

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 soils (texture-based, commonly used in the areas of interest) and migration behavior of selected deicers through these soil types.

PERIOD COVERED: July 1– September 30, 2025.

PARTICIPATING AGENCIES: Minnesota Department of Transportation, Clear Roads Pooled Fund, Washington State University, and Roadtech, Inc.

PROJECT MANAGER:
Hafiz Munir / Sheila Johnson

SP&R PROJECT NO:
MnDOT No. 1047792

PROJECT IS:

LEAD AGENCY: MnDOT

Federal Project No.
TPF-5(353)

 Planning
 X Research & Development

PRINCIPAL INVESTIGATOR:
Xianming Shi, Ph.D., P.E., [WSU](#)

ANNUAL BUDGET:
\$99,980

PROJECT EXPENDITURES TO DATE:
\$97,080

WORK COMPLETED:

Project Management: The PI submitted quarterly progress report in [July 2025](#). With the permission of the Project Champion, the PI prepared a six-month no-cost time extension, which was submitted by the WSU Office to MnDOT in September 2025. If approved, this would extend the project end date to April 30, 2026.

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

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

Task 3: Execution of the Testing Plan (96% complete). The testing was completed and the data analysis and the related development of Machine Learning based predictive model is expected to be completed by late Oct.

Task 4. Additional Lab Testing (96% complete). The testing was completed and the data analysis and the related development of Machine Learning based predictive model is expected to be completed by late Oct.

Task 5. *Preparing one-page fact sheet: 10% complete.*

Task 6. *Final Report: 15% complete.*

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 Tasks 3 to 5.

STATUS AND COMPLETION DATE:

The updated project timeline is as follows. We have completed all laboratory experimental plans and testing. Data analysis and interpretation is in progress, and we estimate to deliver the draft report of Tasks 3 and 4 on October 31st, 2025.

Task	Current Task Start Date	Current End Date for Task Approval	Revised Task Start Date	Revised Due Date to Submit Draft Deliverables	Revised End Date for Task Approval
1	06/01/2022	03/31/2023	No Change	No Change	No Change
2	12/01/2022	03/31/2023	No Change	No Change	No Change
3	04/01/2023	6/30/2025	No Change	10/30/2025	11/30/2025
4	08/01/2024	6/30/2025	No Change	10/31/2025	11/30/2025
5	09/01/2024	8/31/2025	12/01/2024	11/31/2025	12/31/2026
6	11/01/2024	09/30/2025	07/01/2025	01/31/2026	03/31/2026