

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: January 1, 2016 – March 31, 2016

PARTICIPATING AGENCIES:

Western Transportation Institute, Montana State University – Bozeman

PROJECT MANAGER:

Tom Peters

SP&R PROJECT NO:

TPF-5(218)

PROJECT IS:

Planning
 Research & Development

LEAD AGENCY:

Minnesota Department of Transportation

MnDOT Contract No.
99006; Work Order 2

PRINCIPAL INVESTIGATOR:

Michelle Akin

PROJECT BUDGET:

\$185,000

PROJECT EXPENDITURES TO DATE:

\$168,501

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
- teleconference with technical panel on February 9
- the schedule was revised to allow additional laboratory testing

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

- received cores from Wyoming DOT
- made arrangements with MassDOT for coring of OGFC pavements to be used in laboratory testing; cores should arrive in April

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 #12

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

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

- receive cores from Massachusetts DOT and prepare slabs for laboratory testing
- conduct laboratory tests on MassDOT OGFC samples and analyze 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

Task 9 – Reporting

- Write Quarterly Report #14
- Write *White Paper on Chemical and Mechanical Interactions*

STATUS:

The project schedule was revised and is currently on schedule.

| Work Tasks | 2016 | | | | | | | | | | | | Task Completion Date |
|--|------|---|---|---|---|---|---|---|---|---|---|---|----------------------|
| | J | F | M | A | M | J | J | A | S | O | N | D | |
| 1 – Project Management | | | | | | | | | | | | | 31-Dec-16 |
| 2 – Literature Search | | | | | | | | | | | | | 18-Jun-13 |
| 3 – List and Categorize Pavement and Overlay Types | | | | | | | | | | | | | 7-Jan-14 |
| 4 – Interviews | | | | | | | | | | | | | 7-Jan-14 |
| 5 – Lab Testing | | | | | | | | | | | | | 3-Feb-15 |
| 6 – Analyze Chemical & Mechanical Interactions | | | | | | ★ | | | | | | | 30-Jun-16 |
| 7 – Synthesize Best Management Practices | | | | | | | ★ | | | | | | 31-Aug-16 |
| 8 – Recommend a Plan of Study | | | | | | | | ★ | | | | | 30-Sep-16 |
| 9 – Reporting | | | | | | | | | | | | | 31-Dec-16 |

- ★ Deliverable
- ★ Literature Search Submittal completed
- ★ Categorized List of Porous/Permeable Pavements completed
- ★ Synthesis of Interview Results completed
- ★ White Paper on Chemical and Mechanical Interaction 30-Jun-16
- ★ Synthesis of Best Practices 31-Aug-16
- ★ Field Testing Recommendations 30-Sep-16
- ★ Draft Final Report 31-Oct-16
- ★ Final Report 31-Dec-16