

## State Planning and Research Program Quarterly Report

**PROJECT TITLE:** *Evaluation of Direct Liquid Application of Salt Brine vs Granular Salt as Measured through Various Performance and Safety Metrics*

**OBJECTIVES:** To collect and synthesize available information about the differences between the Direct Liquid Application (DLA) of salt brine (mixed with any one of up to three different additives applied as recommended depending on the situation) and the application of granular salt as reflected in various performance and safety metrics.

**PERIOD COVERED:** January 1 to March 31, 2024.

**PARTICIPATING AGENCIES:** Minnesota Department of Transportation, Clear Roads Technical Advisory Committee, and the Board of Regents of the University of Wisconsin System on behalf of the University of Wisconsin – Madison.

**PROJECT MANAGER:**  
Hafiz Munir / Tom Peters

**SP&R PROJECT NO:**  
MnDOT Contract No.  
1036345

**PROJECT IS:**

Planning  
 Research & Development

**LEAD AGENCY:** MnDOT

**Federal Project Number:**  
TPF-5(479)

**PRINCIPAL INVESTIGATOR:**  
David A. Noyce, UW – Madison

**PROJECT BUDGET:**  
\$125,000

**PROJECT EXPENDITURES TO DATE:**  
\$ 58,591.27

### **WORK COMPLETED:**

#### **Part 1**

- **Task 0: Project Management**

- Project administration, coordination, management, progress reports, and invoicing.
- Kick off meeting on July 13, 2023.

- **Task 1: Literature Review**

- Review of relevant literature on performance measures in winter maintenance and the observed effects of winter weather on traveling speed, recovery time, delay, volume, capacity, friction, and crashes.
- Draft literature review submitted on July 31, 2023.
- Addressed TAC comments and submitted revised literature review for final approval on September 29, 2023.

- **Task 2: Agency Survey**

- For this task, information gathered from the literature review was considered to prepare the questions for the survey.
- Draft survey questions were submitted on August 30, 2023.
- The research team met with the Clear Roads project committee on September 9, 2023, to go over the proposed survey questions.
- The research team addressed feedback provided and prepared the online version of the survey which was submitted to the Clear Roads project committee on September 27, 2023 for final review.

- The research team met with the Clear Roads project committee on December 14, 2023, and presented the results of the survey of practice. After deliberation, the project committee approved to move forward with Part 2 of the project.
- On December 15, 2023, the research team submitted the draft of Task 3: Field Testing Protocol

#### **Part 2**

- **Task 3: Field Testing Protocol**

- The research team reached out to agencies that indicated their willingness to collect data for the study.
- The research team met with staff from Texas DOT, Idaho DOT, Vilas County WI, and Jefferson County WI.
- Jefferson County WI shared available data from past storms.

**SUMMARY OF ACTIVITIES EXPECTED TO BE PERFORMED NEXT QUARTER:****Amendment request**

An amendment request will be submitted to extend the project until December 31, 2025. The extension will contribute to coordinate with more agencies and collect field data during the 2024-2025 winter season. Due to limited time and agency engagement, data was not collected for the 2023-2024 winter season.

**Part 2****• Task 3: Field Testing Protocol**

- Additional agencies will be contacted to collaborate with data collection.
- Field data collection will be coordinated with agencies to select and collect data on study and control routes.

**STATUS AND COMPLETION DATE:**

An amendment request is being submitted and the project is anticipated to be completed by December 31, 2025.