Pooled Fund Study Project TPF-5(054)
SDDOT Project SD2002 – 18
Development of Maintenance Decision Support System
Phase IV
QUARTERLY PROGRESS REPORT
January – March, 2008

Overview

The primary focus of the Phase IV first quarter 2008 was the continued support for the Field Deployment Transition II (FDT-2) and continued research on the Winter Severity Index (WSI). This included the addition of 69 new winter maintenance routes into the system (to 580 routes total as of 3/31/08), and the conducting of additional training sessions across the 14 member states.

Research and development activities also continued during the quarter, including the release of v4.01.1 of the MDSS GUI that added a storm playback feature, allowing users to replay a storm scenario for review and training purposes in a post-storm setting. This version was released on 2/21/08 to limited number of users which included the members of the Technical Panel. There were continued refinements to the seasonal simulation capabilities to support the MDSS benefit / cost study being performed by the Western Transportation Institute and Iteris, Inc. Server-side MDSS processing was also modified during the quarter to improve system performance and also to allow the MDSS processing load to be spread across several computers.

The final internal reviews of several large documents that were drafted in the previous quarter were completed. The documents, including the development of a procurement specification guideline document, a major project report detailing activities of the PFS MDSS to date, and a comprehensive User's Guide, were presented to the Technical Panel during the February meeting (2/5/08-2/6/08). The meeting attendees provided comments about the documents that needed addressing, specifically the procurement specification guideline document. Initiating the necessary changes was an activity performed during the second half of this quarter.

Progress by Task

Specific accomplishments on the explicit tasks of the Phase IV work plan during the first quarter of 2008 follow.

Task 1: Implement version 2.0 of the PFS MDSS in state agency offices in individual and multi-state test regions as determined by the Technical Panel and evaluate its performance during 2005-06 winter operational maintenance activities

Task completed. No additional activities during Q1 2008.

Task 2: Identify required additional research necessary to continue the enhancement of MDSS within an operational environment

The continued work performing seasonal simulations using MDSS, presently being performed to support the MDSS benefit / cost study, are yielding useful insights into the behavior and performance of the MDSS system and helping to guide present research and development activities.

Task 3: Prepare for the Field Deployment Transition (FDT) to be conducted during the winter of 2006-07

Task Completed. No additional work was performed during Q1 2008

Task 4: Perform scientific validation of observed weather variables and comparison with input variables to the PFS MDSS

Task Completed. No additional work was performed during Q1 2008.

Task 5: Perform an assessment of the validity, acceptance, utilization and operational requirements of MDSS within State DOT winter maintenance practices

User training was a primary focus of Q1 2008. Table 1 shows a comprehensive list of dates and locations where training was conducted across the PFS states. A mid-season performance review was also held in Hornell and Albany, NY on January 17-18, 2008, and attended by Steve Gaddy, to address implementation issues in the first year of PFS activities in New York.

Table 1: Q1 2008 training dates, states, locations, and trainers.

Date	State	Location	Trainers
1/16	Nebraska	Norfolk	Gordon Bell and Ben Hershey
1/17	Nebraska	Lincoln	Gordon Bell and Ben Hershey
1/18	Nebraska	North Platte	Gordon Bell and Ben Hershey
1/23	Wyoming	Basin	Gordon Bell and Ben Hershey
1/24	Wyoming	Gillette	Gordon Bell and Ben Hershey
1/31	Minnesota	Albert Lea	Ben Hershey and Jakin Koll

Task 6: Develop a strategy to transition the MDSS PFS to a broader state DOT audience and full deployment

In order to support the MDSS benefit / cost study, and the development of a capability for using MDSS as a Winter Maintenance Response Index (or Winter Severity Index) generator, a capability for rerunning past winter seasons through MDSS has been developed. These seasonal simulations provide a glimpse at the magnitude and nature of the maintenance responses required in each given area over time *given system configurations for that area*. The promising aspect of this for longer-term broad deployment is that the simulated maintenance activities can be compared to actual agency records to help tune MDSS settings to yield a maintenance response that is more consistent in magnitude and approach to current operations. It is anticipated that this long-term simulation capability will eventually become a standard part of the route configuration process for an agency.

Submitted: April 7, 2008 by Meridian Environmental Technology, Inc.