

## State Planning and Research Program Quarterly Report

**PROJECT TITLE:** *Understanding the Salt Phase Diagram*

**OBJECTIVES:** The goal of this project is to develop materials to aid winter maintenance practitioners in making informed decisions on the use of road salts, specifically sodium chloride (aka rock salt, solar salt, salt brine, etc.), at varying temperatures and concentration. The end products developed to support winter maintenance practitioners will be a one-page fact sheet and educational video based on information captured in the literature review, lab testing, and the developed salt phase diagram.

**PERIOD COVERED:** January 1, 2022 – March 31, 2022

**PARTICIPATING AGENCIES:** Minnesota Department of Transportation and the Clear Roads Technical Advisory Committee

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

**SP&R PROJECT NO:**  
MnDOT Contract No.  
1044527

**PROJECT IS:**

**LEAD AGENCY:** MnDOT

Federal Project Number:  
TPF-5(353)

Planning  
 Research & Development

**PRINCIPAL INVESTIGATOR:**  
Laura Fay, WTI

**ANNUAL BUDGET:** \$100,000

**PROJECT EXPENDITURES TO DATE:** \$87,044

**WORK COMPLETED:**

- Kick off Meeting – the project kick-off meeting was held Jan. 26, 2020. The meeting notes, slides, and meeting follow up items were provided to the TAC Jan. 27, 2020.
- Task 1 Literature Review – The literature search and review of documents was delivered June 1, 2021. A meeting was held June 18, 2021, to review the document and receive feedback from the TAC.
- Task 2 Lab Demonstration – The Task 2a Beaker Test and Task 2b friction/pavement testing Lab Report was submitted September 2, 2021, for review.
- Task 3 One Page Fact Sheet – Draft version was submitted September 29, 2021. Revised version was submitted November 29, 2021 and approved December 2021. One mistake was found in the December 28, 2021 meeting which will be addressed and then resubmitted. Revised One Pager was submitted February 16, 2022.
- Task 4 Develop Educational Video – Video development is underway. Photos and video of the lab testing have been collected. Animation is being finalized. Draft Storyboard and script were submitted December 14, 2021. A meeting was held on December 28, 2021 to receive feedback. Draft video was submitted March 1, 2022 and a meeting was held March 10, 2022 to receive feedback.
- Task 5 Final Report and Webinar – The final report has been developed for all tasks of the project completed thus far (Tasks 1-3).

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

- Submit Task 4 Educational Video
- Meet with TAC to present Task 4 Educational Video. Revise and submit Task 4 Educational Video for approval.
- Submit Task 5 Final Report, schedule and hold Final Report Webinar.
- Revise Task 5 Final Report if needed, close out project.

**STATUS AND COMPLETION DATE:**

A no-cost time extension was submitted to Clear Roads for review and approval on December 6, 2021. Approval was granted on December 28, 2021, and the no-cost time extension was submitted to MnDOT for review and processing. Once in place, the new project end date will be June 30, 2022.