High Wind Warning Systems in Oregon
Oregon Weather Warning Systems

- 2 Wind Warning Systems
- 2 High Water Warning Systems
- 3 Debris Flow Warning Systems
- 2 Ice Warning Systems
Wind Warning System Locations
Yaquina Bay Bridge - Newport

US 101: Port Orford – Gold Beach
Newport Wind Gust Data – 1991-2008
Yaquina Bay System Overview

Diagram showing a system with components such as anemometer, logic controller, radio, high winds warning, ODOT, RWIS server, and various connections to local agencies and the TripcCheck system.
System Operation

- Activate warning at 35 MPH Avg or 40 MPH Gust
  - Close to high profile vehicles at 60 MPH
- Deactivate at 25 MPH Avg or 30 MPH Gust
- Auto create incident in dispatch software.
- Upon operator verification
  - Update Traveler Information
  - Send notifications
RWIS Notification System

Add / Edit Subscriptions

Instructions: Check the boxes next to the alerts you wish to receive. If the alert has customizable conditions, edit those. To unsubscribe from an alert, uncheck the box. When you are done, click the "Update Subscriptions" button.

Yaquina Bridge Wind Alert (US 101 MP 141.5)

Wind Speed Alert

Condition to trigger alert: Average wind speed is at or above specified value.
Condition to reset alert: Average wind speed is 20 mph below specified value.

- Wind Speed: [input field]
- Enroll Alert After: [input field] in MPH (minimum: 20)
- Enroll Alert After: [input field] in Hours
- Ignore Schedule: [input box]

RWIS Failure Alert

Condition to trigger alert: The station has not reported in the number of hours specified.
Condition to reset alert: The station starts reporting again.

- Hours Since Last Report: [input field] (Decimals allowed, ex: 1.5)
- Enroll Alert After: [input field] in Hours
- Ignore Schedule: [input box]

Subscribe to an alert from a different station, or return to your complete Subscription Summary.
# Evaluation

<table>
<thead>
<tr>
<th>Goal</th>
<th>Objective</th>
<th>Potential Measures of Effectiveness</th>
<th>Data Source</th>
</tr>
</thead>
</table>
| Improve the safety and security of the region's rural transportation system | Improve the safety of high profile vehicles                               | - Crash frequency for high profile vehicles  
- Crash severity for high profile vehicles | Crash Data |
| Provide sustainable traveler information systems that collect and disseminate credible, accurate “real-time” information | Improve safety of lower profile vehicles                                 | - Crash frequency for all vehicles  
- Crash severity for all vehicles  
- System usage by motorists  
- Awareness of system among motorists | Crash Data |
| Improve the motorist information on severe weather conditions        | Improve motorist acceptance and perception                               | - Sign clarity  
- Message credibility and reliability | Motorist Survey |
| Increase operational efficiency and productivity focusing on system providers | Improve staff operations efficiency                                     | - Savings in personnel time  
- Reduction in the time to post a message | Maintenance Logs |
| System reliability                                                   |                                                                          | - Number of full system outages  
- Number of partial system outages | Maintenance Logs |
| Improving emergency response                                          |                                                                          | - Information sharing | Kick Off |
Public Survey

<table>
<thead>
<tr>
<th>System Location</th>
<th>Counties</th>
<th>Surveys Distributed</th>
<th>Survey Responses</th>
<th>Responses Desired</th>
<th>Pct.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yaquina Bay</td>
<td>Lincoln</td>
<td>2,200 200</td>
<td>2,400</td>
<td>407</td>
<td>17</td>
</tr>
<tr>
<td>South Coast</td>
<td>Coos Bay, Curry</td>
<td>2,200 200</td>
<td>2,400</td>
<td>343</td>
<td>14.3</td>
</tr>
</tbody>
</table>

Bar graph showing travel frequency:
- Daily
- Once or Twice in a week
- Once or Twice in a month
- Once or Twice in a year
- Never
- Unanswered

Legend:
- South Coast
- Yaquina Bay
Motorist Awareness of Signs

[Bar charts showing the percentage of respondents who noticed signs, with categories for 'Yes', 'No', and 'Not Answered', and subcategories for 'South Coast' and 'Yaquina Bay'.]

[Another bar chart showing the percentage of respondents seeing flashing beacons, with categories for 'Yes', 'No', and 'Don’t Recall', and subcategories for 'South Coast' and 'Yaquina Bay'.]
Driver Response

[Bar chart showing the strength of driver response to signs flashing.]
System Perception

![Bar Chart]

- **Strength of Driver Response**
  - Useful
  - Accurate
  - Feel Safer
  - Not Useful

**System Performance**

- **South Coast**
- **Yaquina Bay**
## Evaluation Summary

<table>
<thead>
<tr>
<th>MOE</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>South Coast</td>
</tr>
<tr>
<td>System Awareness</td>
<td>84 percent of the respondents who have driven through the location during high cross winds have seen the beacons flashing.</td>
</tr>
<tr>
<td>System Usage</td>
<td>90 percent of the survey respondents are “very likely” or “likely” to slow down when high wind warning is on.</td>
</tr>
<tr>
<td>Sign Clarity</td>
<td>More than 60 percent have seen the sign</td>
</tr>
<tr>
<td>Message Credibility and Reliability</td>
<td>84 percent of the survey respondents either “strongly agree” or “agree” that the system will provide them accurate information</td>
</tr>
</tbody>
</table>
## Benefits Summary

<table>
<thead>
<tr>
<th>Benefits</th>
<th>South Coast</th>
<th></th>
<th>Yaquina Bay Bridge</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average*</td>
<td>High**</td>
<td>Average*</td>
<td>High**</td>
</tr>
<tr>
<td>Number of Closures per Year</td>
<td>5</td>
<td>10</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>Direct Savings from Non-Closure</td>
<td>$5,135</td>
<td>$10,270</td>
<td>$11,940</td>
<td>$17,910</td>
</tr>
<tr>
<td>Delay Reductions from Non-Closure</td>
<td>$41,715</td>
<td>$73,725</td>
<td>$242,570</td>
<td>$465,200</td>
</tr>
<tr>
<td>Delay Reductions from Quicker Deactivation</td>
<td>$2,980</td>
<td>$5,275</td>
<td>$18,960</td>
<td>$36,350</td>
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<tr>
<td>Costs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial Installation Costs (non-recurring)</td>
<td>$90,000</td>
<td></td>
<td>$90,000</td>
<td></td>
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<tr>
<td>Power, Communication and Maintenance (recurring)</td>
<td>$3,000</td>
<td></td>
<td>$3,500</td>
<td></td>
</tr>
<tr>
<td>B/C Ratio***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct Benefits Alone</td>
<td>0.87</td>
<td></td>
<td>1.46</td>
<td></td>
</tr>
<tr>
<td>Direct and Indirect Benefits</td>
<td>4.13</td>
<td></td>
<td>22.80</td>
<td></td>
</tr>
<tr>
<td>Number of Years Before Benefits Exceed Costs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct Benefits Alone</td>
<td>12 years</td>
<td></td>
<td>7 years</td>
<td></td>
</tr>
<tr>
<td>Direct and Indirect Benefits</td>
<td>3 years</td>
<td></td>
<td>1 year</td>
<td></td>
</tr>
</tbody>
</table>
For More Information:
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Evaluation Report:
http://www.westerntransportationinstitute.org/research/426705.aspx