

## TRANSPORTATION POOLED FUND PROGRAM QUARTERLY PROGRESS REPORT

Date: 2-15-2016

Lead Agency (FHWA or State DOT): South Dakota DOT

**INSTRUCTIONS:**

*Project Managers and/or research project investigators should complete a quarterly progress report for each calendar quarter during which the projects are active. Please provide a project schedule status of the research activities tied to each task that is defined in the proposal; a percentage completion of each task; a concise discussion (2 or 3 sentences) of the current status, including accomplishments and problems encountered, if any. List all tasks, even if no work was done during this period.*

<b>Transportation Pooled Fund Program Project #</b> <i>(i.e., SPR-2(XXX), SPR-3(XXX) or TPF-5(XXX))</i>  TPF-5(054)		<b>Transportation Pooled Fund Program - Report Period:</b> <input type="checkbox"/> Quarter 1 (January 1 – March 31) <input type="checkbox"/> Quarter 2 (April 1 – June 30) <input type="checkbox"/> Quarter 3 (July 1 – September 30) <input checked="" type="checkbox"/> Quarter 4 (October 1 – December 31)	
<b>Project Title:</b> Development of a Maintenance Decision Support System			
<b>Name of Project Manager(s):</b> Dave Huft		<b>Phone Number:</b> 605-773-3358	<b>E-Mail:</b> Dave.Huft@state.sd.us
<b>Lead Agency Project ID:</b> SD2002-18		<b>Other Project ID (i.e., contract #):</b> 310814	<b>Project Start Date:</b> October 14, 2002
<b>Original Project End Date:</b> April 30, 2003		<b>Current Project End Date:</b> September 30, 2016	<b>Number of Extensions:</b> 33

Project schedule status:

On schedule       On revised schedule       Ahead of schedule       Behind schedule

Overall Project Statistics:

Total Project Budget	Total Cost to Date for Project	Percentage of Work Completed to Date
\$9,472,752.00	\$8,760,786.85,	92.48%

Quarterly Project Statistics:

Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended This Quarter	Total Percentage of Time Used to Date
\$228,816.57      (2.42%)	\$228,816.57	94.64%

**Project Description:**

- The Maintenance Decision Support System research program is responsible for research and development related to the implementation of new information technologies to support transportation maintenance decisions, including winter and summer decision support tools. The program also performs substantial research and development into parallel applications for the transportation industry that may either share data with MDSS, or benefit by leveraging technologies developed under the program (for instance, sharing of data between MDSS and other agency systems, or the development of management-oriented tools that leverage MDSS' capabilities).

**Progress this Quarter (includes meetings, work plan status, contract status, significant progress, etc.):**

- Due to schedules and subsequent meetings, the PFS project only held one tele-conference during Q4. This occurred Wednesday November 25<sup>th</sup>. Progress of Phase IX activities were presented along with action item accomplishments resulting from the previous MDSS Technical Panel Meeting held at the end of Q3.

- Work began on the Web-Based MDSS interface. Initial progress was designed around standing up a site that included a map, functionality of overlaying weather variables (radar), and the integration of site-specific observation points (RWIS). Progress for the website was presented to the group at monthly conference calls held during Q4. The technical panel was presented with a beta website to view and explore.

- The Pooled Fund Study has provided the Minnesota Department of Transportation a copy of the MDSS software for internal implementation. Although Iteris had implemented a free-standing version of the MDSS software in 'the cloud' (AWS EC2 in this case) in an effort to comply with the provisions of the recently-finalized MDSS IP agreement, MnDOT's internal implementation brought to light a few lingering issues with the software. Iteris has been working to resolve these issues and will return updated copies of the MDSS software back to the Pooled Fund Study once the process is complete.

-v12.0 was released to the technical panel member during early Q4.

- Work was completed on the design and development of the reporting functionality available from the MDSS mobile applications. The work initially began with the iOS application and initial mock-ups were presented to the technical panel during the Q4 teleconference.

- A modification to the Assessment of Recommendation plan was presented at the October technical panel meeting that incorporates participation by Iteris personnel in the evaluation of assessments.

- Operations began on the 1<sup>st</sup> or 15<sup>th</sup> of October for each agency. This included dedicated weather forecasting services, operational MDSS support, and AVL/MDC information (where applicable). In addition, Q4 presented training in many locations across the PFS MDSS member states with a variety of training approaches.

-A collection of 46 MDSS Training videos were completed and posted to the MDSS PFS page for viewing.

**Anticipated work next quarter:**

- Continued refinements on the MDSS Dashboard will be accomplished over the next quarter. This includes the finalizing of the truck panel and addressing minor issues within the interface.
- Continued operations for all agencies through Q1.
- Iteris meteorologists will monitor Assessment of Recommendation input from a group of DOT participants to gain a better understanding of the input process and possible issues that evaluators have with the recommendations and supporting road weather information.
- Provide updated MDSS software documentation and 'images' to the PFS, based on the MDSS instance that has been spun up in Amazon Web Services' EC2 infrastructure, but with problems noted by MnDOT in their internal rollout of the MDSS software addressed. Iteris will work with the PFS member agencies thereafter to define the process for software provision and maintenance going forward (under the newly-signed IP agreement).
- Continued work will begin on all Phase IX activities including the development of a web-based MDSS solution, canned reports for management, assessment of recommendations, integration of MDSS into ATIS datasets, and development of a mobile reporting interface.
- Conduct a face to face meeting and at least one conference call with the Technical Panel members.

**Significant Results:**

- While the seasonal simulations carried out in Q2 and Q3 2014 appear to be providing a lot of very useful information, this process has not yet come to a conclusion where the final results of that activity are clear yet. The primary holdup is in getting equivalent data from the member agencies to permit comparison.
- The deployment of the MDSS Dashboard has been met with positive feedback and constructive comments for changes. This feature allows the most basic users to get information in a quick view.

**Circumstance affecting project or budget. (Please describe any challenges encountered or anticipated that might affect the completion of the project within the time, scope and fiscal constraints set forth in the agreement, along with recommended solutions to those problems.)**

- None this quarter.

**Potential Implementation:**

- The MDSS research program is now well into its 8<sup>th</sup> phase of work. The core MDSS software / services have been operational within numerous state transportation agencies for several years or more, depending upon the agency. An initial suite of "Management Tools" has been implemented within the past several years, starting first with a WMRI tool to aid managers in quantifying winter severity across their jurisdiction from a winter maintenance perspective, followed up more recently by a complementary suite of MDC/AVL-oriented tools analyzing and visualizing maintenance being performed by the agency's MDC/AVL-equipped snowplow fleet. During Phase VII, MDSS applications for iOS and Android mobile platforms were designed, developed and made available to PFS member agencies. New features and capabilities continue to be added in the present phase of work.