



FY2015 Local Road Research Board

At-A-Glance

July 1, 2014, through June 30, 2015



We explored state-of-the-art inspection techniques for timber bridges to safely extend their life spans.

[Report 2015-01](#)



We investigated various rumble strip designs to find those that are loud enough to be heard by drivers without annoying nearby landowners.

[Report 2015-07](#)



We created a toolkit of resources to help local agencies promote safer driving among young people.

[Report 2015RIC04](#)

We collected data correlating nighttime crash rates at rural intersections with lighting levels to help us design safer intersections.

[Report 2015-05](#)





Bruce Hasbargen
2015 LRRB Chair
Beltrami County



Jeff Hulsether
2015 RIC Chair
City of Brainerd



Mitch Rasmussen
Outreach Subcommittee Chair
MnDOT State Aid Division

Welcome to the *FY2015 Local Road Research Board At-A-Glance*

This document is a resource for you, Minnesota’s city and county engineers, to help you improve transportation in your communities. Please review the Local Road Research Board’s (LRRB) completed and ongoing research projects from 2015 and make use of the resources and contacts in this fiscal year (FY) 2015 *At-A-Glance*.

For more than 55 years, the LRRB has brought important developments to transportation engineers. Our success is a direct result of the city and county representatives, who identify projects to pursue, participate on project panels, work to implement project results and provide feedback to help us continually improve LRRB operations. Our priorities are your priorities, and we want to encourage you to contact any one of us to discuss your research needs and ideas.

LRRB MISSION

The mission of the Local Road Research Board is to serve local road transportation practitioners through the development of new initiatives, the acquisition and application of new knowledge, and the exploration and implementation of new technologies.

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Five Practical Tools for Local Agencies

LRRB research has produced several resources including the following, which are available at lrrb.org.

1 New Toolkit for Promoting Safe Driving Among Young Drivers

Traffic crashes are the leading cause of death for young people, and drivers between the ages of 15 and 29 are overrepresented in traffic crashes in Minnesota. LRRB developed a toolkit to help local engineers with their outreach efforts to reduce crashes involving younger drivers. Engineers and others who work with young drivers can customize the toolkit's model PowerPoint presentation to the needs of their audience with local data from the Minnesota Crash Mapping Analysis Tool. The toolkit also includes a library of public service announcements (PSAs) focused on unbelted driving, impaired driving, speeding and distracted driving. A panel of young drivers has evaluated these PSAs, which are all available online, to identify those that are most effective.

[Technical Summary 2015RIC04](#)

2 ADA Transition Plans for Public Rights of Way

The Americans with Disabilities Act (ADA) requires public entities with more than 50 employees to create a transition plan that identifies the steps necessary to bring the streets and walkways under their authority into compliance with the ADA. LRRB created a guide to help agencies develop this transition plan, describing steps for information gathering, plan drafting and finalization, and seeking input from elected officials and the public. The guide includes a model plan that agencies can adapt to their specific needs.

[Technical Summary 2012RIC01](#)

3 A Guide for Traffic Sign Maintenance

New Federal Highway Administration (FHWA) mandates require agencies that own road signs to develop a sign management plan and ensure that regulatory and warning signs meet retroreflectivity standards set in the Manual on Uniform Traffic Control Devices. This guide synthesizes best practices related to sign maintenance, including methods for assessing sign condition, budgeting for a sign maintenance program, and developing and implementing a sign maintenance policy. It also describes signs that can be considered for removal to reduce maintenance costs without impacting safety.

[Technical Summaries 2014-20](#) and [2014RIC20](#)



Understanding Younger Drivers



**TOWARD
ZERO
DEATHS**

Name
Agency
Date, Year

4 Estimating Heavy Vehicle Impacts on Local Roads

Heavy trucks cause local roads to deteriorate more rapidly than passenger vehicles do. Quantifying that impact can be challenging, particularly if the heavy vehicle traffic levels were not forecast when the road was designed. This project developed two analysis methods and a tool for calculating heavy vehicle impacts. The Excel-based tool conducts analyses for a single street segment or an entire road network, and it reports the impact either in financial terms or as the quantity of equivalent single axle loads consumed or additional bituminous material required by the heavy vehicle traffic.

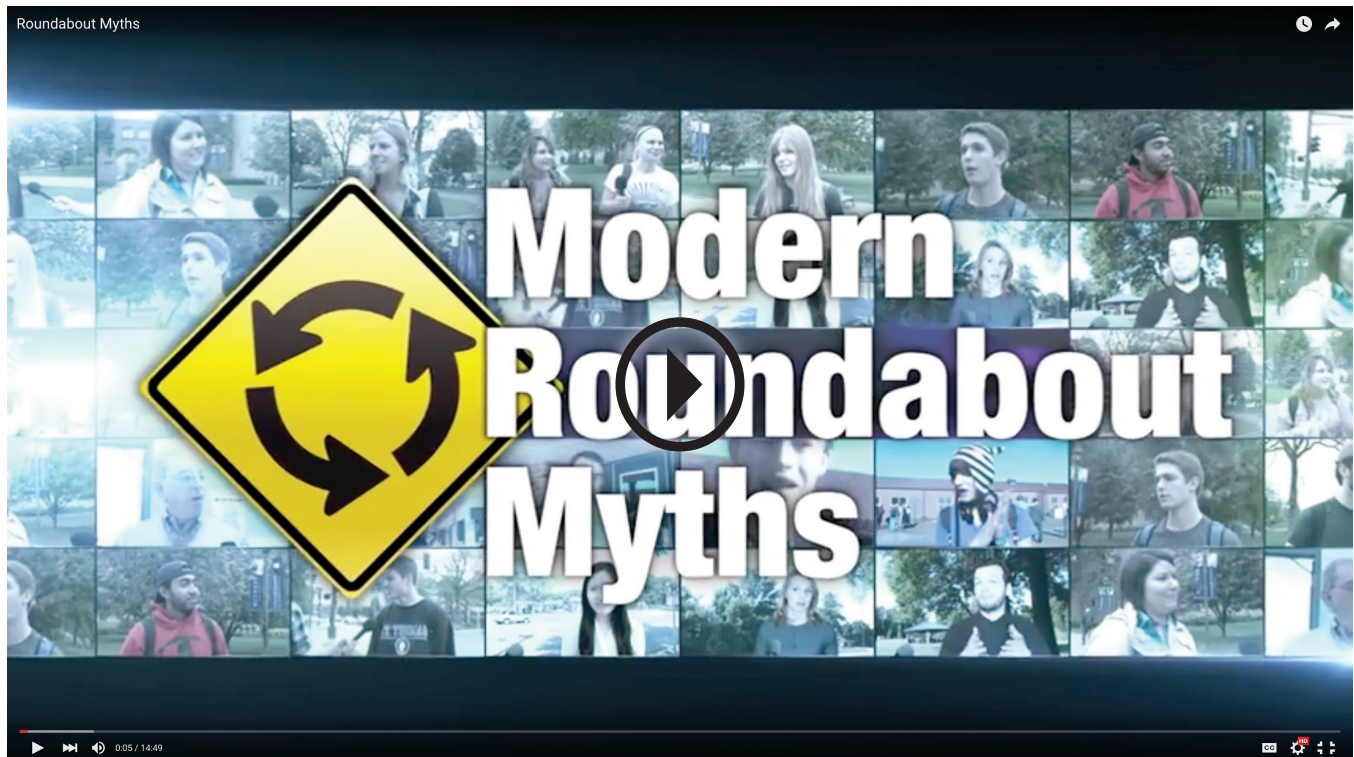
[Technical Summary 2014-32](#)

5 Revised Field Handbook for Snowplow Operators

The second revision of the Minnesota Snow and Ice Control handbook provides up-to-date guidelines for anti-icer and deicer application rates based on type of chemical, pavement temperature, weather conditions and maintenance actions taken. The guide also describes properties of common winter maintenance chemicals, including their lowest effective temperature and quality testing procedures; general guidance to plan for the winter season; and actions to take before, during and after storms. A special symbol highlights tips to reduce the environmental impact of winter maintenance activities.

[Handbook](#)

LRRB Videos



Since the early 1990s the LRRB has produced almost 40 videos. Ranging in topics from how to navigate a roundabout to fixing a pothole, videos have been a very effective tool for training maintenance staff and informing the general public about public works activities. Most of the earlier videos were professionally produced with scripts, actors and professional spokespersons. However in the millennial era, shorter YouTube videos are also being used very effectively. Many local agencies are uploading these videos to their local cable channels or playing them on public monitors in the lobbies of public offices. All of the LRRB videos listed below can be viewed on the LRRB YouTube page (youtube.com/user/lrrbmn) or downloaded at lrrb.org.

Date Produced	Title	Date Produced	Title
October 2015	Roundabout Myths (10-myth version)	September 2013	Construction Zone Safety: Our Responsibility
October 2015	Roundabout Myths (3-myth version)	May 2013	Choosing Stormwater Management Practices: A Decision Tree for Minnesota Cities
September 2015	Rumble Strips: Saving Lives in Minnesota	February 2013	Minnesota Pothole Professionals: Smoothing the Way to Safer Travel
July 2015	Winter Chemicals for Local Agencies	February 2013	Stop Signs: Why Do We Have Them on Residential Roads?
May 2014	Sign Life Expectancy Research	February 2013	Speed Limits: Why Do We Have Them?
April 2014	Why Aren't They Working on My Road?	July 2010	Pavement Management: Better Data, Better Decisions, Better Roads at the Right Time (DVD)
April 2014	Minnesota Bike Lanes: Learning to Share	November 2006	To Pave or Not to Pave (Narrated PowerPoint)
March 2014	Deicing Study: Putting the Products to the Test	March 2006	Roads and Loads: Finding the Balance (DVD)
March 2014	What is the LRRB?	March 2006	How About a Roundabout? The Minnesota Experience (DVD)
January 2014	Answers to Common Questions About Gravel Roads	March 2004	Toolkit for a Career in Civil Engineering
January 2014	Navigating a Multi-Lane Roundabout	September 2001	Snowplow — Cool!
November 2013	Frost Damage in Pavement: Executive Summary		
November 2013	Frost Damage in Pavement: Causes and Cures		
September 2013	Road Closed Signs: Beware and Be Aware		



LRRB RESEARCH

Active Projects in FY2015

COMMON FUNDING SOURCES

LRRB Local Road Research Board
 SP&R State Planning & Research (FHWA)
 SRP MnDOT State Research Program

Projects highlighted on the front cover are indicated below by **bold text** and a darker background.
 A mark in the "TS" column indicates that a Technical Summary for this project can be found at mndot.gov/research.

Bridges & Structures

LRRB Identifier	Title	Report #/ Status	Investigator	End Date	Funding Source	Project Cost	TS?
INV 910	Matrix (Partially Grouted) Riprap Lab Flume Study	2015-15	Jeff Marr, University of Minnesota	4/30/15	LRRB, SRP	\$124,831	X
INV 930	Development and Integration of Advanced Timber Bridge Inspection Techniques for NBIS	2015-01	Brian Brashaw, University of Minnesota Duluth	1/31/15	LRRB, Partnership Funds	\$199,786	X
INV 938	Culvert Design, Installation and Maintenance Independent Online Distance Learning (ODL) Course	Completed Without Report	Jim Grothaus, University of Minnesota—CTS	3/31/15	LRRB	\$55,000	
INV 940	Development of Cost-Effective Timber Bridge Repair Techniques for Minnesota	2015-45A, 2015-45B	Brent Phares, Iowa State University	11/30/15	LRRB, Partnership Funds	\$299,582	
INV 944	Minnesota Steel Culvert Pipe Service—Life Map	2015-31	Jeff Marr, University of Minnesota	8/31/15	LRRB, SRP, SP&R	\$60,678	X
INV 945	Next Generation Bridge Management Tools and Inspection	2015-47	Basak Aldemir Bektas, Iowa State University	12/31/15	LRRB, SRP, SP&R	\$72,072	
INV 976	Development and Integration of Advanced Timber Bridge Inspection Techniques for NBIS—Purchase Equipment and Train Users	In Progress	Victor Krause, University of Minnesota Duluth	2/28/17	LRRB	\$42,794	

Environmental

LRRB Identifier	Title	Report #/ Status	Investigator	End Date	Funding Source	Project Cost	TS?
INV 894	Assessing and Improving Pollution Prevention by Swales	2014-30	John Gulliver, University of Minnesota	8/31/14	LRRB, SRP	\$314,000	X
INV 897	Developing Salt-Tolerant Sod Mixtures for Use as Roadside Turf in Minnesota	2014-46	Eric Watkins, University of Minnesota	2/28/15	LRRB	\$176,516	X
INV 932	Determination of Effective Impervious Area in Urban Watersheds	2015-41	John Gulliver, University of Minnesota	7/31/15	LRRB	\$150,000	X
INV 965	Study of Deicing Salt Accumulation and Transport Through a Watershed	In Progress	William Herb, University of Minnesota	12/31/17	LRRB	\$119,339	
INV 979	Slope Stabilization and Repair Solutions for Local Government Engineers	In Progress	David Saftner, University of Minnesota Duluth	8/31/17	LRRB	\$78,124	
INV 984	Expanding the Success of Salt-Tolerant Roadside Turfgrasses Through Innovation and Education	In Progress	Sam Bauer, University of Minnesota	6/30/19	LRRB	\$168,974	

Maintenance Operations

LRRB Identifier	Title	Report #/ Status	Investigator	End Date	Funding Source	Project Cost	TS?
INV 645	Deicing and Anti-Icing Performance and Cost-Effectiveness	In Progress	Michael Marti, SRF Consulting Group, Inc.	6/19/16	LRRB	\$38,486	
INV 886	Cost-Effective Pavement Preservation Solutions for the Real World	2014-33	W. James Wilde, Minnesota State University, Mankato	9/7/14	LRRB, SRP	\$94,984	X
INV 886	Cost-Effective Pavement Preservation Solutions for the Real World	2014-33	Thomas Wood, MnDOT Office of Materials and Road Research	6/30/15	LRRB, SRP	\$15,000	X
INV 924	Winter Chemicals Video for Local Agencies	In Progress	Bryan Nemeth, Bolton & Menk, Inc., Consulting Engineers & Surveyors	10/31/15	LRRB	\$17,856	
INV 950	Major Equipment Life-Cycle Cost Analysis	2015-16	Douglas Gransberg, Iowa State University	4/30/15	LRRB	\$97,904	X
INV 952	Best Management Practices for Establishment of Salt-Tolerant Grasses on Roadsides	In Progress	Eric Watkins, University of Minnesota	9/30/17	LRRB	\$193,677	
INV 959	TRS: Chloride Free Snow and Ice Control Material	Completed Without Report	Ryan Peterson, City of Burnsville	1/31/15	LRRB	\$19,800	
INV 974	Bio-Fog Seal Field Evaluation	In Progress	Mihai Marasteanu, University of Minnesota	8/31/16	LRRB, SRP	\$93,969	
INV 974	Bio-Fog Seal Field Evaluation	In Progress	Eddie Johnson, MnDOT Office of Materials and Road Research	6/30/18	LRRB, SRP	\$20,000	
INV 980	Pothole Prevention and Innovative Repair	In Progress	Mihai Marasteanu, University of Minnesota	8/31/17	LRRB, SRP	\$129,914	

Materials & Construction

LRRB Identifier	Title	Report #/ Status	Investigator	End Date	Funding Source	Project Cost	TS?
INV 645	Impacts of Heavy Loads—Effects of Implements of Husbandry (IOH)	In Progress	Michael Marti, SRF Consulting Group, Inc.	6/19/16	LRRB	\$39,576	
INV 825, INV 899	Performance Monitoring of Olmsted CR 117/104 and Aggregate Base Material Update	2015-28	Matthew Lebens, MnDOT Office of Materials and Road Research	6/30/15	LRRB	\$36,000	X
INV 863	TPF-5(153): Optimal Timing of Preventive Maintenance for Addressing Environmental Aging in Hot-Mix Asphalt Pavements	2014-45	Mike Anderson, Asphalt Institute	11/30/14	LRRB, SP&R, Other Federal Funds	\$241,086	X
INV 868	Hot-Mix Asphalt Surface Characteristics	2014-28	Bernard Izevbekhai, MnDOT Office of Materials and Road Research	8/28/14	LRRB, SP&R, Other State Funds	\$205,723	X
INV 869	TERRA Board Support, FY2012-2014	Completed Without Report	Stephanie Malinoff, University of Minnesota	11/30/14	LRRB, SRP, SP&R	\$90,000	
INV 869	FY2015 TERRA Pooled Fund Support—Transportation Engineering and Road Research Alliance	Completed Without Report	Stephanie Malinoff, University of Minnesota	6/30/15	LRRB, SRP, SP&R, Other Federal Funds	\$50,000	
INV 869	TPF-5(215): TERRA Membership Pooled Funds, FY2012-2014	Completed Without Report	Stephanie Malinoff, University of Minnesota	9/30/14	LRRB, SRP, SP&R	\$75,000	
INV 885	Research Test Section Tracking—Phase II	In Progress	Melissa Cole, MnDOT Office of Materials and Road Research	12/31/17	LRRB	\$55,000	
INV 889	High-Rap Asphalt Mixtures on Minnesota County Roads RIC	In Progress	Michael Marti, SRF Consulting Group, Inc.	6/19/16	LRRB	\$30,343	
INV 907	Assessing the Effects of Heavy Vehicles on Local Roadways	2014-32	W. James Wilde, Minnesota State University, Mankato	8/31/14	LRRB	\$54,000	X

Materials & Construction [cont.]

LRRB Identifier	Title	Report #/ Status	Investigator	End Date	Funding Source	Project Cost	TS?
INV 924	YouTube Video: Rumble Strips	Completed Without Report	Marc Briese, Stonebrooke Engineering, Inc.	10/31/15	LRRB	\$16,890	
INV 924	YouTube Video: Roundabout Myths	In Progress	Marc Briese, Stonebrooke Engineering, Inc.	10/31/15	LRRB	\$19,875	
INV 929	Investigation and Assessment of Colored Concrete Pavement	2014-26	Thomas Burnham, MnDOT Office of Materials and Road Research	7/30/14	LRRB	\$37,435	X
INV 935	Design Considerations for Embankment Protection During Road Overtopping Events	In Progress	Jeff Marr, University of Minnesota	8/31/17	LRRB, SRP	\$194,794	
INV 939	Lightly Surfaced Roads: Stabilized Aggregate Applications	2015-06	Charles Jahren, Iowa State University	3/31/15	LRRB	\$40,000	X
INV 942	Aggregate Road Surface Rejuvenation	2015-04	Charles Jahren, Iowa State University	3/31/15	LRRB	\$88,910	X
INV 946	Permeable Pavements in Cold Climates: State-of-the-Art and Cold Climate Case Studies	2015-30	John Gulliver, University of Minnesota	8/31/15	LRRB	\$177,414	X
INV 947	Investigation of Optimal Mix Design of Full Depth Reclamation Stabilization with Cement and Emulsion	Completed Without Report	Shongtao Dai, MnDOT Office of Materials and Road Research	7/31/15	LRRB, SRP, SP&R	\$15,000	
INV 947	Investigation of Performance Requirements of Full Depth Reclamation Stabilization	In Progress	Jialiang Le, University of Minnesota	1/31/16	LRRB, SRP, SP&R	\$95,823	
INV 948	Flagger Operations: Investigating Their Effectiveness in Capturing Driver Attention	In Progress	Kathleen Harder, University of Minnesota	8/31/16	LRRB, SRP, SP&R	\$270,351	
INV 949	Tack Coat Testing—Measuring Field Bond Strength	2015-25	Eddie Johnson, MnDOT Office of Materials and Road Research	6/30/15	LRRB	\$68,000	X
INV 967	Full Depth Reclamation for Urban and Suburban Street Application	In Progress	Mihai Marasteanu, University of Minnesota	8/31/16	LRRB	\$93,969	
INV 968	Modernizing Road Construction Plans and Documentation	In Progress	Yelda Turkan, Iowa State University	10/31/16	LRRB	\$146,022	
INV 970	Alternative Design Methods to Renew Lightly Traveled Roads	In Progress	Charles Jahren, Iowa State University	4/30/16	LRRB	\$64,130	
INV 971	Optimal RAP Content for Minnesota Gravel Roads	In Progress	Charles Jahren, Iowa State University	10/31/16	LRRB	\$92,538	
INV 975	Prevention of Stripping Under Chip Seals	In Progress	Dave Rettner, American Engineering Testing, Inc.	1/31/16	LRRB	\$100,000	
INV 985	Life-Cycle Cost Analysis Tool for Minnesota Pavements	In Progress	Derek Tompkins, University of Minnesota	8/31/17	LRRB	\$109,279	
INV 986	Performance Monitoring of Olmsted CR 117/104 and Aggregate Base Material Update	In Progress	Matthew Lebens, MnDOT Office of Materials and Road Research	6/30/20	LRRB	\$44,000	
INV 987	Optimizing Cold in Place Recycling (CIR) Applications Through Fracture Energy Performance Testing	In Progress	Shongtao Dai, MnDOT Office of Materials and Road Research	4/30/16	LRRB	\$21,700	
INV 987	Optimizing Cold in Place Recycling (CIR) Applications Through Fracture Energy Performance Testing	In Progress	Daniel Wegman, Braun Intertec Corporation	6/30/16	LRRB	\$65,790	
INV 889	High-Rap Asphalt Mixtures on Minnesota County Roads RIC	In Progress	Michael Marti, SRF Consulting Group, Inc.	6/19/16	LRRB	\$30,343	

Multimodal

LRRB Identifier	Title	Report #/ Status	Investigator	End Date	Funding Source	Project Cost	TS?
INV 964	Traffic Impacts of Bicycle Facilities	In Progress	Greg Lindsey, HHH Institute of Public Affairs	8/31/16	LRRB	\$138,914	

Policy & Planning

LRRB Identifier	Title	Report #/ Status	Investigator	End Date	Funding Source	Project Cost	TS?
INV 922	System Preservation Guide: A Planning Process for Local Government Management of Transportation Networks	In Progress	Brian Shorten, SRF Consulting Group, Inc.	1/31/16	LRRB	\$698,876	
INV 933	INV 933: Building Local Agency Capacity for Public Engagement in Local Road Systems Planning and Decision-Making	2014-17	Kathryn Quick, University of Minnesota	7/31/14	LRRB	\$140,060	X
INV 951	Transportation Investment and Economic Development in Minnesota Counties	2015-12	Zhirong Jerry Zhao, University of Minnesota	4/30/15	LRRB	\$93,468	X
INV 963	Stakeholder Attitudes, Knowledge and Engagement in Local Road Systems Planning Decision-Making	In Progress	Guillermo Narvaez, University of Minnesota	9/15/16	LRRB	\$139,793	
INV 969	Barriers to Right-of-Way Acquisition and Recommendations for Change	In Progress	H. David Jeong, Iowa State University	2/28/16	LRRB	\$133,895	
INV 982	The Transportation Futures Project: Planning for Technology Change	2016-02	David Levinson, University of Minnesota	2/28/16	LRRB, SRP	\$100,000	

Traffic & Safety

LRRB Identifier	Title	Report #/ Status	Investigator	End Date	Funding Source	Project Cost	TS?
INV 645	Uncontrolled Pedestrian Crossing Evaluation Incorporating Highway Capacity Manual Unsignalized Pedestrian Crossing Analysis Methodology	2014-21	Bryan Nemeth, Bolton & Menk, Inc., Consulting Engineers & Surveyors	7/31/14	LRRB	\$44,666	X
INV 645	HCM Unsignalized Crosswalk LOS Training	Completed Without Report	Jim Grothaus, University of Minnesota—CTS	7/31/14	LRRB	\$20,000	X
INV 645	Minnesota Best Practices for Traffic Sign Maintenance/ Management Handbook—Updated	2014RIC20	Howard Preston, CH2M Hill	10/31/14	LRRB	\$49,891	X
INV 645	Online Sign Management and Maintenance	In Progress	Michael Marti, SRF Consulting Group, Inc.	6/19/16	LRRB	\$161,601	
INV 645	Younger Drivers Toolkit for Local Agencies	2015RIC04	Michael Marti, SRF Consulting Group, Inc.	8/31/15	LRRB	\$75,323	X
INV 645	Guidelines for Flashing Yellow Arrows for Protected/Permissive Use	In Progress	Michael Marti, SRF Consulting Group, Inc.	6/19/16	LRRB	\$9,888	
INV 645	Temporary Traffic Control for Low-Volume Roads	In Progress	Michael Marti, SRF Consulting Group, Inc.	6/19/16	LRRB	\$47,792	
INV 645	Implementation of ITS Technology for Local Agencies	In Progress	Michael Marti, SRF Consulting Group, Inc.	6/19/16	LRRB	\$65,144	
INV 928	Human Factors of Vehicle-Based Lane Departure Warning Systems	2015-35	Alice Ton, University of Minnesota	8/31/15	LRRB	\$100,000	X
INV 931	Lighting Levels for Isolated Intersections: Leading to Safety Improvements	2015-05	Christopher Edwards, University of Minnesota	2/28/15	LRRB, SRP, SP&R	\$94,170	X
INV 937	Development of Guidelines for Permitted Left-Turn Phasing Using Flashing Yellow Arrows	2015-27	Gary Davis, University of Minnesota	8/31/15	LRRB, SRP	\$102,000	X
INV 943	Traffic Sign Life Expectancy	2014-20	Howard Preston, CH2M Hill	7/31/14	LRRB	\$37,722	X
INV 953	Development of a Sensor Platform for Roadway Mapping: Part B—Mapping the Road Fog Lines	2015-11	Max Donath, University of Minnesota	5/31/15	LRRB	\$86,489	X
INV 955	Portable Weigh-in-Motion System Evaluation	2015-03	Erik Minge, SRF Consulting Group, Inc.	1/31/15	LRRB, SRP	\$80,565	X
INV 955	Enhanced Capabilities for the Portable Weigh-in-Motion Systems	In Progress	Taek Kwon, University of Minnesota Duluth	5/31/16	LRRB, SRP	\$75,667	
INV 958	Rumble Strip Noise Evaluation	2015-07	Edward Terhaar, Wenck Associates Inc.	1/31/15	LRRB	\$65,998	X

Traffic & Safety [cont.]

LRRB Identifier	Title	Report #/ Status	Investigator	End Date	Funding Source	Project Cost	TS?
INV 962	Evaluation of Safety and Mobility of Two-Lane Roundabouts	In Progress	John Hourdos, University of Minnesota	12/31/16	LRRB	\$124,920	
INV 972	Minnesota Local Agency Pavement Marking: Mining Existing Data	In Progress	Omar Smadi, Iowa State University	6/30/16	LRRB	\$65,000	
INV 973	Examination of Driver Performance and Distraction with In-Vehicle Signing	In Progress	Nichole Morris, University of Minnesota	7/31/16	LRRB	\$29,365	
INV 977	Innovative Technology Workshop on 3D LIDAR	In Progress	Brian Davis, University of Minnesota	8/31/16	LRRB	\$92,140	

Administrative

LRRB Identifier	Title	Report #/ Status	Investigator	End Date	Funding Source	Project Cost	TS?
INV 645	Research Implementation Committee FY2012-2016 Implementation of Research Findings	In Progress	Michael Marti, SRF Consulting Group, Inc.	6/19/16	LRRB	\$952,516	
INV 916	FY2014-2015 LRRB Transportation Research Syntheses	Completed	Patrick Casey, CTC & Associates LLC	6/30/15	LRRB	\$24,969	
INV 916	FY2014 LRRB Technology Transfer Material Development	Completed	Patrick Casey, CTC & Associates LLC	6/30/15	LRRB	\$74,967	
INV 916	FY2015 LRRB Technical Transfer Materials Development	In Progress	Patrick Casey, CTC & Associates LLC	8/31/16	LRRB	\$99,900	
INV 927	LRRB Outreach Website	In Progress	John Przybylski, HNTB Corporation	8/31/16	LRRB	\$64,355	
INV 936	FY2014 and FY2015 LRRB Focus Groups	Completed	Jim Grothaus, University of Minnesota-CTS	8/31/15	LRRB	\$16,996	
INV 998	FY2015 Operational Research Program for Local Transportation Groups (OPERA)	Completed	Jim Grothaus, University of Minnesota-CTS	9/30/15	LRRB	\$90,000	
INV 999	FY2014 RSS Report Publication Services	Completed	Arlene Mathison, University of Minnesota-CTS	8/31/14	LRRB, SRP	\$38,324	
INV 999	FY2015 RSS Report Publication Services	In Progress	Arlene Mathison, University of Minnesota-CTS	9/30/16	LRRB, SRP	\$45,831	

Dedicated Programs

LRRB Identifier	Title	Report #/ Status	Investigator	End Date	Funding Source	Project Cost	TS?
INV 668	0001(214): FY2015 Local Technical Assistance Program (LTAP)	In Progress	Jim Grothaus, University of Minnesota-CTS	8/31/15	LRRB, Other Federal Funds	\$450,500	
INV 668	0001(213): FY2014 Local Technical Assistance Program (LTAP)	Completed Without Report	Jim Grothaus, University of Minnesota-CTS	8/31/14	LRRB, Other Federal Funds	\$450,500	



2015 LRRB members: (front row, from left) Mitch Rasmussen, Kaye Bieniek, Laurie McGinnis; (middle row, from left) Bruce Harsbargen (Chair), Tom Ravn, Steve Koehler, Linda Taylor; (back row, from left) Paul Oehme, Lyndon Robjent, Tim Stahl.

2016 LRRB BOARD MEMBERS

Lyndon Robjent (Chair), Carver County
 Mitch Rasmussen, MnDOT State Aid Division
 Kaye Bieniek, Olmsted County
 Jim Foldesi, St. Louis County
 Tim Stahl, Jackson County
 Steve Koehler, City of New Ulm
 Paul Oehme, City of Chanhasseen
 Linda Taylor, MnDOT Research Services & Library
 Tom Ravn, MnDOT Office of Construction & Innovative Contracting
 Laurie McGinnis, University of Minnesota Center for Transportation Studies



2015 RIC members: (front row, from left) Tim Stahl, Guy Kohlnhofer, Jeff Hulsether (Chair), Hafiz Munir, Mike Flaagan, Bernard Izevbekhai; (back row, from left) Jim Grothaus, Klayton Eckles, Merle Earley, Dave Robley, Joel Ulring (staff), Bruce Holdhusen (staff). Not pictured: Ted Schoenecker, Rebecca Lein (staff).

2016 RESEARCH IMPLEMENTATION COMMITTEE (RIC) MEMBERS

Mike Flaagan (Chair), Pennington County
 John Brunkhorst, McLeod County
 Guy Kohlnhofer, Dodge County
 Tim Stahl (liaison between RIC and LRRB), Jackson County
 Steve Bot, City of St. Michael
 Klayton Eckles, City of Woodbury
 Kelvin Howieson, MnDOT District 3
 Hafiz Munir, MnDOT Research Services & Library
 Ted Schoenecker, MnDOT State Aid Division
 Ben Worel, MnDOT Office of Materials & Road Research
 Jim Grothaus, University of Minnesota Center for Transportation Studies
 Bruce Holdhusen, MnDOT Research Services & Library (staff)
 Joel Ulring, MnDOT State Aid Division (staff)



Participating on a **Technical Advisory Panel (TAP)** helps to ensure that research results meet your needs. Research Services will coach you through the process with documentation and resources like our **Technical Advisory Panels video series**. TAP members: (from left) Matt Zeller, Maria Masten and Gordy Bruhn.

2016 LRRB and RIC Meetings

Get up-to-date information on these meetings at lrrb.org.

RIC	March 14	Hutchinson
LRRB	March 16	Golden Valley

The spring meetings are devoted to programming and strategy identification, with specific emphasis placed on identifying research topics for the subsequent year. The LRRB makes ongoing funding commitments, deciding on RIC funding every other year, and approves the next year’s travel budget. Information about projects completed during the past year is provided.

LRRB Focus Group	March 31	St. Cloud
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This meeting, open to all city and county transportation practitioners (RSVP by early February), collects input to help identify topics for future research initiatives. Topics covered include design, environmental compatibility, maintenance, materials and construction, policy and planning, and traffic and operations.

LRRB Outreach	June 21	Duluth/Two Harbors Area
LRRB and RIC	June 22-23	Duluth/Two Harbors Area

The summer joint meeting between LRRB and RIC members always takes place outside of the metro area, and when possible, LRRB staff arranges a field tour of a nearby research installation or project site. This meeting includes formal adoption of the upcoming year’s strategic plan. During this meeting, the LRRB uses focus group feedback, themes and gaps identified in Research Road Map efforts, and completed research reports to determine research needs for the upcoming RFP and implementation strategies for the RIC. Information about projects completed during the past year is provided.

RIC	September 12	St. Cloud
LRRB Outreach	October 18 (tentative)	St. Cloud
LRRB	October 19	St. Cloud

The fall meetings focus on prioritizing university research proposals to be presented at the LRRB project selection winter meeting.

RIC	December 6	Minneapolis or St. Cloud
LRRB	December 7-8	Minneapolis

The winter meetings are reserved for identifying the projects that the LRRB will fund in the upcoming calendar year. LRRB members hear brief presentations from the research investigators and have the opportunity to ask the researchers questions.



The LRRB board, pictured here at our summer 2015 meeting, meets four times per year.

How the LRRB Works



Each year the LRRB selects research proposals that address local transportation needs. Investigators from MnDOT, regional universities and consulting firms conduct the research while the LRRB monitors its progress and MnDOT provides administrative support and technical assistance.

Research Implementation

Once research has been completed, the Research Implementation

Committee (RIC, www.lrrb.org/ric.aspx) communicates the results and facilitates their practical application. The RIC uses a variety of outreach methods, including presentations, reports and manuals, videos, workshops, field demonstrations and online training.

Request a Transportation Research Synthesis (TRS)

TRSs are short-turnaround research reports that you can request to answer your research question. They can summarize completed and in-progress research, or report about the state of the practice among your peers in Minnesota and other states.

For more information or to request a TRS, visit mndot.gov/research/transportation-research-syntheses.html.

Submit Your Ideas

The LRRB welcomes research ideas from Minnesota transportation practitioners. To submit your ideas, go to www.lrrb.org and click the Submit Ideas button on the left-hand side of the page.

SUBMIT IDEAS



Watch a video about an OPERA project, a catch basin repair trailer in the City of Lakeville, at lrrb.org.

Operational Research Assistance (OPERA) Program for Local Transportation Groups

Administered by the Minnesota Local Technical Assistance Program, OPERA was established to encourage and fund applied research and assist in developing innovations relating to methods, materials and equipment used in the construction and maintenance operations of local government transportation organizations. The current guidelines for this program are available at mnltp.umn.edu/about/programs/opera.



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MS 330
395 John Ireland Blvd.
St. Paul, MN 55155-1800
651-366-3768
www.lrrb.org
mndot.gov/research