

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: July 1, 2015 – September 30, 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:

\$161,569

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

- MassDOT was unable to provide cores of OGFC pavements, primarily due to significant staff shortages (a combination of early retirement incentives and a hiring freeze) within the pavement design and coring staff of the highway division. Attempts by the research team included multiple emails, phone calls, and an attempted visit by a research team member to pick up cores while traveling to Massachusetts for a another project meeting.
- Additional laboratory testing was performed in August and September using a larger mechanical (rubber-bottom) friction tester and an optical friction sensor. More pictures were taken during the additional tests to better document the “whiteness” of porous and permeable pavements.
- Continued analysis of lab data to develop the *White Paper*.

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 #10

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 November 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.

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 12
- Write *White Paper on Chemical and Mechanical Interactions*

STATUS:

The project is currently behind schedule for Task 6. Tasks 7, 8 and 9 are expected to be completed on schedule.

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