

## 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:**

Jan. 1, 2017– March 31, 2017

**PARTICIPATING AGENCIES:**

Washington State University – Prime  
Monte Vista Associates LLC - Consultant

**PROJECT MANAGER:**

Tom Peters

**SP&R PROJECT NO:**

MnDOT No. 1001326

**PROJECT IS:**

\_\_\_\_ Planning  
 X  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:**

\$61,992

**WORK COMPLETED:**

*Project Management*

This includes the submission of quarterly progress report by the project PI to the Clear Roads program in Jan. 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 (92% 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).

Task 2. Interview Plan (100% completed)

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

Task 3. Interviews (95% completed)

Title	Agency	Interview Time
N/A	WYDOT	7/18/2016
RWIS Coordinator	IADOT	7/18/2016
SE Coast Region Director	AKDOT	7/19/2016
Director of Public Works	Public Works, Dubuque, IA	8/28/2016
N/A	City of Lexington, MA	8/28/2016
Director of Public Works	Public Works, Des Moines, IA	8/29/2016
N/A	Public Works, Des Moines, IA	8/29/2016
retired Superintendent	McHenry County, IL	8/29/2016
Street Superintendent	City of Minneapolis, MN	written response
Senior Principal Engineer	Norwegian Public Roads Administration	1/8/2017
Program Manager	New York State DOT	1/10/2017
Research Coordinator	Ontario Ministry of Transportation	1/17/2017
Bureau Chief of Maintenance	Kansas DOT	1/18/2017
Maintenance Engineer	Denver Public Works   City and County of Denver	1/18/2017
Winter Maintenance Specialist	Montana DOT	1/20/2017
Program Manager	WSDOT	1/23/2017
Maintenance Engineer	Vermont Agency of Transportation, Maintenance a	1/24/2017
Winter Operations Administrato	Iowa DOT	2/2/2017

A total of 18 valid interviews (7 in person, 10 via phone, and 1 written response) were conducted by the research team and the detailed list is provided as above.

Task 4. Guidebook (18% 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 (5% 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 1 and Task 3 and continued work on Task 4.

**STATUS AND COMPLETION DATE:**

On budget but about three months behind the revised schedule on Tasks 3 to 6. Another no-cost time extension will be submitted soon, 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>09/15/2016</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>04/15/2017</b>	<b>06/15/2017</b>
<b>4</b>	<b>12/15/2016</b>	<b>06/15/2017</b>	<b>12/015/2016</b>	<b>07/15/2017</b>	<b>09/15/2017</b>
<b>5</b>	<b>04/01/2017</b>	<b>08/31/2017</b>	<b>04/01/2017</b>	<b>09/30/2017</b>	<b>11/30/2017</b>
<b>6</b>	<b>07/01/2017</b>	<b>09/30/2017</b>	<b>07/01/2017</b>	<b>10/30/2017</b>	<b>12/31/2017</b>