

TRANSPORTATION POOLED FUND PROGRAM QUARTERLY PROGRESS REPORT

Date: 8-14-14

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>(i.e., SPR-2(XXX), SPR-3(XXX) or TPF-5(XXX))</i> TPF-5(054)		Transportation Pooled Fund Program - Report Period: <input type="checkbox"/> Quarter 1 (January 1 – March 31) <input checked="" type="checkbox"/> Quarter 2 (April 1 – June 30) <input type="checkbox"/> Quarter 3 (July 1 – September 30) <input type="checkbox"/> 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, 2014	Number of Extensions: 30

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
\$7,755,260.00	\$7,518,403.30	96.95%

Quarterly Project Statistics:

Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended This Quarter	Total Percentage of Time Used to Date
\$218,331.86 (2.82%)	\$218,331.86	97.92%

Project Description:

The Maintenance Decision Support System (MDSS) research program is responsible for research and development related to the implementation of new information technologies, including winter and summer decision support tools, to support transportation maintenance decisions. The program also performs substantial research and development into parallel transportation applications 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.):

- Implemented an initial suite of MDSS dashboards, and demonstrated them at the June MDSS Tech Panel meeting. The initial dashboards included segment-based weather information, RWIS information, and camera imagery.
- Carried out numerous simulations comparing seasonal simulation output from MDSS (in terms of maintenance resources used in the simulation) at select locations across the PFS MDSS member agencies, using multiple differing level of service and other impactful configuration differences. Presented comparisons of these simulations across agencies for the same set of configurations, and between the agency's actual current MDSS configurations versus a standardized default configurations at the June Technical Panel meeting.
- Implemented, released, and refined new capabilities in the WMRI toolset to create and save (and share) groupings of maintenance routes (e.g., to aggregate data across garages, districts, etc.); create graphs of the seasonal accumulation of various winter severity metrics for any particular route or route grouping; and to create side-by-side graphs permitting users to compare data for any particular winter severity metric across routes or groups of routes, or across different periods of time, or both.
- Operations end for most agencies beginning early in Q2. There were several agencies that still received MDSS operational support including the use of Maintenance and Operations Decision Support. In addition to the operational support each agency received their updated route information. This was provided earlier than usual as some agencies were using the summer season to review the information compared to past winter reports.

Anticipated work next quarter:

- The formal implementations of the MDSS dashboards for the MDSS apps and GUI will be completed and released.
- The multi-year seasonal simulations for evaluating MDSS' configurations across the state agencies will be completed, and the results compared against actual agency data for the same time periods, in an effort to identify where MDSS' current configurations may be either less than ideal, or not representative of current agency practice.
- Eradication of a few lingering issues with the latest round of feature enhancements to the WMRI toolset.
- Operational budgets will be developed and coordinated with each agency requesting operational support funded through the PFS MDSS budget.
- Updates to each training document will be completed for the upcoming winter operation season.

Significant Results:

- While the seasonal simulations carried out in Q2 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.

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 8th phase of work. The core MDSS software and 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.