



RESEARCH SERVICES SECTION

TECHNICAL SUMMARY

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PROJECT COST:

\$63,871



Rumble strips are one of the key techniques for preventing roadway runoffs, a leading cause of crash-related serious injuries and fatalities.



Putting Research into Practice: Rural Road Safety Solutions Workshop Materials

What Was the Need?

According to U.S. statistics, 43,463 people died in motor vehicle crashes nationwide in 2006, with 2.5 million more injured. On average, 116 people die every day, or one every 12 minutes, in a traffic crash. Even though Minnesota ranks among the states with the lowest traffic fatality rates, Minnesota transportation stakeholders are adamant that traffic fatalities and injuries be reduced. To reach this goal, they established a multiagency partnership called the [Toward Zero Deaths campaign](#).

Most crash-related fatalities and serious injuries in Minnesota occur on the two-lane roads prevalent in rural areas, when vehicles are involved in head-on collisions and roadway departures. Responding to this issue, the Local Road Research Board recently conducted studies relevant to rural road safety. These needed to be synthesized and shared in statewide training designed to make city and county engineers aware of tools and techniques for improving rural road safety, and to help them develop operational cultures focused on safety and data-based decision making.

What Was Our Goal?

The objective of this implementation effort was to maximize the value of Mn/DOT's previous research and available resources by synthesizing information and developing a half-day train-the-trainer workshop along with associated educational materials. These materials would summarize the latest technologies and techniques most suitable for implementing safety improvements on local transportation systems.

What Did We Implement?

The research being implemented through this project was informed by:

- LRRB Report 2006-35, "[Safety Impacts Of Street Lighting at Isolated Rural Intersections—Part II](#)," and [its predecessor](#) (Report 1999-17)
- [Minnesota Motor Vehicle Crash Facts](#), which summarizes crash data by location, time and cause
- [The Minnesota Strategic Highway Safety Plan](#)
- [The Minnesota Crash Mapping Analysis Tool](#), which enables users to graphically analyze and map crash data by county, city and accident case number
- [Mn/DOT's 2007 Highway Safety Improvement Program](#)
- Reports (listed in the [workshop](#) deliverable) on safety topics such as pavement markings, lighting, signing, sightline improvements, rumble strips, dynamic speed display signs, animal detection systems, shoulder widening and turn-lane treatments

How Did We Do It?

A technical advisory panel of experts identified key technologies and techniques for improving rural roadway safety. Investigators then performed an extensive literature search on the identified strategies and synthesized these findings.

Panel meetings were convened to focus separately on various technologies and techniques, and investigators produced an outline of the workshop.

“Mn/DOT had recently made rapid advances in developing low-cost rural road safety solutions, and we needed a way to share these techniques with local and county engineers statewide.”

–Richard West,
County Engineer, Otter
Tail County

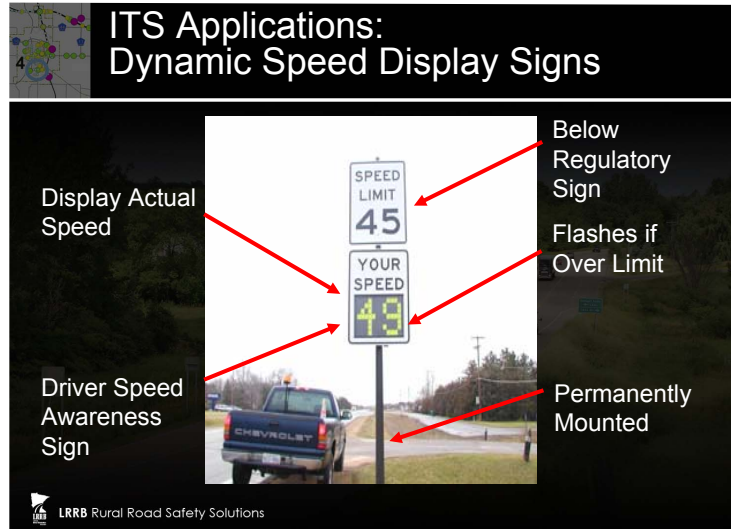
“We wanted participants to come away from the workshop looking at highway safety entirely differently, in terms of low-cost solutions focusing on the most critical causes of rural roadway fatalities.”

–Dave Engstrom,
Workshop Instructor and
State Traffic Safety Engineer,
Mn/DOT Office of
Traffic, Safety and Operations

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The workshop provides guidance on safety tools such as dynamic speed display signs. A presented study showed that drivers on average slowed by approximately 7 mph after these signs were installed at five sites.

Using this data, investigators produced a PowerPoint presentation, participant’s manual and instructor’s guide, which were then reviewed by the technical advisory panel. Realizing the importance of this workshop and its broad audience, both the Federal Highway Administration and Mn/DOT agreed to be part of the delivery of the workshops.

What Was the Impact?

Eight day-long workshops were presented throughout the state with more than 150 attendees from cities and counties. The course and its expert presenting team, which included the FHWA Safety Engineer for Minnesota, the Mn/DOT State Traffic Safety Engineer, three county engineers and the consultant who developed the curricula, received positive feedback from participant evaluations. Workshop topics were designed to help agencies create an operational culture focused on safety:

- Safety issues on both a local and national level
- Specific safety strategies that engineers can use in their jurisdiction
- Tools and techniques to improve rural road safety and how to implement them
- Ways to secure funding and engage the public in safety issues

Participants were encouraged to focus less on the locations of incidents and more on low-cost solutions to head-on collisions and lane runoffs, which account for most fatal and serious injury crashes on rural roads. These solutions include pavement treatments, wider pavement markings and center line rumble strips.

What’s Next?

The Minnesota Local Technical Assistance Program is exploring the possibility of offering this workshop every other year as part of its curriculum and also suggested producing another workshop designed to educate maintenance workers about how their day-to-day activities can make a difference in road safety.

This Technical Summary pertains to LRRB’s Research Implementation Committee’s product 2008RIC03, “Rural Road Safety Solutions Workshop Materials,” published March 2008. The full report can be accessed at <http://www.lrrb.org/PDF/2008RIC03.pdf>.

The research being implemented through this project can primarily be found in the LRRB-produced Reports 1999-17 and 2006-35, “Safety Impacts Of Street Lighting at Isolated Rural Intersections,” Parts I and II, published April 1999 and September 2006, respectively. These reports can be accessed at <http://www.lrrb.org/PDF/199917.pdf> and <http://www.lrrb.org/PDF/200635.pdf>, respectively, along with resources as listed above.