

**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: April 1, 2016 – June 30, 2016

PARTICIPATING AGENCIES:

Western Transportation Institute, Montana State University – Bozeman

PROJECT MANAGER:

Tom Peters and Deborah Sinclair

SP&R PROJECT NO:

MnDOT Contract
No.99006, WO 2

PROJECT IS:

Planning
 Research & Development

LEAD AGENCY:

Minnesota Department of Transportation

Federal Project No.
TPF-5(218)

PRINCIPAL INVESTIGATOR:

Michelle Akin

PROJECT BUDGET:

\$185,000

PROJECT EXPENDITURES TO DATE:

\$172,818

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
- the schedule was revised to allow additional laboratory testing and appropriate review period for task deliverables

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 MassDOT and made two pavement slabs for laboratory testing
- began lab testing to assess MassDOT OGFC pavements for friction and strength of snow bond using solid salt, prewet salt (with salt brine), and salt brine.

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 #13

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

- finish laboratory testing of MassDOT OGFC pavement 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 #15
- write *White Paper on Chemical and Mechanical Interactions*

STATUS:

The project schedule was revised and is currently on schedule.

Work Tasks	2016												2017			
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	
1 – Project Management																
2 – Literature Search																
3 – List and Categorize Pavement and Overlay Types																
4 – Interviews																
5 – Lab Testing																
6 – Analyze Chemical & Mechanical Interactions									★	★						
7 – Synthesize Best Management Practices										★		★				
8 – Recommend a Plan of Study											★		★			
9 – Reporting													★		★	

- ★ Deliverable
 - ★ Literature Search Submittal
 - ★ Categorized List of Porous/Permeable Pavements
 - ★ Synthesis of Interview Results
 - ★ White Paper on Chemical and Mechanical Interactions
 - ★ Synthesis of Best Practices
 - ★ Field Testing Recommendations
 - ★ Final Report
- | | |
|-----------|-----------|
| Draft Due | Final Due |
| completed | completed |
| completed | completed |
| 31-Aug-16 | 31-Oct-16 |
| 31-Oct-16 | 31-Dec-16 |
| 30-Nov-16 | 31-Jan-17 |
| 31-Jan-17 | 31-Mar-17 |