

State Planning and Research Program Quarterly Report

PROJECT TITLE: *Determining the Migration of Chloride-Based Deicers through Different Soil Types*

OBJECTIVES: This project aims to achieve a clear, quantitative picture of the physicochemical properties of various types of soil (texture-based, commonly used in the areas of interest) and migration behavior of selected deicers through these soil types.

PERIOD COVERED: January 1 – March 31, 2025

PARTICIPATING AGENCIES: Minnesota Department of Transportation, Clear Roads Technical Advisory Committee, Washington State University – Prime, and Roadtech, Inc. – Subcontractor.

PROJECT MANAGER:

Hafiz Munir / Tom Peters

SP&R PROJECT NO:

MnDOT No. 1047792

PROJECT IS:

☐ Planning

☒ Research & Development

LEAD AGENCY: MnDOT

Federal Project No.
TPF-5(353)

PRINCIPAL INVESTIGATOR:

Xianming Shi, Ph.D., P.E., WSU

ANNUAL BUDGET:

\$99,980

PROJECT EXPENDITURES TO DATE:

\$95,049

WORK COMPLETED:

Project Management: The PI submitted the quarterly progress report in Jan. 2025. A six-month no-cost time extension was approved by MnDOT in the last quarter, which extended the project end date to October 30, 2025.

Task 1. Literature Review and Survey (100% complete).

Task 2. Developing the Testing Plan (100% complete).

Task 3: Execution of the Testing Plan (92% complete). We are executing Task 4 alongside and compiling results simultaneously. The testing of additional short vertical soil column is completed, long vertical soil column testing is near completion in a month and the horizontal soil column testing is 30% completed.

Task 4. Execution of the Testing Plan- additional lab testing using the beet juice/salt brine blend (70% complete). Similar condition as explained in Task 3.

Task 5. Preparing one-page fact sheet (5% complete) – This will be done immediately task 3 and 4 is completed.

SUMMARY OF ACTIVITIES EXPECTED TO BE PERFORMED NEXT QUARTER:

Work in the coming quarter will consist of project management as well as the completion of Task 3, Task 4, Task 5 and Task 6.

STATUS AND COMPLETION DATE:

We are on schedule based on the recently approved no-cost time extension.