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, 2014 – December 31, 2014

PARTICIPATING AGENCIES:
Western Transportation Institute, Montana State University – Bozeman

PROJECT MANAGER:	**SP&R PROJECT NO**:	**PROJECT IS:**
Tom Peters and Deborah Sinclair **LEAD AGENCY**: Minnesota Department of Transportation **PRINCIPAL INVESTIGATOR**: Michelle Akin	TPF-5(218) MnDOT Contract No.99006	____ Planning _X_ Research & Development

PROJECT BUDGET:	**PROJECT EXPENDITURES TO DATE**:
$185,000	$144,946.19

WORK COMPLETED:

Task 0 – Project Management
- Teleconference on November 19, 2014: discussed lab testing progress and preliminary results

Task 1 – Literature Search - *COMPLETE*

Task 2 – List and Categorize Pavement and Overlay Types - *COMPLETE*

Task 3 – Interviews - *COMPLETE*

Task 4 – Lab Testing
- Conducted testing on dense and ultrathin friction course pavements with dry salt, prewet salt, and salt brine.
- Conducted CT scans on pavement samples with snow, but the extreme variation in densities between pavement and snow prevents sufficient contrast within pavement structure to detect presence of salt and snow within the pores.

Task 5 – Analyze Chemical and Mechanical Interactions
- Performed preliminary comparisons of friction and snow–pavement bond strength for different pavements and treatment strategies

Task 6 – Synthesize Best Maintenance Practices – no progress during this period

Task 7 – Recommend a Plan of Study – no progress during this period

Task 8 – Reporting
- Submitted Quarterly Report #7

SUMMARY OF ACTIVITIES EXPECTED TO BE PERFORMED NEXT QUARTER:

Task 0 – Project Management

- Teleconference on February 3, 2015 to discuss analysis of lab testing results

Task 1 – Literature Search – *completed*

Task 2 – List and Categorize Pavement and Overlay Types - *completed*

Task 3 – Interviews - *completed*

Task 4 – Lab Testing

- Possibly conduct a few experiments if additional information is needed to complete the analysis

Task 5 – Analyze Chemical and Mechanical Interactions

- Analyze data for trends and statistically significant differences between dense and porous/permeable pavements for various treatment strategies

Task 6 – Synthesize Best Maintenance Practices

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

Task 7 – Recommend a Plan of Study – no progress anticipated during this period

Task 8 – Reporting

- Write Quarterly Report 9
- Write *White Paper on Chemical and Mechanical Interactions*

STATUS:

The project is currently on budget for a revised schedule:

Task	Start Date	Completion Date	Status
0 – Project Management	2/1/2013	9/30/2015	On-Going
1 – Literature Search	2/1/2013	5/31/2013	Completed
2 – List & Categorize Pavement & Overlay Types	6/1/2013	6/30/2013	Completed
3 – Interviews	6/1/2013	1/31/2014	Completed
4 – Lab Testing	3/1/2014	12/31/2015	On-Going
5 – Analyze Chemical & Mechanical Interactions	12/2/2014	2/28/2015	On-Going
6 – Synthesize Best Management Practices	3/1/2015	4/30/2015	Not Started
7 – Recommend a Plan of Study	5/1/2015	5/31/2015	Not Started
8 – Reporting	5/1/2013	9/30/2015	On-Going