



TECHNICAL SUMMARY

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IMPLEMENTATION

PROJECT COST:

\$74,985



One way to measure sign retroreflectivity is by using a retroreflector like the one shown above.



RESEARCH SERVICES

OFFICE OF POLICY ANALYSIS,
RESEARCH & INNOVATION

Putting Research into Practice: Best Practices Guide for Removing Traffic Signs

What Was the Need?

Recently published [Federal Highway Administration regulations](#) require all traffic signs to meet new minimum retroreflectivity standards. As a result, localities are investing time and effort studying their systems of traffic signs and considering alternative maintenance techniques. A series of township workshops and road safety audits conducted over the past several years identified two key challenges: First, local road agencies do not have the funds to maintain their existing sign inventory, and second, in many cases local agencies have far more signs than are needed.

One alternative maintenance technique not previously explored in detail is the removal of signs that engineering studies have determined to be unnecessary. Local engineers expressed concerns regarding liability of removing signs and the lack of research available documenting actual effectiveness of signs. A document was needed that addressed these concerns and provided information regarding the development of a sign maintenance and removal policy.

Investigators assembled a guide that provides key information regarding the effectiveness of traffic signs. The guide also details steps to reduce sign management costs by designing and implementing a policy to remove unnecessary signs.

What Was Our Goal?

The goal of this project was to identify perceived roadblocks to removing unnecessary signs and to develop a best practices guide based on that information. The guide would address technical issues and provide guidelines for developing policies for removing unnecessary signs.

What Did We Implement?

Investigators used information gathered from more than 20 road safety audits, evaluations of an individual township's entire road system, a pilot sign replacement program that funded sign replacement in six Minnesota counties, and a variety of research reports. Research included the Mn/DOT Transportation Research Synthesis "[Effectiveness of Traffic Signs on Local Roads](#)" and a Wisconsin DOT document, "[Effectiveness of 'Children at Play' Warning Signs](#)." Investigators also relied on the Minnesota Manual on Uniform Traffic Control Devices, or [MN MUTCD](#).

How Did We Do It?

Investigators first identified relevant literature dealing with the effectiveness of specific types of traffic signs, legal issues related to sign installation and risk management, and sign management techniques. Investigators met with city and county engineers to identify their concerns regarding the removal of traffic signs and also met with attorneys representing city, county and township insurance trusts to understand the possible linkage between traffic sign removal and tort liability.

What Was the Impact?

The project resulted in the Best Practices for Traffic Sign Maintenance and Management guide that local road agencies can use to develop and implement appropriate sign management policies. The first portion of the guide:

“This guide provides local engineers with information and reinforcement to talk to the public at large and explain why, in some circumstances, sign removal makes sense and can be a good thing.”

—Mark Vizecky,
Traffic Safety Support
Engineer, Mn/DOT State
Aid Division








“If you look at the research, there is little proof that signs affect driver behavior or reduce crashes. Before localities put up a sign, they need to determine whether it is actually effective.”

—Howard Preston,
Senior Project Engineer,
CH2M HILL, Inc.

Produced by CTC & Associates for:

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Regulatory	 	<ul style="list-style-type: none"> Speed Limits IF a speed zone (other than a statutory limit) has been established. ONE-WAY & DO NOT ENTER where applicable. The ALL-WAY STOP plaque at All-Way Stops. Prohibition signs where applicable
Warning	 	<ul style="list-style-type: none"> Rail Road Advance Warning and No Train Horn (if quiet zone established) Clearance IF clearance is less than 14'-6" (12" above the statutory minimum clearance height) Advance Traffic Control IF there is limited sight distance. Minimum Maintenance
Guide	  	<ul style="list-style-type: none"> Route Numbers on ALL numbered highways Junction Assembly Advance Route Turn Assembly

Out of the hundreds of signs contained in the MN MUTCD, only 13 types of signs are actually required. This means that the majority of signs are installed based on engineering judgment and not MN MUTCD requirements.

- Provides specific information regarding the new retroreflectivity requirements and compliance dates.
- Reviews different assessment methods, including visual and measured assessment. This section also discusses different management methods, from the blanket replacement of all signs to replacement based on the performance of a small sample of control signs.
- Details the cost of compliance for townships, cities and counties based on the size of sign inventory and the replacement schedule and method.

The guide then focuses on reducing costs associated with sign maintenance and management by reducing the agency’s sign inventory. Research is presented regarding the level of effectiveness of regulatory, warning and guide signs. For example, research shows that “Children at Play” signs neither change driver behavior nor improve safety; other potential candidates for removal in certain situations are Deer Crossing, Intersection Ahead and Pedestrian Crosswalk signs.

Finally, the guide details a process to manage risks associated with sign removal. Immunity from potential liability is generated by localities taking actions consistent with adopted policies and ordinances and by exercising and documenting engineering judgment as part of an engineering study. The guide recommends that before any signs are removed, localities have the highest decision-making body pass a resolution specifying types of signs that will be installed and those that will not (which would then be candidates for removal), conduct an engineering study, document applicable MN MUTCD guidance and conditions in the field, and document actions taken (installing or replacing signs versus removing signs).

Three six-hour training sessions covering the entire guide were held with more than 150 city, county and township officials.

What’s Next?

Feedback was provided from the original training sessions and minor changes are being made to the final guide. An additional 2,600 copies will be printed and distributed to all Minnesota cities and counties and to the association of townships. The [Minnesota Local Technical Assistance Program](#) has four additional trainings planned in fall 2010 and will continue outreach associated with this guide.

This Technical Summary pertains to the LRRB-produced implementation product 2010RIC10, “Minnesota’s Best Practices for Traffic Sign Maintenance and Management,” published September 2010. The guide can be accessed at <http://www.lrrb.org/pdf/2010RIC10.pdf>.