



# HSE HIGHLIGHTS

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- UDOT RWIS Analysis shows \$2 million + savings Benefit to Agency
- HSE to present "Overland Park, KS RWIS – Traffic Cabinet Implementations" at MOVITE Spring Conference Dubuque, IA June 27th

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Rural Road Weather Information Systems show multi-million dollar benefit-cost ratios of 2.8 to 7 – Net Benefit of approx.. \$7.5 million

*Results of benefit cost analysis conducted as part of Michigan DOT regional predeployment studies*

### Summary Information

The Michigan Department of Transportation (MDOT) recently completed architectures and pre-deployment plans for five of the state's seven regions. The paper provides benefit-cost calculations for two weather-related deployments, Road Weather Information Systems (RWIS) and Maintenance Tracking using Global Positioning System (GPS) for Maintenance Vehicles and Snowplows. The potential benefits of RWIS combined with Maintenance Tracking are: crash reduction during adverse weather, and operating cost savings through more efficient use of winter maintenance resources.

### Findings

The table below shows the benefits and costs of proposed RWIS deployments in four regions in Michigan. The benefit-cost ratios are higher in the Bay and Grand regions where fewer Environmental Sensor Stations( ESS) are proposed but where more motorists are served by the system. Travel time savings provide a significant proportion of the benefits in these regions. In the more rural North and Superior regions a higher proportion of benefits are found in crash reduction and operating costs, with less in travel time savings due to significantly lower traffic volumes.

Figure 1: Benefit-Cost Analysis from Michigan's DOT Regional Pre-deployment Studies

Benefits and Costs	North	Bay	Grand	Superior
Travel Time Savings	\$354,000	\$2,289,700	\$1,036,000	\$573,000
Crash Reduction	\$1,519,000	\$968,000	\$1,269,000	\$1,630,000
Operating Costs	\$565,000	\$94,000	\$115,000	\$203,000
<b>Total Annual Benefits</b>	<b>\$2,438,000</b>	<b>\$3,351,700</b>	<b>\$2,420,000</b>	<b>\$2,406,000</b>
Annualized Cost	\$870,000	\$482,000	\$471,000	\$713,000
<b>Net Benefits</b>	<b>\$1,568,000</b>	<b>\$2,289,700</b>	<b>\$1,949,000</b>	<b>\$1,693,000</b>
<b>Benefit-Cost Ratio</b>	<b>2.8</b>	<b>7.0</b>	<b>5.1</b>	<b>3.4</b>

[ITS Benefits](#)

## What are "Road Weather Information Systems"?



Image from Idaho Transportation Department (ITD).

- Advanced technologies that collect, transmit, process and disseminate road-relevant pavement, atmospheric and water-level information
- All states except Miss. own site-specific environmental sensor stations
- 44 states and D.C. have integrated RWIS

Utah DOT's Weather Operations/RWIS program provides a benefit-cost ratio of 11:1 from reduction in winter maintenance costs

*The results highlights the potential benefits that may be realized by an agency using improved weather information to direct its winter maintenance activities.*

### Summary Information

The State of Utah expanded the number of weather station installations as a result of hosting the 2002 Winter Olympics. During the Olympics, a report on hazardous weather potential was issued twice each day for the primary transportation corridors. After the Winter Olympics concluded, these efforts developed into a Utah Department of Transportation (DOT) effort called the Weather Operations/Road Weather Information System (RWIS) program. This program assists the agency's operations, maintenance, and construction functions by providing detailed, area-specific weather forecasts. The case study describes a benefit-cost model that used winter maintenance cost data from Utah DOT maintenance sheds for 2004-2005 winter to estimate the cost-effectiveness of the Utah DOT Weather Operations/RWIS program.

### Findings

It was estimated that the weather operations program saved Utah DOT more than \$2.2 million in 2004 to 2005 from reduced winter maintenance costs. Given that the program costs approximately \$200,000 to operate, the result translates into a benefit-cost ratio of over 11:1.

The model estimated the value and additional savings potential of the Utah DOT weather service to be 11 percent to 25 percent and 4 percent to 10

percent of the Utah DOT labor and materials costs for winter maintenance, respectively.

Anecdotal evidence indicated that the program has supported improved anti-icing operations, which have likely helped to reduce crash frequency and severity, thereby saving lives and reducing crash-related delay.

[Link](#)

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## HSE to Present at MOVITE Spring Conference



The City of Overland Park, KS found that many of their road weather related decisions needed to be made in locations where existing Advance Traffic Controller (ATC) cabinets were already in place.

In 2009 Michael Ross, Manager of Technical & Admin Services for the Public Works Department sought a site specific RWIS solution - one that would be economical, NTCIP compliant, easy to install, and able to support actionable weather sensors.

This presentation will examine the City of Overland Park's implementation of mini-RWIS at intersections around the city.

Discussion will focus on (1) advantage of RWIS in conjunction with traffic signal cabinets, (2) sensor selection, (3) communication and feeding data, and (4) deployment and installation characteristics.