



Implementation Report

Assessment of Montana Road Weather Information System (RWIS)

<http://www.mdt.mt.gov/research/projects/rwis.shtml>

Introduction and Purpose

Weather presents considerable challenges to highway agencies both in terms of safety and operations. From a safety standpoint, snow, ice and other forms of precipitation may reduce pavement friction, increasing the potential for crashes when vehicles are traveling too fast for the conditions. From an operations standpoint, heavy snow storms may affect the connectivity of the highway network due to closures that need to be cleared in an efficient and timely fashion. Further, travelers should be informed about unusual pavement conditions and road closures on time to minimize the effect of adverse weather on the safety and mobility of the traveling public. For the aforementioned reasons, road weather information has become increasingly important for highway agencies particularly in regions that experience

harsh winter weather conditions. Road weather information has been used by highway agencies in many applications such as winter maintenance, traveler information, and other weather-related intelligent transportation system (ITS) applications.

Montana Department of Transportation (MDT) currently has 73 Road Weather Information System (RWIS) stations throughout the state that have been used as a major source of weather data for transportation applications. This project was undertaken to perform a comprehensive review and assessment of the state road weather data collection program to ensure: the efficient use of weather data in various transportation applications and the optimum use of MDT resources.

Implementation Summary

Overall, the project found MDT's RWIS program to

be effectively providing valuable weather information for many user groups, and provided a limited number of specific recommendations that may improve weather information related practices and future directions.

The recommendations from the final report are listed below, along with the technical panel's responses.

Implementation Recommendations

Recommendation 1:

MDT should consider requiring or encouraging new RWIS sensor, hardware, and software options be as flexible as possible through the use of non-proprietary communications and compatibilities.

MDT Response:

MDT recognizes the potential benefits of being able to utilize multiple RWIS providers' equipment, but are hesitant to require fully non-

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8229-001

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proprietary components or mix multiple providers' equipment based on prior experience resolving maintenance issues involving multiple providers.

Recommendation 2:

MDT should reduce the RWIS data and camera image update interval to 15 minutes or less for all sites.

MDT Response:

The majority of sites currently report at 15 minute intervals. The seven remaining sites that rely on landline communications may remain at longer reporting intervals due to limitations related to data services provided and long-distance communication costs.

Recommendation 3:

MDT should include a horizon view for aviation users at all Environmental Sensor Sites (ESS) with pan-tilt-zoom (PTZ) cameras.

MDT Response:

MDT will review locations and implement changes to PTZ views that may benefit from modified

or additional horizon images. Many PTZ, and even some fixed camera sites, already include a useful horizon view.

Recommendation 4:

In areas that currently have little or no RWIS coverage, MDT should make maintenance personnel aware of resources like <http://mesowest.utah.edu/> that may have additional weather information from non-RWIS sites.

MDT Response:

For those maintenance personnel without a current RWIS site nearby, MDT will ensure those personnel are aware of other potential weather information sources for non-RWIS sites that may provide additional information besides the quality forecast information provided by the National Weather Service.

Recommendation 5:

MDT should utilize the proposed site prioritization model with agency selected weights to plan future RWIS installations.

MDT Response:

MDT recognizes the potential the siting model provides and likes the approach, but is concerned

that gathering and updating the data required by the model for the dozens of potential sites each year may be too time intensive. As such MDT will further investigate if/how it may be possible to expedite the data gathering process.

Recommendation 6:

MDT should consider the future directions presented in the final report depending on the budget available for implementing RWIS program changes and the potential acceptance of somewhat different winter maintenance procedures.

MDT Response:

MDT will consider the future directions presented, recognizing that a significant increase in the RWIS program budget is unlikely and obtaining buy-in from winter maintenance personnel toward somewhat different treatment procedures may be challenging.

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