

I-84: Rowena Bluff Rockfall Project

Last Updated: Fall 2012

Project Components

- Remove the fallen rock in the catch basin between Rowena Bluff and the concrete shoulder barrier on the south side (eastbound lanes) of Interstate 84.
- Replace the existing shoulder barrier with one that is easier to move to facilitate future rockfall clean out.
- Install a sand blanket to absorb the impact of falling rocks in order to keep rock in the catch basin (proposed).
- Replace one mile of substandard median barrier in the rockfall area.

Project Location

The Interstate 84 (I-84) Rowena Bluff Rockfall project area is about 6 miles west of The Dalles, centered at about milepost 75. The project area is bordered by the Mayer State Park, the Columbia River, and Tom McCall Nature Preserve.

Project Area Description

Rowena Bluff is located within the Columbia River Gorge National Scenic Area, and is immediately adjacent to an interstate highway, the Union Pacific railway, the Columbia River, and near the Historic Columbia River Highway. Numerous environmental and visual resources exist within or near the project area.

Rowena Bluff is a vertical rock wall as much as 500 feet in height. I-84 runs along the base of Rowena Bluff for approximately 3,000 feet.



Rowena Bluff towers above Interstate 84 in the Columbia River Gorge.

Project Purpose

The purpose of the I-84 Rowena Bluff Rockfall Mitigation Project was to develop a list of options that minimize or reduce the impacts of rockfall on the traveling public and rockfall related damage to the highway, and to implement the preferred option.

Need for the Project

Interstate 84 is classified as an Interstate Freeway and is a major freight route in the Pacific Northwest. Keeping roads in good condition and providing for safe travel are critical parts of the mission for the Oregon Department of Transportation (ODOT).

Rockfall from Rowena Bluff is creating safety and operational issues for this section of I-84. It is the highest rockfall hazard area along this section of I-84 and within Region 4, and ranks as the 4th highest rockfall hazard in the state according to the Statewide Unstable Slopes Inventory.

In May 2005, a fatality occurred on this section of I-84 when a rock from the face of Rowena Bluff struck a motorcyclist. More often, fallen rocks on the roadway have been struck by motor vehicles. Between 1997 and 2008, there were 20 documented incidents where rock was reported and/or removed from the highway.

Additionally, the rock fall causes damage to the roadway surface, median, shoulder barrier and guardrail.

Rockfall Options and Evaluation

An interdisciplinary planning team was charged with developing and evaluating options to minimize or reduce the rockfall hazard. A wide range of options was developed and evaluated. The range of options included continuing current maintenance and clean up of rockfall, installing an advanced warning rockfall detection system, scaling or benching the bluffs to various degrees, building tunnels or rockfall sheds over the highway and relocating the highway to the north. Costs ranged from \$3-6 million for continued routine maintenance or rock scaling over a 20-year period, to \$30-50 million for cutting back slopes, to \$300-400 million to build rockfall sheds or tunneling. An abbreviated report on the options considered and their evaluation is available by request (see contact information below).



Site of the May 2005 fatality.

After evaluating the options, including doing a cost/benefit analysis, the decision was to continue the current maintenance and to remove the current rockfall in the catchment area. Cleaning out the catch basin between the base of the bluff and I-84 is scheduled in 2012, and will also include replacing the existing concrete shoulder barrier with one that is easier to move to facilitate future rockfall cleanout. A sand blanket is proposed in the ditch to absorb some of the impact of falling rocks in the future. Installing the sand blanket and cleaning out the catch basin will help reduce the amount of rock that bounces over the barrier into the highway. Finally, the substandard median barrier on I-84 in the Rowena Bluff area will be replaced. This work will cost about \$1.2 million.

The least expensive option (slope cutting) that would reduce the rockfall would cost a about \$30 million. However, even though the Rowena Bluff area has one of the highest rockfall risks in the state, the cost to implement this option could fix 80-100 other rockfall sites which would have a greater benefit for the overall transportation system.

Traffic Control during Rockfall Cleanout

Traffic will be restricted to one lane in each direction during removal of the rock fall and installation of the shoulder and median barriers. Delays are not expected but there will be some congestion in the area.

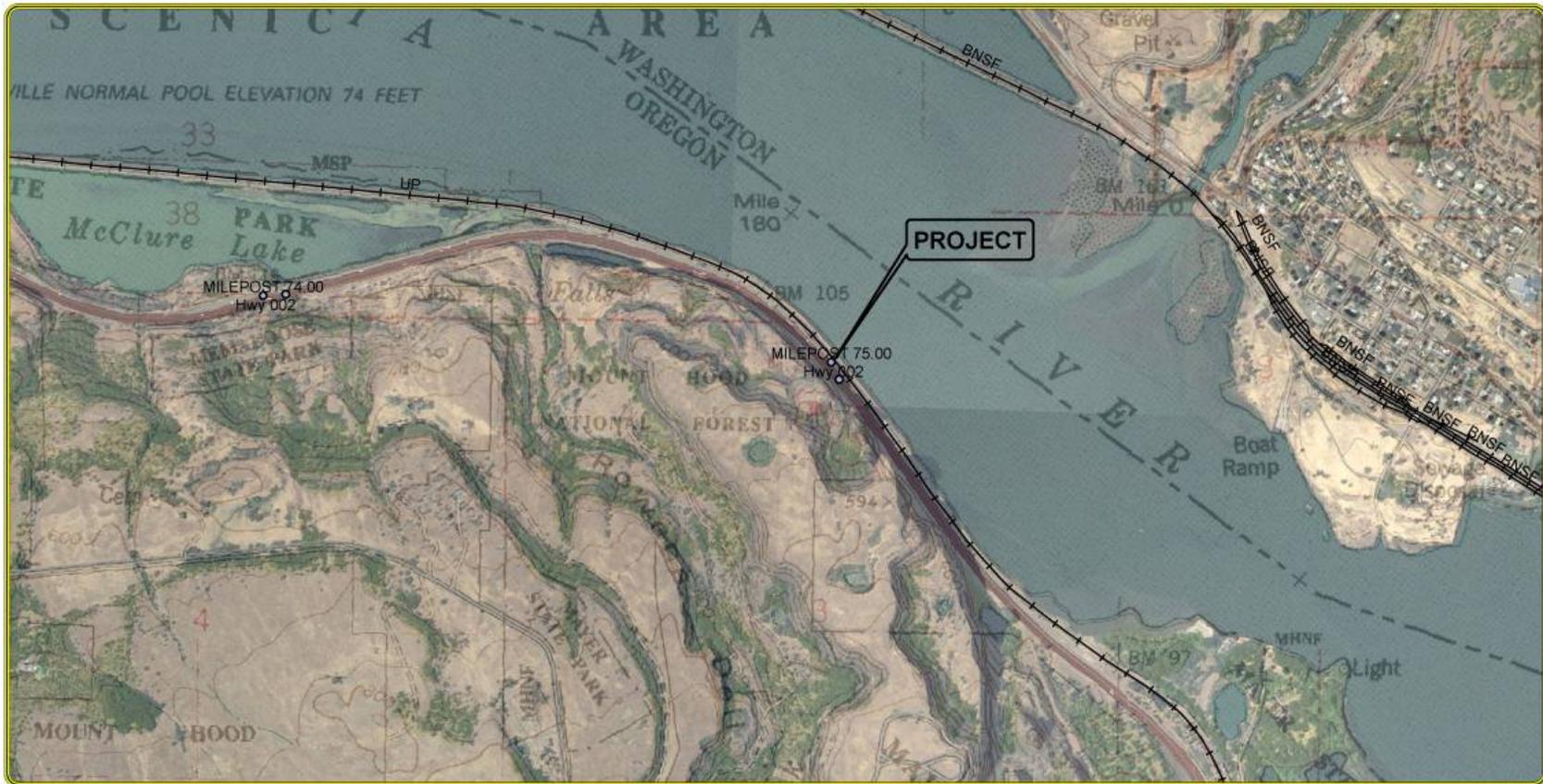
Timeline

Develop and evaluation a range of solutions	2009 / 2010
Select a preferred solution	2010
Implement the preferred solution	August / September 2012

ODOT awarded a construction contract to Oregon Mainline Paving to complete the rockfall work at Rowena Bluffs. Construction began in July and was completed in August 2012.

ODOT Contacts:

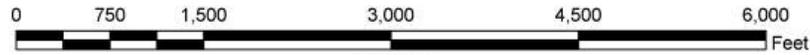
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OREGON DEPARTMENT OF TRANSPORTATION

ROWENA BLUFF - I-84 - M.P. 75.00
T. 2 N.; R. 12 E.; Sec. 3; NE1/4 & SW1/4

LOCATION MAP



SCALE



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