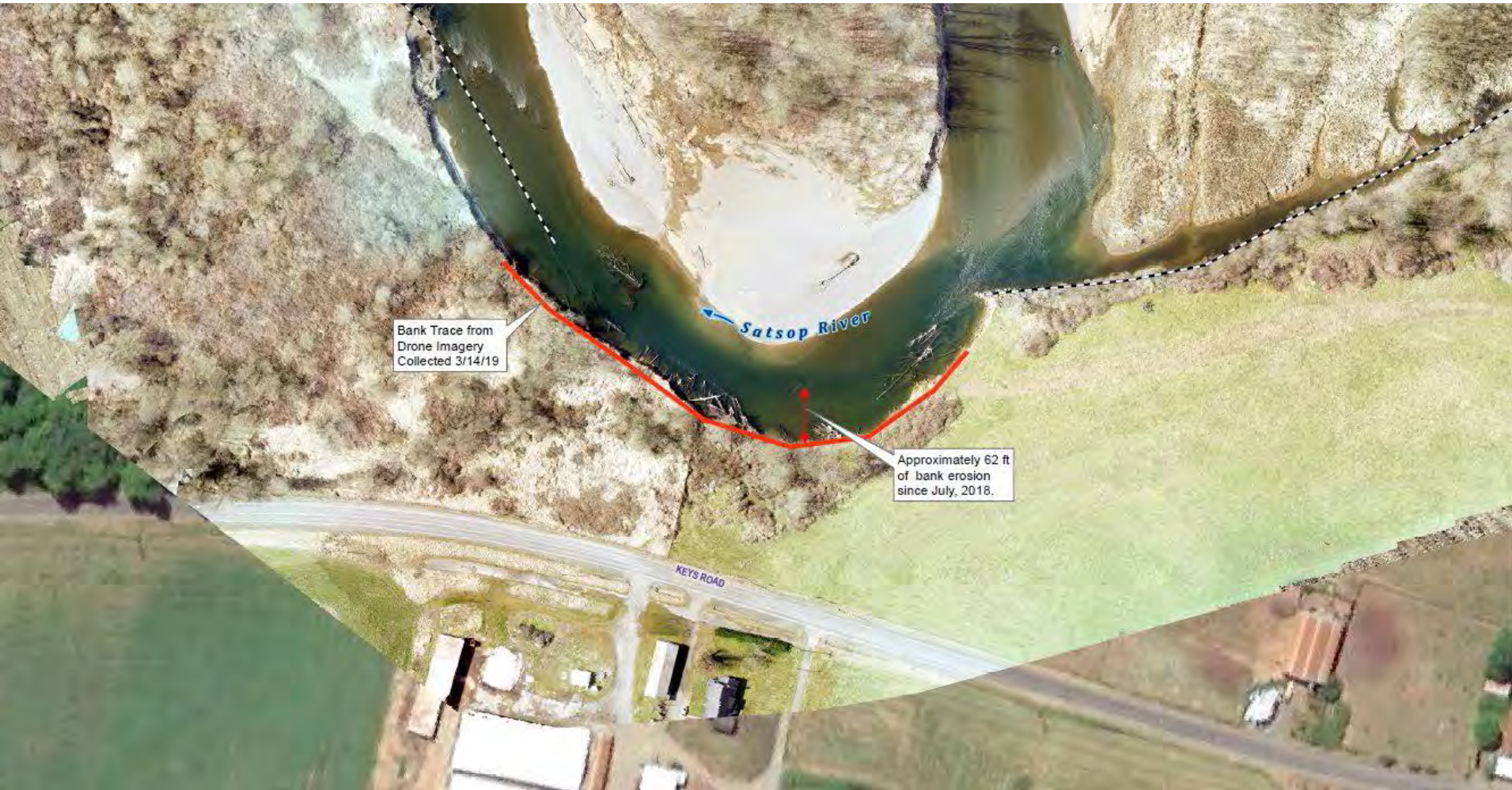
Projected Erosion Without Treatment



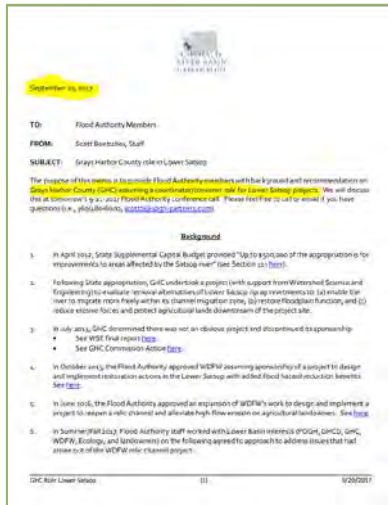
Highly Erodible Agricultural Soils



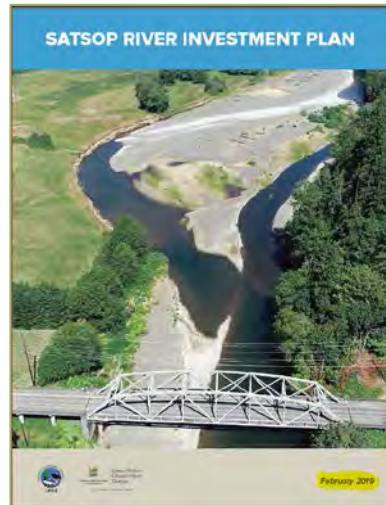
Essential Infrastructure Threatened (e.g., Keys Rd.)



Lower Satsop Restoration, Protection Program



“Organization Stage”
9/2017 -- See [here](#)



“Vision Stage”
2/2019 -- See [here](#)

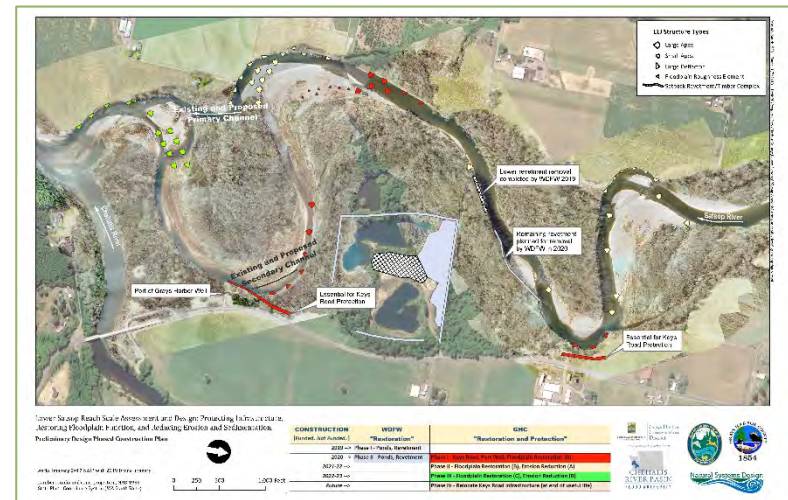


“Planning Stage”
10/2019 -- See [here](#) and [here](#)

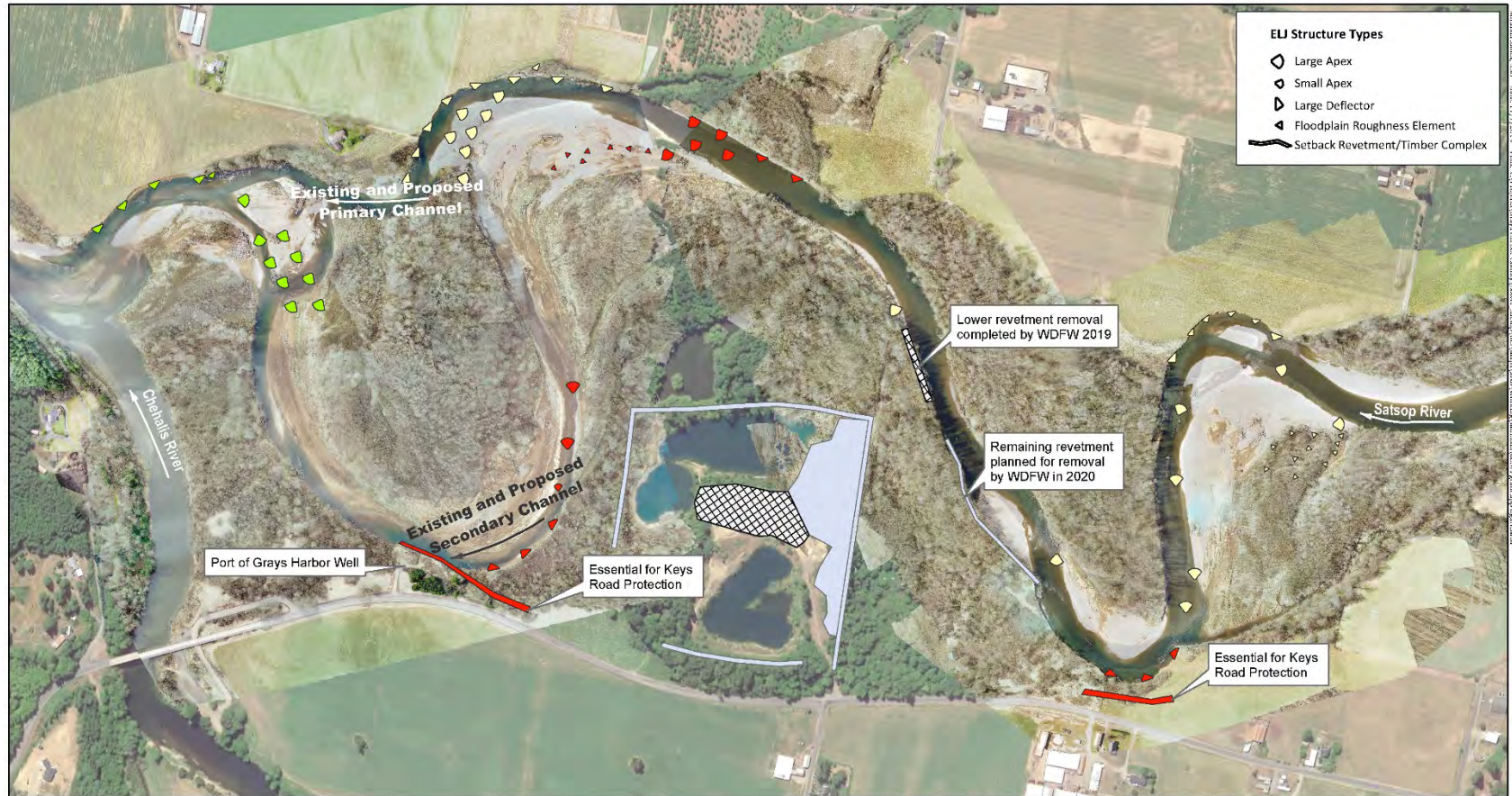


- ✓ **Protect**
- ✓ **Preserve**
- ✓ **Restore**

“Implementation Stage”
10/2019 – See [here](#) and [here](#)



Implementation Stage (Plan)



Lower Satsop Reach Scale Assessment and Design: Protecting Infrastructure, Restoring Floodplain Function, and Reducing Erosion and Sedimentation.

Preliminary Design Phased Construction Plan



0 250 500 1,000 Feet

Aerial Imagery 2017 NAIP with 2019 Drone Imagery

Lambert conformal conic projection, NAD 1983
State Plane Coordinate System (WA South Zone)

7

CONSTRUCTION [Funded, Not Funded.]	WDFW "Restoration"	GHC "Restoration and Protection"
2019 -->	Phase I - Ponds, Revetment	
2020 -->	Phase II - Ponds, Revetment	Phase I - Keys Road, Port Well, Floodplain Restoration (A)
2021-22 -->		Phase II - Floodplain Restoration (B), Erosion Reduction (A)
2022-23 -->		Phase III - Floodplain Restoration (C), Erosion Reduction (B)
Future -->		Phase IV - Relocate Keys Road Infrastructure (at end of useful life)



March 2020, NAD 1983 Date: 11/27/2019 File: N:\Projects\Grays Harbor County\Lower Satsop\030320\030320.dwg User: jason.miller

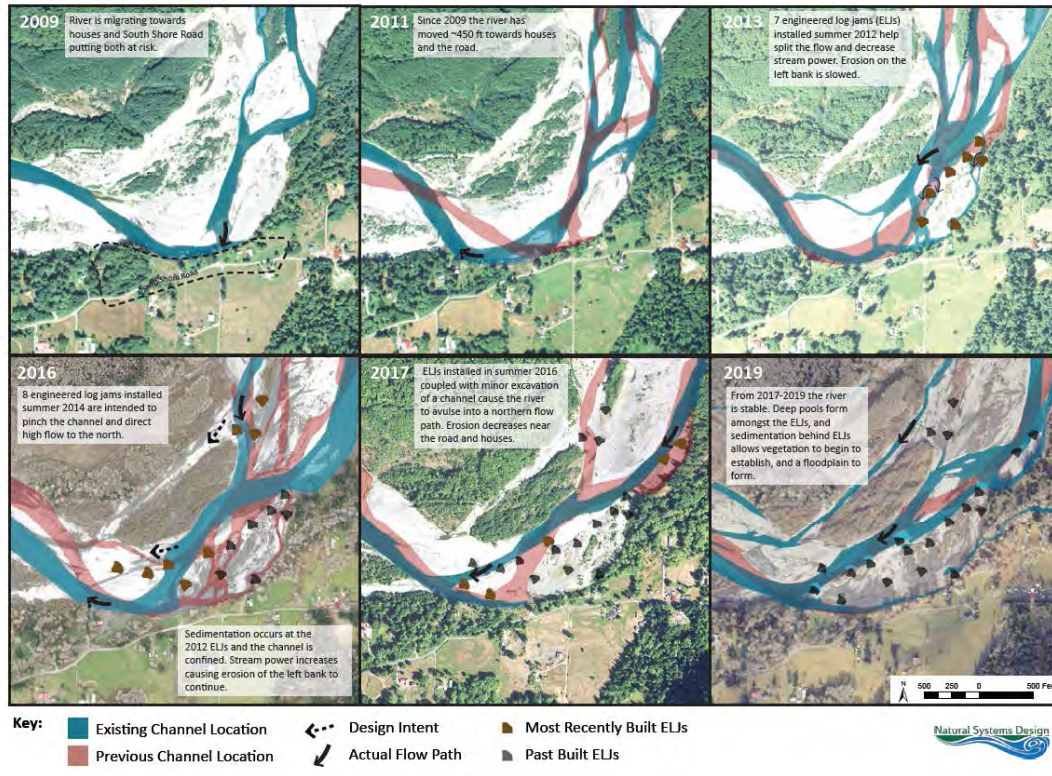
Implementation Stage (Advisory Group)



Implementation Stage (Examples)

Timber complex →

Upper Quinault Channel Migration Lower PAS



Apex Structure



Deflector Structure



Floodplain Roughness

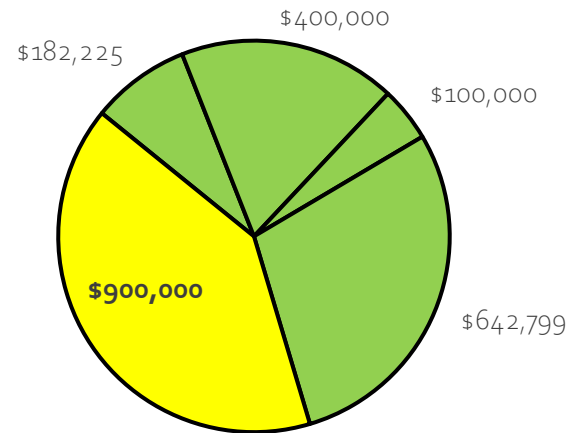


Implementation Stage

GHC Phase I (2020)

Phase I -- \$2,225,024

- Funds Secured -- 2019-21 State Capital Budget (\$182,225)
- Funds Secured -- GHC .09 Local Funds (\$400,000)
- Funds Secured -- GHC Road Fund (\$100,000)
- Funds Secured -- Flood Authority Local Projects Reobligation Funds (\$642,799)
- Member Request -- 2019-21 Supplemental State Capital Budget (\$900,000)



WDFW Phase II (2020)

Cost

Status

2020:

- | | | |
|--|--------------------|-------------------|
| • Phase II, (Construction) -- Ponds, Revetment | \$1,429,000 (WCRI) | Funded, Scheduled |
|--|--------------------|-------------------|

Implementation Stage (2019)



WDFW Ponds Restoration
(remove spoils piles, shallow out ponds)



Lower WDFW Revetment
(remove 200' rock toe, excavate 20' x 85' channel)

Contacts

Organization	
Grays Harbor County	Rob Wilson 360/249-4222 RWilson@co.grays-harbor.wa.us
Grays Harbor Conservation District	Anthony Waldrop 360/249-8532 ghcdwater@gmail.com
WA Department of Fish and Wildlife	Michelle Cramer 360/902-2610 Michelle.Cramer@dfw.wa.gov
Port of Grays Harbor	Alissa Shay 360/ ashay@portgrays.org
Natural Systems Design	Miranda Smith 206/480-1127 miranda@naturaldes.com
Chehalis River Basin Flood Authority	Scott Boettcher 360/480-6600 scottb@sbgh-partners.com

Resource

https://www.ezview.wa.gov/site/alias__1492/37609/lower_satsop_restoration_and_protection_program.aspx



What's Next?

1. Upcoming Meetings/Briefings:

Date	Time	Location	Audience
9/30/2019	1:00 p.m.	Montesano, WDFW Regional Office	Lower Satsop Advisory Group
10/01/2019	10:30 a.m.	Montesano, Grays Harbor County Administration Building	Grays Harbor County Commissioners
10/03/2019	1:15 p.m.	Centralia, Train Depot	Chehalis Basin Board
10/08/2019	9:00 a.m.	Aberdeen, Port of Grays Harbor	Port of Grays Harbor
10/09/2019	10:30 a.m.	Olympia, 120 Union Avenue	The Nature Conservancy
10/31/2019	10:00 a.m.	Montesano, Grays Harbor County Administration Building	Rep. Brian Blake (19 th Leg. District) Rep. Jim Walsh (19 th Leg. District) Chris Davis (Governor's Policy Office)
11/??/2019	6:30 p.m.	Brady Firehall	Lower Satsop Community Members

2. JARPA = Late-December 2019/early-January 2020.

Overview

Lower Satsop Restoration & Protection Program (LSRPP)

Background:

Lower Satsop River is a dynamic system where riverbank erosion, extreme channel migration, and flooding are seriously impacting public and private property, economic, community and personal livelihoods, and the very stability of the river system itself. Projects have been proposed and evaluated in recent years without real success. Inaction and frustration characterize the feelings of community members. The Lower Satsop Restoration & Protection Program was forged out of a profound urgency for timely, doable and balanced solutions.

Phase I:

The Lower Satsop River avulsed 11/27/2018 cutting across the neck of a large meander bend. Within hours approximately 239K cu/yards (23,917 dump trucks) of high-quality farm soil was lost and 538K cu/yards (53,833 dump trucks) of farm soil and riparian corridor was lost. The avulsion galvanized the need for immediate action and immediate investment.

Phase I is that immediate action and immediate investment. Phase I protects Keys Road in order to support full removal of the revetment along the left bank of WDFW's property and to further reduce erosion of opposite bank agricultural lands by improving floodplain connectivity and helping distribute stream power across the floodplain and reduce main channel velocities. Phase I will be "shovel-ready" in time for 2020 construction season.



Prior to the avulsion the river's primary path was through the large meander bend flowing past the Port's well and adjacent to Keys Road. Since the avulsion the river's primary path is now along the avulsion route. Although the large meander bend is no longer the primary path, it is engaged as a secondary path multiple times a year at relatively low flows.

Contact:

Rob Wilson, County Engineer
Grays Harbor County

360/249-4222

RWilson@co.grays-harbor.wa.us

Miranda Smith, Project Engineer
Natural Systems Design

206/480-1127

miranda@naturaldes.com

Scott Boettcher, Staff

Chehalis River Basin Flood Authority

360/480-6600

scottb@sbgh-partners.com

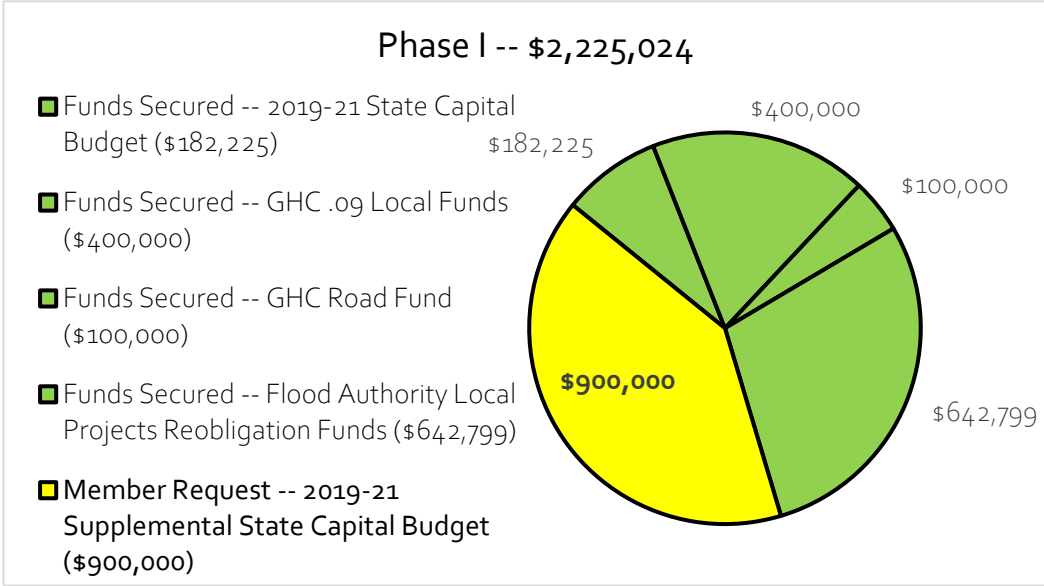
Phase I Options

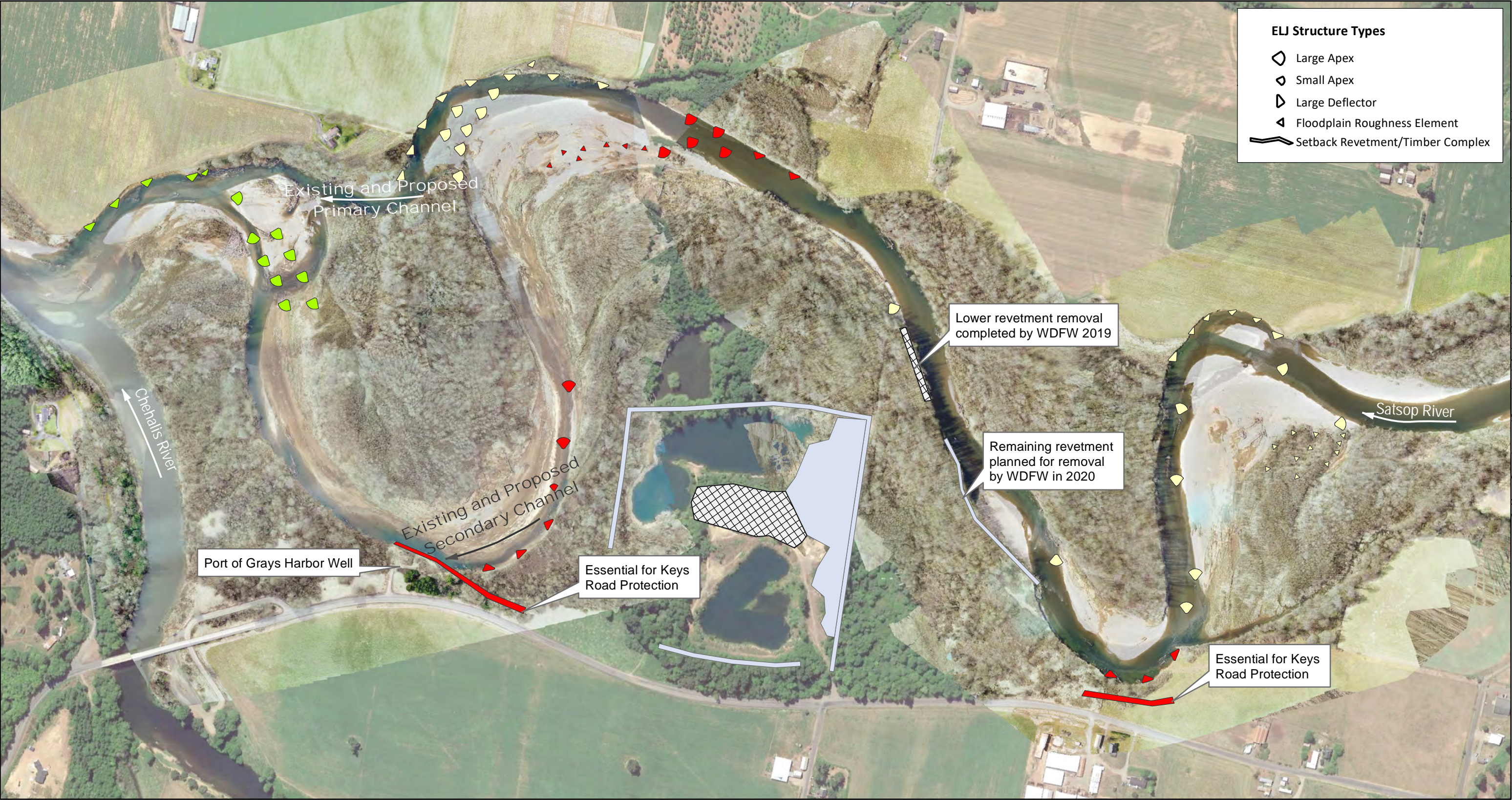
Flood Threats	Phase I (construct 2020)	Phase I (construct 2021)	Do Nothing
1. Loss of <u>Farmland</u>	✓	✗	✗
2. Threat to <u>Keys Road</u> (Satsop Business Park)	✓	✗	✗
3. Threat to <u>Port well</u> (Satsop Business Park)	✓	◆	?
4. Loss of <u>Community support</u>	✓	✗	✗
5. Lack of <u>Floodplain stability</u>	✓	✗	✗
6. Elevated <u>Sediment discharge</u>	✓	◆	◆
7. Potential for <u>Ecological uplift</u>	✓	✗	✗
Result:	<ul style="list-style-type: none"> ✓ Floodplain, river paths stabilize. ✓ Erosion rates reduce. ✓ Flood threats substantially reduce for next (2020/21) flood season. 	<ul style="list-style-type: none"> ✓ Benefits delayed to 2021/22 flood season. ✓ Designs may require rework (river change). ✓ Emergency protections likely. 	<ul style="list-style-type: none"> ✓ Emergency protections certain. ✓ Problems will continue, exacerbate. ✓ Holistically fixing threats disappears.
Legend:	✓ Improves	◆ No change	✗ Worsens

Frequently Asked Questions

Lower Satsop Restoration & Protection Program (Phase I)

1.	Is this an ASRP project?	The LSRPP is not an ASRP project, at least for now. Phase I focuses on stabilizing the floodplain, stabilizing river flow paths and reducing rates of erosion. Once this is done, the reach could be adopted by the ASRP program. Currently the system is concentrating stream power resulting in increased erosion rates, loss of riparian vegetation, and loss of aquatic habitat. The goals of the LSRPP are to distribute stream power across the floodplain creating a system with dynamic equilibrium that supports riparian vegetation, aquatic habitat, and a restored historic channel migration zone. After Phase I future work could include riparian plantings, backwater habitats, enhanced side-channels, etc. While not specifically conceptualized as an ASRP project, Phase I will use ecologically sensitive solutions consistent with ASRP process.
2.	Are the LSRPP phases definite?	Phase I has been established based on collection and analysis of data, current conditions and effects. Subsequent phases will be based on the system's response to Phase I actions. LSRPP will employ "adaptive management" as the Program moves from phase to phase. Phase II and III are conceptual now, and will be informed further by Phase I results.
3.	Is there a critical minimum necessary to stabilize the system?	Phase I is the minimum required to provide a geomorphic effect which will reduce stream power at eroding banks and distribute it across the floodplain and secondary channels. Future phases will add to this foundational step to provide greater benefit to habitat resulting in ecological uplift and further reduction of bank erosion in the reach. In other words, Phase I is the critical mass necessary to stabilize the system and reduce its erosive power. Phase II and III are conceptual at this time; however, are envisioned as investments that additionally benefit fish, habitat, and provide ecological uplift.
4.	Why are you seeking direct legislative appropriation?	The program seeks extraordinary funding for Phase I so the system can be stabilized. Subsequent funding can be planned and structured based on how the system responds to Phase I. By stabilizing the system now (through Phase I), the ability to synchronize with and participate in traditional, competitive funding programs greatly increases.
5.	Have you considered leaving the river alone?	The current issues with the river are the result of confining the river and concentrating its power in locations where the river hasn't been in thousands of years. Once the system is allowed to return to, and distribute its energy across, its historic floodplain a hands-off approach will be more feasible.
6.	Is this a fish project?	Phase I is a bank stabilization project that will use ecologically sensitive solutions consistent with habitat restoration projects in the basin. By doing so, the system will be set for habitat restoration and fish-specific projects. LSRPP has a list of restoration add-ons following Phase I.

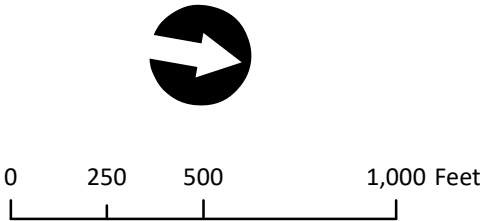
7. What about the EDT model that has been used to evaluate benefit to aquatic species?	The Ecosystem Diagnostic Tool (EDT) model has been run for this reach as part of the Chehalis Basin Strategy analysis. If this project is adopted as part of ASRP efforts subsequent model runs could be completed.														
8. What are anticipated, planned future conditions?	<p>Post-Phase I project conditions are anticipated to reduce erosion and channel migration rates in the vicinity of meanders that currently pose a threat to Keys Road and the Port of Grays Harbor well. Additional post-Phase I project conditions will include higher quality habitat for aquatic species around the installed ELJ structures which will create habitat by:</p> <ul style="list-style-type: none"> • scouring pools; • sorting sediment for spawning; • providing velocity refuge; and • supporting production of allochthonous organic matter in the ELJs which will support benthic macroinvertebrate productivity. 														
9. How much is Phase I anticipated to cost? How much funding for Phase I has been secured?	<p style="text-align: center;">Phase I -- \$2,225,024</p>  <table border="1"> <thead> <tr> <th>Funding Source</th> <th>Amount</th> </tr> </thead> <tbody> <tr> <td>Member Request -- 2019-21 Supplemental State Capital Budget</td> <td>\$900,000</td> </tr> <tr> <td>Flood Authority Local Projects Reobligation Funds</td> <td>\$642,799</td> </tr> <tr> <td>2019-21 State Capital Budget</td> <td>\$182,225</td> </tr> <tr> <td>GHC .09 Local Funds</td> <td>\$400,000</td> </tr> <tr> <td>GHC Road Fund</td> <td>\$100,000</td> </tr> <tr> <td>Total</td> <td>\$2,225,024</td> </tr> </tbody> </table>	Funding Source	Amount	Member Request -- 2019-21 Supplemental State Capital Budget	\$900,000	Flood Authority Local Projects Reobligation Funds	\$642,799	2019-21 State Capital Budget	\$182,225	GHC .09 Local Funds	\$400,000	GHC Road Fund	\$100,000	Total	\$2,225,024
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10. Does LSRPP have stakeholder and agency support?	The LSRPP vision, plan and proposed actions are consistent with community interests for expedient and effective protection of infrastructure, agricultural, property, and stabilization of the river system (river and its floodplain). Phase I actions are a balanced response to the protection needs of the community on the one hand and the restoration needs of state and federal agencies on the other hand. Agencies and community members alike have been extensively involved in development of the vision and reach-scale plan.														
11. Is this a project or is this a program?	This is a program in that it will require a multi-phased implementation effort over many years based on a reach-scale plan which includes long-term elements such as relocation of critical infrastructure as that infrastructure reaches the end of its useful life.														



Lower Satsop Reach Scale Assessment and Design: Protecting Infrastructure, Restoring Floodplain Function, and Reducing Erosion and Sedimentation.

Preliminary Design Phased Construction Plan

Aerial imagery 2017 NAIP with 2019 Drone Imagery
Lambert conformal conic projection, NAD 1983
State Plane Coordinate System (WA South Zone)



CONSTRUCTION [Funded. Not Funded.]	WDFW "Restoration"	GHC "Restoration and Protection"
2019 -->	Phase I - Ponds, Revetment	
2020 -->	Phase II - Ponds, Revetment	Phase I - Keys Road, Port Well, Floodplain Restoration (A)
2021-22 -->		Phase II - Floodplain Restoration (B), Erosion Reduction (A)
2022-23 -->		Phase III - Floodplain Restoration (C), Erosion Reduction (B)
Future -->		Phase IV - Relocate Keys Road infrastructure (at end of useful life)

