Highway Preservation Options

We will need to use a variety of methods, each tailored to a specific location, to protect SR 410 from erosion and floods. All of these fixes would change the natural course of the river and require careful consideration to assure acceptable habitat conditions.

Dikes: crews build or strengthen dikes by piling rock, soil or other materials between the river and the highway, particularly in locations where the river is higher than the highway.

Engineered logjams: crews place logs and rocks along the riverbank or in the river. These materials collect sediment and other materials. The resulting logjam more gently deflects the river away from the riverbank.

Elevated highway: crews rebuild the highway to elevate it above the river or floodplain. Depending on how the highway is elevated, this option could have the most impact on local communities, businesses and residents, and present a major challenge for environmental protection.

Damage from floods in 2003 and 2005 demonstrate the urgency of deciding what to do to preserve SR 410. The National Park Service will lead efforts to develop an action plan to preserve the highway. The preservation effort will involve:

- Local communities, businesses and residents
- National Park Service
- Federal Highway Administration
- Washington State Department of Transportation
- Muckleshoot, Puyallup and Yakama Tribes
- State and federal environmental protection agencies
- King and Pierce counties
- Forest Service
- Crystal Mountain Resort
- White River Recreation Association

Engineered logjam installed by WSDOT along the Hoh River: The logjam deflects the river flow away from the bank protecting it from erosion. As the water flows through the woody debris the force of the river flow decreases, protecting the banks downstream also from erosion. During storms the logjam also provides a place for fish to hide and rest. This structure is anchored into the bank of the river with pilings and cable, making it a lasting (50 years or more) structure along the riverbank. Similar structures could be installed along the White River to decrease the force of the river and protect the banks from erosion that now threatens the highway.

For more information, please contact:

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Washington State Department of Transportation

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Washington State Department of Transportation

State Route 410

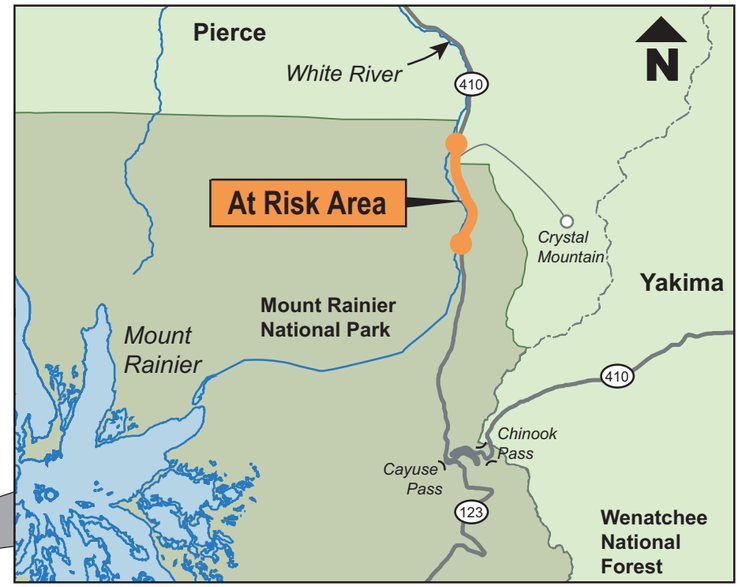
August 2006

White River Threatens Mount Rainier Highway

The wandering White River, the force of gravity, and melting snow pack and glaciers combine to threaten a large section of State Route 410 near Mount Rainier. In some areas the river is eroding and damaging the highway. In other areas the river has shown it can jump its banks and use SR 410 as a riverbed, causing heavy damage.

Steps must be taken now to determine the future of SR 410 in Mount Rainier National Park. Recent river activity shows the high risk that the river could shift its flow to the highway. If that happens, sections of the highway may be irreparably damaged and access from the west side of Mount Rainier to Sunrise Visitor Area in the park could be lost. Access also would be threatened or severed to Crystal Mountain Boulevard, that joins SR 410 just outside the park entrance, and to nearby cabins. Travelers who rely upon SR 410 as a summer shortcut between Enumclaw and Yakima would have to add 70 miles or more to their cross-Cascades trip. A solution to the problem posed by the river will not be quick, easy or inexpensive, so both planning and stop-gap protection measures must be taken now before the river destroys the highway.

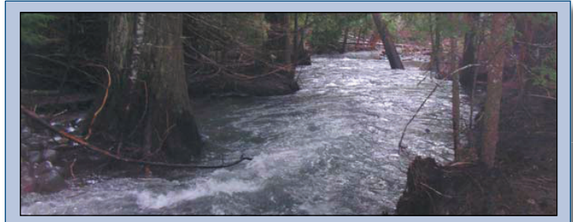
Floods in 2003 and 2005 hampered access to Mount Rainier National Park and Crystal Mountain Boulevard. Crews completed repairs, but similar floods are likely in the years ahead.



Much of State Route 410 is closed during winter because of heavy snow and avalanche risk. During summer weekdays, the highway carries over 1,500 vehicles a day in the national park vicinity. The White River originates at the Emmons and Fryingpan Glaciers on Mount Rainier.

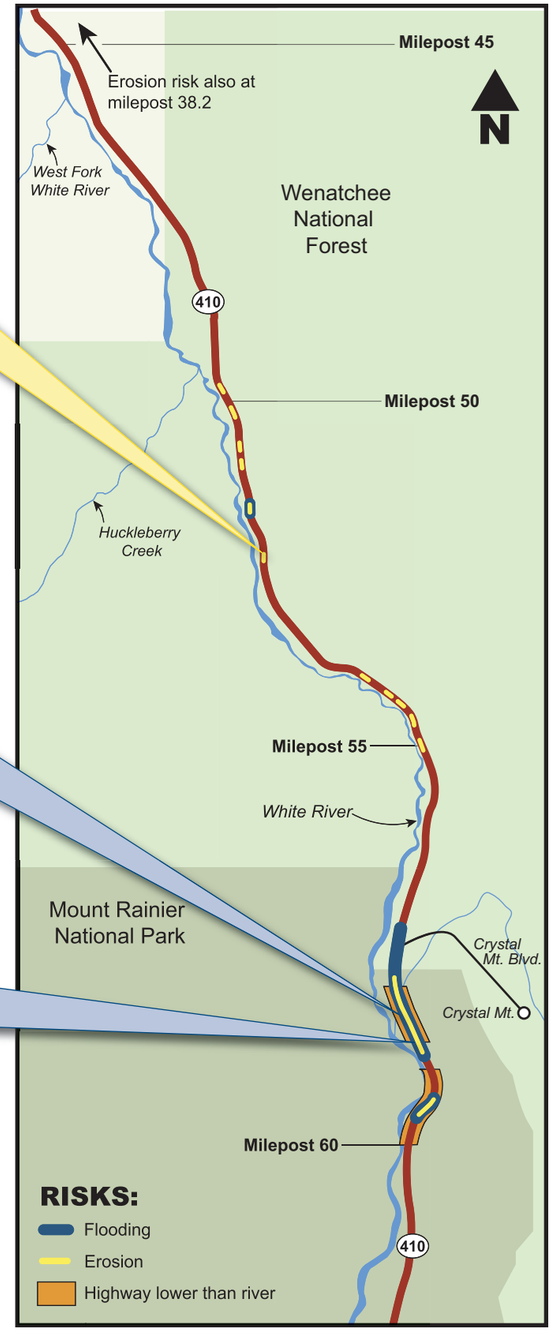
Problem sites along the White River

Erosion:
In many locations the river is adjacent to the highway. Over time, river water undermines the road bed as it works toward lower terrain. This can damage or destroy sections of the highway.



Side Channels:
Water levels in the glacier-fed river are highest in spring and fall. When water levels are high the river is more likely to overcome its banks, carve new side channels and work its way beneath or onto the highway.

Low Highway:
An emergency gravel dike separates the river from the highway. In many places SR 410 is at the same level or lower than the river. The river threatens to overcome natural and constructed dikes in many locations, including this one. The highway would then serve as a new riverbed, flooding the road for miles, perhaps permanently.



Many Interests and Values at Stake

Floods in 2003 and 2005 serve as warnings indicating that we must take action now to preserve SR 410. During these floods WSDOT and the National Park Service worked together to complete stop-gap repairs, but longer range solutions are required if the highway is to continue to serve park visitors, local businesses, residents, and tribe members. Balancing the interests of these highway users and all of the other aspects that make the Mount Rainier area unique is a big challenge.

Floods cross jurisdictional boundaries

The part of SR 410 that is most at risk is located within Mount Rainier National Park. This stretch of highway is within the jurisdiction of the National Park Service, part of the United States Department of the Interior. WSDOT is responsible for SR 410 outside of the national park.

While the lines of responsibility are clear, water under the influence of gravity never respects human boundaries. Flooding that starts inside the park will continue downstream and affect the state's portion of the highway so, preservation projects must be completed both inside and outside the park. WSDOT is committed to work with the National Park Service to plan comprehensive steps to save the highway. The National Park Service will lead efforts to develop these solutions because the highest-risk areas for flooding are within its jurisdiction.

Funding

The costs to protect the highway will be very high, but costs to replace the highway after a major flood would be significantly greater. The Washington State Legislature recently authorized $16.9 million for WSDOT to implement short-term fixes and begin to develop long-term fixes within the state's jurisdiction. The National Park Service still needs funding for fixes within the park. WSDOT will delay any long-term fixes until a comprehensive plan for SR 410 through both jurisdictions is approved.

Tribes

The Mount Rainier area was and continues to be an important gathering place for many tribes. The Muckleshoot, Puyallup and Yakama tribes have treaty reserved fishing rights in the area and a strong interest in protecting the high quality of river habitat for spawning and rearing.

Historic road

The federal government has long-recognized the spectacular natural scenery surrounding SR 410. In 1930 a 75-mile-long section of the highway was designated the Mather Memorial Parkway and Chinook Scenic Byway, and in 1998 it was designated an All-American Road. These designations confirmed that the highway is nationally significant, contains one-of-a-kind features that do not exist elsewhere, and provides an exceptional traveling experience. The National Park Service has the responsibility to preserve the historic aspects of the park and highway.

Photo from the National Park Service

Threatened species

Built in the 1920s and 1930s, SR 410 was constructed on as narrow a footprint as possible to limit its effect on the natural environment. Today, the White River serves as migratory, breeding and rearing habitat for winter steelhead trout, coho salmon, Chinook salmon, chum salmon and bull trout. The forest surrounding the river is home to the threatened marbled murrelet seabirds and the spotted owl.

Construction limitations

In the winter much of the highway is closed to traffic and construction crews due to snow and avalanche risk. Warm and dry weather that is often required for construction work is limited. Construction in this area can only occur when it will not disturb the spawning salmon or trout. All construction must occur during the day to avoid disturbing the marbled murrelets' nightly migration to feed in Puget Sound. In addition, Mount Rainier's Wilderness boundary is 100 feet from the center line.