MN LOCAL ROAD RESEARCH BOARD

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Search No Further

LRRB Solutions to What You Seek

January 21, 2026

MN Statutes 162.06 Subdivision 4 Research Account

- Conducting research for improving the design, construction, maintenance and environmental compatibility of state-aid highways and appurtenances;
- Constructing research elements and reconstructing or replacing research elements that fail; and
- Conducting programs for implementing and monitoring research results

LRRB Key Facts

$4 Million
IN ANNUAL FUNDING

25+
NEW PROJECTS EACH YEAR

75+
ACTIVE PROJECTS

12 CITY/COUNTY **BOARD MEMBERS**

100+ TAP CITY/ COUNTY **MEMBERS**

Who is the Local Road Research Board?

Lon Aune (Chair)
Marshall County

Kristine Elwood
MnDOT State Aid

Brian Giese
Pope County

Duane Hill
MnDOT D1

Katie Walker
MnDOT R&I

Matt Leonard
City of Monticello

Kyle Shelton
University of MN

Andrew Witter
Sherburne County

Mark Ray
City of Burnsville

Wayne Sandberg
Washington County

Who is the Research Implementation Committee?

Will Manchester (Chair)
City of Minnetonka

Darrick Anderson
Cass County

Brian Giese
Pope County

Aaron Holmbeck
Nobles County

Ryan Thilges
Blue Earth County

Matt Wegwerth
City of Grant Rapids

Ted Schoenecker
MnDOT State Aid

Fausto Cabral
MnDOT D1

Ben Worel
MnDOT Road Research

Andrew Wrucke
U of M CTS

What your searching....

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Top Views on LRRB website: July 1, 2025-Dec. 31, 2025

- Complete Streets Speed Impacts
- Stormwater BMP Inspection and Maintenance Resource Guide
- Best Practices for Dust Control in Minnesota
- Traffic Safety Evaluation at J-turns in Minnesota (not LRRB project)
- Mini-Roundabout FAQs
- System Preservation Guide - (from 2016!)

Effects of Road Features on Driving Speeds

Collision reductions measured between 19% and 44%, depending on the road features and locations.

- Single lane roundabouts
- Raised/depressed medians
- On-street parking
- Crosswalks
- Curb and gutter

"Measuring the effect of different road features on driving speeds provides state and local agencies with helpful guidance to design roads with safety and access for all users."

—DUANE HILL, DISTRICT ENGINEER, MnDOT DISTRICT 1

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Stormwater BMPs

Informs users of:

- *benefits*
- *limitations*
- *field inspection resources*
- *maintenance recommendations*

Example Stormwater BMPs

- Stormwater Ponds Wetlands
- Bioretention
- Sedimentation Chambers
- Infiltration

"The range of best management strategies detailed in the new manual will support county engineers in choosing the right stormwater practices for their projects."

—BRIAN GIESE, COUNTY ENGINEER, POPE COUNTY

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Dust Control Best Practices

Calcium Chloride ($CaCl_2$)
Used by 36 agencies
Cost-effective and readily available
0.12 – 0.30 gallons/sq yd (35%-38% solutions)
$1.10 – $1.65 per gallon
$2,175 – $6,000 per mile

Magnesium Chloride ($MgCl_2$)
Used by 13 agencies
Cost-effective but not as readily available
Better residual effect
0.16 – 0.35 gallons/sq yd (30%-33% solutions)
$1.06 – $1.26 per gallon
$2,000 – $2,750 per mile

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Traffic Safety Benefits of J-Turns

Decrease in fatal and serious injury crashes

Increase in rear-end crashes

Roads with < 10,000 AADT showed most benefit

"Given the number of J-turns in Minnesota, these results revealing significant benefits are what we want to see. Also, we hope other states can benefit from these findings."

—MAXWELL MORELAND, TRAFFIC SAFETY CRASH DATA ENGINEER, MnDOT OFFICE OF TRAFFIC ENGINEERING

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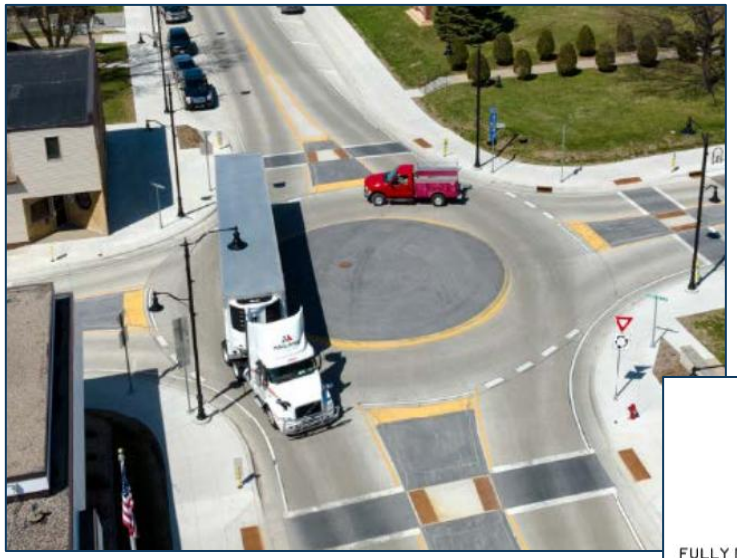
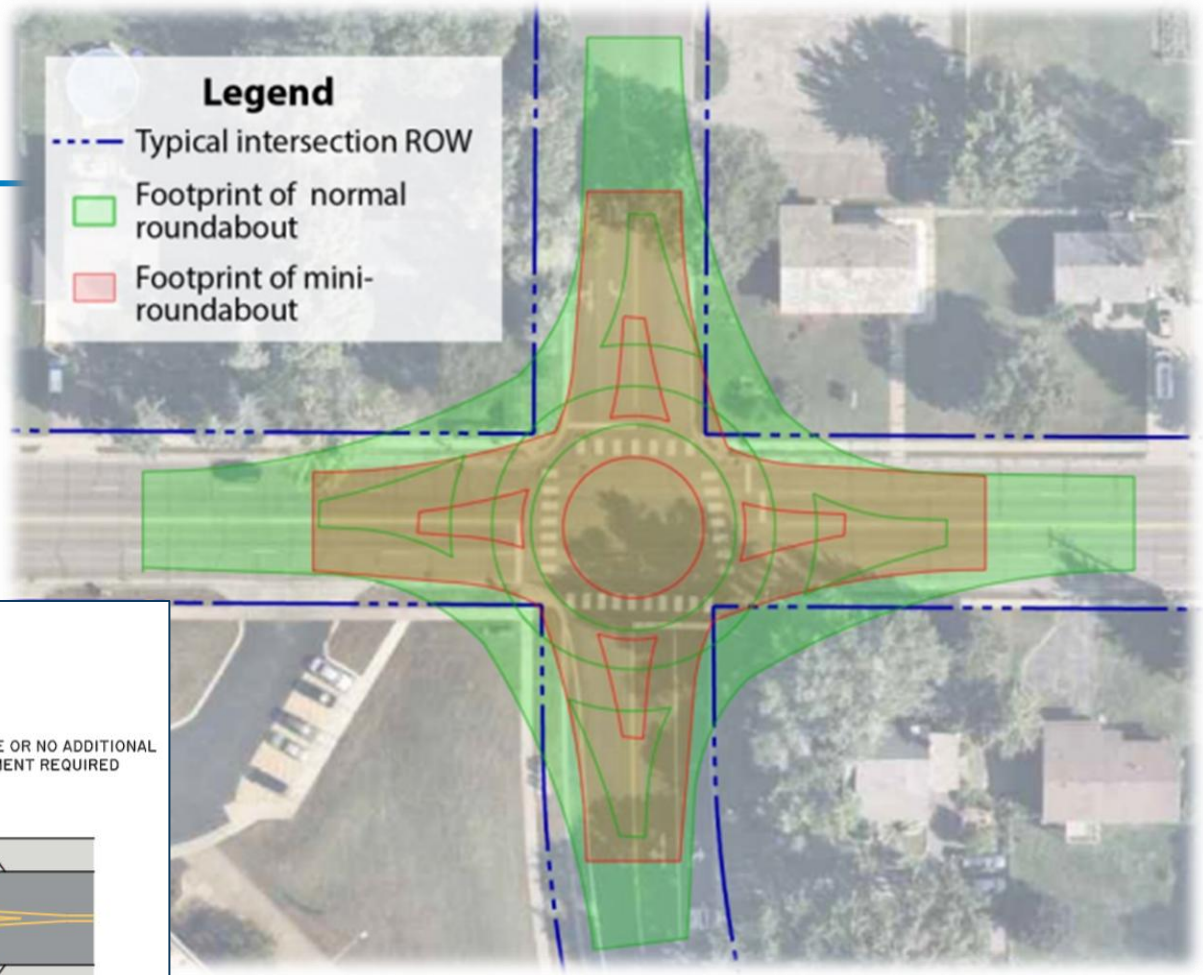
Mini-roundabouts





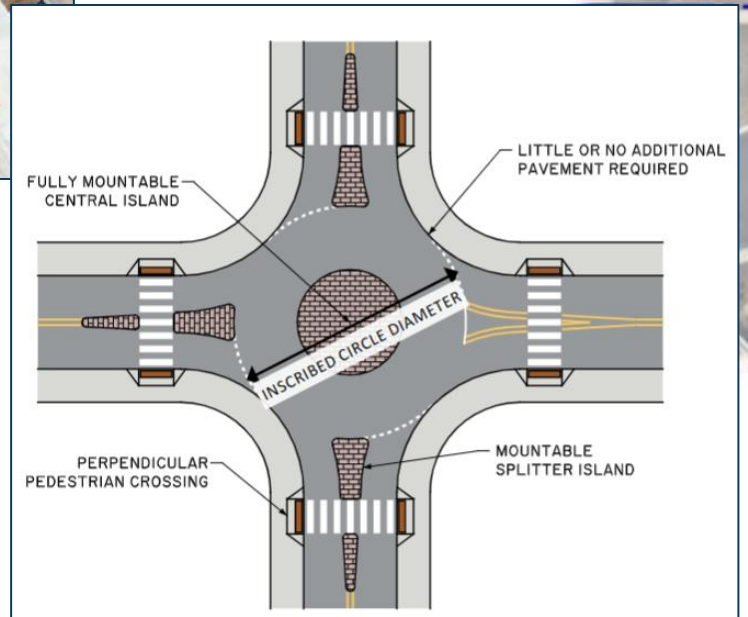


Image Source: MnDOT Facility Design Guide Exhibit 6E-6

39% crash reduction

45-90 ft (NCHRP 1043)
70-100 ft (MnDOT Facility Design Guide

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2025 LRRB Popular Guidebooks *based on e-newsletter open rate*

- Public Works 101: Toolkit for Elected Officials and the Public
- Precast vs. Cast in Place
- Winter Maintenance - A Deicing Products User Guide
- Cutting Edges – Performance User's Guide
- Rural Pedestrian Crossings

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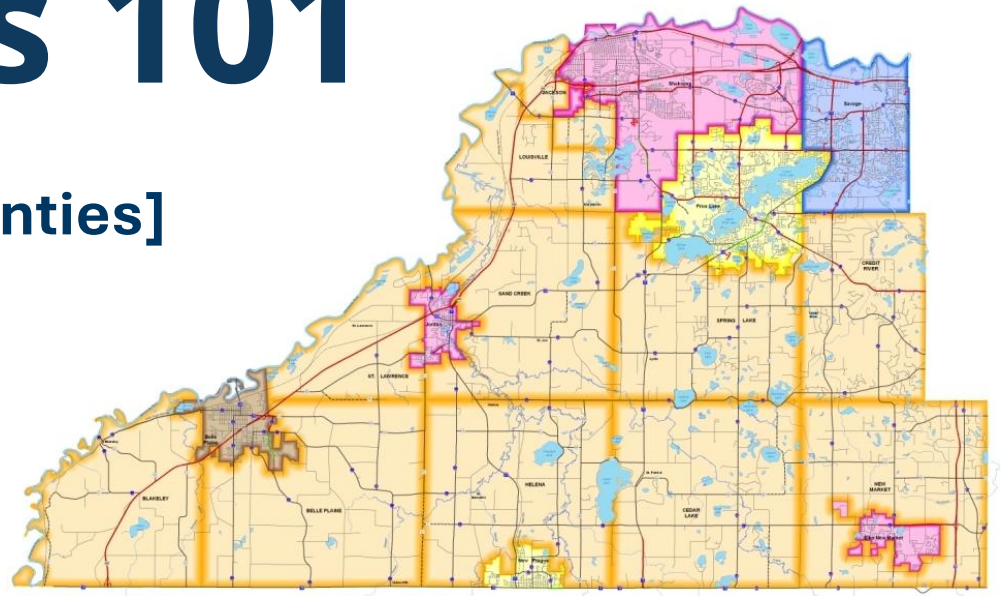
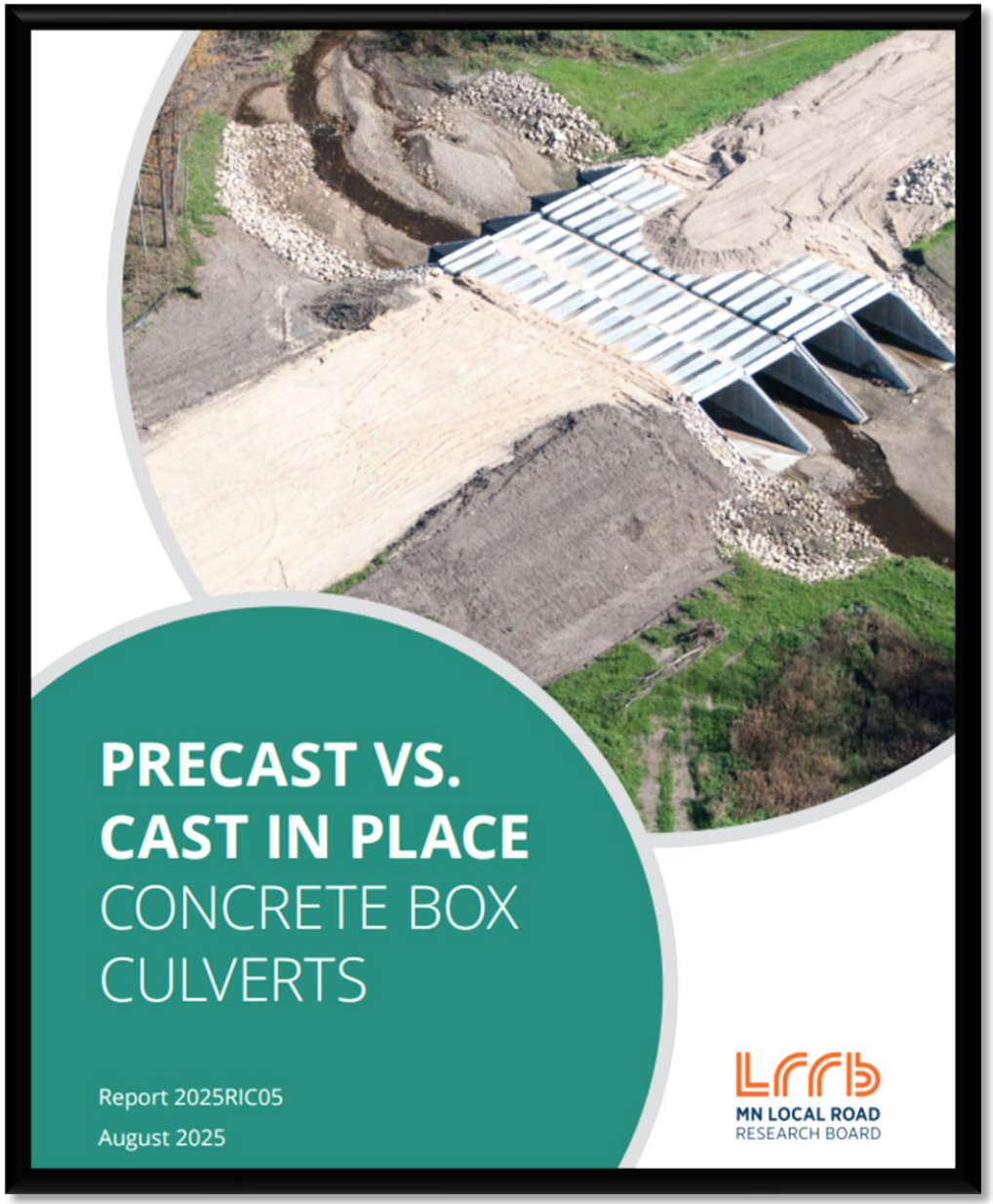
Public Works 101

[A Template for Cities and Counties]





CASE STUDIES

Case Study 1: Winona County – Leveraging CIP for Long-Term Durability Amid Supply Chain Constraints

Jurisdiction: Winona County

Project Scope: Three infrastructure project involving a bridge replacement, replacement of an older CIP bridge, and replacement of a steel structure culvert.

Decision to Use CIP vs Precast:
The team's key decision factors were lead time, pricing, and long-term durability. CIP concrete was selected due to several considerations: the proven quality of existing CIP culverts, more favorable costs compared to precast during periods of supply chain issues, and its strong track record of durability within the agency's jurisdiction. The team also valued CIP's resistance to joint separation, an issue commonly observed in pre-

CASE STUDIES

Case Study 2: Dodge County – Proactive Use of CIP in Anticipation of Market Volatility

Jurisdiction: Dodge County

Project Scope: Two township bridges designed with CIP box culverts. The designs started during the time when there were projected supply issues with precast.

Decision to Use CIP vs Precast:
Dodge County selected CIP due to concerns over future availability and pricing of precast. At the time of

CASE STUDIES

Case Study 3: Mower County – Weighing CIP Savings Against Construction Speed

Jurisdiction: Mower County

Project Scope: The project included three box culvert structures, all originally bid as precast with a total estimated bridge cost of $500,000. Let in 2021, one of the structures was subsequently value-engineered to use a CIP design.

Decision to Use CIP vs Precast:
Mower County originally designed all structures using precast, but during construction, the contractor proposed switching one of the structures, a triple box culvert, to CIP. This change, prompted by value engineering, resulted in $50,000 cost savings, which was shared between the county and the contractor. While the CIP option was financially appealing, the county continues to favor precast due to its faster installation timeline.

DEICERS

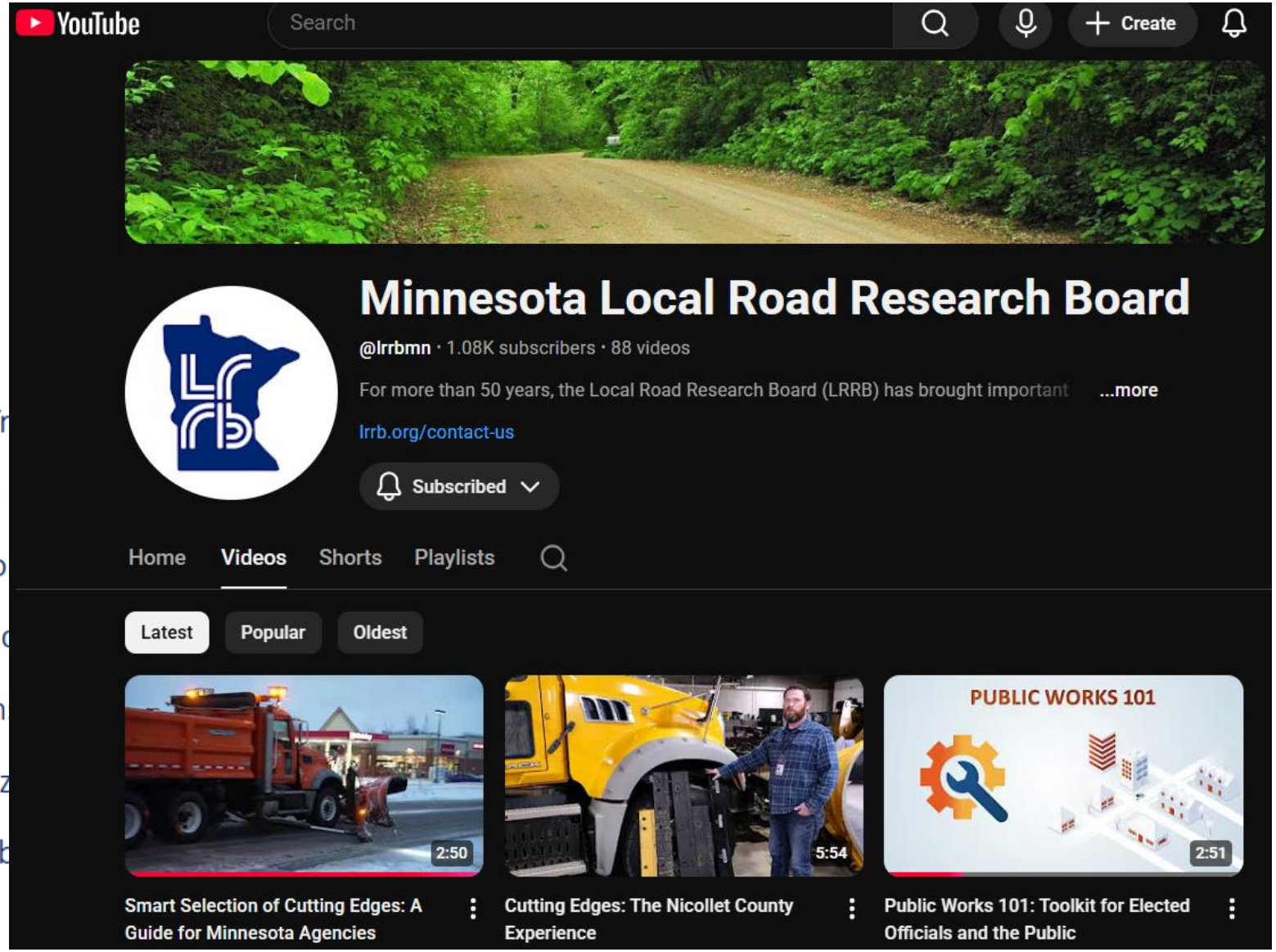
Summary of Findings for Product Categories and Deicer Characteristics

Characteristics	Magnesium Chloride ($MgCl_2$)	Calcium Chloride ($CaCl_2$)	Sodium Chloride (NaCl)	Calcium Magnesium Acetate (CMA)	Potassium Acetate (KAc)	Carbohydrates
ICE MELTING PERFORMANCE						
Ice Melt Capacity - Warm	High	High	High	Low‡	High	None*
Ice Melt Capacity - Cold	Medium	Medium	Low	Low‡	Low	None*
Ice Melt Speed - Liquid	Fast	Fast	Medium	Medium	Fast	None*
Ice Melt Speed - Solid	Medium	Medium	Slow	Slow	None*	None*
Practical Application Pavement Temperature	28°F to -15°F	28°F to -20°F	Above 15°F	Above 20°F	Above -20°F	Any*
Optimal Conditions for Use	Cold Temperature	Cold Temperature	Warm Temperature	Anti-icing, Anti-Compaction	Versatile	High Traffic, Long Cycle Time, Dropping Temperature
IMPACTS OF DEICERS						
Impacts to Water - Short Term	Moderate	Moderate	Low	Low	Low	High
Impacts to Water - Long Term	High	High	High	Low	Moderate	Low
Impacts to Soil and Vegetation	Kills Plants	Kills Plants	Kills Plants, Degrades Soil	No Recognized Adverse Effects	No Recognized Adverse Effects	Depletes Oxygen
Impact to Infrastructure	High	High	Moderate	Low	Low	None
EXPERIENCES						
Product Experience	Cold Temperature Additive	Cold Temperature Additive	Best When Wetted Or Blended	Keeps Snow Soft Anti-Icing Specialty	Powerful in Any Condition	Versatile Additive
Relative Cost	Moderate	Moderate	Low	High	Very High	Moderate
Supply Chain	Across categories, the most common issues related to late or partial deliveries during winter months.			Supply Chain findings for non-chloride deicers were limited.		

The Cutting Edge

1. **Document current usage and performance**. Tr
2. **Engage operators and maintenance staff**. Tap
3. **Test and evaluate**. Pilot alternative materials o
4. **Review lifecycle costs—not just unit price**. Fac
5. **Refine procurement strategy**. Consider option
6. **Make it part of your annual review**. Summariz

Your cutting edge is the last thing to touch the road—b



Rural Pedestrian Crossings

2025RIC01

Pedestrian Safety Guide and Countermeasure Selection System (FHWA 8/2013) *

- Online Interactive Tool

Minnesota's Best Practices for Pedestrian and Bicycle Safety (MnDOT 1/2021) *

- Marked Crosswalks
- Medians and Crossing Islands
- Curb Extensions and Curb Radii
- Crosswalk Lighting
- Raised Crosswalks

Uncontrolled Pedestrian Crosswalk (LRRB 5/2020) *

- 2 Lanes AADT < 9,000
- 2 Lanes AADT < 9,000 – 15,000
- 2 Lanes AADT > 15,000
- 3 Lanes With Raised Median AADT < 9,000
- 3 Lanes With Raised Median AADT 9,000 – 15,000
- 3 Lanes With Raised Median AADT > 15,000
- 3 Lanes No Raised Median AADT < 9,000
- 3 Lanes No Raised Median AADT 9,000 – 15,000
- 3 Lanes No Raised Median AADT > 15,000
- 4+ Lanes With Raised Median AADT < 9,000
- 4+ Lanes With Raised Median AADT 9,000 – 15,000
- 4+ Lanes With Raised Median AADT > 15,000
- 4+ Lanes No Raised Median AADT < 9,000
- 4+ Lanes No Raised Median AADT 9,000 – 15,000
- 4+ Lanes No Raised Median AADT > 15,000

Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations (FHWA 7/2018) *

- Decision Matrix (Speed Limit/ADT vs. Road Configuration)
- Safety Issues Addressed per Countermeasure

New Projects for 2025-26

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2025-26 RIC-LRRB Projects

Join a TAP

Scan to submit

https://forms.office.com/r/WHtaWSUkmA

TOPIC TITLES
How to Minimize Reflective Cracking
Pavement Design – Tools and Resources for Cities and Counties
Traffic Calming Best Practices (Update 2022 Resource)
Development of a Minnesota County Transportation Law Book
Software Platforms for Sign Management
Managing Utility Congestion in and out of the Rights of Way
Identify/Develop Smartphone Wayfinding Applications for Work Zones on the Local System
Guardrail Replacement and Maintenance Guidelines (Update 2010 Resource)
Best Practices to Deter Beavers, Muskrats, and Other Animals from Obstructing Waterways
Guidance for Pavement Markings on Roadways with less than 6,000
Best Practices for Multimodal Expansion on Rural and Urbanized Roadways

Status of LRRB New Ideas

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Brainstorming at Pre-Screening Board Meetings

11 Meetings

250+ Participants

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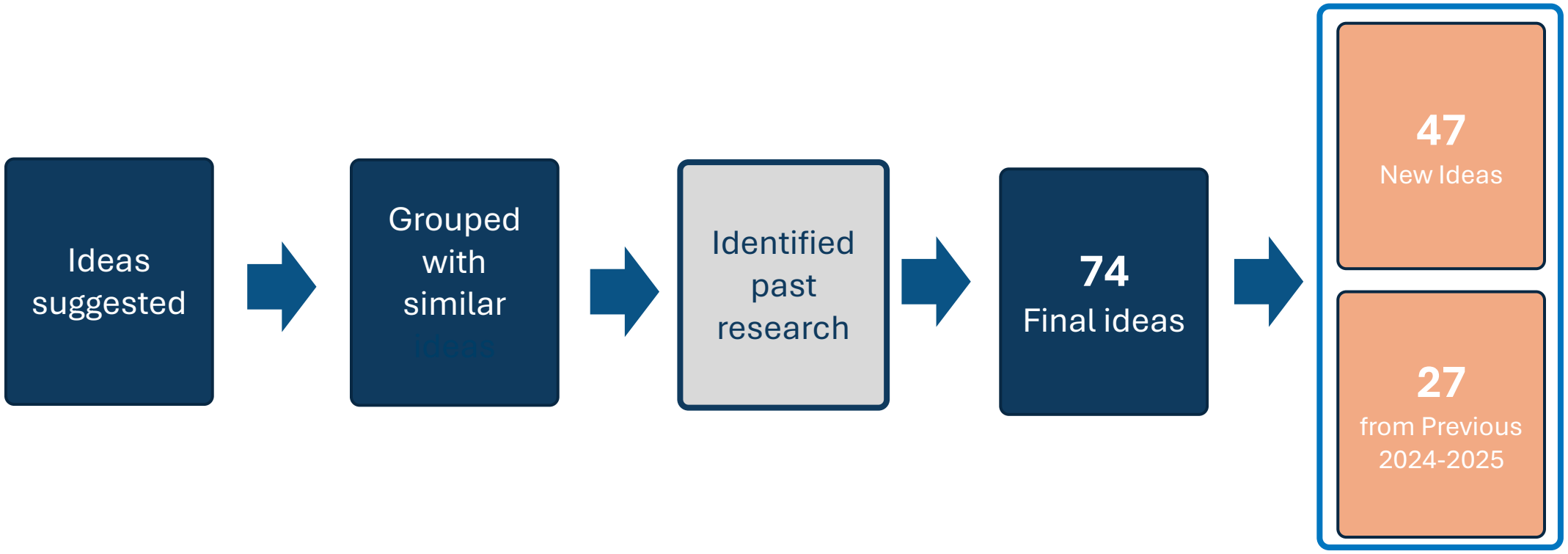
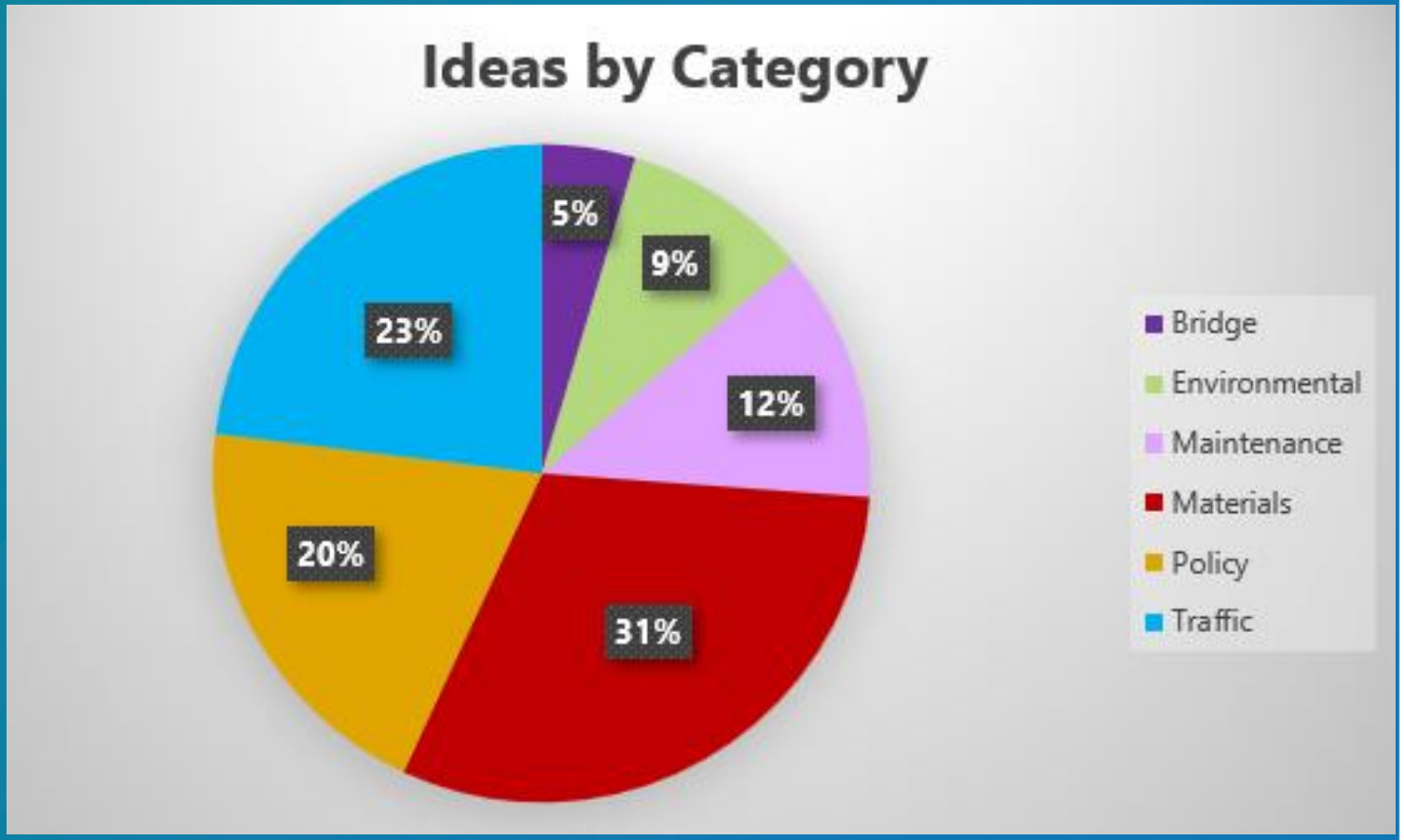
2025 LRRB PSB Brainstorming					
Mtg	Date	Meeting Start Time	Dist	County/Muni	City
1	6-Oct	12:30 PM	Metro	County	Roseville
2	9-Oct	1:00 PM	2/4	City	Detroit Lakes
3	10-Oct	9:00 AM	6	City	Rochester
4	14-Oct	9:00 AM	7/8	City	Red Wood Falls
5	15-Oct	9:00 AM	7	County	Waseca
6	15-Oct	9:00 AM	3	City	St. Cloud
7	20-Oct	10:00 AM	1	County	Duluth
8	21-Oct	9:00 AM	Metro	City	Roseville
9	22-Oct	10:00 AM	1	City	Duluth
10	22-Oct	9:00 AM	3	County	St. Cloud
11	23-Oct	9:00 AM	8	County	Montevideo

Process to Reduce the Number of Ideas



Online Polling to Cities and Counties



Ideas by Topic

Bridge & Structures	3
Environmental	6
Maintenance & Operations	8
Materials & Construction	20
Policy & Planning	13
Traffic & Safety	15

2026 County Winners

1st

- **Tim Becker** (Sibley)

20th

- **Andrew Witter** (Sherburne)

26th

- **Sam Muntean** (Lac qui Parle)

Topic	Ideas	Top25
Bridge & Structures	**3**	**1**
Environmental	**6**	**2**
Maintenance & Operations	**8**	**3**
Materials & Construction	**20**	**7**
Policy & Planning	**13**	**8**
Traffic & Safety	**15**	**4**

- We'd like your help in developing a Need Statement that is practical, useful and that meets your needs.

- This is not a big-time commitment but is an important one.

Voting Results

Total	City	County	Category	Idea
154	113	41	Traffic & Safety	Best Practices for Urban Pedestrian Safety, including Channelized Right Turn Lanes and other Policy Guidance for Local Agencies
120	61	59	Materials & Construction	Managing Non-Responsiveness of Public Utility Owners within the Right of Way
100	36	64	Maintenance & Operations	Evaluation of Slip Lining Culverts versus Replacement
90	33	56	Policy & Planning	Best Practices in Access Management on the Local System
89	75	12	Maintenance & Operations	Best Practices for Winter Maintenance of Trails and Sidewalks
88	73	14	Policy & Planning	Public Education on Installation of Stop Signs
85	27	58	Maintenance & Operations	Best Practices to Optimize Salt and De-icing including Brine Production, Storage, and Application
78	34	44	Materials & Construction	Updating Best Practices for Geotextile Use
69	35	33	Policy & Planning	Use and Application of Artificial Intelligence Guidance for Local Agencies
67	34	33	Materials & Construction	Microsurfacing Best Practices
60	27	33	Environment	Leveraging Ditches to Address Minimal Impact Design Standards (MIDS)
60	7	48	Policy & Planning	Guidance for MnDOT Haul and Detour Routes – Impacts on Local Roads

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Voting Results

Total	City	County	Category	Idea
56	44	12	Policy & Planning	Best Practices for Negotiating Cost Participation with Multi-Agency Projects
55	37	18	Traffic & Safety	Communication Tools for Addressing Speed and Saftey Issues Using the Safe Systems Approach
54	49	5	Environment	Best Practices for Stormwater Pond Dredging Projects to Minimize Quantity Disputes
54	10	38	Traffic & Safety	Update the 2010 Best Practices Traffic Sign Maintenance/Management Handbook
48	24	24	Policy & Planning	Guidance for Facility Improvement or Replacement
47	33	14	Materials & Construction	Best Practices in Best Value Contracting
47	19	23	Bridge & Structures	Best Practices for the Use of Artificial Intelligence for Bridge Inspections
41	29	12	Policy & Planning	Best Practices for Managing Multiple Funding Sources on Construction Projects
40	20	20	Materials & Construction	Best Practices for Constructing Longitudinal Joints
39	38	1	Policy & Planning	Best Practices for Addressing Fiber-to-the-Home (FTTH)
41	1	40	Materials & Construction	Comprehending Surface Gravel Testing to Identify the Optimal Gravel in Your Area
37	26	11	Materials & Construction	Developing a Local Ride Specification for Low-Speed Roadways

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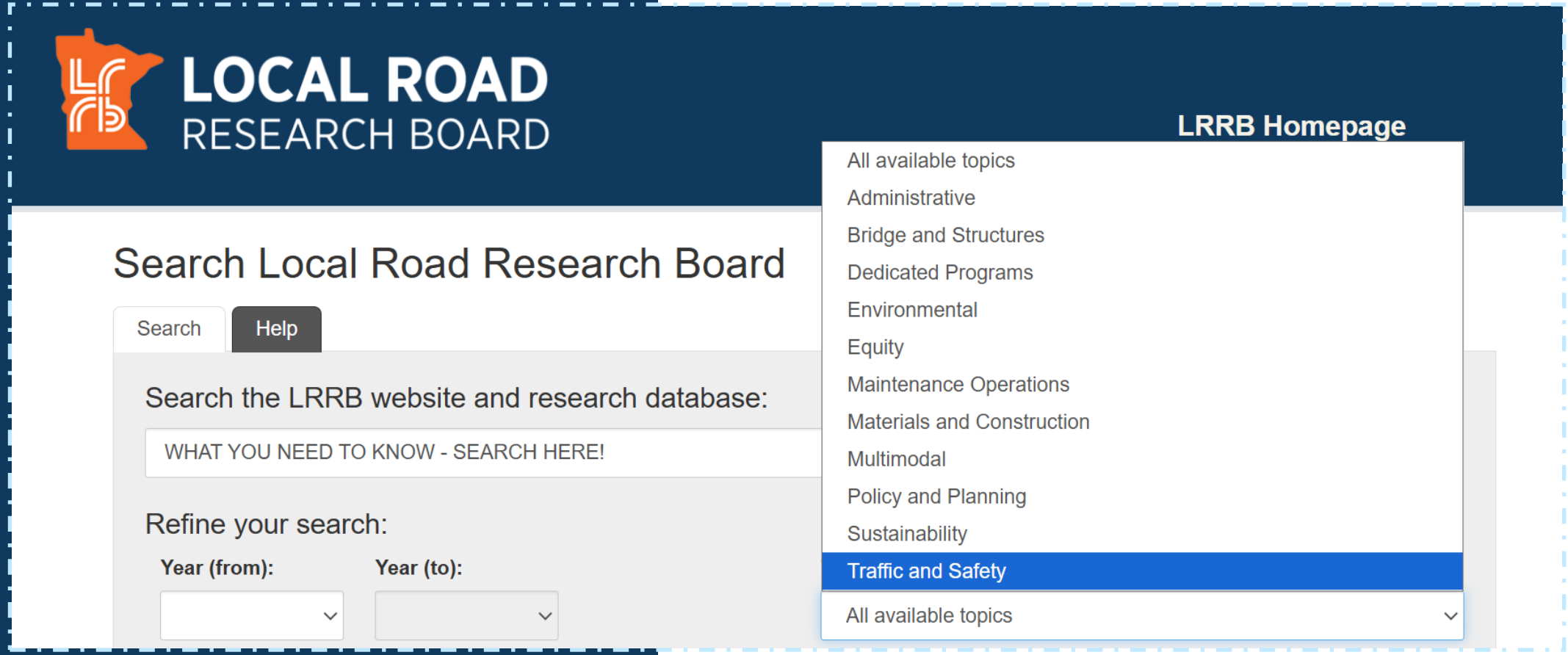

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BRIDGES ENVIRONMENTAL MAINTENANCE POLICY TRAFFIC MULTIMODAL MATERIALS