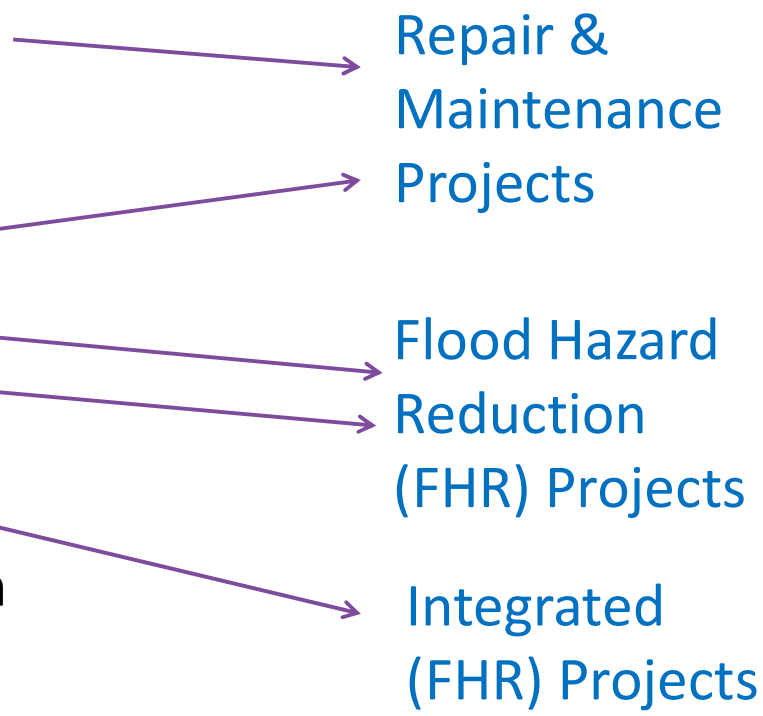
Floodplain Integrated Planning (FLIP) Update

Whatcom County Council Water Work Session

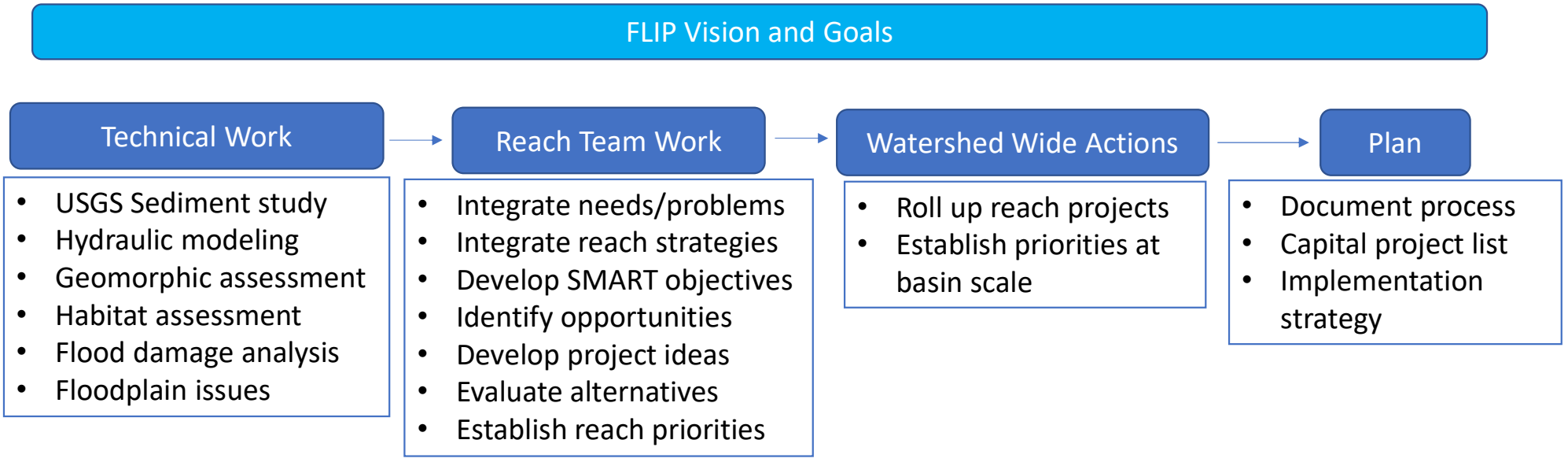
June 23, 2020

River and Flood Programs

- Early warning and flood response
- Comprehensive planning
  - SWIF (2017)
  - CFHMP (1999)
  - FLIP (ongoing)
- National Flood Insurance Program
- Technical Assistance



FLIP Planning Process



Reach 2 Design Charrette and Follow-up Meetings

Reach 2 Charrette

- Field Trip
- Shared values and givens
- Overview of reach systems and La Conner example
- Values as success measures
- Idea generation
- Develop project concepts
- Present table concepts

FLIP Goals & “Values”

- Reduce risk to public safety
- Optimize benefits to public infrastructure, private property, and to public resources such as salmon, salmon habitat, and water quality
- Provide a comprehensive understanding of the river, its form and functions and importance to resource-based economies including agriculture and fisheries
- Protect and maintain, and where feasible, restore river and floodplain habitats
- Create a more resilient flood risk reduction system now and into the future
- Identify and prioritize a list of action items to implement the plan
- Build consensus around mutually beneficial outcomes

What Happened Next?

FLIPSC worked with tech staff to take charrette **table concepts** and other issues not tackled at tables to develop buckets of actions to advance the concepts.

- **Economic Incentives**
- **Floodplain Connectivity**
- **Land Use Planning**
- **Water Rights**
- **Levee Re-configuration**
- Sediment
- Improve Drainage
- Tree Planting and Wetlands
- Collaborate
- Improve Mainstem Habitat Complexity
- Bank Edge Roughening and Improvements

Note these ideas not yet advanced: Recreation, Look at Crop Suitability & BMPs, Miscellaneous

What Happened Next?

- Review of reach strategy from FbD visioning (2015)
- Synthesis of draft strategies to describe direction resulting from Reach 2 planning work
- Development of buckets of actions to implement that direction

Reach 2: Draft Overarching Strategies to Achieve FLIP Goals and Reach 2 Values

Maintain/Modify	Improve	Collaborate	Maintain or Reduce	Create Program
Maintain or Modify? existing ag levees with overtopping segments and incorporate mainstem habitat improvements •Largely retain existing levee alignment (?) •Consider localized levee setbacks (?) •Incorporate riparian, bank and instream habitat improvements	Significantly improve floodplain and tributaries for salmon	Work with farmers to identify measures and project components to improve agricultural viability	Maintain or reduce flood risk in the Reach 2 floodplain area, focusing in Ferndale	Create incentive program through drainage-based management planning to develop pilot projects to integrate issues like water rights, habitat improvement, ag viability and flooding

Draft buckets of actions that advance strategies

- Levee modifications and between levee habitat improvements
- Tributary and floodplain corridor improvements
- Ferndale development impacts reduction
- Incentive program

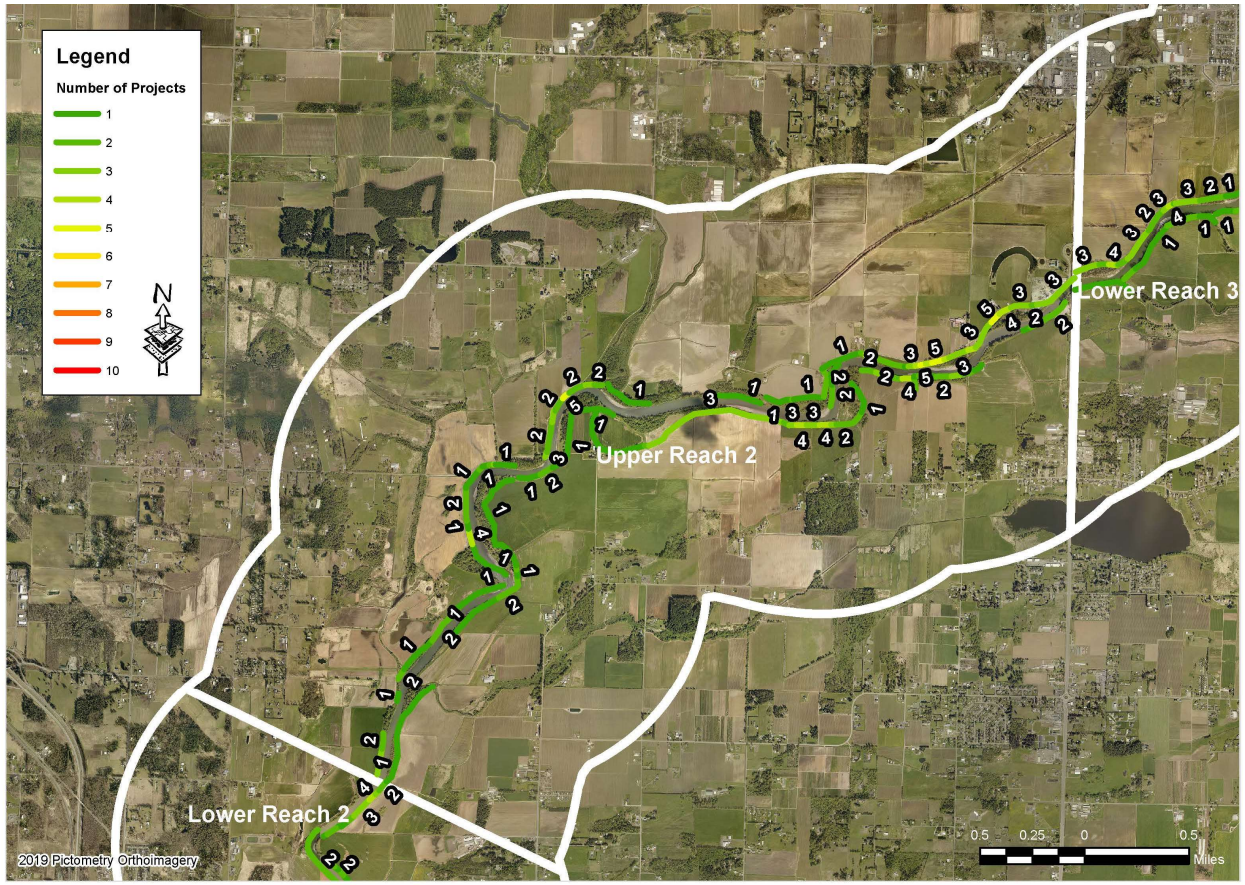
Draft buckets of actions that advance strategies

X	Levee modifications and between levee habitat improvements
	Tributary and floodplain corridor improvements
	Ferndale development impacts reduction
	Incentive program

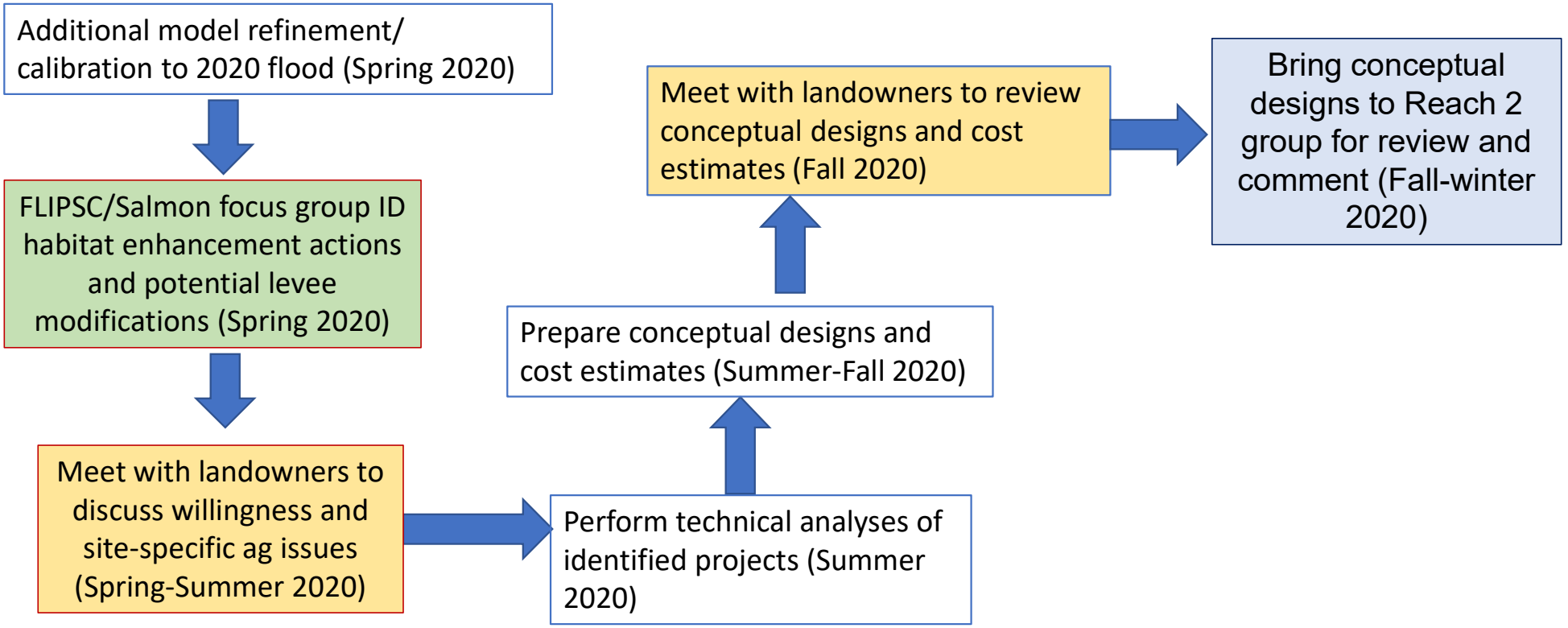
Example: Levee Modifications and Between Levee Habitat Improvements

- Review of existing data
  - Habitat mapping
  - Levee repairs
  - Hydraulic modeling

Upper Reach 2 - Number of bank/levee repairs



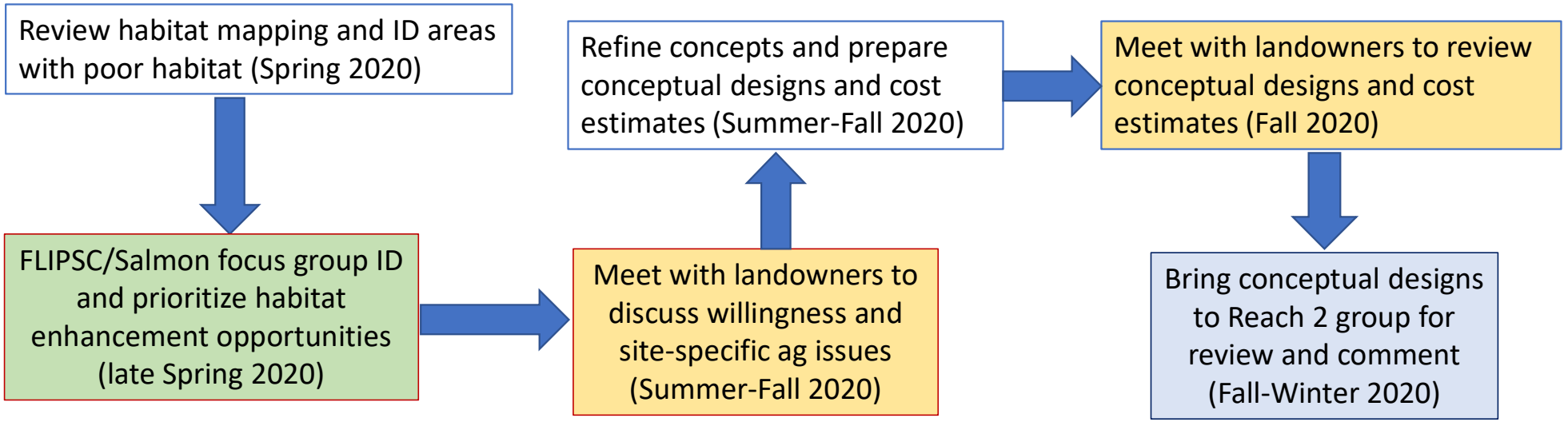
Proposed Steps: Levee Modifications and Between Levee Habitat Improvements



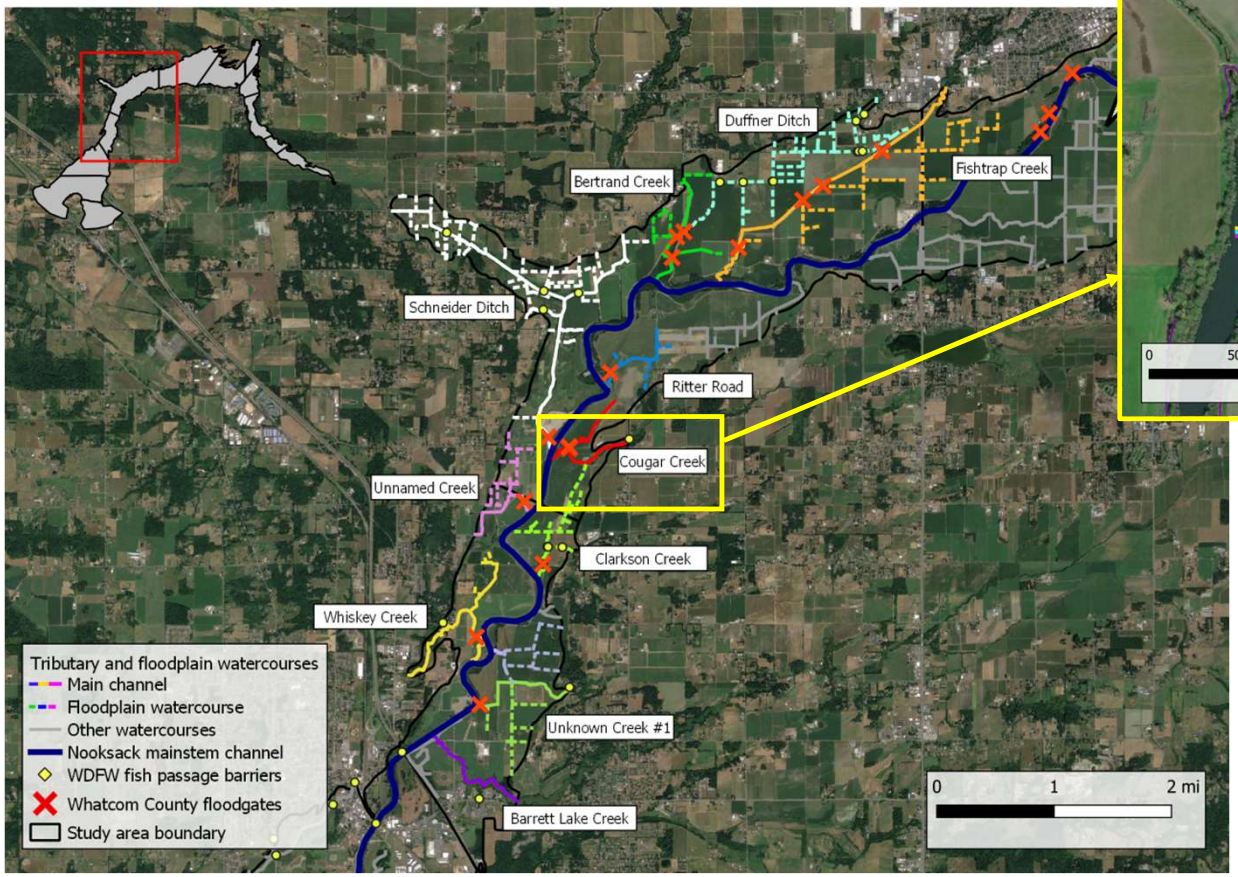
Draft buckets of actions that advance strategies

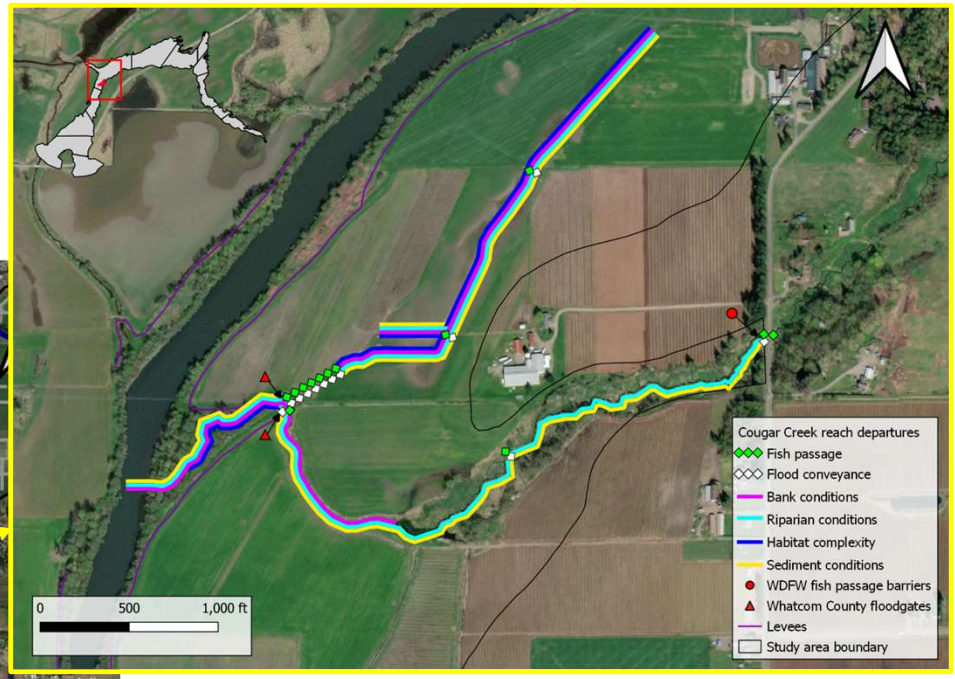
	Levee modifications and between levee habitat improvements
X	Tributary and floodplain corridor improvements
	Ferndale development impacts reduction
	Incentive program

Proposed Steps: Tributary and Floodplain Corridor Improvements



Example: Tributary and Floodplain Corridor Improvements

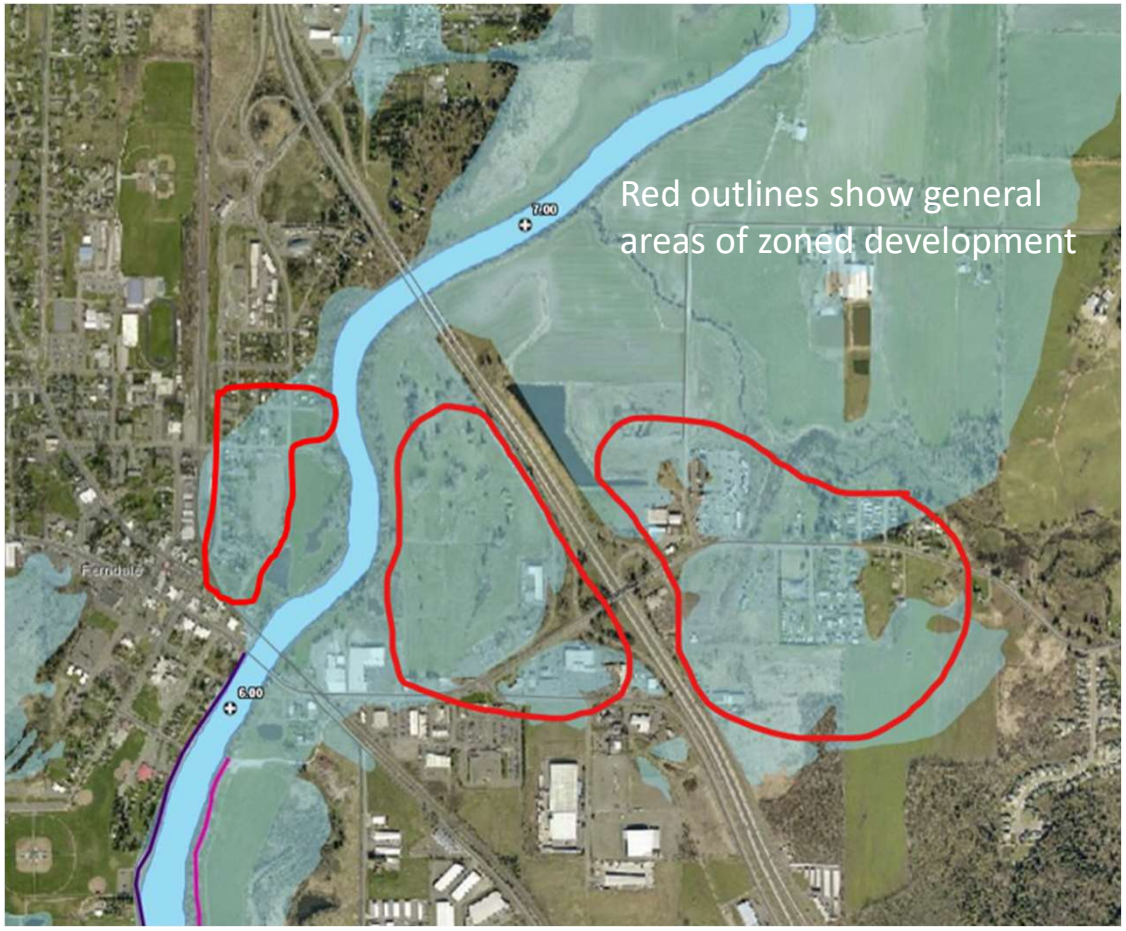




Draft buckets of actions that advance strategies

	Levee modifications and between levee habitat improvements
	Tributary, floodplain and overflow corridor improvements
X	Ferndale development impacts reduction
	Incentives

Proposed Steps: Ferndale Development Impacts Reduction



Use calibrated model and evaluate climate change impacts (Spring-Summer 2020)

Meet with Ferndale staff to review results and develop cumulative impacts modeling approach (late Spring 2020)

Perform modeling of zoned development (Summer 2020)

Review results and support city staff in working with Elected officials to discuss findings (Summer-Fall 2020)

Refine floodplain management and capital actions based on input (Summer-Fall 2020)

Draft buckets of actions that advance strategies

	Levee modifications and between levee habitat improvements
	Tributary and floodplain corridor improvements
	Ferndale development impacts reduction
X	Incentive program

Proposed Steps: Incentives

Integrate with drainage-based management pilot in Bertrand and Fishtrap Creeks

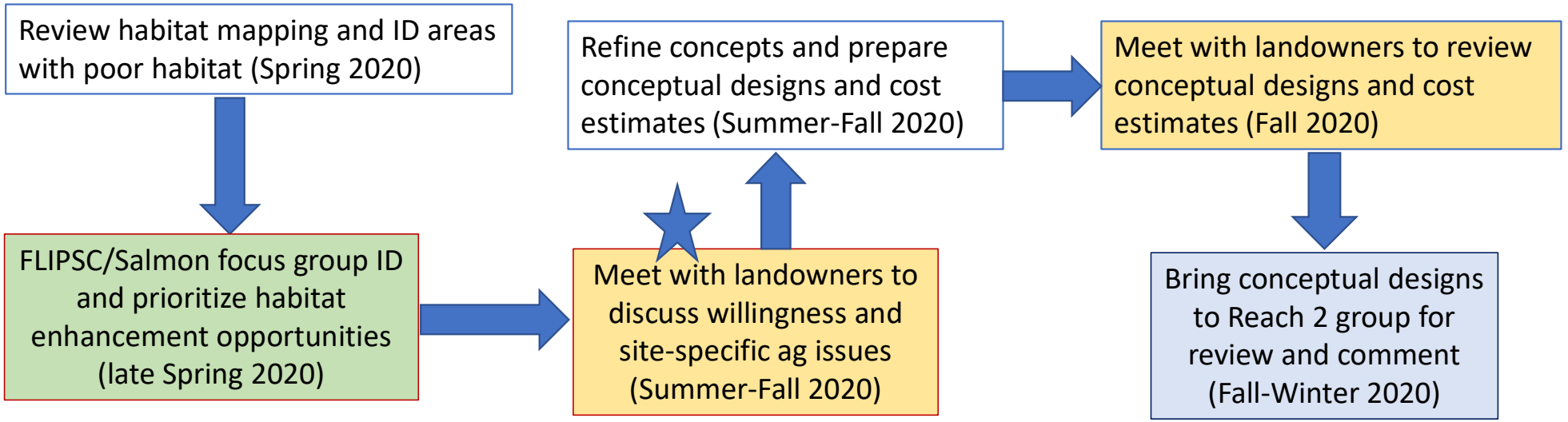
Evaluate existing incentive and acquisition programs

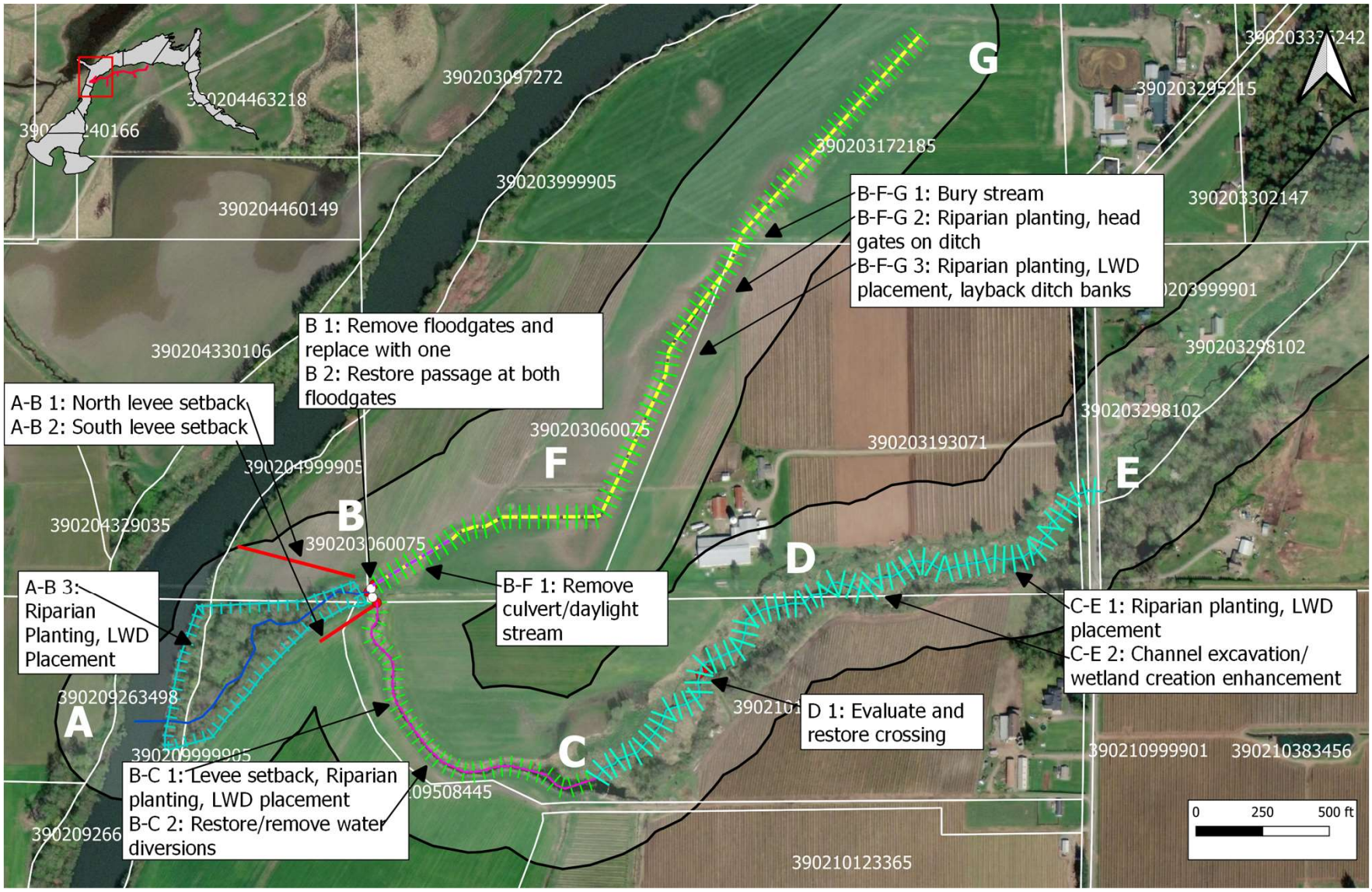
Explore new incentives

Integrate findings from analysis with discussions with landowners taking place in previous action buckets

Bring results to Reach 2 group for discussion and input

Progress: Tributary and Floodplain Corridor Improvements




G
390203097272
390204463218
390203295215
390203172185
390203999905
390204460149
B-F-G 1: Bury stream
B-F-G 2: Riparian planting, head gates on ditch
B-F-G 3: Riparian planting, LWD placement, layback ditch banks
390203302147
B 1: Remove floodgates and replace with one
B 2: Restore passage at both floodgates
390204330106
390203298102
A-B 1: North levee setback
A-B 2: South levee setback
390203060075
390203193071
F
E
390204999905
B
390204329035
390203060075
D
A-B 3: Riparian Planting, LWD Placement
B-F 1: Remove culvert/daylight stream
C-E 1: Riparian planting, LWD placement
C-E 2: Channel excavation/ wetland creation enhancement
390209263498
A
D 1: Evaluate and restore crossing
C
390210999901
390210383456
B-C 1: Levee setback, Riparian planting, LWD placement
B-C 2: Restore/remove water diversions
390210123365
0
250
500 ft

Slide #21

FLIP Results to Date

- Nooksack FbD grant for $6M for 2019-21 biennium awarded
- Nooksack pre-app made the first cut for 2021-23 round of funding
- FLIP Steering Committee approved use of FbD funding for early actions:
  - $100,000 Duffner Ditch construction
  - $50,000 Cougar Creek culvert design
  - Direct result of planning work: field trip and charrette
- NOAA interested in funding Cougar Creek design

FLIPSC: Whatcom River and Flood (Paula Harris and Deb Johnson), Whatcom Natural Resources (John Thompson), Lummi Nation (Frank Lawrence), Nooksack Tribe (Ned Currence), Agriculture (Fred Likkel)

FLIP Funding Obtained (2017 – 2021)
How Much and Where From?

FLIP Project Component	Grant Funding Type	Grant $ Amount	Estimated Total $ Amount	% Grant Funding
Geomorphic Assessment	NOAA via TNC	$100,000	$150,000	67%
Habitat Assessment	RCO SRFB	$237,000	$247,000	96%
FLIP Planning Process	EPA NEP	$425,000	$593,000	72%
Benefit-Cost Analysis	EPA NEP USACE Silver Jackets	$150,000	$150,000	100%
USGS Reach 1 Study	EPA NEP	$250,000	$250,000	100%
	Total Planning	$1,162,000	$1,390,000	84%
Project Implementation (2019-2021)	Floodplains by Design	$6,040,000	$7,550,000	80%