TRANSPORTATION POOLED FUND PROGRAM
QUARTERLY PROGRESS REPORT

Date: 8-4-2016

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.

Transportation Pooled Fund Program Project # *(i.e, SPR-2(XXX), SPR-3(XXX) or TPF-5(XXX)* TPF-5(054)	**Transportation Pooled Fund Program - Report Period:** ☐ Quarter 1 (January 1 – March 31) X Quarter 2 (April 1 – June 30) ☐ Quarter 3 (July 1 – September 30) ☐ Quarter 4 (October 1 – December 31)
Project Title: **Development of a Maintenance Decision Support System**	

Name of Project Manager(s): **Dave Huft**	**Phone Number:** **605-773-3358**	**E-Mail** Dave.Huft@state.sd.us
Lead Agency Project ID: **SD2002-18**	**Other Project ID (i.e., contract #)** **310814**	**Project Start Date:** October 14, 2002
Original Project End Date: **April 30, 2003**	**Current Project End Date:** **September 30, 2016**	**Number of Extensions:** 34

Project schedule status:

X 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
$9,507,463.64	$9,199,498.89	96.76%

Quarterly Project Statistics:

Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended This Quarter	Total Percentage of Time Used to Date
$183,719.42 (1.93%)	$183,719.42	98.21%

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.):

- A full MDSS Technical Panel meeting was hosted in Sioux Falls, SD on June 7th – 9th. Information was presented on the current progress of Phase 9 activities. Following the meeting all presentations were posted to the projects webpage along with actions items to be completed over the next 3-4 months. A teleconference was planned for the next quarter.

- Work continued on the Web-Based MDSS interface. A document was developed during Q1 to help identify items from the MDSS GUI that need to be included into the MDSS web-based interface. During Q2 several items were accomplished and presented to the Technical Panel in June. This included an alert panel similar to the GUI, information panels when users select items, and graph view of clickable items on the map including MDSS Routes. Feedback on all features was gathered and work began to address some of the issues during Q2. During the MDSS meeting in June, the Technical Panel was able to vote on the next items to be developed before winter season. A follow-up call to the MDSS meeting was held to discuss those votes. The top four to five items will be addressed before winter season.

- The current version of the GUI during Q2 is v12.2. Internally v12.5 was in testing. Updates were made to the dashboard functionality and improved views for manual reports.

- The newest version of the MDSS mobile applications was released, adding the ability to report weather and road conditions. Lively discussion occurred at the June MDSS meeting regarding the list of possible weather and road conditions to be listed as possible selections. A list was agreed upon and will be added to the list of conditions used within the mobile applications.

- Assessment of recommendation information was collected in early Q1 and results from the winter season were presented during the June MDSS meeting. Overall, users accepted most recommendations and were able to provide valuable feedback when recommendations did not meet their expectations. A tentative plan was presented in June to expand the program to more users.

- Operations continued during the early part of Q1. Due to a contract amendment, Wisconsin DOT received weather forecasting support during the entire quarter.

- Route forms were created and initial distribution of information was sent to several agencies on their current route configurations.

Anticipated work next quarter:

- Major work will be completed on the webMDSS functionality. The items that will be addressed this quarter include the development of legends, improved menuing within the header, preparation of code to be run outside of Iteris infrastructure, graph and table views of information, 10 day forecasts and the inclusion of truck information on the map.

- Continued operations for the Wisconsin DOT during Q3, with other efforts ramped up for the approaching winter.

- Iteris will present a plan for the Assessment of Recommendations approach for the 2016/17 year.

- 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).

- Incorporation of the updated weather and road conditions options to the mobile applications will be completed and released to the member agencies.

- A training version of the MDSS GUI will be released during the middle of Q3. This will be used to test any outstanding issues before an operational version is released in late Q3

- Due to scheduling conflicts, no face-to-face meeting will be conducted during Q3, but at least one conference call will be conducted, and potentially two calls.

Significant Results:

- 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.

- An operational web-based MDSS solution has been developed during Q4 2015, and Q1/Q2 2016. This effort has taken years' of work within the GUI and placed it into a web application that can be used by decision makers in each agency.

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.)

- Additional dollars were provided by Wisconsin DOT to cover summer time weather forecasting support. No adverse impacts to the present work plan are expected from this additional activity.

Potential Implementation:

- The MDSS research program is now well into its 9th 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.