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, 2014 – March 31, 2014

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

PROJECT MANAGER:	**SP&R PROJECT NO**:	**PROJECT IS:**
Tom Peters and Ashley Duran **LEAD AGENCY**: Minnesota Department of Transportation **PRINCIPAL INVESTIGATOR**: Michelle Akin	TPF-5(218) MnDOT Contract No.99006	____ Planning __X__ Research & Development
PROJECT BUDGET: $185,000	**PROJECT EXPENDITURES TO DATE**: $62,178.15	

WORK COMPLETED:

Task 0 – Project Management
- Check-in teleconference on January 22 discussed the task reports for categorized pavements and interviews, and discussed the upcoming lab testing task

Task 1 – Literature Search - *COMPLETE*

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

Task 3 – Interviews
- International interviews obtained from Japan, Italy, Sweden, and Norway

Task 4 – Lab Testing
- Finalized design of trafficking device, began fabrication, purchased additional parts (tire, motor, etc.)
- Coordinated with Univ. of Massachusetts Dartmouth for fabrication of NovaChip slabs from hot mix collected in Missouri and New York during construction in Fall 2013
- Drafted a lab testing plan with matrix of experiments
- Preliminary CT scans of asphalt pavement cores (1, 1 ¾, and 2 in. diameter), preliminary scans of salt brine, medical iodine tracer, ice, and snow

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 Task 2 Deliverable: Categorized List of Porous/Permeable Pavements
- Submitted Task 3 Deliverable: Synthesis of Interview Results

SUMMARY OF ACTIVITIES EXPECTED TO BE PERFORMED NEXT QUARTER:

Task 0 – Project Management

- Teleconference to discuss pavement samples and lab testing plan in May

Task 1 – Literature Search – *completed*

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

Task 3 – Interviews

- Submit addendum to Task 3 deliverable with synthesis of international interviews

Task 4 – Lab Testing

- Finalize lab testing plan after discussing with the TAC
- Continue CT scans to determine appropriate settings for analyzing presence of deicer, snow, air and pavement
- Build and test trafficking device
- Procure additional pavement samples (cores from in-service pavements and new OGFC pavement slabs)
- Begin conducting experiments

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

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 6

STATUS:

The project is currently about 4 months behind schedule. A no-cost time extension is anticipated, depending on how Task 4 – Lab Testing develops.