Lorenzan Creek Feasibility Study

Community Workshop #2

March 15, 2023

5:30-7:30 PM

Workshop Goals and Objectives

1. Learn about the project goals and meet project team members.

2. Gain a high-level understanding of the project and its current status, including:

    a. Project timeline

    b. Existing conditions analysis

    c. Stakeholder engagement to date

    d. Development of design alternatives, analysis, and evaluation conducted to identify a preferred alternative.

Workshop Goals and Objectives

3. Hear details about the preferred alternative, including benefits and potential challenges.

4. Have an opportunity to ask questions about and share input regarding the preferred alternative.

5. Learn about next steps, including future for input.

Agenda

5:45 Project Update and Status

6:15 Alternative 3 (Preferred Alternative) – Detailed Overview

6:30 Break

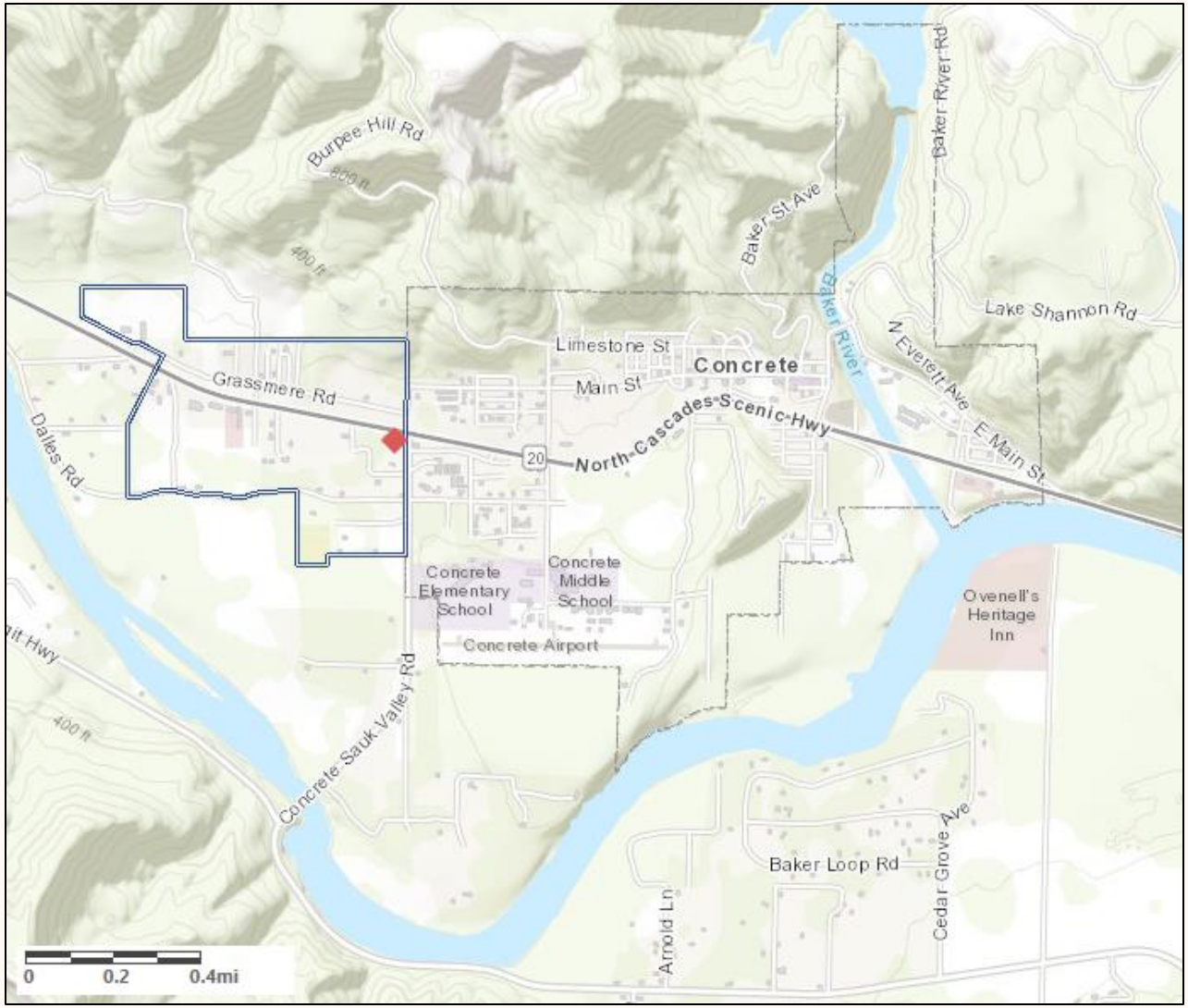
6:35 Alternative 3 (Preferred Alternative) – Detailed Overview (continued)

7:25 Wrap and Next Steps

7:30 Adjourn

Project Update and Status

Project Location



Project Goals and Benefits

- Modernize stormwater infrastructure.
- Source control.
- Restore fish passage.
- Consider impacts to upstream flooding.

Fish Passage

Legend

City Boundaries

Fish Passage Data Submissions
- Open
- In Progress
- On Hold

Major Dams

WDFW Fish Passage Sites
- Not a barrier
- Partial Fish Passage Blockage
- Total Fish Passage Blockage
- Barrier, Unknown Percent Passable
- Diversion
- Natural Barrier - Verified
- On a Non-Fish Bearing Stream
- Unknown

Fish Passage Barrier Corrections
- Corrected Barriers

Fish Passage

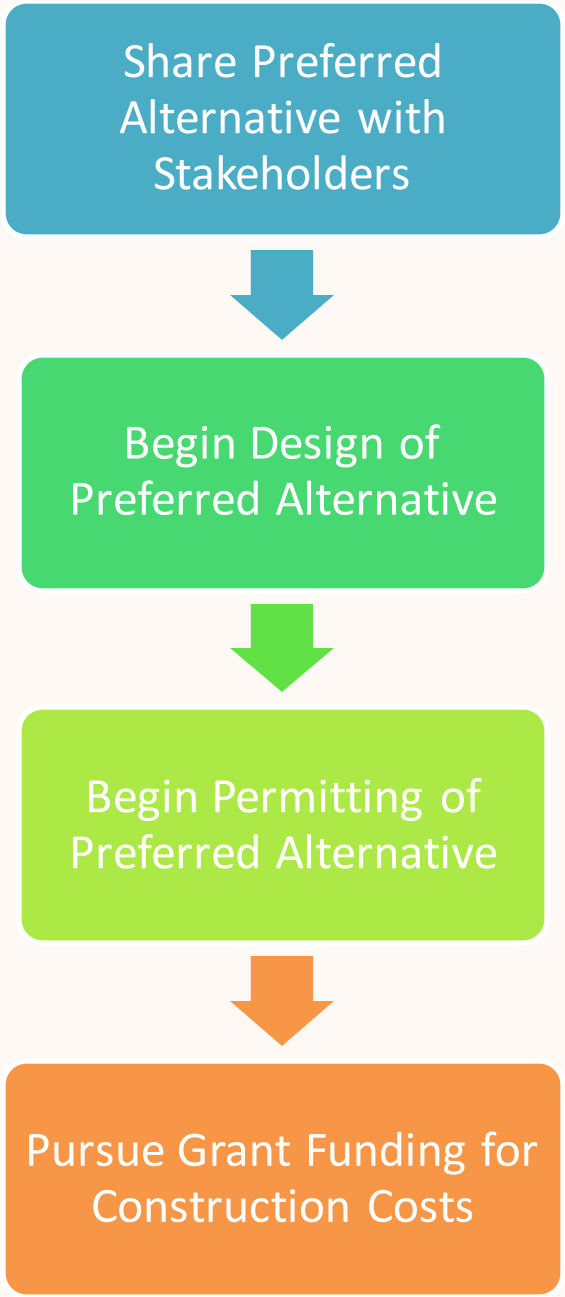
Inlet to piped portion of Lorenzan Creek under road shop.

Upstream Flooding

Timeline


Existing Conditions
Hydrologic and Hydraulic Modeling
Draft Evaluation Criteria
Draft Design Alternatives
Stakeholder Input
Evaluate Criteria
WE ARE HERE
Share Preferred Alternative with Stakeholders

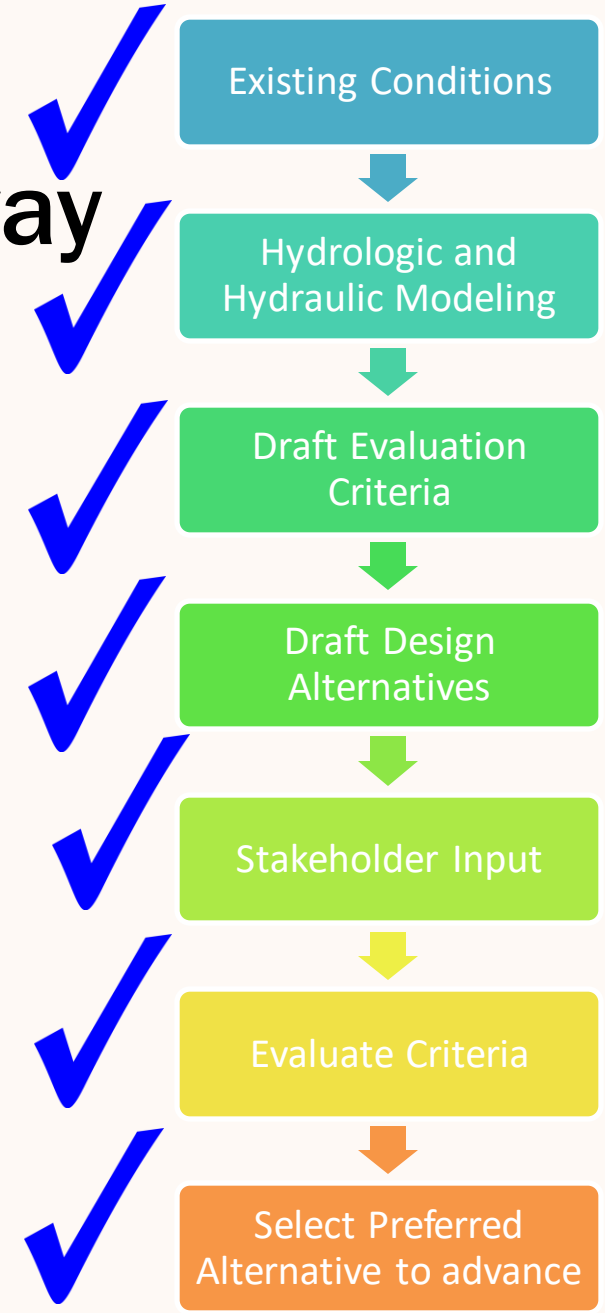
Timeline


Share Preferred Alternative with Stakeholders
Begin Design of Preferred Alternative
Begin Permitting of Preferred Alternative
Pursue Grant Funding for Construction Costs

Stakeholder Engagement to Date

- 7/12/21: Project kickoff/site tour
- 12/6/21: Lorenzan Creek Feasibility Study website went live
- 12/2/21: Survey sent out to get input on evaluation criteria
- 1/26/22: Community Workshop #1
- 3/15/23: (TODAY) Community Workshop #2
- Ongoing: Regular Listserv updates

Status of Completed Work/Work Underway



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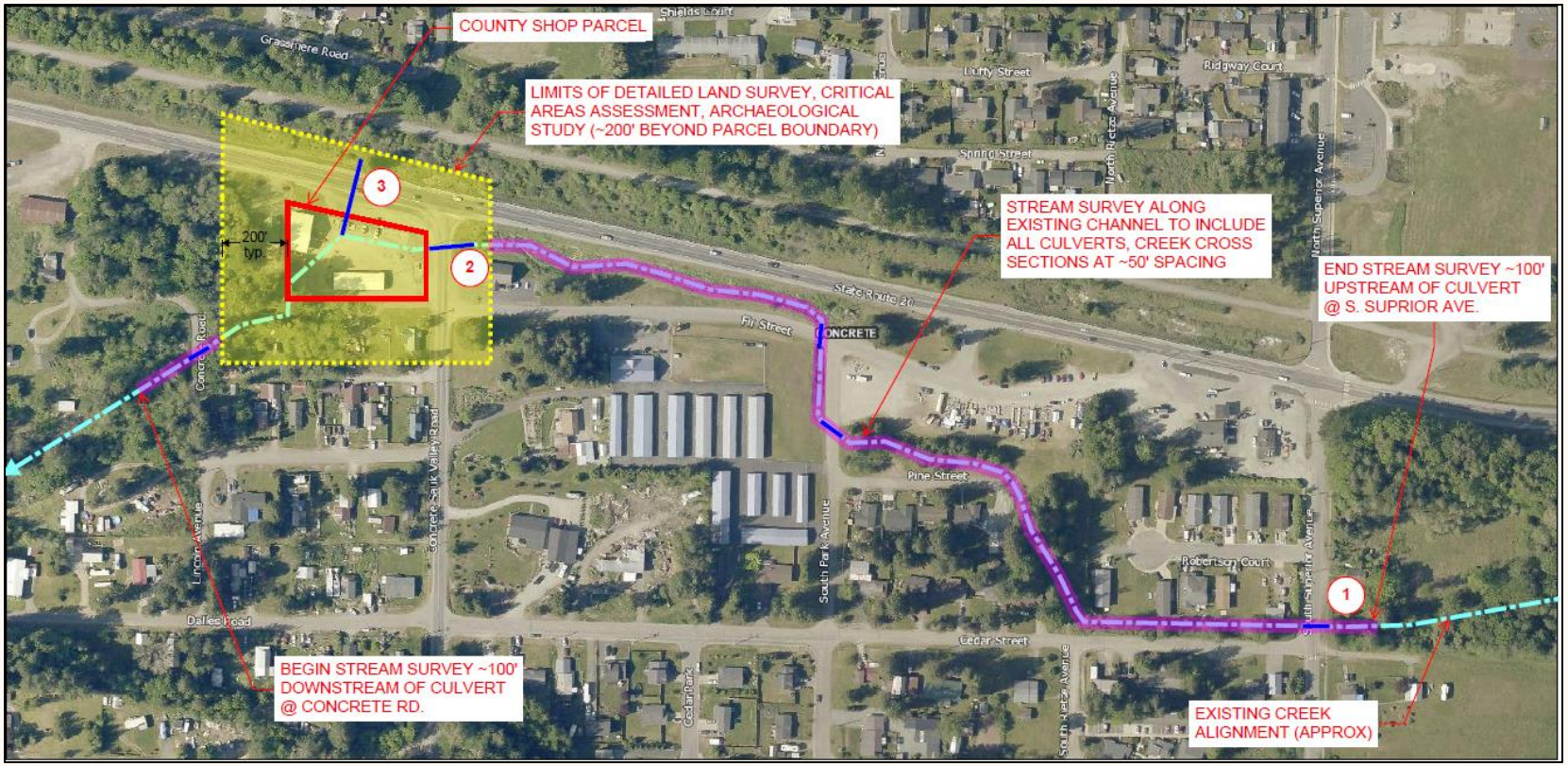


Status of Completed Work/Work Underway

Evaluation Criteria Categories
Community Benefit
Estimated Cost
Flooding and Geomorphic Risk
Habitat and Ecological Significance
Implementation and Operational Complexity
Water Quality

Status of Completed Work/Work Underway

Table 1. Evaluation Criteria.

Category	No.	Criteria	Description
Community	C-1	Consistency with other relevant plans/improvements	Consistency with watershed, habitat, fish passage, capital improvement, and other plans that may apply or be impacted by this project
	C-2	Risk of potential disturbance of cultural resources	Potential risk due to erosion/avulsion, flooding, or construction
	C-3	Improve public access/recreational opportunity	Opportunity for community use, green space, etc.
	C-4	Educational opportunity	Educational opportunity for residents and visitors in close proximity to major roads
Estimated Cost	EC-1	Capital costs	Design, permitting and construction costs
	EC-2	Long-term costs	Operations and maintenance costs
	EC-3	Fundability	Eligibility of improvements for grant funding
Flooding and Geomorphic Risk	FGH-1	Flooding or geomorphic risk at upstream roadways	Risk to public roadways (e.g., South Superior Ave., Cedar Street, South Park Avenue., etc.)
	FGH-2	Flooding or geomorphic risk at downstream roadways	Risk to public roadways (e.g., Concrete Road, etc.)
	FGH-3	Flooding or geomorphic risk at upstream private properties	Risks of flooding or geomorphic hazards such as sedimentation, erosion, avulsion
	FGH-4	Flooding or geomorphic risk at downstream private properties	Risks of flooding or geomorphic hazards such as sedimentation, erosion, avulsion
	FGH-5	Flooding or geomorphic risk to the County shop parcel	Risks of flooding or geomorphic hazards such as sedimentation, erosion, avulsion
	FGH-6	Flooding or geomorphic risk to the WSDOT SR 20 embankment	Risks of flooding or geomorphic hazards such as sedimentation, erosion, avulsion
Habitat and Ecological Significance	HES-1	Geomorphic resilience	Restoration of geomorphic processes that maintain and support systemwide improvements and provide resiliency to long-term changes
	HES-2	Improved fish passage	Potential to meet WDFW design criteria, ability to benefit targeted species, channel flow status within project area
	HES-3	Instream physical habitat improvement	Channel habitat (complexity, bedform diversity, large wood placement, etc.) within project area

Status of Completed Work/Work Underway

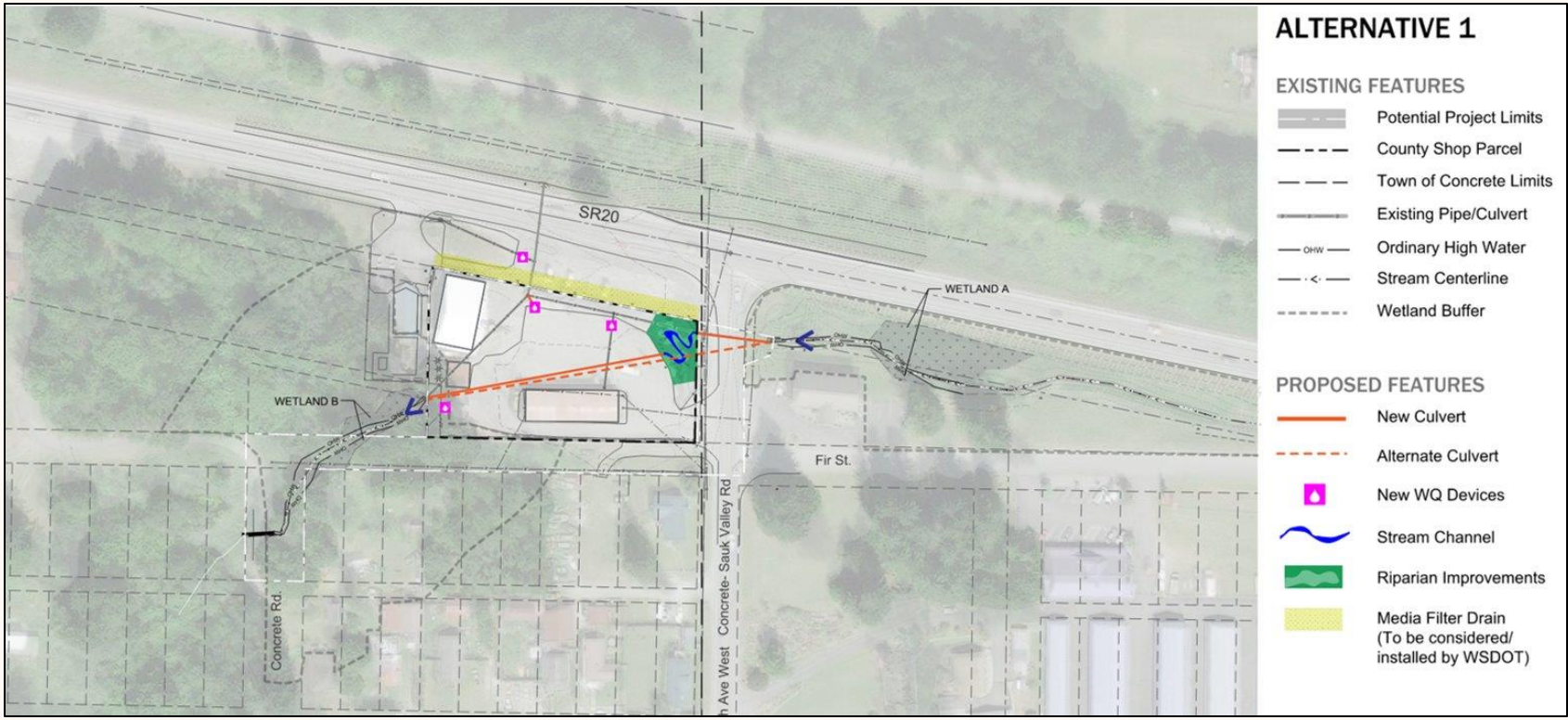
Table 1 (continued). Evaluation Criteria.

Category	No.	Criteria	Description
Habitat and Ecological Significance (continued)	HES-4	Floodplain connectivity and function	Ability to store water and sediment during flood events, improved floodplain connectivity, and nutrient filtration from vegetation (within project area)
	HES-5	Terrestrial and riparian habitat improvement	Increased area and quality of riparian forest conditions; riparian habitat (buffer width, continuity, vegetation composition) within project area
	HES-6	Connections with existing habitat elements	Improve connections to existing wetlands, off-channel features, and riparian forest up- and downstream of the project site (adjacent/outside of project area)
	HES-7	Influence of channel confinement	Relatively less channelization and confinement to habitat and ecological function, fewer bank stabilization measures necessary, reduced risk to adjacent infrastructure
Implementation and Operational Complexities	IO-1	Meets future needs for current site use	Meets County needs for snow removal equipment, materials storage, etc. for foreseeable future
	IO-2	Permitting complexity	Level of effort to obtain and complexity of permits required to construct improvements
	IO-3	Construction complexity	Complexity to construct improvements including access, shoring, proximity to existing structures
	IO-4	Ease of maintenance	Accessible and maintainable, considering permitting needs for maintenance activities
	IO-5	Climate change resiliency	Adaptable for future changes in rainfall, temperatures, creek and/or river water level
	IO-6	Risk of failure	Risk of impacts if failure were to occur (liability to County)
	IO-7	Sequencing complexity with other projects	Complexity of other projects/work that needs to occur prior to construction of this project (e.g., acquire, design and construct new maintenance facility; remove fuel tank; etc.)
Water Quality	WQ-1	Potential of primary water quality parameters in runoff from County shop parcel to reach creek	Risk of potential pollutants from the County shop parcel entering Lorenzan Creek (e.g., TSS, heavy metals, hydrocarbons, etc.)
	WQ-2	Potential of secondary water quality parameters in runoff from County shop parcel to reach creek	Risk of potential contaminants of emerging concern from the County shop parcel entering Lorenzan Creek (e.g., 6PPD-q, PCBs, etc.)
	WQ-3	Risk of spills/illicit discharges	Potential for spills on the County shop parcel and associated risk for contaminating Lorenzan Creek
	WQ-4	Risk to long-term water quality in creek	External to County shop parcel

Status of Completed Work/Work Underway

Alternative	Description
1	Replace existing undersized culvert with larger culvert beneath Concrete-Sauk Valley Road and the County Shop Parcel. Install water quality treatment devices to treat runoff from the County Shop Parcel prior to reaching the creek.
2	Replace existing undersized culvert with larger culvert beneath Concrete-Sauk Valley Road and daylight a portion of the creek south of the County Shop Parcel. Install water quality treatment devices to treat runoff from the County Shop Parcel prior to reaching the creek.
3	Replace existing undersized culvert with larger culvert beneath Concrete-Sauk Valley Road and daylight the portion of the creek through the County Shop Parcel. Remove all existing structures, pavement and infrastructure from the County Shop Parcel (new facility to be built elsewhere).
4	County to sell parcel 'as-is'
5	No action

Status of Completed Work/Work Underway



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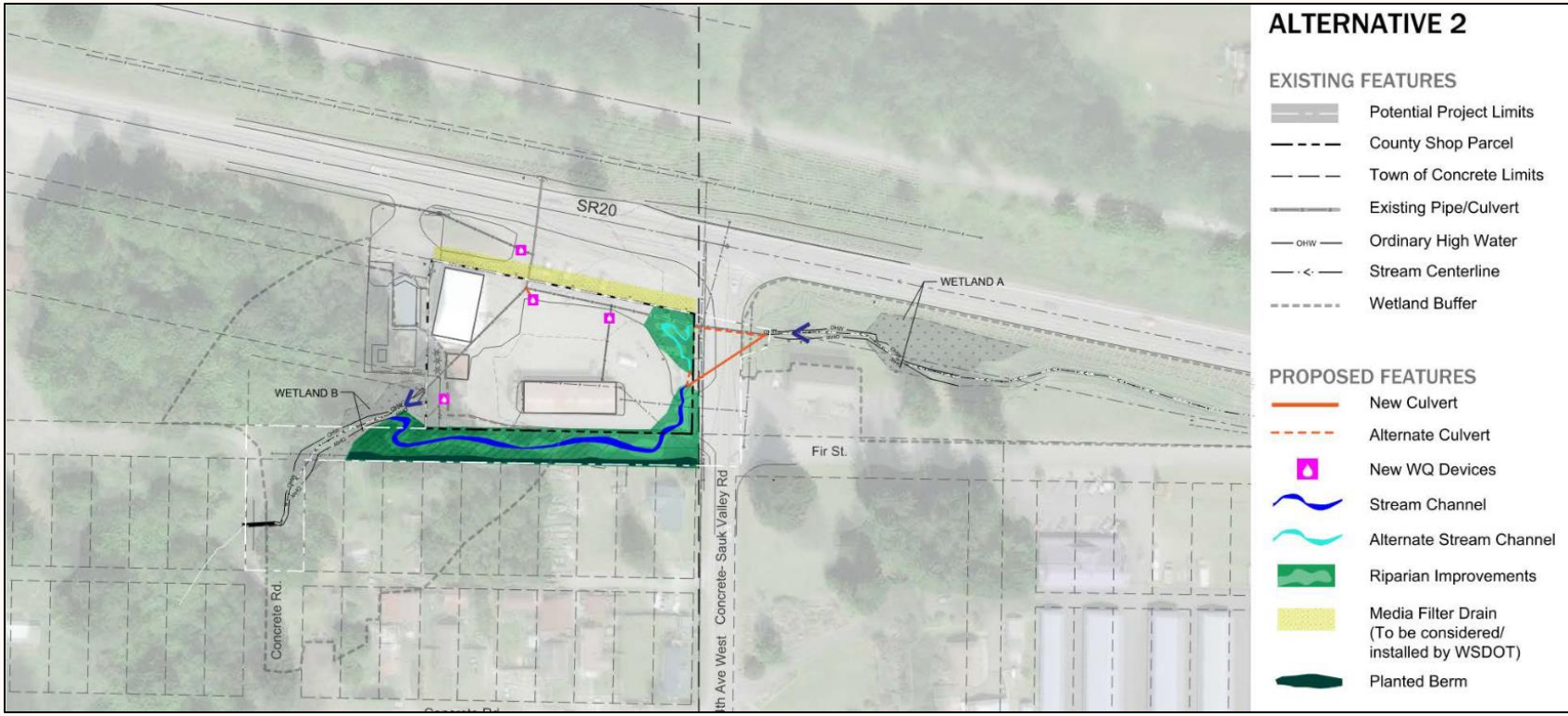
Status of Completed Work/Work Underway



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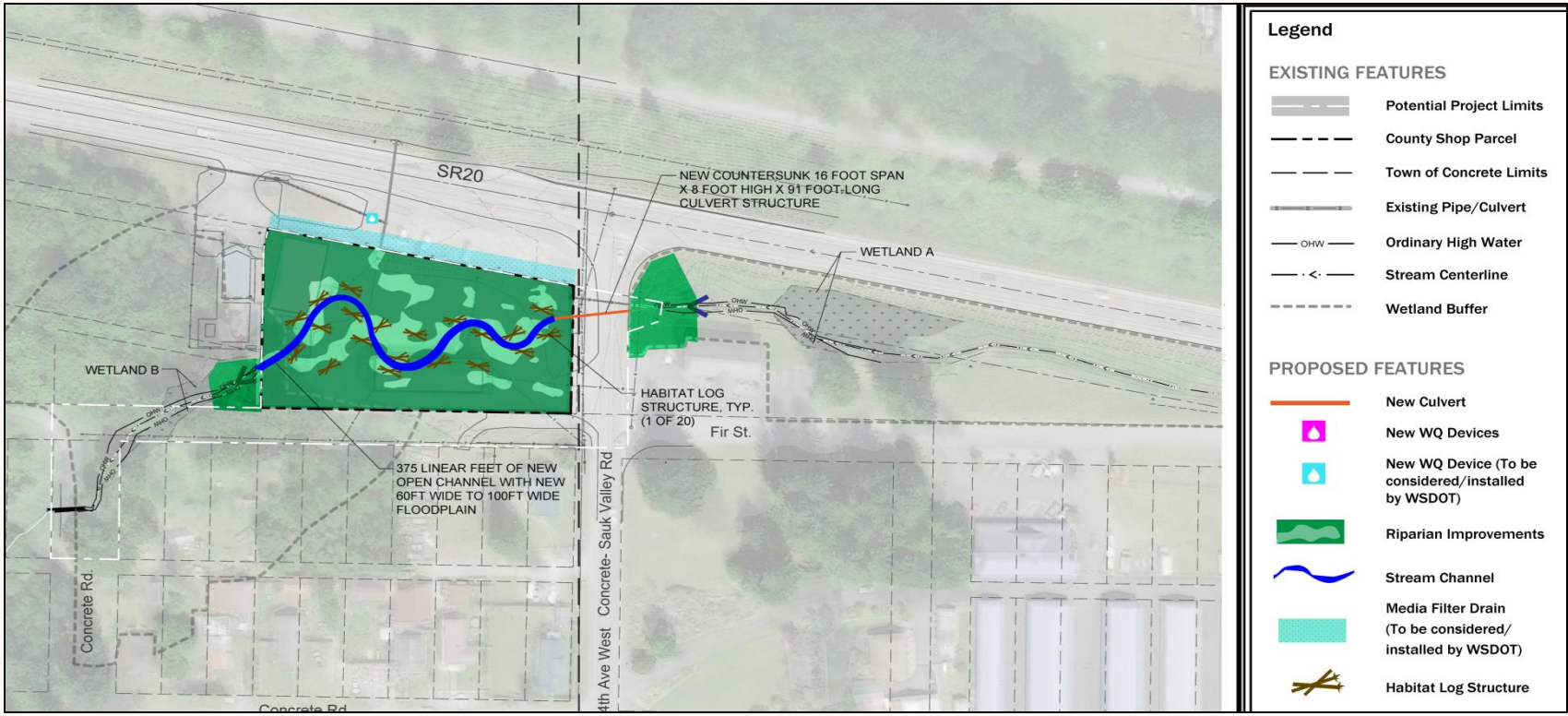

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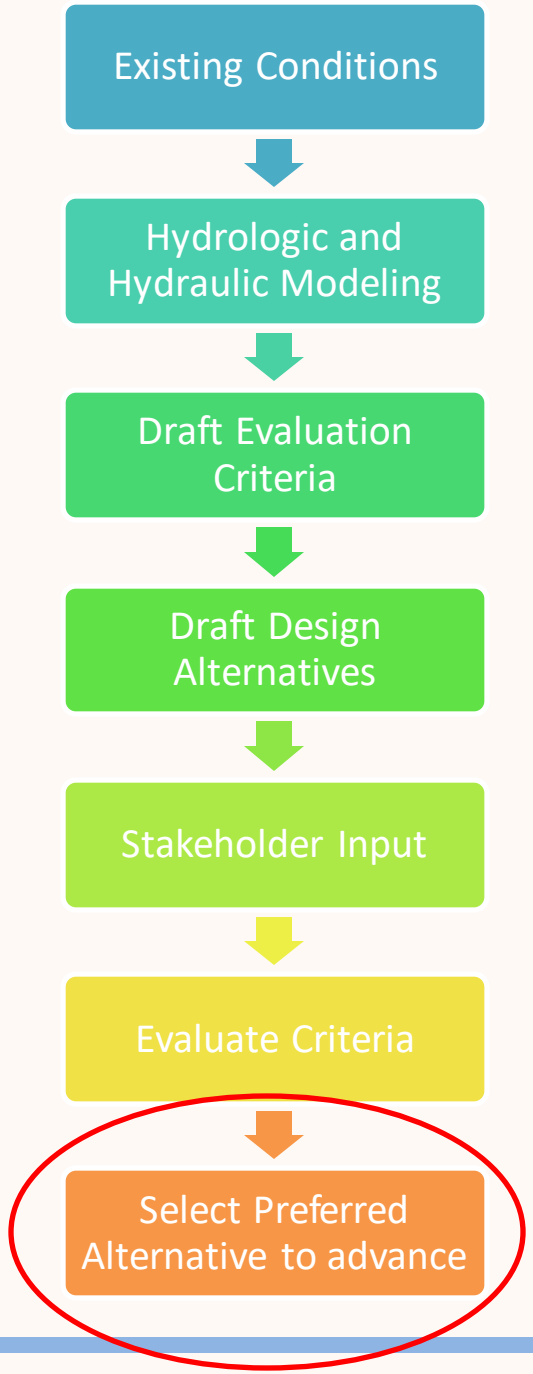
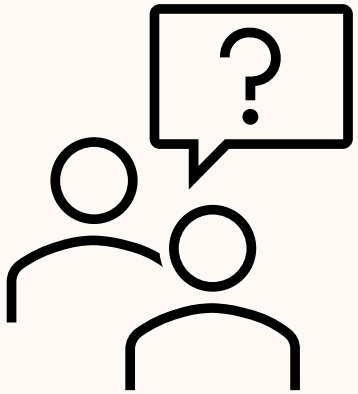
Status of Completed Work/Work Underway

	Scoring of Project Alternatives				
	1	2	3	4	5
Category	Install Long Culvert Through Shop Site	Daylight Narrow Channel South of Shop Site	Daylight Channel Through Shop Site	Sell Parcel As-Is	No Action
Community Category Score:	1.8	2.0	3.3	1.8	1.3
Estimated Cost Category Score:	1.0	2.3	2.3	2.7	1.0
Flooding & Geomorphic Hazard Category Score:	2.3	2.3	3.2	0.8	0.8
Habitat and Ecological Significance Category Score:	0.9	2.4	4.0	0.0	0.0
Implementation and Operational Complexities Category Score:	1.4	2.0	2.3	2.3	1.3
Water Quality Category Score:	3.0	3.0	4.0	0.5	0.0
Overall Score:	15.2	21.9	29.4	11.2	5.4

Timeline


Existing Conditions
Hydrologic and Hydraulic Modeling
Draft Evaluation Criteria
Draft Design Alternatives
Stakeholder Input
Evaluate Criteria
Select Preferred Alternative to advance

Questions?



Alternative 3 – Detailed Overview

Alternative 3 - Concept

Legend

EXISTING FEATURES

- Potential Project Limits
- County Shop Parcel
- Town of Concrete Limits
- Existing Pipe/Culvert
- Ordinary High Water
- Stream Centerline
- Wetland Buffer

PROPOSED FEATURES

- New Culvert
- New WQ Devices
- New WQ Device (To be considered/installed by WSDOT)
- Riparian Improvements
- Stream Channel
- Media Filter Drain (To be considered/ installed by WSDOT)
- Habitat Log Structure

Figures created by Herrera

Alternative 3 – Evaluation Scoring Results

	Scoring of Project Alternatives				
	1	2	3	4	5
Category	Install Long Culvert Through Shop Site	Daylight Narrow Channel South of Shop Site	Daylight Channel Through Shop Site	Sell Parcel As-Is	No Action
Community Category Score:	1.8	2.0	3.3	1.8	1.3
Estimated Cost Category Score:	1.0	2.3	2.3	2.7	1.0
Flooding & Geomorphic Hazard Category Score:	2.3	2.3	3.2	0.8	0.8
Habitat and Ecological Significance Category Score:	0.9	2.4	4.0	0.0	0.0
Implementation and Operational Complexities Category Score:	1.4	2.0	2.3	2.3	1.3
Water Quality Category Score:	3.0	3.0	4.0	0.5	0.0
Overall Score:	15.2	21.9	29.4	11.2	5.4

Alternative 3 – Community Category

		Scoring of Project Alternatives				
		1	2	3	4	5
Category	Criteria	Install Long Culvert Through Shop Site	Daylight Narrow Channel South of Shop Site	Daylight Channel Through Shop Site	Sell Parcel As-Is	No Action
Community	Consistency with other relevant plans/improvements	3	3	3	2	1
	Risk of potential disturbance of cultural resources	3	1	2	4	4
	Improve public access / recreational opportunity	0	1	4	1	0
	Educational opportunity	1	3	4	0	0
	Community Category Average:	**1.75**	**2**	**3.25**	**1.75**	**1.25**

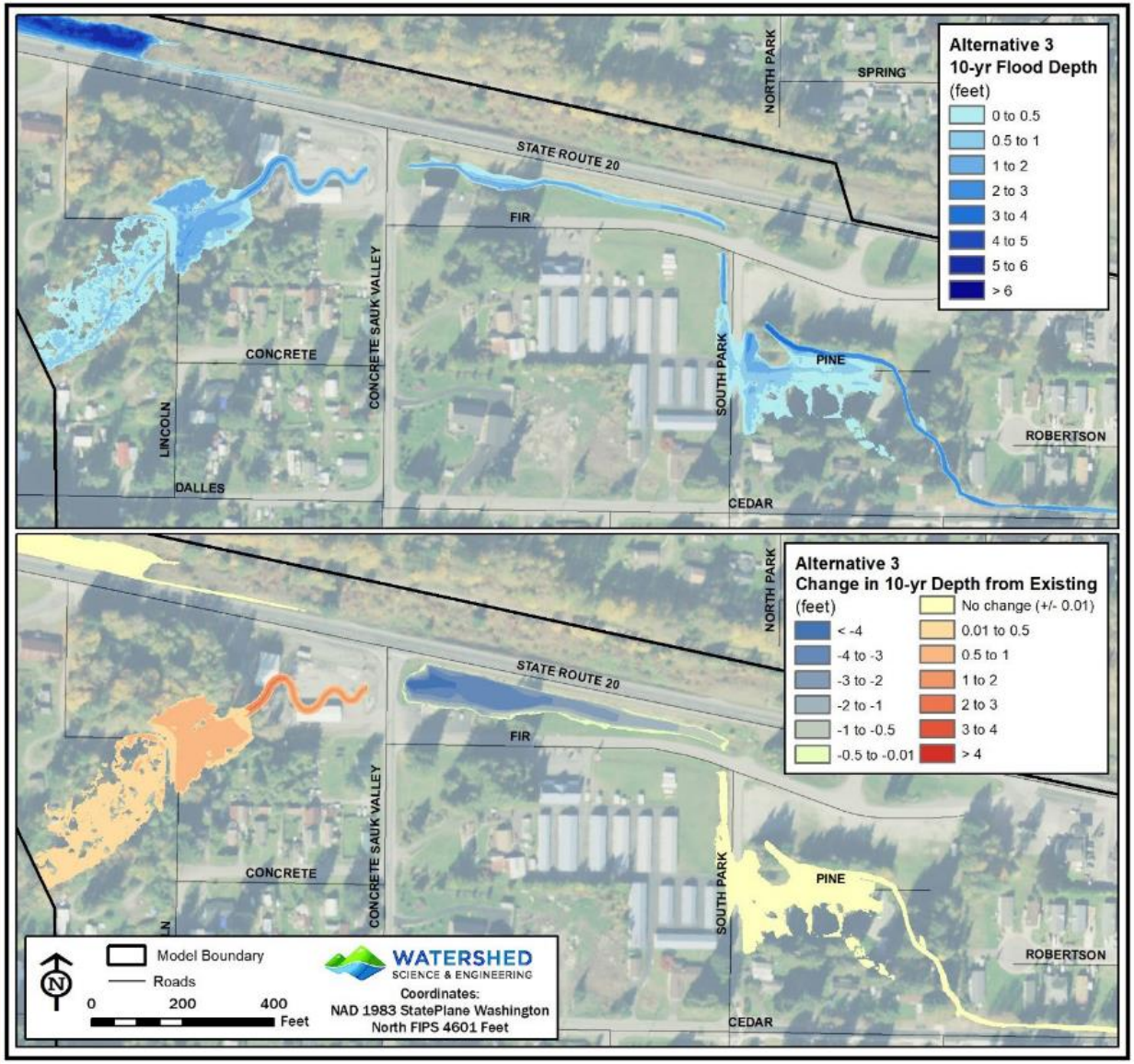
Alternative 3 – Flooding and Geomorphic Hazard Category

		Scoring of Project Alternatives				
		1	2	3	4	5
Category	Criteria	Install Long Culvert Through Shop Site	Daylight Narrow Channel South of Shop Site	Daylight Channel Through Shop Site	Sell Parcel As-Is	No Action
	Community Category Average:	**1.75**	**2**	**3.25**	**1.75**	**1.25**
	Estimated Cost Category Average:	**1**	**2.33**	**2.33**	**2.67**	**1**
Flooding & Geomorphic Hazard (Land Use and Infrastructure Risk)	Flooding or geomorphic hazard risk at upstream roadways	3	3	4	0	0
	Flooding or geomorphic hazard risk at downstream roadways	1	1	1	2	2
	Flooding or geomorphic hazard risks to private properties upstream	3	3	3	0	0
	Flooding or geomorphic hazard risks to private properties downstream	1	1	3	2	2
	Flooding or geomorphic hazard risks to the Skagit County shop site	3	3	4	1	1
	Flooding or geomorphic hazard risks to the WSDOT SR20 Embankment	3	3	4	0	0
	Flooding & Geomorphic Hazard Category Average:	**2.33**	**2.33**	**3.17**	**0.83**	**0.83**

Benefits:

- Provides floodplain area and connectivity
- Reduced flooding and improved geomorphic conditions in the reach of Lorenzan Creek immediately upstream

Alternative 3 – Flooding and Geomorphic Hazard Category



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Alternative 3 – Habitat and Ecological Significance Category

		Scoring of Project Alternatives				
		1	2	3	4	5
Category	Criteria	Install Long Culvert Through Shop Site	Daylight Narrow Channel South of Shop Site	Daylight Channel Through Shop Site	Sell Parcel As-Is	No Action
	Community Category Average:	**1.75**	**2**	**3.25**	**1.75**	**1.25**
	Estimated Cost Category Average:	**1**	**2.33**	**2.33**	**2.67**	**1**
	Flooding & Geomorphic Hazard Category Average:	**2.33**	**2.33**	**3.17**	**0.83**	**0.83**
Habitat and Ecological Significance	Geomorphic resilience	1	2	4	0	0
	Improved fish passage through site	2	3	4	0	0
	Instream physical habitat improvement	1	3	4	0	0
	Floodplain connectivity and function	1	2	4	0	0
	Terrestrial and Riparian habitat improvement	0	2	4	0	0
	Connections with existing habitat elements	1	3	4	0	0
	Influence of channel confinement	0	2	4	0	0
	Habitat and Ecological Significance Category Average:	**0.86**	**2.43**	**4**	**0**	**0**

Benefits:

- Improved fish passage
- Maximized ecological uplift
- Reduced culvert length
- Increased creek channel length and aquatic habitat area

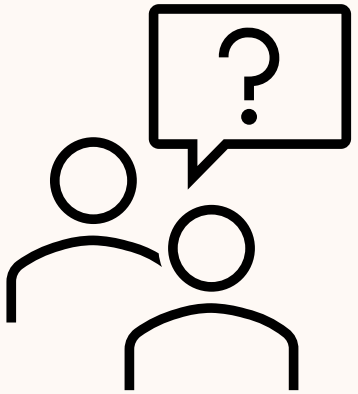
Alternative 3 – Water Quality Category

Category	Criteria	Scoring of Project Alternatives				
		1	2	3	4	5
		Install Long Culvert Through Shop Site	Daylight Narrow Channel South of Shop Site	Daylight Channel Through Shop Site	Sell Parcel As-Is	No Action
Community Category Average:		1.75	2	3.25	1.75	1.25
Estimated Cost Category Average:		1	2.33	2.33	2.67	1
Flooding & Geomorphic Hazard Category Average:		2.33	2.33	3.17	0.83	0.83
Habitat and Ecological Significance Category Average:		0.86	2.43	4	0	0
Implementation and Operational Complexities Category Average:		1.43	2	2.29	2.29	1.29
Water Quality	Reduced potential of primary WQ parameters stormwater runoff quality from Skagit County Shop site	3	3	4	0	0
	Reduced potential of secondary WQ parameters stormwater runoff quality from Skagit County Shop site	3	3	4	0	0
	Reduce risk of spills/illicit discharges	3	3	4	1	0
	Improved long-term WQ in Lorenzan Creek	3	3	4	1	0
Water Quality Category Average:		3	3	4	0.5	0

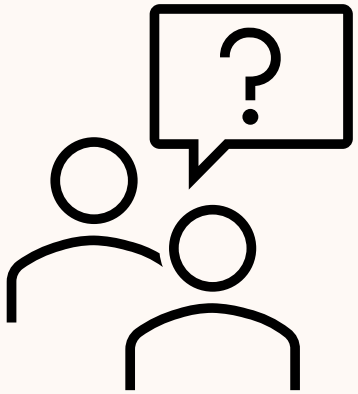
Benefits:

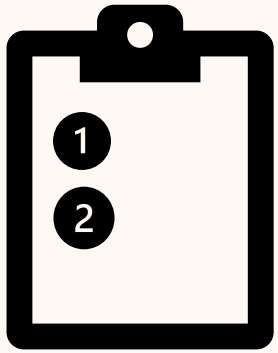
- Reduced hard surface area
- Minimized/eliminated potential for pollutants in runoff from County shop parcel

After hearing the details of Alternative #3, is there anything else you think the project team should be considering?



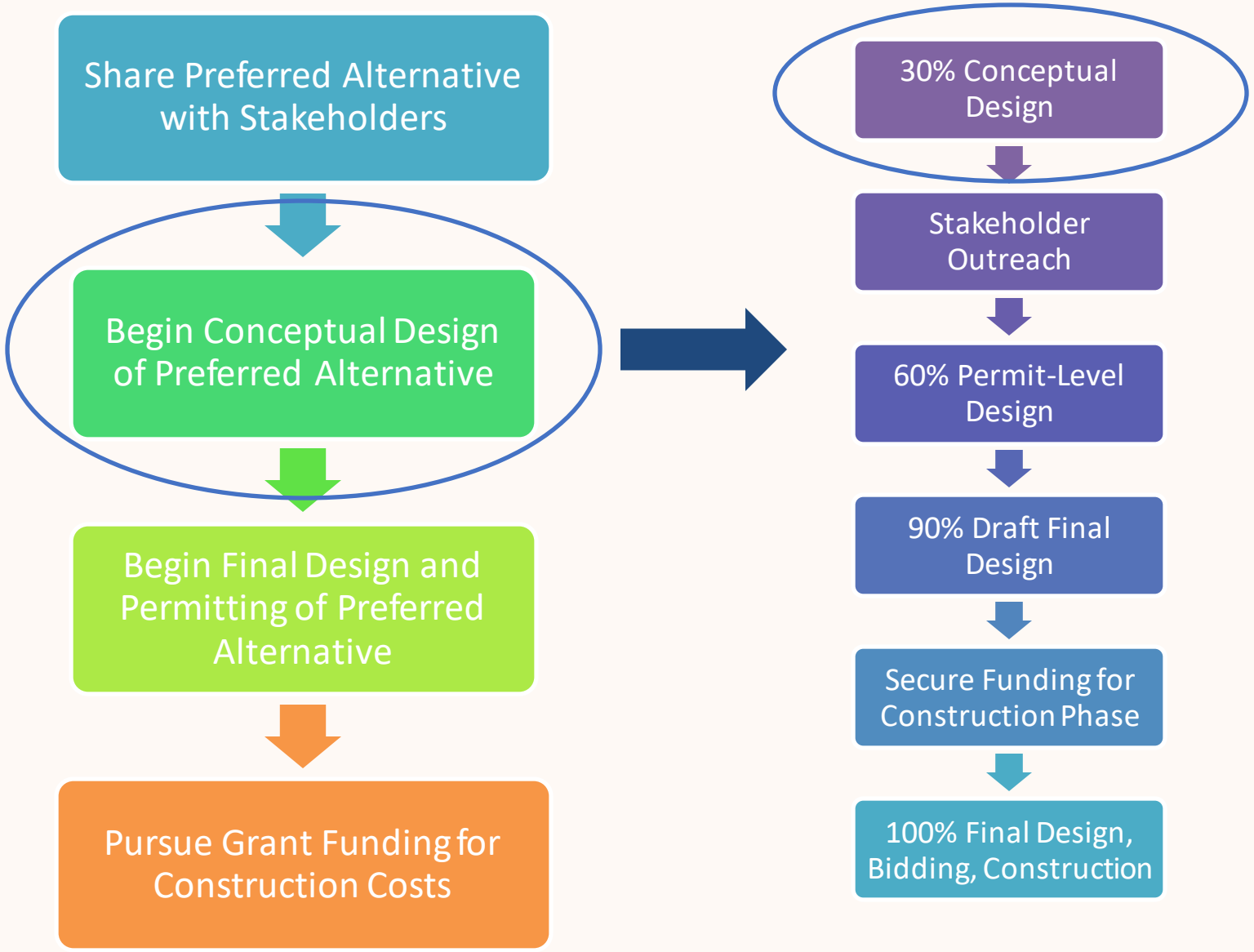
Questions?





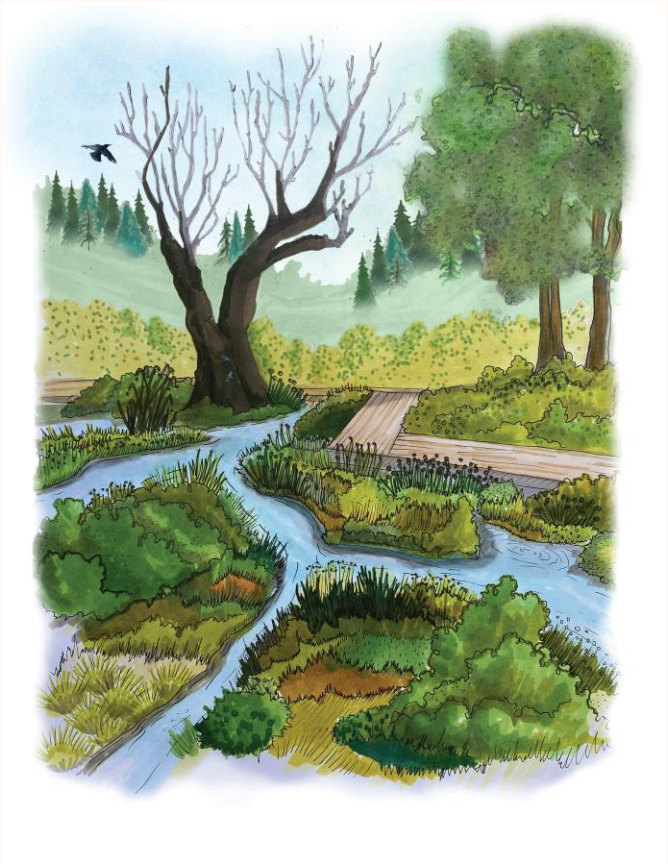
Poll/Break

Timeline


Share Preferred Alternative with Stakeholders
Begin Conceptual Design of Preferred Alternative
Begin Final Design and Permitting of Preferred Alternative
Pursue Grant Funding for Construction Costs
30% Conceptual Design
Stakeholder Outreach
60% Permit-Level Design
90% Draft Final Design
Secure Funding for Construction Phase
100% Final Design, Bidding, Construction

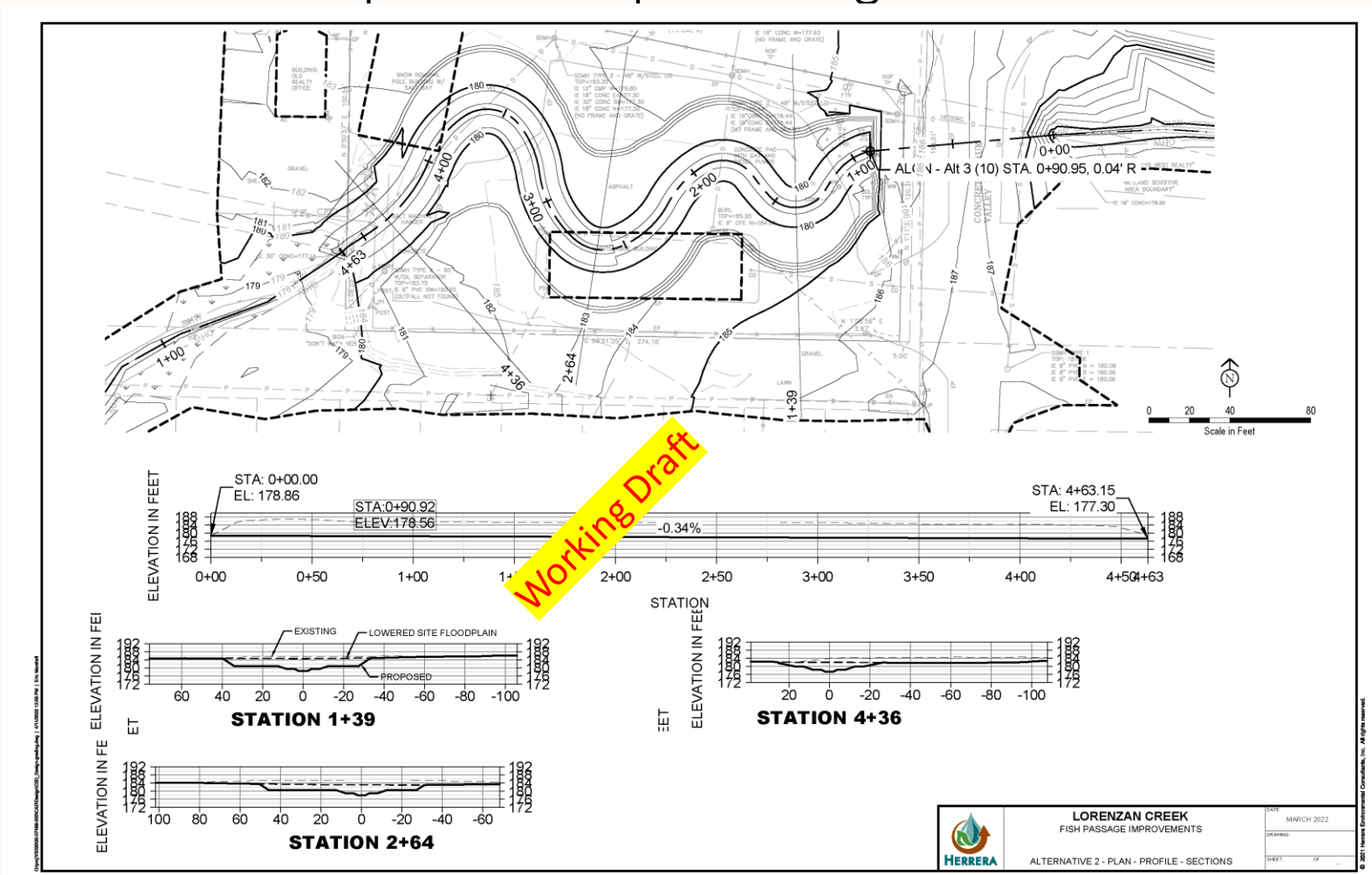
Design Process – 30% Conceptual Design

- Supplementary data collection if needed (survey, critical areas, cultural, geotechnical, geomorphology)
- Confirm key components included

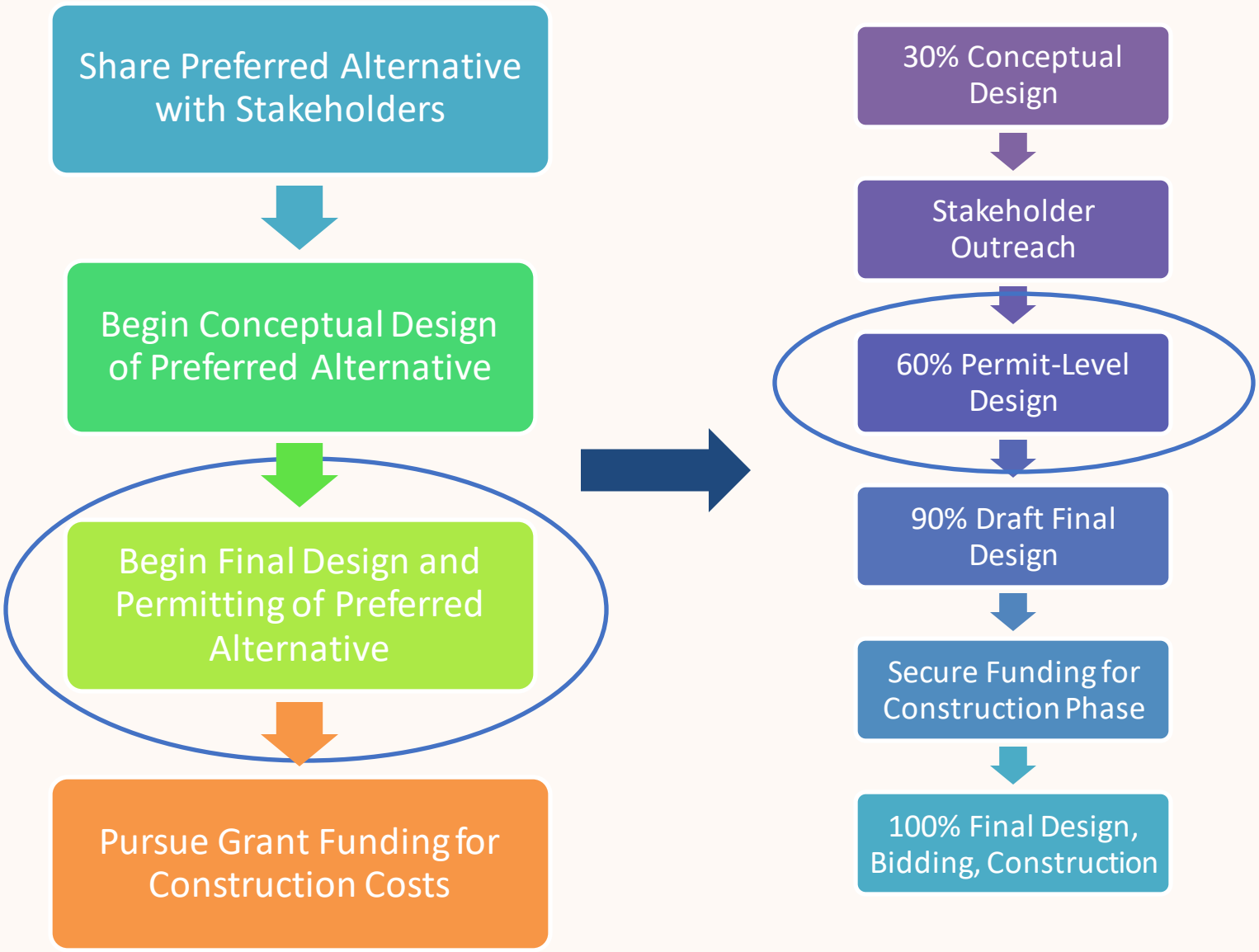


Design Process – 30% Conceptual Design

- Ensure consistency with standards
- Refine Concept and Develop 30% Design and Cost Estimate



Timeline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Secure Funding for Construction Phase
100% Final Design, Bidding, Construction

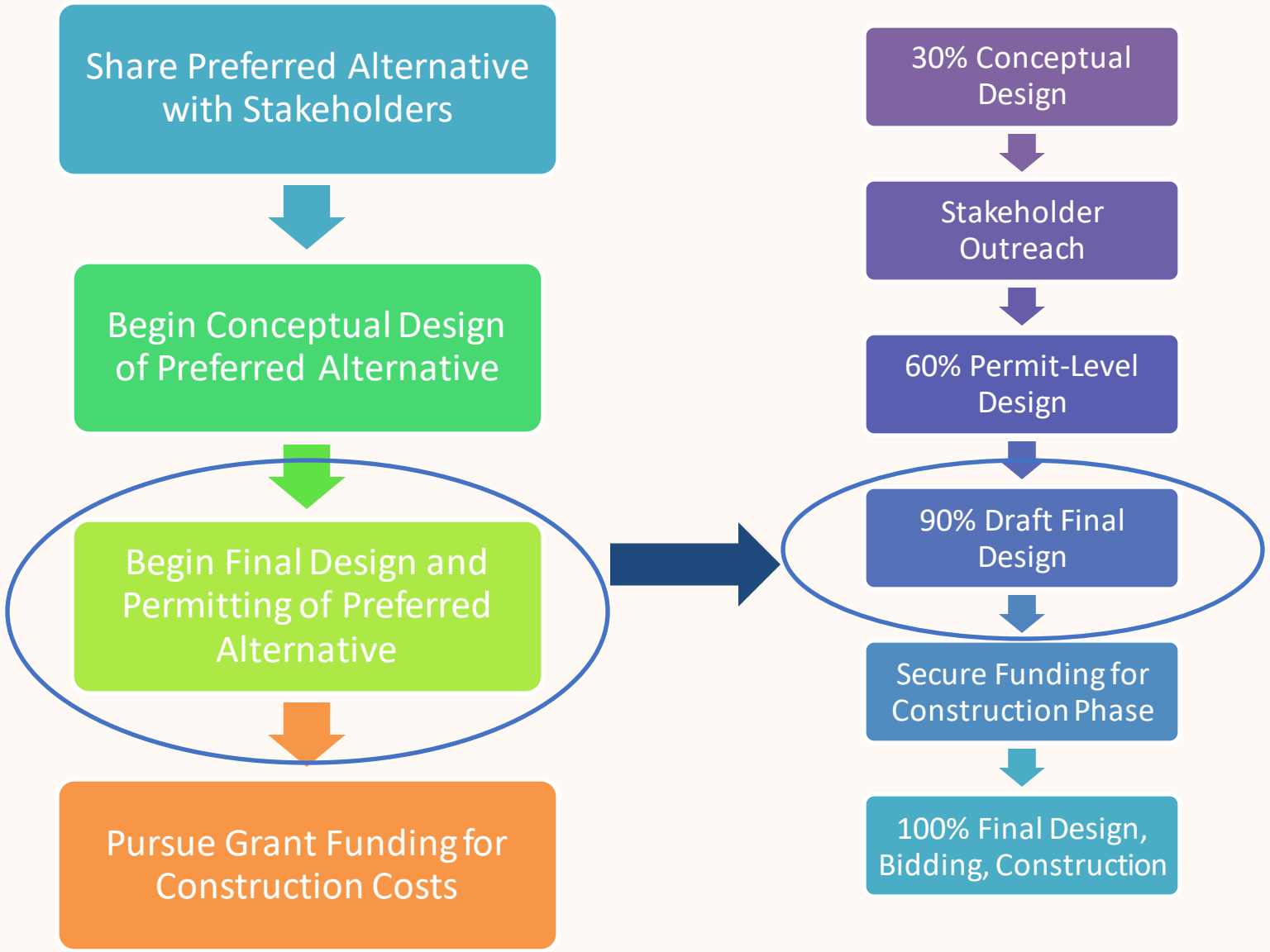
Design and Permitting Process – 60% Permit-Level Design

- Hold permit preapplication meetings
- Address 30% Comments, update modeling if needed
- Advance design to 60% level for permit submittal
- Develop Draft Basis of Design, List of Special Provisions, 60% Cost Estimate

Design and Permitting Process – Permit Submittal

Regulatory Agency	Permit/Authorization	Application/compliance requirements
Skagit County (?)	Skagit County Code (SCC): Section 14.12 - Environmental Procedures Section 14.24: Critical Areas Grading Permit	SEPA Categorical Exemptions Review, Checklist Submittal and Determination Critical Areas (Fish and Wildlife, Wetlands) Site Assessment Grading Permit Application
Washington Department of Fish and Wildlife (WDFW)	Hydraulic Project Approval (HPA)	Aquatic Protection Permitting System (APPS) Joint Aquatic Resource Permit Application (JARPA) submittal
Washington State Department of Ecology (Ecology)	Section 401 Water Quality Certification Construction Stormwater General Permit	Pre-application notification form submitted at least 30 days prior to JARPA submittal
US Army Corps of Engineers (USACE)	Clean Water Act Section 404/401	JARPA Section 106 Compliance with National Historic Preservation Act Section 7 of Endangered Species Act Consultation - Biological Evaluation/Assessment

Timeline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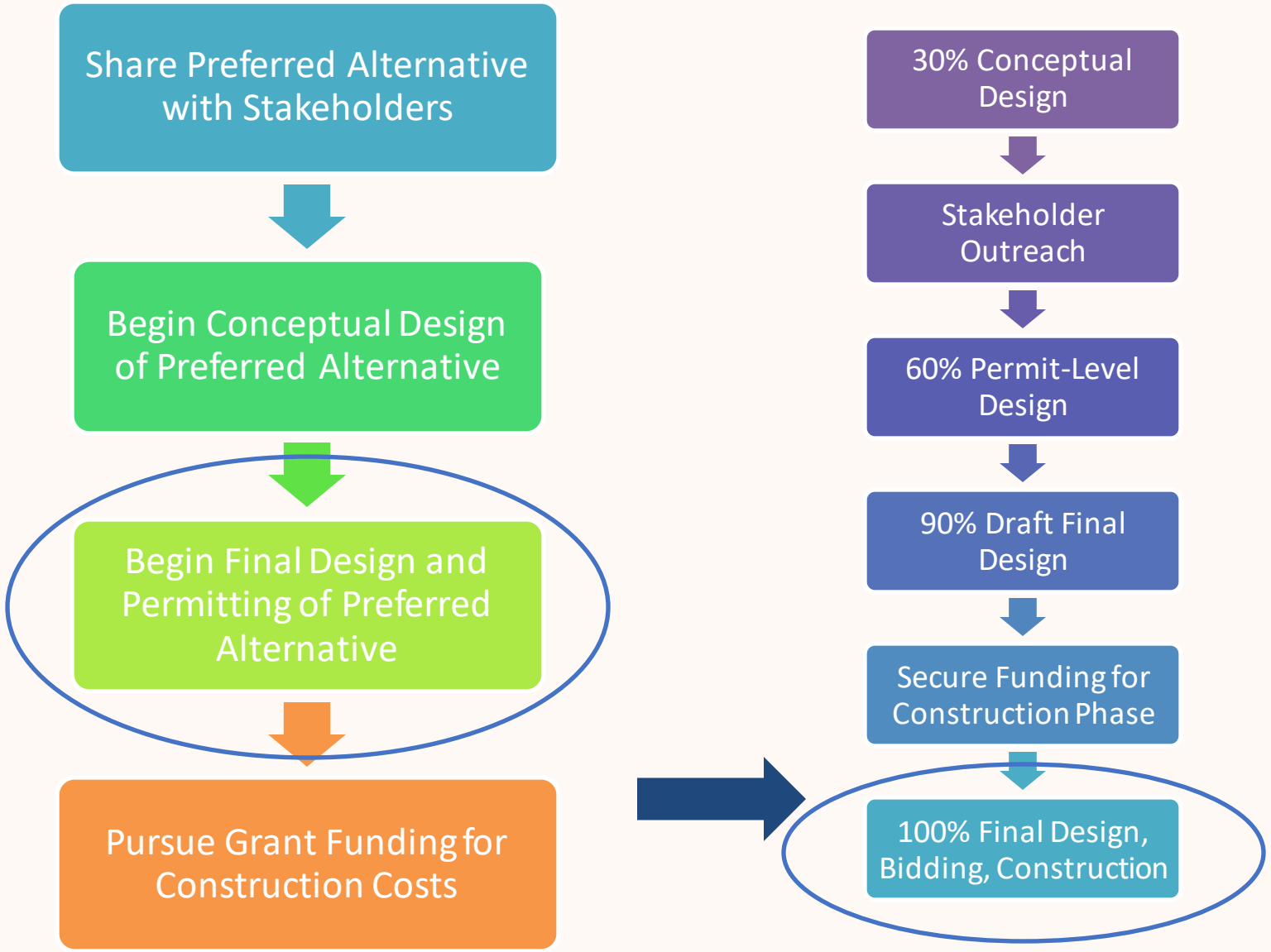
30% Conceptual Design
Stakeholder Outreach
60% Permit-Level Design
90% Draft Final Design
Secure Funding for Construction Phase
100% Final Design, Bidding, Construction

Design Process – 90% Draft Final Design

- Address permit and 60% comments
- Advance design to 90%
- Develop draft bid documents (draft 100%): Complete set of Plans, draft Special Provisions, 90% Cost Estimate
- Finalize Basis of Design

Timeline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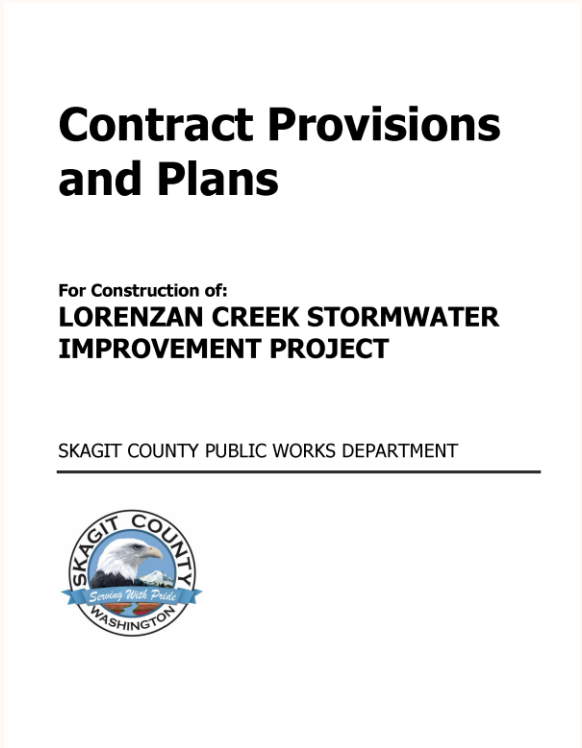
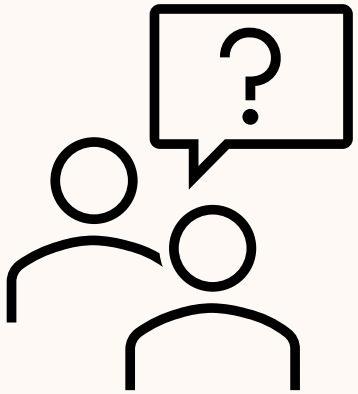
Stakeholder Outreach
60% Permit-Level Design
90% Draft Final Design
Secure Funding for Construction Phase
100% Final Design, Bidding, Construction

Design Process – 100% Final Design/Bidding/ Construction Preparation

- Address 90% comments
- Advance design to 100%
- Develop final bid documents (100%): Complete set of Plans, Special Provisions, 100% Cost Estimate



Questions?



Next Steps and Opportunities for Input

Next Steps

- Existing Conditions
- Hydrologic and Hydraulic Modeling
- Draft Evaluation Criteria
- Draft Design Alternatives
- Stakeholder Input
- Evaluate Criteria
- Select Preferred Alternative to advance

- Conceptual Design
- Stakeholder Outreach
- Permit-Level Design
- Final Design
- Secure Funding for Construction Phase
- Construction

Stay Engaged

Join the Listserv for updates – Email Emily Derenne, emilyjd@co.skagit.wa.us

https://www.skagitcounty.net/Departments/PublicWorksSurfaceWaterManagement/Lorenzancreek.htm

Thank you!