Mill Creek Feasibility Study

For alterations to
South Skagit Highway

Summary

Skagit County Public Works has received funding to study the feasibility of potential alterations to the South Skagit Highway near Mill Creek and Savage Creek. Rerouting this section of the South Skagit Highway will:

- Reduce maintenance needs.
- Reduce repetitive flood damage.
- Improve transportation reliability and future flooding resiliency.
- Provide fish passage at Mill and Savage Creeks.
- Restore habitat for threatened Puget Sound Chinook, steelhead, and bull trout, and coho, chum, and other salmon species.

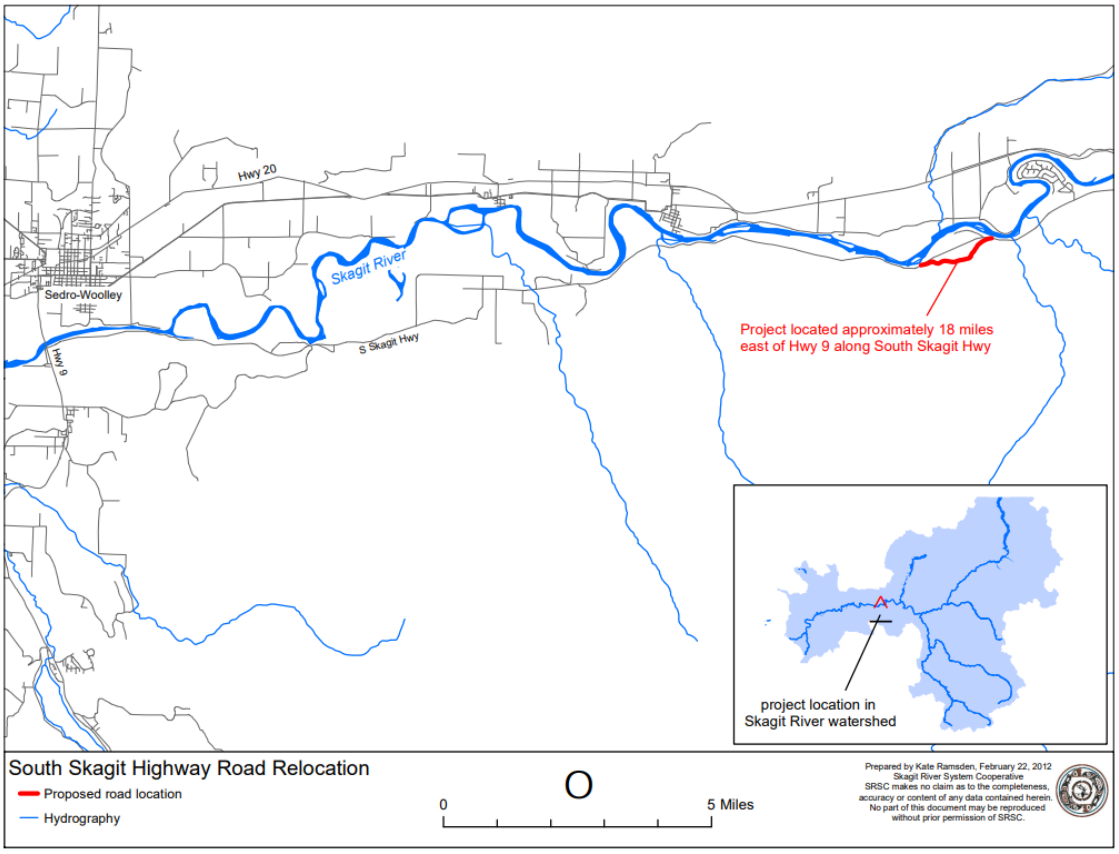
"Not just a transportation project, not just a fish project."

Currently, funding covers surveying the area, completing an alternatives analysis, identifying a preferred route for the highway, and starting a design for the new creek crossings.

Location

The project site is on the south side of the Skagit River near Concrete, WA. The Mill Creek project area includes both Mill and Savage Creeks. Mill Creek is located on the South Skagit Highway at milepost 18.3. The area around Mill and Savage Creeks is made up of various wetlands.

The highway crosses Mill Creek's *alluvial fan*. An alluvial fan is created when a fast-moving waterway slows down and is able to deposite the sediment is has picked up. The bridge crossing Mill Creek is undersized, so the channel is prone to migration, sudden course changes, and erosion at this location. The channel under the bridge has already needed many maintenance projects including dredging and channelization to protect the highway.



Project area map. Prepared by Kate Ramsden, Skagit River System Cooperative, February 22, 2012.

Project History

In 2012, the Skagit River System Cooperative completed a Habitat Scoping Report evaluating the impacts of the highway on the Skagit River floodplain. The report found that the highway isolated wetlands and impacted fish habitat.

In 2015, the Skagit River System Cooperative worked with Skagit County to identify four alternatives to improve habitat within the project area. Two of the alternatives rerouted South Skagit Highway, while the other two left it in place with added infrastructure.

At the time, the cost of each of the alternatives was between $10 and $17 million dollars (in 2015 dollars). The alternatives exceeded available funding for these types of projects and the project was shelved.

In 2023 Skagit County secured funding from the Washington State Department of Recreation and Conservation Office through their Salmon Recovery Funding Board (SRFB) and Puget Sound Energy to “dust off” this 2015 alternatives analysis.

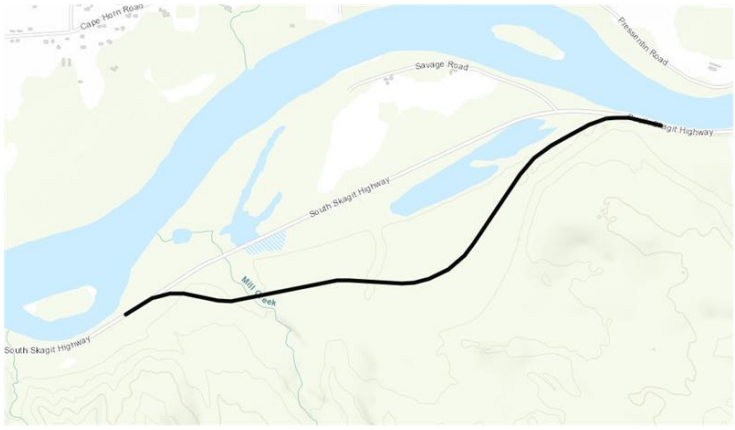
Alternatives

Realignment

Two of the alternatives identified in 2015 would relocate the highway out of the floodplain and away from the alluvial fan. Rerouting this section of South Skagit Highway around the flood-risk area and building crossings along different points of Mill Creek and Savage Creek would be a long-term solution to this problem.

Realigning the highway would remove it from the risk of future flood events and the repair and maintenance needs that come with them. Building the new highway section farther from sensitive habitat would also mean lower mitigation costs.

The current most likely realignment option, shown by the black line in the image below, moves the highway south, farther uphill and out of the wetlands, the alluvial fan, and the floodplain.



The black line shows a realignment option for South Skagit Highway.

Raising the Highway

The other two alternatives would leave the highway in place and add infrastructure to increase conveyance (the amount of water that can flow in the creeks). Changes needed to keep the highway in place would include raising the highway almost 12 feet and installing multiple bridges across Mill Creek's alluvial fan and a 50- to 105-foot bridge at Savage Creek. This process would occur within sensitive habitat and the Skagit floodplain and so would require intensive mitigation.

Leaving the highway in place is not a long-term solution, as future flood events still put the road at risk for flooding, damage, and continued maintenance needs.

Benefits

Avoiding Waterway Movement

Mill Creek has changed course every year for the last seven years, causing roadway damage and erosion along the western berm and bridge abutment. Mill Creek is at risk of migrating entirely to the west, where it can cause continued damage.

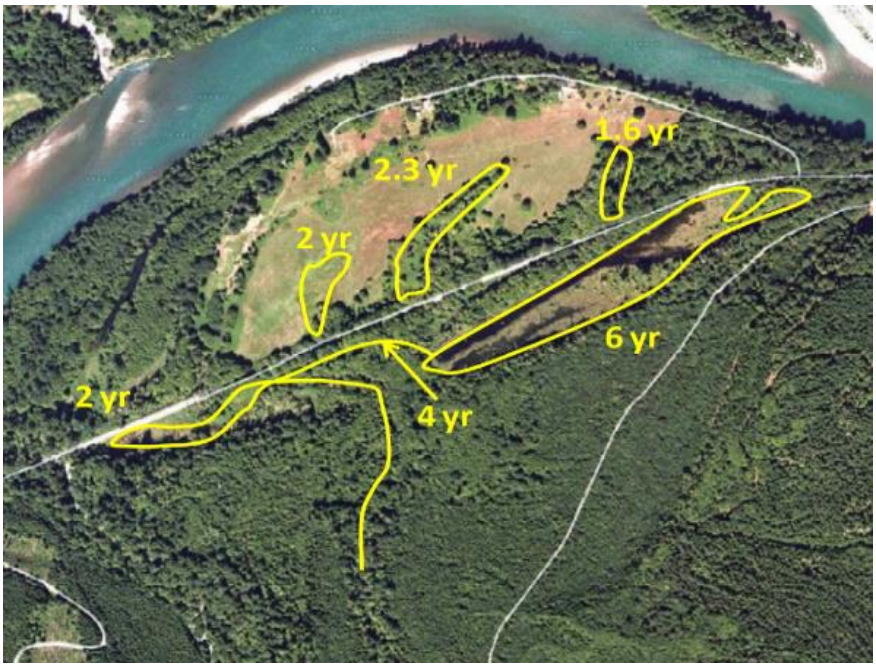
Mill Creek flows under Mill Creek Bridge before flowing into the Skagit River. The Mill Creek Basin transports vast amounts of sediment and large cobbles, which have raised the Mill Creek stream bed over time. The higher stream bed leaves less space for water to move under the bridge, causing the creek to migrate within the alluvial fan, which South Skagit Highway bisects. This route shifting causes frequent damage to highway shoulders and the road base.

The Skagit River could also migrate within the alluvial fan, which would put South Skagit Highway at risk of being taken out altogether.

Rerouting or raising South Skagit Highway would improve conveyance for Mill Creek, potentially reducing its movement across the alluvial fan, and any damage this may cause. However, raising the highway and leaving it in its current location still leaves it at risk of damage if the creek or river migrates.

Reduced Flooding

This section of South Skagit Highway is in the Skagit River Floodplain. The project area floods an average of three times per year, causing serious transportation and safety issues. This area is one of three areas in Skagit County at most risk for damage from large flood events.



Approximate frequency of flooding in areas surrounding South Skagit Highway. Source: TranTech Engineering LLC, March 31, 2015.

Rerouting the highway outside of the floodplain will eliminate flooding risk and damage. Raising the highway and crossings will also reduce risk of the creeks overflowing onto the road. However, this method means that flooding events could still cause damage to highway infrastructure.

Habitat Protection

Mill Creek and Savage Creek are fish bearing streams that are home to three species of threatened fish including Chinook, steelhead, and bull trout as well as coho salmon, chum, and a variety of other species. In its current location, South Skagit Highway impacts 21.7 acres of fish habitat, according to the 2012 Habitat Scoping Report by Skagit River System Cooperative. The highway also obstructs fish passage in both creeks, keeping salmon from important spawning grounds.

Altering the South Skagit Highway is part of a Washington Department of Fish and Wildlife and Skagit River System Cooperative recovery plan for Chinook and would improve habitat for many other species as well.

This project would also have downstream impact. Half of the Chinook salmon that endangered orcas in the Puget Sound eat come from the Skagit River. Improved habitat and spawning ground access means more salmon to support orca health and survival.

Project Partners and Stakeholders

We will involve affected parties and key partners in and near the project area throughout the project duration. The project will explicitly involve stakeholders and partners at key points during the decision-making process, including (but not limited to):

- Alternative development and selection.
- Formation of the system used to rate and decide on an alternative.
- Selection of a preferred alternative.

Phase 1 Design Team

- Skagit County Public Works
- KPFF Consulting Engineers (KPFF)
- Pacific Surveying & Engineering (PSE)
- Northwest Hydraulic Consultants (NHC)
- Aspect Consulting
- GeoEngineers
- Equinox Research and Consulting International (ERCI)

Affected Parties

- Town of Concrete
- Town of Birdsview
- Washington State Department of Transportation (WSDOT)
- United States Army Corps of Engineers (USACE)
- United States Fish and Wildlife Service (USFWS)
- National Oceanic and Atmospheric Administration (NOAA)
- Skagit River System Cooperative (SRSC)
- Upper Skagit Indian Tribe
- Skagit Watershed Council
- Skagit Fisheries Enhancement Group (SFEG)
- City of Seattle
- Sirios Timber Partners LP

Current Funding Sources

- Washington State Salmon Recovery Funding Board
- Puget Sound Energy (PSE)

Potential Funding:

- Brian Abbot Fish Barrier Removal Board (FBRB)
- Bipartisan Infrastructure Law (BIL)
- National Oceanic Atmospheric Administration (NOAA)
- Local Programs

Learn More

For more information on this project and to see past reports referenced in this paper, please scan the QR code below or visit https://www.skagitcounty.net/Departments/PublicWorksSurfaceWaterManagement/MillCreekFeasibilityStudy.htm

Or, you can contact Emily Derenne, Skagit County Public Works Project Manager at 360-416-1449 or emilyjd@co.skagit.wa.us