

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, 2014 – June 30, 2014

PARTICIPATING AGENCIES:

Western Transportation Institute, Montana State University – Bozeman

PROJECT MANAGER:

Tom Peters and Ashley Duran

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:

\$101,944.66

WORK COMPLETED:

Task 0 – Project Management

Task 1 – Literature Search - *COMPLETE*

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

Task 3 – Interviews - *COMPLETE*

Task 4 – Lab Testing

- Proof-tested components of laboratory test: trafficking, liquid deicer application, plowing to measure snow–pavement bond force, measuring friction (optical and manual)
- Constructed dense graded pavement samples at local asphalt batch plant

Task 5 – Analyze Chemical and Mechanical Interactions – no progress during this period

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 #5

SUMMARY OF ACTIVITIES EXPECTED TO BE PERFORMED NEXT QUARTER:

Task 0 – Project Management

- Teleconference to discuss lab testing components and matrix of tests in July

Task 1 – Literature Search – *completed*

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

Task 3 – Interviews - *completed*

Task 4 – Lab Testing

- Conduct CT scans to determine appropriate settings for analyzing presence of deicer, snow, air and pavement
- Procure additional pavement samples (cores from in-service pavements and new OGFC pavement slabs)
- Continue conducting experiments

Task 5 – Analyze Chemical and Mechanical Interactions

- Begin analyzing data for trends and statistically significant differences between dense and porous/permeable pavements

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

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

Task 8 – Reporting

- Write Progress Report 7

STATUS:

A no-cost time extension requesting a new end date is currently being processed.