Wyoming WRTM Project Evaluation Results

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McFarland Management, LLC
Wyoming WRTM Project

- Road Condition Reporting Application
  - On tablet computers
  - Send reports from the field to the TMC
- Data processing enhancements
  - TRAC
  - WTI
Process Changes

<table>
<thead>
<tr>
<th>Standard Practice</th>
<th>WRTM Implementation Project</th>
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</thead>
<tbody>
<tr>
<td>Performed Manually</td>
<td>Performed Manually</td>
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<tr>
<td>Automated</td>
<td>Automated</td>
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</tbody>
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- **Standard Practice**
  - Radio Communication with Maintenance
  - Road Conditions and Traffic Management Instructions data entered in logging system
  - Traveler Information Updated in WTI System
  - Traffic Management Actions Initiated in ATMS System
    - DMS changes
    - VSL changes
    - HAR updates

- **WRTM Implementation Project**
  - Road Conditions and Traffic Management Instructions logged and displayed to operators in new TRAC system
  - Traveler Information immediately updated in WTI System
  - Traffic Management Actions Initiated in ATMS System
    - DMS changes
    - VSL changes
    - HAR updates
Project Expected Benefits

• More efficient road weather condition data collection
  – Maintenance employees
  – TMC operators

• Richer dataset and higher frequency of road weather condition data collection
  – TMC operators
  – Travelers

• Improved traffic operations (through use of new information)
• Improved maintenance operations by providing enhanced information (forecasts, RWIS, Wx radar)
Evaluation objectives

1. Improve efficiency of condition reporting by maintenance employees and TMC operators
2. Improve traffic management capabilities at the TMC during weather events
3. Improve the timeliness of condition reporting updates to the public
4. Improve situational awareness of maintenance employees
Evaluation Data Needs

• TMC logs and time studies
  – Radio time
  – Time saved processing incoming field reports
  – Time saved updating traveler information

• Maintenance staff survey

• TMC staff survey
Evaluation Results
Improved efficiency of road condition reporting

• Number of road reports submitted doubled
• Number of requested VSL changes increased by 3 times
• Time saved in TMC
  – No logging of reports
  – Automated WTI updates
  – 1 equivalent person
• 82% maintenance staff said App easy to use
Evaluation Results
Improved traffic management capabilities

• VSL and DMS change requests
  – APP reported to be easier to use
  – Increased number of change requests
  – Information provided to TMC operators were more detailed and accurate, resulting in quicker TMC actions performed with higher confidence

• Time taken by TMC operators the same
  – Future system enhancements and process changes expect to reduce the time needed
Evaluation Results
Improved timeliness of reports to public

- Higher frequency of reporting implies improved timeliness of reports to public
- Automated information updating traveler information databases improves timeliness of reports to public
- 64% of maintenance staff reported App allowed them to make more reports with less time required to make the report

Average Number of Reports Per Maintenance Vehicle

<table>
<thead>
<tr>
<th></th>
<th>Radio</th>
<th>App</th>
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<tbody>
<tr>
<td>April 9, 2015</td>
<td>1.8</td>
<td>4.5</td>
</tr>
<tr>
<td>May 10, 2015</td>
<td>4.3</td>
<td>7.5</td>
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<tr>
<td>Both Storms</td>
<td>3</td>
<td>6</td>
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</table>
Evaluation Results

Improved maintenance situational awareness

• Maintenance staff reported improvements
  – Milepost location
  – Nearby road conditions
  – Weather radar
  – RWIS information
Evaluation Conclusions

• Strong support from TMC and Maintenance staff
  – App and enhancement to supporting systems

• Key findings
  – Time savings
  – Frequency of reporting and VSL changes
  – Accuracy and timeliness of traveler information
  – Accuracy of field reporting, resulting in efficiency of TMC operations

• Incorporating lessons learned into system enhancements for coming winter season

• Future expansion planned
  – Increased deployments
  – New Apps; focused on operational efficiencies using tablet
Wyoming WRTM Project
Project or Evaluation Information

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