



TECHNICAL SUMMARY

Technical Liaison:

Rick West, Otter Tail County
rwest@co.ottertail.mn.us

Administrative Liaison:

Clark Moe, Mn/DOT
Clark.Moe@state.mn.us

Principal Investigators:

Mike Marti, SRF Consulting Group
Renaë Kuehl, SRF Consulting Group

IMPLEMENTATION
PROJECT COST:
\$40,863



Maintenance activities critical to roadway safety include removing obstructions such as tree branches while implementing traffic control procedures.



RESEARCH SERVICES

OFFICE OF POLICY ANALYSIS,
RESEARCH & INNOVATION

Putting Research into Practice: Maintaining Safer Local Roadways

What Was the Need?

In 2008, 455 people died and 33,379 were injured in traffic crashes in Minnesota. To reduce these numbers as much as possible, transportation stakeholders in Minnesota established the [Toward Zero Deaths](#) campaign, a multiagency partnership focused on creating a culture in which traffic fatalities and serious injuries are no longer acceptable. Part of this mission involves fostering a culture of safety among local engineers by providing them with strategies for prioritizing safety problems, implementing solutions and increasing safety awareness among the public.

However, the need for a culture of safety does not end with engineers. Because Minnesota local agency maintenance forces are frequently in the field and have the opportunity to observe safety issues, they are the first line of defense for maintaining safe roadways. A training program was needed to help create a culture of safety among maintenance workers.

What Was Our Goal?

The purpose of this effort was to develop a training program to educate Minnesota local agencies in the best practices that maintenance workers can employ in their everyday jobs to create safer roadways.

What Did We Implement?

This project leveraged a previous Local Road Research Board implementation project, "[Rural Road Safety Solutions Workshop Materials](#)," in which investigators created a workshop to foster a culture of safety among engineers and provide them with the tools they need to identify problems and implement solutions. These tools included crash data resources, methods for securing funding and increasing the public's awareness of safety issues such as seatbelt use and drunk driving, and low-cost strategies such as rumble strips and pavement markings that improve roadway safety by reducing run-off-road accidents and head-on collisions on rural roads.

How Did We Do It?

Investigators used information from the materials created for the above project and augmented them with safety-improving practices specific to maintenance personnel that were gathered through a literature search, conversations with an advisory panel of Minnesota technical experts and an online survey of local maintenance departments concerning maintenance practices related to safety. Investigators then selected a number of key maintenance practices from this collection of information and gathered more details about them by conducting telephone interviews with the survey respondents who had suggested them. Finally, investigators selected the 10 practices most important to safety and created a presentation detailing them for use in a workshop.

What Was the Impact?

The resulting presentation was delivered to more than 200 people at the [Minnesota Local Technical Assistance Program](#) Spring Training Maintenance Expo in April 2010.

Investigators created a workshop on best practices that local agency maintenance forces can use to improve the safety of Minnesota roads, including practices related to on-road issues such as roadway obstructions and off-road issues such as vegetation control and drainage.

continued

“We wanted maintenance workers to know that a lot of what they already do in their daily jobs is critical to roadway safety and that they have an important role in Minnesota’s Toward Zero Deaths campaign.”

–Rick West,
Otter Tail County
Engineer

“Reducing roadway fatalities and achieving [Toward Zero Deaths] will need everyone’s efforts. Maintenance professionals play an integral role as the eyes and hands of safety on our state’s rural roadway system.”

–Mike Marti,
Principal, SRF Consulting
Group

Produced by CTC & Associates for:

Minnesota Department
of Transportation
Research Services Section
MS 330, First Floor
395 John Ireland Blvd.
St. Paul, MN 55155-1899
(651) 366-3780

www.research.dot.state.mn.us



Maintenance workers should watch for damage to guardrails and median barriers, and when necessary follow agency procedures to have them repaired. Workers should also look for potential causes of the collision that may have caused the damage, such as a pothole in the road.

The workshop helps maintenance workers understand their role in the Toward Zero Deaths campaign, recognize maintenance tasks that impact safety, and recognize and respond to both on-road and off-road safety issues.

On-road issues addressed include:

- Obstructions in the roadway, which can cause drivers to engage in sudden evasive maneuvers and should be removed, such as loose gravel, branches, mud and debris.
- Shoulder drop-offs, which may cause drivers to overcorrect and steer into oncoming traffic, and may need to be paved.
- Signs and pavement markings, which lose visibility over time and need to be replaced.
- Work zone safety, which will be compromised if work zones are improperly marked.
- Pavement conditions such as rutting and potholes, which may be repaired temporarily or marked using a traffic control device until a permanent repair can be made.
- Traffic signals, which may malfunction and need to be replaced.

Off-road issues include:

- Vegetation control via trimming, mowing and tree removal so that vegetation does not obscure the visibility of signs and intersections.
- Roadside hazards in clear zones, including nonconforming mailboxes, nonapproved signs, head walls and retaining walls, planters, parked vehicles, culvert ends and driveway cross slopes, which can result in serious crashes.
- Drainage, which if insufficient can result in roadway flooding; this requires culvert maintenance, clearing debris from grates and reporting sedimentation.
- Winter maintenance, which includes plowing, establishing clear sight lines, and responding to drifts and snow dumped in rights of way.
- Guardrails and cable median barriers, which require regular damage assessments and repairs when necessary.

What’s Next?

This workshop will be available in the near future from the [Minnesota Local Technical Assistance Program](#) and will help to create maintenance forces that proactively identify roadway issues affecting the safety of the traveling public.

This Technical Summary pertains to the LRRB-produced Report 2010RIC03, “Toward Zero Deaths: Maintaining a Safer Roadway Workshop,” published April 2010. The full report can be accessed at <http://www.lrrb.org/PDF/2010RIC03.pdf>. Information concerning workshop availability from the Minnesota Local Technical Assistance Program can be found at <http://www.mnltap.umn.edu>.

The primary resource being implemented via this project can be found in the LRRB-produced implementation product 2008RIC03, “Rural Road Safety Solutions,” published February/March 2008. This report can be accessed at <http://www.lrrb.org/PDF/2008RIC03.pdf>.