White River threatens Mt. Rainier Highway

Winter storms, gravity, and melting snow and glaciers combine to make the White River a serious threat to State Route 410. During the Nov. 2006 storm, the flooded river jumped its banks and used the road as a riverbed, temporarily severing this important link to local recreation.

The Washington State Department of Transportation is preparing to fix problem sites on SR 410 between Greenwater and Mt. Rainier National Park. We expect to start work on this $17 million project by summer 2009. The National Park Service will lead a separate effort to develop solutions for the problem sites within the park.

The 2005 Gas Tax provides $17 million to preserve the road between Greenwater and the Mt. Rainier National Park boundary. We expect construction to start by summer 2009.

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State Route 410

January 2008

Preserving SR 410: Fixing the Worst Spot First

In December 2006, WSDOT began researching and performing survey work on four known problem sites within the project area. Using a variety of data collection methods including aerial photography, river speed gauges, on ground field work and state-of-the-art laser technology, the WSDOT design team gathered important details about the river, its course and the surrounding flood plain.

The research proved invaluable. We have learned that some areas are not at risk while others can be managed with lower cost maintenance solutions.

At one of the problem sites, we discovered bedrock under the slope leading to the river. This discovery eliminates the need to perform costly design and construction work; the rock base will prevent the river from undercutting the road. At another site we monitored the effectiveness of a protective rock barrier placed by our maintenance crew along the river bank. The barrier appears to be successful preventing further erosion from the river.

Using this new information, we are directing our focus to fix the worst spot on SR 410: the road stretching from mileposts 41 to 42. This is the section of highway that was washed out in the late 1990s and more recently was flooded by the White River during the Nov. 2006 storm cutting off access to Crystal Mountain and the Greenwater community. The

Near milpost 41, the White River can easily jump its banks when water levels are high. This photo was taken in Nov. 2006 when the river spilled over onto SR 410 in the Federation Forest State Park.

$17 million budget funded by the 2005 Gas Tax will be devoted to preventing future flooding and erosion of the highway in this area.

Many values and interests at stake

As we move forward to help preserve this nationally recognized All-American Road, we will consider the surrounding community, businesses and local tribes. The White River is also an important migratory, breeding and rearing habitat for winter steelhead trout, coho, chinook and chum salmon and bull trout. The threatened marbled murrelet seabird and spotted owl nest in the forest surrounding the river.

Regardless of the final plan, WSDOT will carefully balance the needs of the community that uses this historic road and the sensitive habitat that surrounds the area.

SR 410 crosses jurisdictional boundaries

The part of SR 410 that is most at risk is located within Mount Rainier National Park. As we learn more about the White River and its effect on SR 410, we share our information with the National Park Service. They have started gathering data to design a solution to fix problem sites on SR 410/Mather Memorial Highway within the National Park.

Fixing the Worst Spot: Milepost 41.4 - 42.0

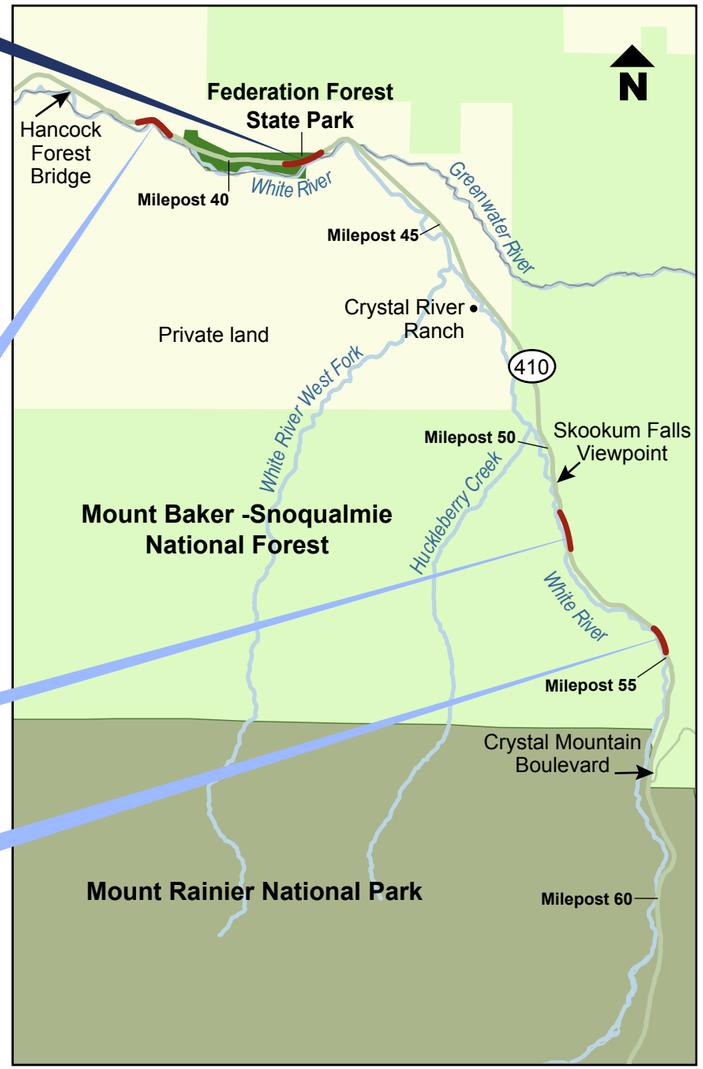
This section is the most vulnerable stretch of highway outside of Mt. Rainier National Park to floods during the spring melt and fall rains. We will elevate the highway and install culverts to allow water to flow under the road during high water levels. We will also install log jams to deflect the river away from the riverbank.

Other Problem Sites Along the White River

Milepost 38.1 – 38.7
This section of road does not flood now but high river levels containing swiftly running water may erode the river bank. WSDOT maintenance will stabilize the river bank as necessary. To permanently prevent the river from eroding this area, WSDOT would need to purchase land and work on both sides of the river.

Milepost 51.2 – 51.8
The White River was eroding the riverbank near the road but maintenance crews appear to have stabilized the area by placing rocks along the slopes. We will continue to monitor and add more rocks along the riverbank as necessary.

Milepost 54.7 – 54.9
During our research and data gathering, we took core samples and found bedrock at the base of this steep slope. The bedrock will prevent the White River from undercutting SR 410, which is about 60 feet above the river. We will continue to monitor this area to ensure that the slope remains stable.



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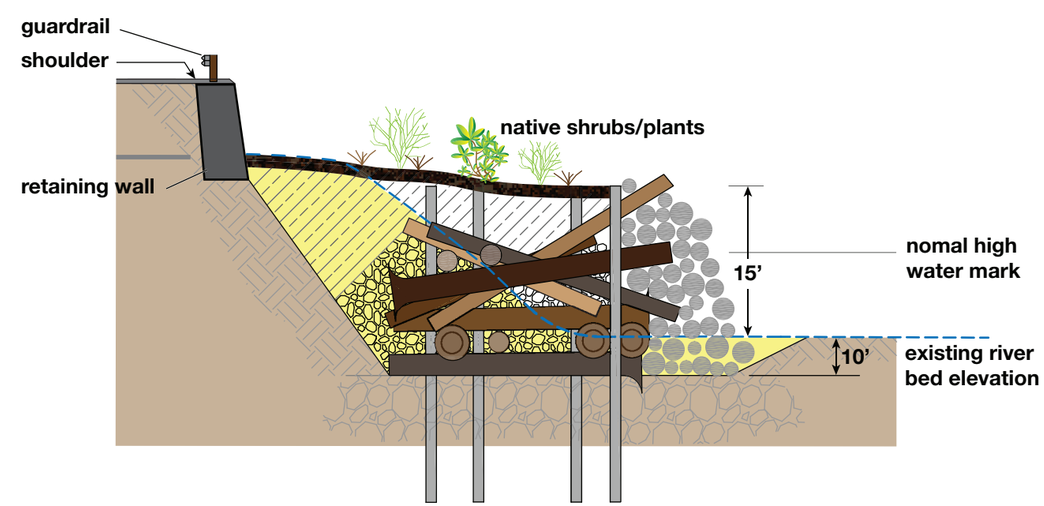
Federation Forest State Park, MP 41.4 to 42

Elevating the roadway

Crews will rebuild and elevate the highway two to five feet, install culverts beneath the road surface, and build a retaining wall. Raising the roadway above the flood line will prevent the river from flooding the highway during large storms, and culverts will divert floodwater away from the roadway and into a side channel. The retaining wall will prevent the river from eroding the roadbed and keep the roadbase fill from washing into the river.

Log jams

Crews will place six to seven engineered log jams next to the newly elevated road. The logs and rocks will be anchored with pilings and cable. These materials deflect the river flow away from the bank to help prevent erosion. As the water flows through the woody debris, the force of the river decreases, protecting the bank as it curves towards the road. This natural looking barrier also serves as a protective rest stop for visiting fish.



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