

## State Planning and Research Program Quarterly Report

**PROJECT TITLE:** Synthesis of Material Application Methodologies for Winter Operations

**OBJECTIVES:** The goal of this research is to “create a synthesis of best management practices for application rates, material application methodologies and material usage, including chloride brines applied directly or as additives to abrasives and rock salts”.

**PERIOD COVERED:**

April 1, 2017– June 30, 2017

**PARTICIPATING AGENCIES:**

Washington State University – Prime  
Monte Vista Associates LLC - Consultant

**PROJECT MANAGER:**

Deb Fick and Tom Peters

**SP&R PROJECT NO:**

MnDOT No. 1001326

**PROJECT IS:**

Planning

Research & Development

**LEAD AGENCY:** Mn/DOT

Federal Project No.

TPF-5(218)

**PRINCIPAL INVESTIGATOR:**

Xianming Shi, Ph.D., P.E.

**ANNUAL BUDGET:**

\$117,658

**PROJECT EXPENDITURES TO DATE:**

\$75,659

**WORK COMPLETED:**

*Project Management*

This includes the submission of quarterly progress report by the project PI to the Clear Roads program in April 2017 and some communications between the PI and the Clear Roads coordinator, as well as between the PI and the consultant.

Task 1. Literature review (100% completed)

A revised literature review was submitted for panel review again in December 2016. It highlights current practices, innovative practices, and trends related to materials used, their application rates, and the application methodologies and equipment under various road weather scenarios (temperature ranges, storm conditions, and other climate and operating conditions). [It will be updated as new literature becomes available.](#)

Task 2. Interview Plan (100% completed)

In December 2016, an updated interview plan was submitted to the panel for review.

Task 3. Interviews (97% completed)

A few more interviews were conducted by the research team during the last quarter.

Task 4. Guidebook (28% completed)

The research team has drafted an outline for the Guidebook and started work on some sections based on the information from Task 1 (Literature review) and Task 3 (Interviews). The goal is to synthesize, analyze, and organize the data into a brief, instructive, and professionally created handbook, similar to the Snowfighters' Handbook available at <http://www.saltinstitute.org/road/snowfighting/>.

Task 5. Final report (10% completed)

Task 6. Final presentation (0% completed)

**SUMMARY OF ACTIVITIES EXPECTED TO BE PERFORMED NEXT QUARTER:**

Work in the coming quarter will consist of project management as well as the completion of Task 3 and continued work on Task 4.

**STATUS AND COMPLETION DATE:**

Another no-cost time extension was submitted and approved, with the modified timeline as follows.

<b>Task</b>	<b>Current Task Start Date</b>	<b>Current End Date for Task Approval</b>	<b>Revised Task Start Date</b>	<b>Revised Due Date to Submit Draft Deliverables</b>	<b>Revised End Date for Task Approval</b>
<b>1</b>	<b>05/25/2016</b>	<b>12/15/2016</b>	<b>05/25/2016</b>	<b>10/15/2016</b>	<b>12/15/2016</b>
<b>2</b>	<b>05/25/2016</b>	<b>07/30/2016</b>	<b>05/25/2016</b>	<b>Not Applicable</b>	<b>07/30/2016</b>
<b>3</b>	<b>07/15/2016</b>	<b>03/15/2017</b>	<b>07/15/2016</b>	<b>07/15/2017</b>	<b>09/15/2017</b>
<b>4</b>	<b>12/01/2016</b>	<b>06/15/2017</b>	<b>12/01/2016</b>	<b>10/15/2017</b>	<b>12/15/2017</b>
<b>5</b>	<b>04/01/2017</b>	<b>08/31/2017</b>	<b>04/01/2017</b>	<b>12/30/2017</b>	<b>02/28/2018</b>
<b>6</b>	<b>07/01/2017</b>	<b>09/30/2017</b>	<b>07/01/2017</b>	<b>01/30/2018</b>	<b>03/31/2018</b>