Truck Rollover Warning System

National Rural ITS Conference
Monday, August 26, 2013

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SEH Inc.
Agenda

• Project Purpose
• Project Management Team (PMT)/Stakeholders
• Scope Review
• Location
• Design
• Schedule
Project Purpose

To use weigh-in-motion (WIM) and road surface condition detection to reduce truck rollover crashes.
Project Management Team

- **MnDOT**
  - Dan Rowe
  - Derek Leuer
  - Chad Erickson
  - Molly Kline
  - Tiffany Kautz
  - Ben Timerson

- **FHWA**
  - Will Stein
  - Jim McCarthy

- **ATRI**
  - Dan Murray

- **IRD**
  - Ann Reinhart
  - Peter Fedechko

- **SEH**
  - Dennis Foderberg
  - Tom Sohrweide
Stakeholders

- MnDOT
  - Ray Starr
  - Jon Jackels
  - John Tompkins
  - Adam Josephson
  - Jeff Brunner
  - Mike Fairbanks
Scope

- Quality Management Plan
- Concept of Operations
- System Requirements
- Design
- Testing
- Operation
- Evaluation
- Removal / Turnover
## Top Rollover Locations

<table>
<thead>
<tr>
<th>Location</th>
<th>Number of Rollovers</th>
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<tbody>
<tr>
<td>I-94 and US 52/Lafayette Bridge</td>
<td>17</td>
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<tr>
<td>I-94, I-494, and I-694</td>
<td>13</td>
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<tr>
<td>I-90 and I-35</td>
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<tr>
<td>I-494 and US 52</td>
<td>12</td>
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<tr>
<td>US 52 and US 63</td>
<td>9</td>
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<tr>
<td>I-35W and US 10</td>
<td>9</td>
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<tr>
<td>I-90 near Exit 242/CR 29</td>
<td>8</td>
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<tr>
<td>I-35W and I-494</td>
<td>8</td>
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<tr>
<td>I-35W and I-694</td>
<td>7</td>
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</tbody>
</table>
Rollover Crashes 01/01/07 - 05/03/12
I-94/694/494 Interchange
Location
Existing Signing
Existing Signing at Exit
System Components

- Road side WIM electronics
- Piezoelectric WIM sensors and inductive loops
- Warning signs and flashers
- Road surface condition detector
Design

- Source of Power
- Detector Locations (off bridge)
- Signs / Messages
- Factory Testing
- Shadow Testing
Design

• Combine 2 Systems
  – Too fast
  – Slippery roadway
Design Concept
TRUCK REDUCE SPEED WHEN FLASHING

REDUCE SPEED ICE POSSIBLE WHEN FLASHING
Signing

![Diagram of a speed sign showing "20 MPH"]

- High output AM
- 1/4-Turn
- 800° Hk.
- 125° The E door f
- Continuous stainless steel frame
- 125° Ttw and grade polycarbonate face
- (2) Drain holes locat the bottom corn
## Schedule

<table>
<thead>
<tr>
<th>Task</th>
<th>2013</th>
<th>2014</th>
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<tbody>
<tr>
<td></td>
<td>Feb</td>
<td>Mar</td>
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<tr>
<td>Project Management</td>
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<td>Concept of Operations</td>
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<td>System Requirements</td>
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<td>Design</td>
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<td>Testing</td>
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<td>Install</td>
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<td>Operate</td>
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<td>Final Report</td>
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<tr>
<td>System Removal or Turnover</td>
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Questions?