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This monthly report from the University Transportation Centers Program high–lights some of the recent accomplishments and products from one of the University Transportation Centers (UTCs). The UTC Program is administered by the U.S. Department of Transportation's Research and Innovative Technology Administration.

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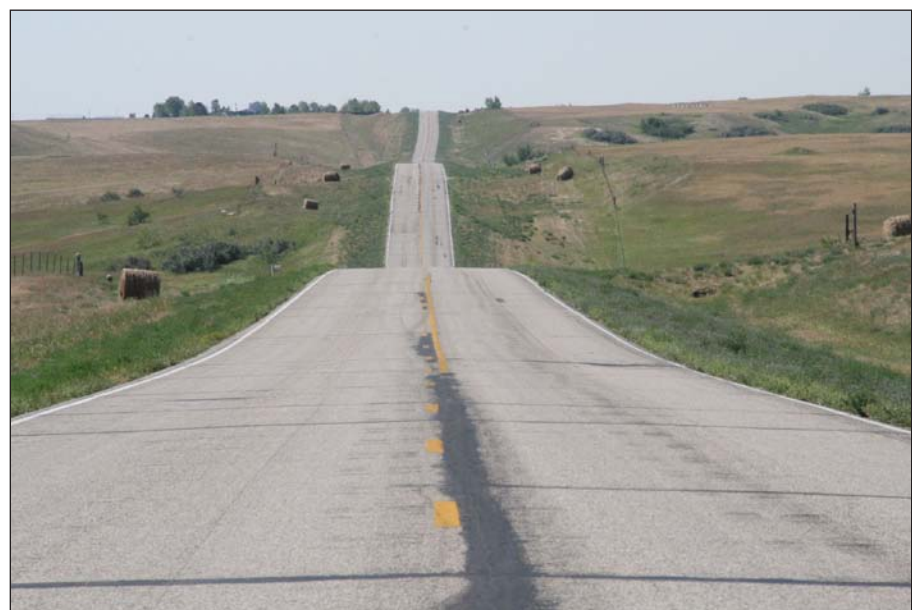
## Improving Highway Safety by Identifying High Risk Rural Road Segments and Safety Countermeasures

Rural roads are critical links in the Nation's transportation system, providing travel and commerce for the approximately 60 million people living in rural America. About 80 percent of the Nation's roadway miles are rural. Many of these segments are experiencing traffic growth as a result of energy-related economic development. However, many rural roads lack important safety features and experience serious traffic crashes at a rate far higher than other highways. Nationally, about 60 percent of traffic fatalities occur on rural highways. Two-lane roads have the highest fatality rates per vehicle-mile of travel.

To help counties identify high risk rural locations and develop a strategy to obtain funding to reduce crashes on the riskiest segments, the University of Wyoming has developed the Wyoming Rural Road Safety Program (WRRSP)—a collaboration between the Mountain-Plains Consortium (MPC) and the Wyoming Department of Transportation (WYDOT) in cooperation with Federal Highway Administration (FHWA). Program guidance was provided by a Local Road Safety Advisory Group with representatives from WYDOT, Wyoming Local Technical Assistance Program (LTAP), Wyoming Association of County Engineers and Road Supervisors, Wyoming Association of Municipalities, and FHWA.

The pilot phase of the program involved data collection and participation from Carbon, Laramie, and Johnson counties. A five-step procedure was developed and applied in these counties:

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Nationally, two-lane roads have the highest fatality rates per vehicle-mile of travel.

1. Crash data were analyzed to identify high-risk segments with proportionately higher crashes during a 10-year analysis period.

2. A Level I field evaluation was conducted to identify deficiencies in geometric conditions and shoulders as well as pavement markings and signage. Roadway segments were ranked on a scale from 0 to 10 in 5 risk categories based on the results of the field evaluation.

3. Combined rankings based on crash data and field evaluations were used to identify segments with the highest potential crash risks.

4. A comprehensive analysis (similar to a road safety audit) was conducted for each high-risk segment. The objective of this evaluation was to identify low-cost safety countermeasures for segments identified as high-risk locations.

5. A benefit/cost analysis was performed to help identify the most cost-effective safety measures.

As a result of the successful MPC pilot studies, the Local Road Safety Advisory Group has approved the WRRSP procedure as a means of improving safety on rural roads in Wyoming. Once a county has completed the five-step procedure, it has the necessary information to develop plans to fund safety improvements using the High Risk Rural Road Program or other funding sources. WYDOT is funding some of the counties' safety requests, providing incentives for other Wyoming counties to establish their own local safety programs.

In the second phase of the project, MPC and WYDOT are facilitating implementation of the WRRSP on a statewide basis. The University of Wyoming is providing technical help and training to counties interested in implementing the program. So far, the University of Wyoming has helped more than one-third of the counties in Wyoming implement the WRRSP. Multiple low-cost safety projects have been approved for funding on roads with the highest risk levels. Eventually, all counties in the State are expected to follow the five-step procedure
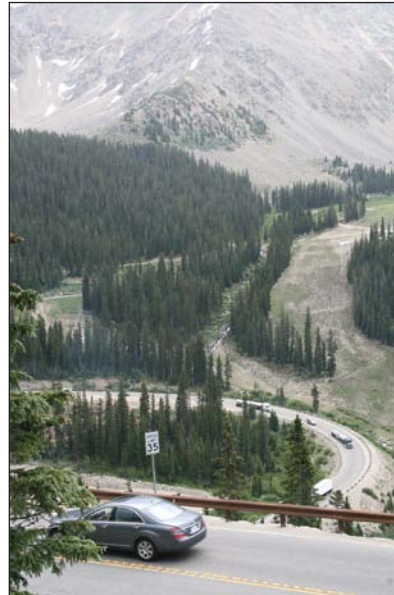
Thomas Jirik

The Wyoming Rural Road Safety Program can be used to identify high risk road segments and safety improvements such as signs, markings, and sight distance.

developed in this study to identify their high-risk rural road segments and safety countermeasures. When the program has been fully implemented, funding requests from all counties will be ranked by the Wyoming Safety Management System committee. In this way, the distribution of available funding will be optimized. The University of Wyoming will do a follow-up study in 3 years on all of the improved sections to determine the effectiveness of the program in reducing crashes and fatalities.

The methodology developed in MPC project has been presented nationally at the Transportation Research Board Annual Meeting and the National LTAP Association annual meeting. In addition, workshops and presentations have been given in Wyoming and throughout the broader Mountain-Plains region. "This program has truly been a success story, showing how applied and relevant research has helped Wyoming local governments in working closely with WYDOT and FHWA to improve the safety of rural roads across the state," says Khaled Ksaibati, MPC program director at the University of Wyoming. "Moreover, other States can benefit from this procedure when they are considering the distribution of their high risk rural road funding." ☯