

Dynamic Warning System to Alert Motorists to the Presence of Bicyclists

Background:

Colorado National Monument has a long history of bicycle use on Rim Rock Drive. Conflicts between people driving and riding bicycles pose ongoing safety issues. When Rim Rock Drive was created in the 1930's and completed in 1950, the road was designed for vehicles of that era and not for the higher volumes of larger and faster vehicles there today. The road is narrow with little to no shoulder and has hairpin turns that lack the sight lines needed for safe passing of bicycles. Rim Rock Drive often has large vehicles such as recreational vehicles 40 feet in length, semi-tractor trailers, tour buses and dump trucks, which have difficulty staying in their lane.

In addition, this road is used regularly by people commuting from Glade Park, an unincorporated town with about 2,000 residents to and from Grand Junction. During the summer months, when the traffic volumes are highest, bicycles can account for up to 10% of the vehicles on the east hill of the monument. The National Park Service reports that for the past 5 years, crashes between bicycle and motor vehicles average one documented incident per year. In addition, the NPS staff at the entrance station receive an average of one near miss incident or complaint a week during the peak cycling season from March through October.



Photo of dynamic warning system in Colorado Springs

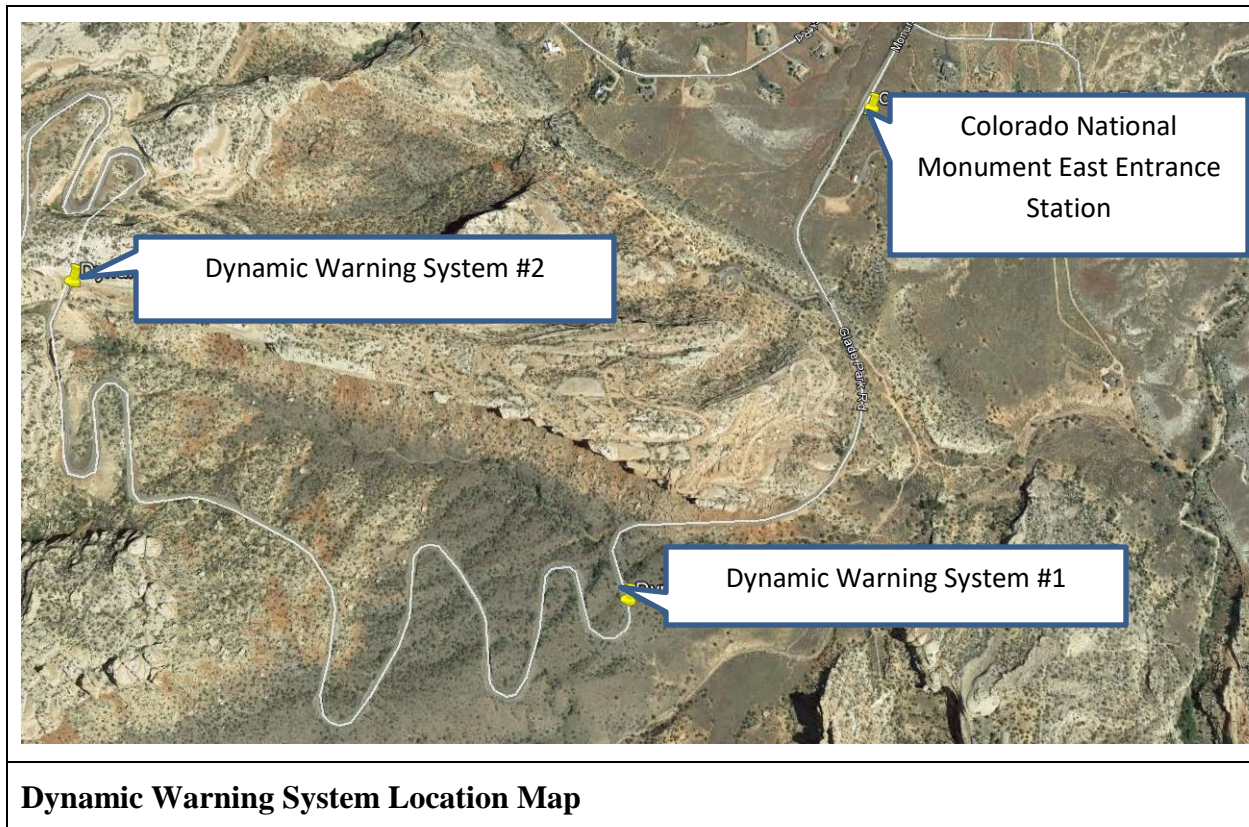
Project Overview:

The project aims to improve road safety for people bicycling and driving by using existing technologies in a new way. This project will combine the Eco Counter's Zelt inductive loop system with flashing lights to alert drivers to the presence of bicycles traveling along a shared roadway. The flashing sign will only be lit when a person rides a bicycle over the inductive loops, making this system "dynamic". This project will deploy two dynamic warning signs on Rim Rock Drive at the proposed locations below. The first sign is proposed at the start of the first set of curves after entering the park, about 0.7 miles from the East entrance station. The second sign is proposed near the south entrance of the tunnel, about 2.4 miles from the east entrance station.



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The two systems will be placed in the uphill lane because the inductive loop detection is more accurate when there is a speed differential between bicycles and motor vehicles. Researchers will monitor the systems over the coming year as follows:

- Monitor system reliability in detecting bicycles in mixed traffic.
- Document installation, operation and maintenance needs.
- Assess changes in driver speed with warning system.
- Prepare technical brief with results and Power Point webinar for dissemination.

It is anticipated the signs will be installed in May 2017 and this monitoring project will be completed in September 2018. The work is being conducted under the Coordinated Technology Implementation Program (CTIP) administered by the Federal Highway Administration. Results will be useful to jurisdictions that oversee rural roads where high speeds, road geometry, or other factors make people on bikes particularly vulnerable.

For more information contact:

Mark Davison, Chief Ranger, (970) 858-3617 x309 mark_davison@nps.gov

Mary Jane Naone, Planning & Compliance Specialist (970) 858-3617 x309 mary_naone@nps.gov

Rebecca Gleason, Research Engineer (406) 994-6541 rebecca.gleason1@montana.edu



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