

**Project Summary**  
**Rocky Mountains Cooperative Ecosystem Studies Unit**

**Project Title:** Geologic Studies on the North Entrance Road: Phase 3-  
Collaboration on Alternatives for the Road Corridor

**Discipline:** Natural Resources  
**Type of Project:** Technical Assistance  
**Funding Agency:** National Park Service  
**Other Partners/Cooperators:** University of Wyoming  
**Effective Dates:** 9/9/2015 - 11/30/2016  
**Funding Amount:** \$60,627

**Investigators and Agency Representative:**

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**Project Abstract:** The final phase of the Gardner River Canyon Geologic study will engage several expert geologists familiar with the area to try to identify ways to adjust the current alignment of the road to move to more stable locations in the canyon. There are several alternatives that need to be investigated for constructability and cost factors. These include the construction of a long bridge or viaduct to span the rock fall areas; raising the grade of the road and using short bridges (or larger drainage structures) to span the deep ravines caused by landslide debris flow; possible stabilization of the area above some of the shale cliffs; debris flow channel remediation using rock buttress structures; a possible rock shed or tunnel; and moving a portion of the alignment out of the canyon onto the Gardiner High Road.

The goal of this final phase is to seek geologic expertise to advise the park management of a suite of long-term approaches that are possible in the park's efforts to stabilize, rehabilitate, and possibly relocate the North Entrance Road corridor. This short segment of road is one of the most crucial in the park, providing access for visitors, commercial surveyors and park administration to Mammoth Hot Springs and the Fort Yellowstone National Historic Landmark. Stabilization of this road corridor is of utmost importance for the access to the northern portion of the park and its many unique features.

**Outcomes with Completion Dates:** November 30, 2016

**Keywords:** geology, Gardner River Canyon, road corridor, road stabilization, Yellowstone National Park, University of Wyoming