May 22, 2024 – Cascades to Coast Summit

SW Washington Feasibility Study

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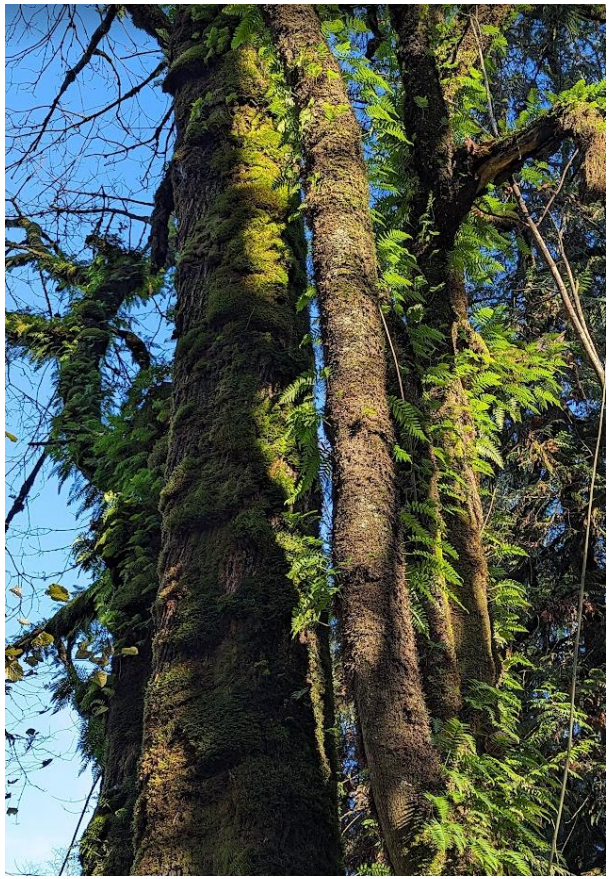
SAMARA GROUP

RDG
RIVER DESIGN GROUP

So, you say you want to build wildlife crossing structure(s)?

- Where Ecology, Wildlife Behavior and Biology meet Engineering and Design
  - And also involve geology, land use planning, human behavior, recreation access, natural resource management, and more…



Getting started:
The Engineering Design Process

Design Process Overview

We might want to do something...

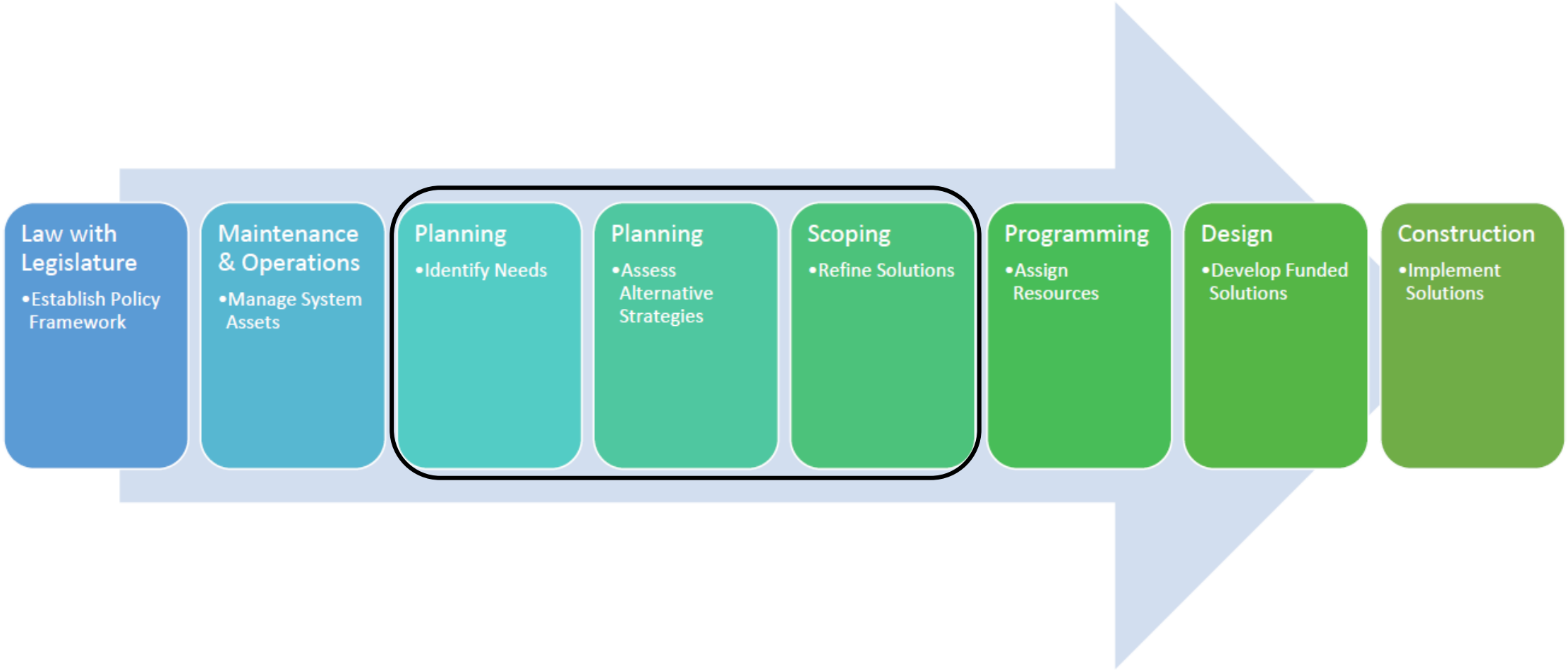
What are we doing, **why** are we doing it, **who**'s doing it, and generally **where**?

What **details** do we need to address? How much will it **cost**? What **permits** are needed?

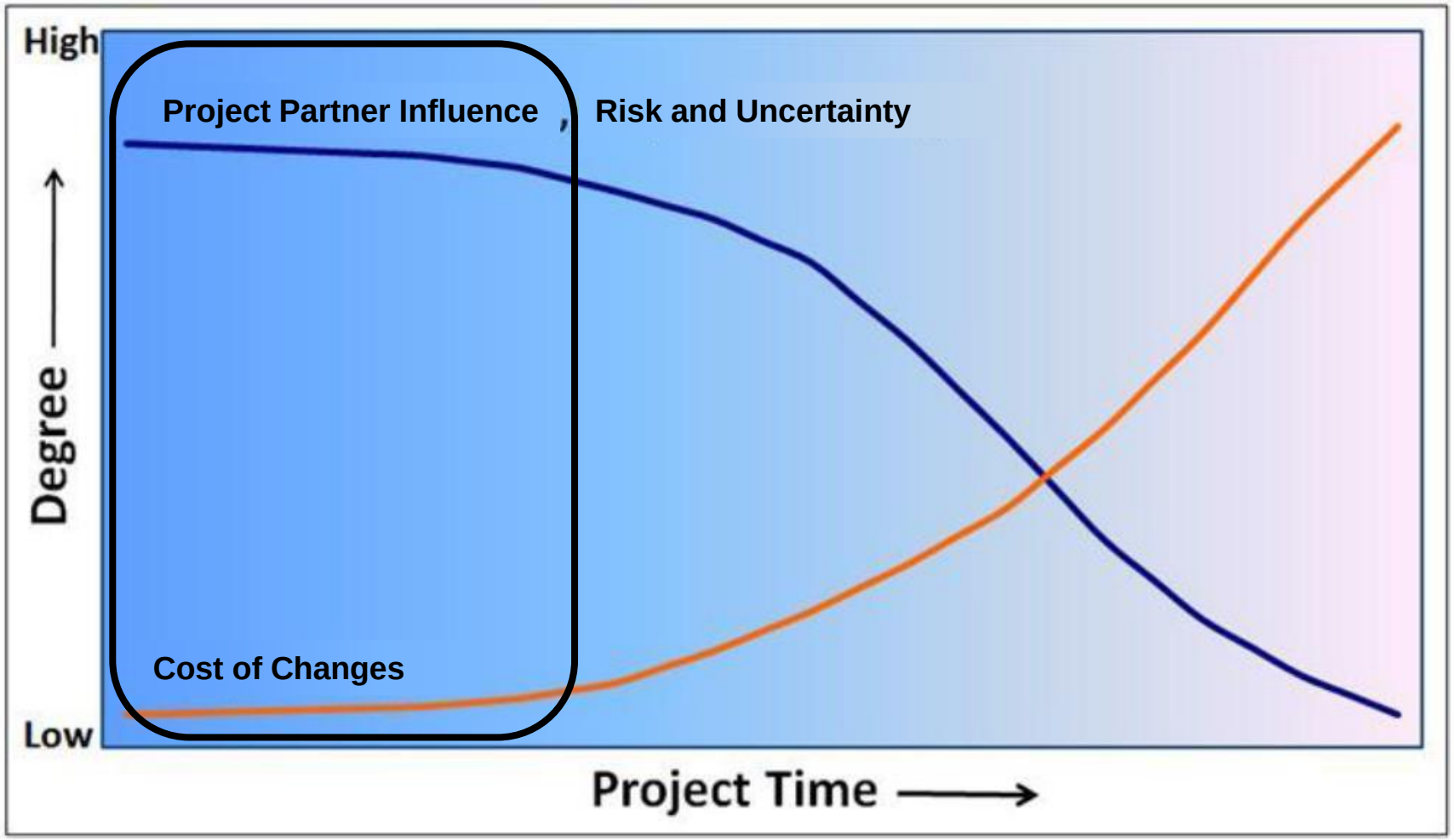
How will it get built?

Let's do it!

WSDOT Project Management Deliverables Expectations

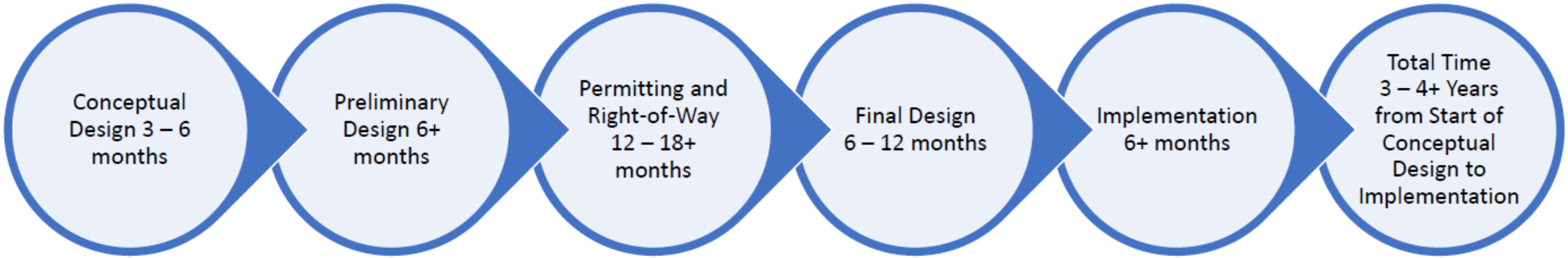


Source: https://wsdot.wa.gov/sites/default/files/2021-11/DeliverablesExpectationsMatrix.pdf



Progression of risks and uncertainties and the cost of modifications, according to the PMBOK ® Guide (https://www.pmi.org/pmbok-guide-standards/foundational/pmbok).

Idealized General Design Timeline for Complex Projects



- Submit permit applications ~3 months after Preliminary Design
- Review ~3 months after Application
- Receive Permits 6 – 12 months after Application
- Right-of-Way 12 – 18 months after Preliminary Design

- Bidding 2+ Months
- Construction 3 - 6+ months

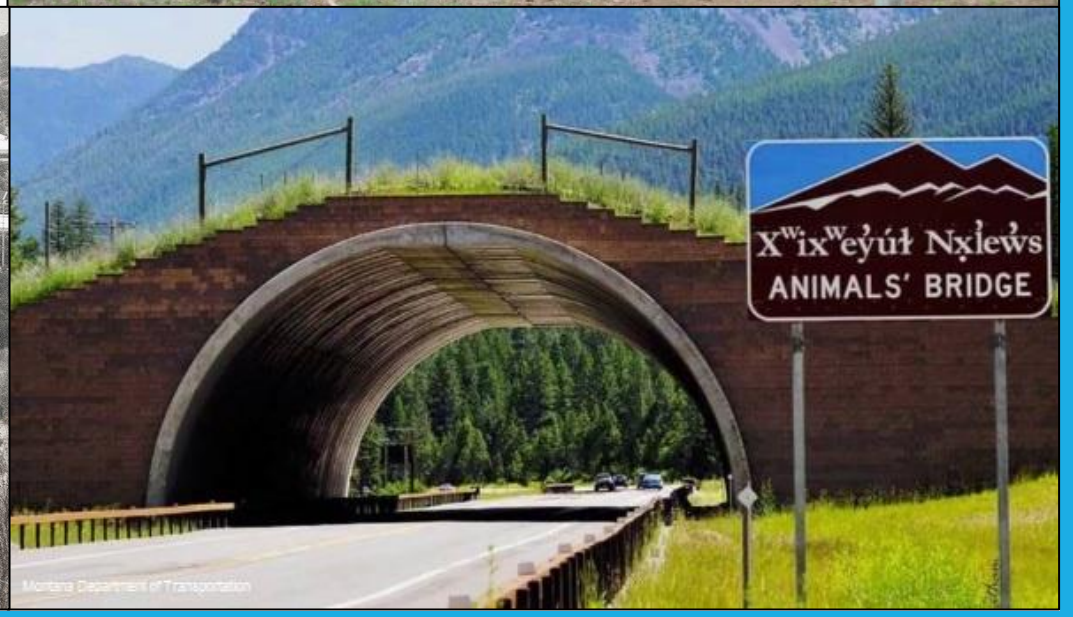
Menu of Opportunities and Project Goals

Existing Structures

- Vegetation Management/Additions
- Habitat Structure Elements
- Dry Benches/Shelves
- Additional or New Fencing/Funneling Features (Associated structures such as jumpouts)
- Full Replacement or Conversion to Bridge

New Structures

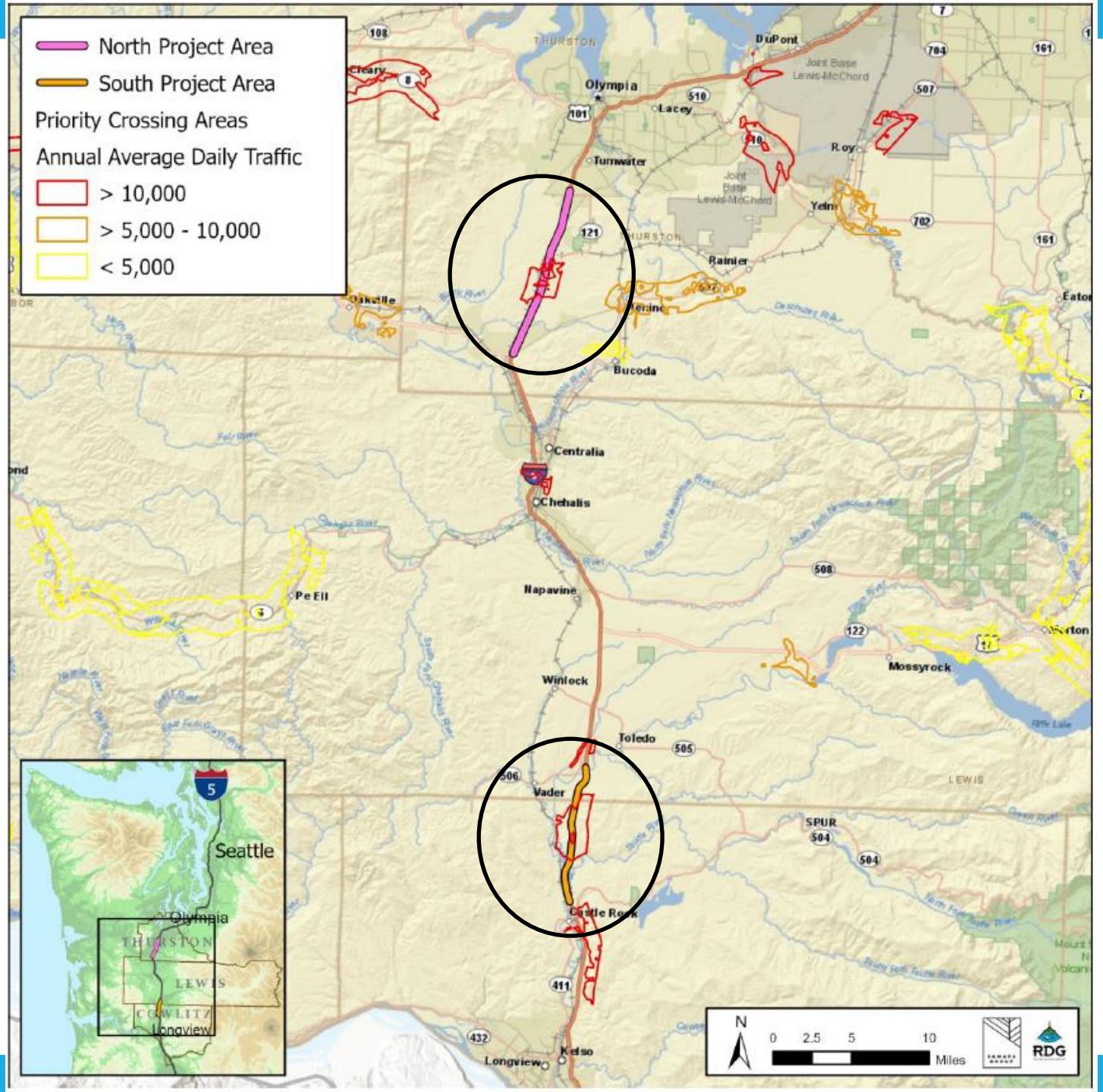
- New Undercrossings/ Bridges
- Overcrossings



- Northern and Southern Project Areas
  - Two Approximately 10 miles stretches of I5

Primary Goal

- Identify Opportunities to Increase Wildlife Habitat Permeability Throughout



Identifying Locations

Project Area Assessment & Development of Priorities

- There are many considerations
- We should hear and include what the local priorities are.

Species of Special Concern

- Elk, Cougar, Deer, and Bear
- Several listed species:
  - Mazama Pocket Gopher and various butterflies
  - Oregon spotted frog
- State Endangered
  - Western Gray squirrel
- Washington Species of Greatest Conservation Need and Priority Species
  - Cascade torrent salamanders
  - Dunn's salamanders
- Bat roosting opportunities on structures
- Fish species/passage – Pacific lamprey
- Connectivity for all species
- Include consideration for first foods
- Monitoring pre and post construction

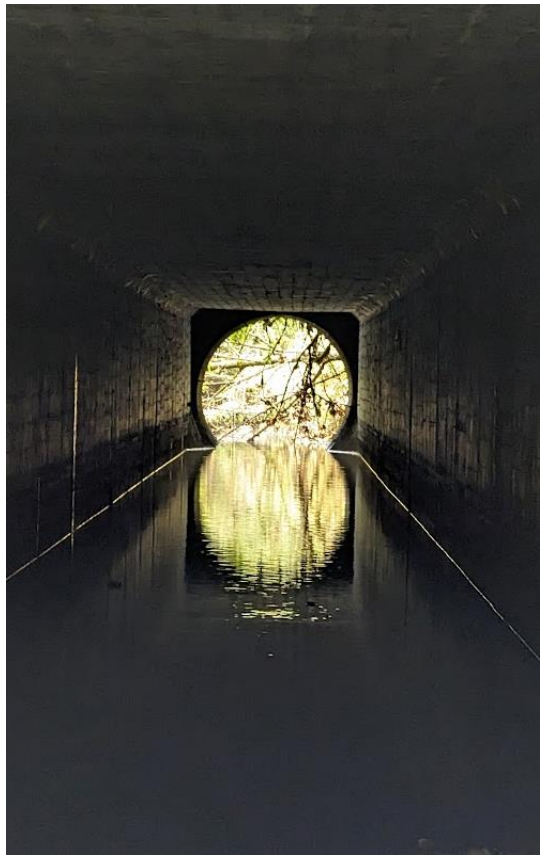
Landscape Context

- The presence of protected/conserved lands surrounding a potential crossing structure site are critical
- Prioritize riparian forested areas for crossings in timber resource areas particularly in the southern project area

Human Disturbance Potential

- Consideration for recreation/human activity areas
  - Shift human access and recreation activity away from project areas when possible
  - Provide other places for these activities with the goal of creating a net benefit to the community
- Avoid putting crossings in areas with easy access by road (logging roads/informal access)

Multiple Benefit Locations



- Reduced wildlife-vehicle collisions
- Flood risk mitigation
- Tribal resource availability
- Climate adaptation and resilience
- Proximity to and support for listed species
- Fish passage barrier status
- Maintenance needs/lifespan of structure

Preferred Alternatives Considered

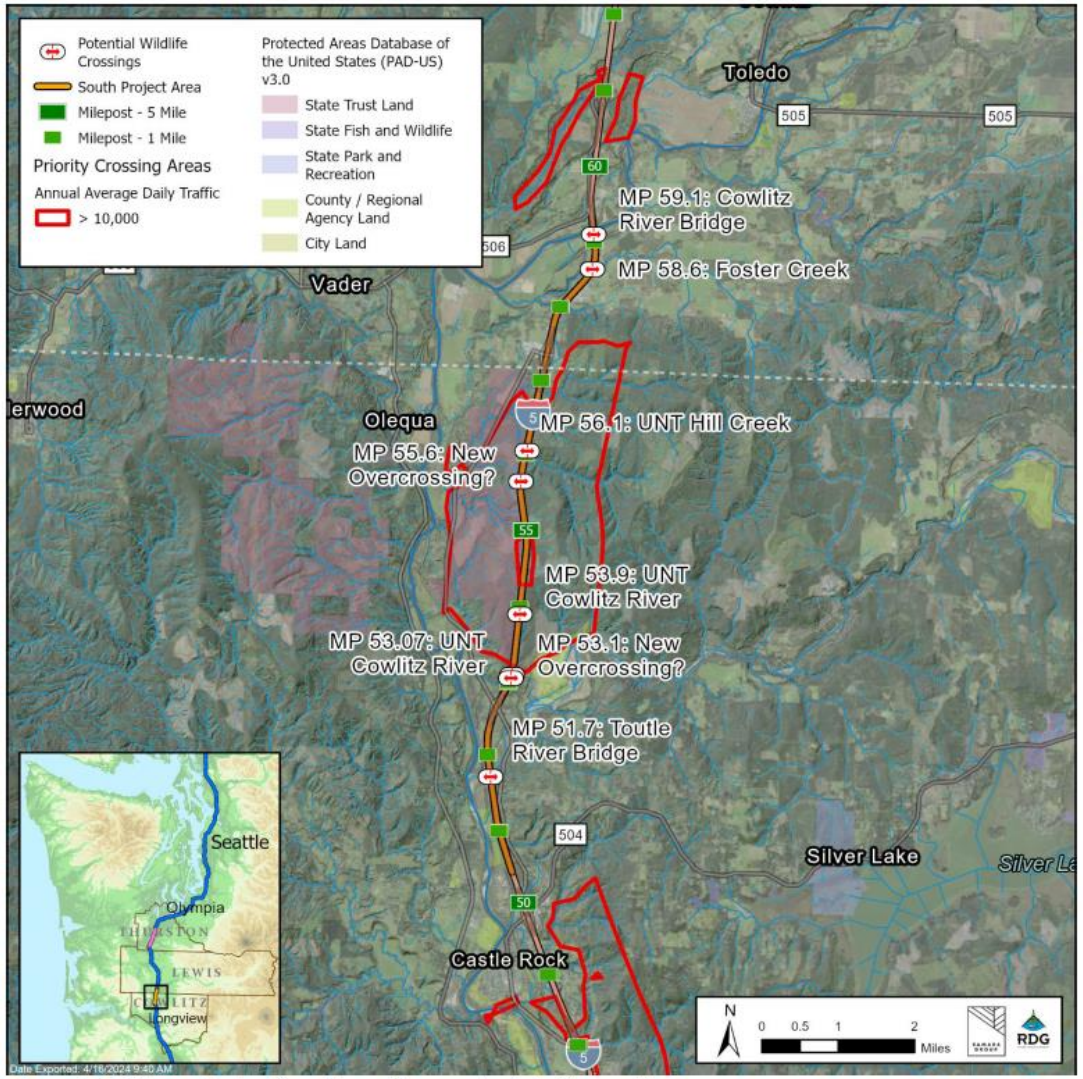


***Figure 3-1**. Sites selected for alternatives analysis in the south zone.*

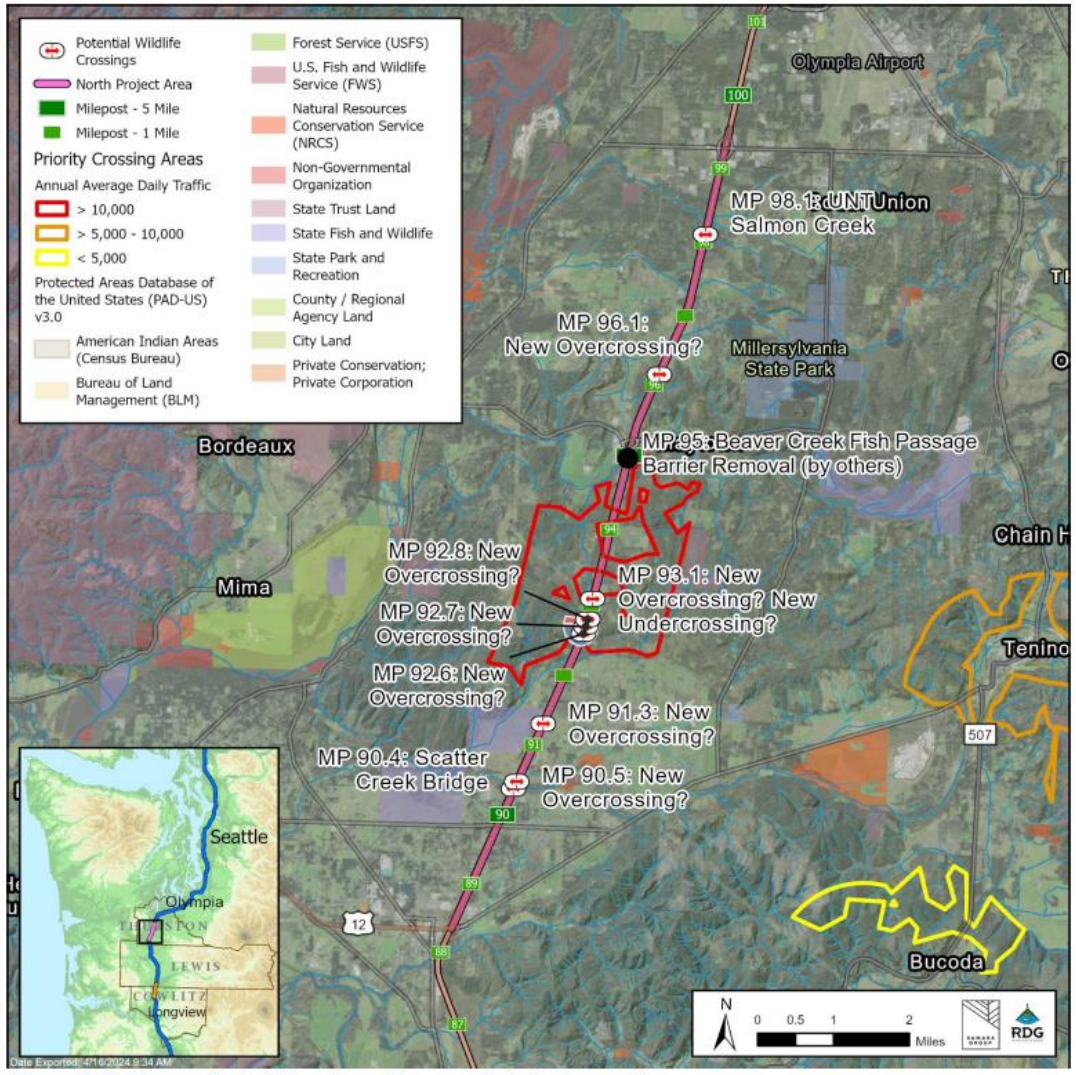


***Figure 3-2**. Sites selected for alternatives analysis in the north zone.*

Recap of Decisions

Site Number	Preferred Alternative(s)	Notes or Modifications
Site 1	Toutle River Bridge Alt 1 & 2: MP 51.7	Will move both vegetation additions and engineered structures in expansion joints to conceptual design
Site 2	UNT Cowlitz River Alt 1: MP 53.07 Undercrossing	
Site 3	UNT Cowlitz River Alt 2: MP 53.9 Shorter Crossing with New Alignment	Explore widening the structure to increase the openness ratio and review work that would occur outside of the right-of-way
Site 4	UNT Hill Creek Alt 1: MP 55.6 Overcrossing & Alt 2: MP 56.1 Undercrossing	
Site 5	Foster Creek Alt 1: MP 58.6 Undercrossing	
Site 6	Cowlitz River Bridge Alt 1 & 2: MP 53.9	Will move both vegetation additions and engineered structures in expansion joints to conceptual design
Site 7	Scatter Creek Alt 2: MP 90.5 Overcrossing	Within the North Fork Newaukum Wetland Mitigation Bank Service Area
Site 8	MP 92.6-8 Alt 3: MP 92.8 Overcrossing	Special consideration should be taken at this site for the extent of fencing both north and south of the project area to best direct wildlife in nearby areas
Site 9	Powerline Corridor MP 93.1	No alternative selected due to constraints and potential issues building under the powerline
Site 10	MP 96.1 Alt 1: New Overcrossing	
Site 11	UNT Salmon Creek Alt 1: MP 98.1 Amphibian Fencing	

Design Process Overview

- Gather Existing Data
- Existing Conditions Analyses
- Define Site-Specific Constraints

- Define Goals and Objectives
- Alternatives Analysis
- Select Preferred Alternative
- Involve Project Partners

- Site Investigations and Feasibility
- Refine Project Elements
- Identify Area of Potential Effect (APE)
- Begin Permit and Right-of-Way Coordination
- Continue Analyses and Reporting
- Continue Involving Project Partners

- Apply for Permits at ~60%
- Permits in Hand at ~90%
- Add Details for Construction
- Final Review and Walkthrough with Project Partners
- Bid Documents (Plans, Specifications, and Estimate) Stamped and Signed by Professional Engineer

- Bidding
- Construction
- Monitoring


More to come!


Thank you!