A New Model for ITS Deployment
RICWS

Ken Hansen, ITS Project Manager
24th Annual CTS Research Conference

Your Destination...Our Priority
MN Toward Zero Deaths

Minnesota Traffic Fatalities
TZD GOAL: 350 BY 2014

2013 YTD: 51  2012 YTD: 59

MN TZD

Northfield News
Intersection Conflict Warning
ICWS Effectiveness

25-30% reduction in Total Crashes*
- Major and Minor road warning
- Major road warning only

* Evaluation of the Safety Effectiveness of “Vehicle Entering When Flashing” Signs and Actuated Flashers at 74 Stop-Controlled Intersections in North Carolina (2012)
Design Build Advantages

- **Innovation**
  - Designers can introduce new design/construction alternatives

- **Design**
  - Involved during construction

- **Construction**
  - Fast Tracking
ID/IQ

Alternative Contracting
- Indefinite quantity of work during a fixed period of time

Benefits
- Combining Contracts
- Open Contract
- Reduced Design Cost
Rural ICWS Project

- Safety Project
  - Install 20 ICWS Statewide
  - Install Highway Lighting

- Design Build

- ID/IQ
RICWS Project

Site Selection
- District/County Safety Plans
- Star Ranking
- 5 Year Crash Rate
- Local Support

Partners Include
- 11 Counties
- 1 Township
RICWS with IDIQ

IDIQ Sites as of May 22, 2013
## RICWS IDIQ Costs

### Project Management

<table>
<thead>
<tr>
<th>Region</th>
<th>Unit</th>
<th>Unit Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobilization Region A</td>
<td>EA</td>
<td>$5,109.00</td>
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<tr>
<td>Mobilization Region B</td>
<td>EA</td>
<td>$4,578.75</td>
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<tr>
<td>Mobilization Region C</td>
<td>EA</td>
<td>$5,109.00</td>
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</table>

### Engineering

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<tr>
<th>Service</th>
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<th>Unit Cost ($)</th>
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<tr>
<td>Design Services Type I Design</td>
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<tr>
<td>Design Services Type III Design</td>
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<tr>
<td>Design Services Type IV Design</td>
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<td>$13,130.33</td>
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### Construction

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>Unit Cost ($)</th>
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</thead>
<tbody>
<tr>
<td>Electric Lighting Systems</td>
<td>EA</td>
<td>$8,787.33</td>
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<tr>
<td>Highway-Railroad Grade Crossing Signals</td>
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<td>$5,857.50</td>
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<tr>
<td>Traffic Signs and Devices Type I*</td>
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<tr>
<td>Traffic Signs and Devices Type III*</td>
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<tr>
<td>Traffic Signs and Devices Type IV*</td>
<td>EA</td>
<td>$103,833.33</td>
</tr>
</tbody>
</table>

[Regions A, B, C are shown in the diagram]
RICWS IDIQ Types

[Diagram of RICWS IDIQ Types with various symbols and labels]
Performance Requirements

- System Requirements
- Meet NEMA TS2 Environmental Standards
- Meet NEMA TS4 DMS Standards
RICWS System Testing

- 30 Day Bench Test at MnDOT Electrical Services
  - NEMA TS2 Testing
  - Must pass to start next test

- 30 Day Field Acceptance Test for 1st System
  - Contain all design variations
  - Must pass to construct any more
R WCS Failsafe Features

- Malfunctions
  - Blankout signs (minor road)
  - False Positive Indication
  - 72hr Response to Failure

- Power Outage
  - Blankout signs (minor road)
  - Automatic Restart

- Fault Monitoring
Warranty

- 3 Year Contractor Warranty for ICWS
  - Ends Dec 1, 2016 all sites

- Covers Defect and Malfunctions
  - Contractor determines cause
  - Repairs/Replaces Equipment

- Not Covered
  - Knockdowns
  - Vandalism
Warranty Evaluation

1yr Summary
- Original 20 Sites
- Service calls and work preformed
- Mean Time to Failure
- Material and Labor Costs

3yr Report
- All Sites
- Same info as before
- 72hr response time met
Next Steps

- Design Build for ITS
  - Performance Specs
  - Allows for Innovation
  - Warranty leads to better end products

- Keep Watching ID/IQ
  - Not confined to Design Build
  - ITS and Safety Projects
  - Partnering Opportunities
Questions?

Ken Hansen
ITS Project Manager
Office of Traffic, Safety, and Technology
(651)234-7064
Kenneth.Hansen@state.mn.us