

Research Need Statement 647

I. Need Statement Champions and Information

I.A. Need Statement Champion Information

I.A.1. First and Last Name of Research Champion: Matt Hemmila

I.A.2. Research Champion's Office: St. Louis County

I.A.3. Research Champion's Phone Number: 218.262.0153

I.A.4. Research Champion's Email: HemmilaM@stlouiscountymn.gov

I.B. Research Co-Champion

I.A.1. First and Last Name of Research Co-Champion:

I.A.2. Research Co-Champion's Office:

I.A.3. Research Co-Champion's Phone Number:

I.A.4. Research Co-Champion's Email:

I.C. Research Needs Title (115 Characters):

Mitigation of tenting of transverse cracks and joints in asphalt pavement.

I.D. Project Sponsor: Joint MnDOT and Local Road Research Board

II. Research Need Background and Description

II.A. Research Need Background

II.A.1. Describe the problem or opportunity.

Tenting of transverse cracks and joints of asphalt pavements is common in Minnesota winter, especially in northern Minnesota. The pavement on both sides of the transverse joints or cracks heaves because of the ice formation underneath. Tentings are driving-hazardous, and they accelerate the deterioration of the pavements near the joints and cracks. If left untreated, they become recessed in the summer (dip), potentially leading to potholes over time. While the cause of the problem is known, research is needed to determine the possible mitigation, which may include changes in the structure and material design, crack sealing, and deicer application, etc. The outcome of the research should summarize best practices for mitigation and correction methods.

II.A.2. If applicable, describe how this project will build on previous research.

II.A.3. If applicable, include the title/s or previous research.

II.A.4. What is the **objective** of the proposed research?

The outcome of the research should summarize best practices for mitigation and correction methods.

III. Strategic Priorities, Benefits, and Expected Outcomes

Section III. is for MnDOT sponsored and co-sponsored projects only; all LRRB projects proceed to section IV.

III.A. MnDOT Strategic Priorities

Instructions: Briefly describe how the project aligns with the following MnDOT Research Strategic Priorities. Complete all that apply.

III.A.1. Innovation & Future Needs:

III.A.2. Advancing Equity:

III.A.3. Asset Management:

III.A.4. Safety:

III.A.5 Climate Change & Environment:

III.B. Expected Outcomes

Instructions: Check all expected direct outcomes of this research.

- New or improved technical standard, plan, or specification
- New or improved manual, handbook, guidelines, or training
- New or improved policy, rules, or regulations
- New or improved business practices, procedure, or process
- New or improved tool or equipment
- New or improved decision support tool, simulation, or model/algorithm (software)
- Evaluation of a new commercial product
- New or improved technical standard, plan, or specification
- Other. Please specify below:

III.C. Expected Benefits

Instructions: Select all expected benefits that may be realized if the findings and recommendations from this research is adopted or implemented

III.C.1. Construction Savings Choose an item.

III.C.2. Decrease Engineering/Administrative Costs Choose an item.

III.C.3. Environmental Aspects Choose an item.

III.C.4. MnDOT Policy Choose an item.

III.C.5. Lifecycle Products with longer lifespan

III.C.6. Operations and Maintenance Savings Choose an item.

III.C.7. Reduce Risk Choose an item.

III.C.8. Reduce Road User Cost Choose an item.

III.C.9. Safety Choose an item.

III.C.10. Technology Choose an item.

III.C.11. Other, please describe below:

IV. Technical Advisory Panel

Instructions: Please list the name and affiliation of individuals to consider for the Technical Advisory Panel.

Your assigned Project Advisor is available to answer questions and provide guidance (assigned by the Office of Research & Innovation).

Your Project Advisor is: [Choose an item.](#)