

State Planning and Research Program Quarterly Report

PROJECT TITLE: Understanding the Chemical and Mechanical Performance of Snow and Ice Control Agents on Porous or Permeable Pavements

OBJECTIVES: The objectives of this research are to identify the primary chemical and mechanical interactions that occur when deicers are applied to textured or porous pavements before, during and after a winter storm to determine optimal winter maintenance strategies and application rates for treating these types of pavements

PERIOD COVERED: October 1, 2015 – December 31, 2015

PARTICIPATING AGENCIES:

Western Transportation Institute, Montana State University – Bozeman

PROJECT MANAGER:

Tom Peters and Deborah Sinclair

SP&R PROJECT NO:

TPF-5(218)
MnDOT Contract No.99006

PROJECT IS:

Planning
 Research & Development

LEAD AGENCY:

Minnesota Department of Transportation

PRINCIPAL INVESTIGATOR:

Michelle Akin

PROJECT BUDGET:

\$185,000

PROJECT EXPENDITURES TO DATE:

\$163,695

WORK COMPLETED:

Task 1 – Project Management

- general management of project in terms of contractual compliance, budget and schedule, administrative tasks, and communication with technical panel

Task 2 – Literature Search - COMPLETE

Task 3 – List and Categorize Pavement and Overlay Types - COMPLETE

Task 4 – Interviews - COMPLETE

Task 5 – Lab Testing - COMPLETE

Task 6 – Analyze Chemical and Mechanical Interactions

- Continued analysis of lab data to develop the *White Paper*. Most of the data analysis during the quarter involved statistical analyses to remove outliers and generally clean up the data, as well making comparisons between pavement types, deicer form (prewet salt, dry salt, salt brine), and friction vs snow bond strength results.

Task 7 – Synthesize Best Maintenance Practices – no progress during this period

Task 8 – Recommend a Plan of Study – no progress during this period

Task 9 – Reporting

- Submitted Quarterly Report #11

SUMMARY OF ACTIVITIES EXPECTED TO BE PERFORMED NEXT QUARTER:**Task 1 – Project Management**

- general management of project in terms of contractual compliance, budget and schedule, administrative tasks, and communication with technical panel
- Teleconference in February to discuss *White Paper on Chemical and Mechanical Interactions*

Task 2 – Literature Search – completed**Task 3 – List and Categorize Pavement and Overlay Types - completed****Task 4 – Interviews - completed****Task 5 – Lab Testing - completed****Task 6 – Analyze Chemical and Mechanical Interactions**

- Finish analysis of laboratory data and technical memorandum.

Task 7 – Synthesize Best Maintenance Practices

- Use information from literature search, interviews and lab testing to develop guidelines for best practices

Task 8 – Recommend a Plan of Study – no progress anticipated during this period

- Develop recommendations for field testing of porous and permeable pavements during winter storms.

Task 9 – Reporting

- Write Quarterly Report 13
- Write *White Paper on Chemical and Mechanical Interactions*
- Write *Synthesis of Best Practices*

STATUS:

The project is currently behind schedule for Task 6–8.

Task	Start Date	Completion Date	Status
1 – Project Management	2/1/2013	9/30/2015	On-Going
2 – Literature Search	2/1/2013	5/31/2013	Completed
3 – List & Categorize Pavement & Overlay Types	6/1/2013	6/30/2013	Completed
4 – Interviews	6/1/2013	1/31/2014	Completed
5 – Lab Testing	3/1/2014	12/31/2015	Completed
6 – Analyze Chemical & Mechanical Interactions	1/1/2015	7/31/2015	On-Going
7 – Synthesize Best Management Practices	8/1/2015	10/31/2015	Not Started
8 – Recommend a Plan of Study	11/1/2015	12/31/2015	Not Started
9 – Reporting	5/1/2013	3/31/2016	On-Going