Virginia DOT’s Active Traffic & Safety Management System

August 28, 2013
Problem

- Problem: High percentage of multi-car crashes in low visibility conditions

Three dead in 95-car pileup near Virginia, North Carolina state line
• I-64 and I-77 Corridors
• Report on reducing fog-related crashes in 2002 that identified several safety countermeasures
• Installed some safety countermeasures
• Safety analysis updates in 2006/2007 and in 2011/2012 to verify remaining countermeasures are valid
## Systems Engineering Process

<table>
<thead>
<tr>
<th>Phase 0</th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
<th>Phase 4</th>
<th>Phase 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interfacing with Planning and the Regional Architecture</td>
<td>Project Planning and Concept of Operations Development</td>
<td>System Definition and Design</td>
<td>System Development and Implementation</td>
<td>Validation, Operations and Maintenance, Changes &amp; Upgrades</td>
<td>System Retirement / Replacement</td>
</tr>
</tbody>
</table>

### Cross-Cutting Activities
- Stakeholder Involvement
- Elicitation
- Project Management Practices
- Risk Management
- Program Metrics
- Configuration Management
- Process Improvement
- Decision Gates
- Trade Studies
- Technical Reviews
- Traceability

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Source: FHWA Systems Engineering Guidebook for ITS

[VDOT](https://www.vdot.virginia.gov) | [URS](https://www.urs.com)
Goals

• Goals Identified with stakeholders
  – Both Corridors: Improve traveler safety
  – Additional for I-64: Improve operational efficiency

• Identified objectives for goals and MOEs
System will be activated for:
- Low visibility
- High Winds (I-77 Corridor)
- Pavement conditions (I-64 Corridor)
- Traffic crashes
- Construction
I-77 Corridor Components

- Corridor Entry Signs
- VSL & CCTV
- DMS
- Detectors
  - Visibility
  - Wind
  - Pavement Conditions
  - Vehicle Speed
Variable Speed Limit Signs
Variable Speed Limit Sign

Features

- Full matrix
- Full color
- Flashers to alert motorists
Determining Speed Limit

- Considerations
  - Gradual reductions in speed
  - Normalizing speed between 2 separate events on corridor
  - Stagger thresholds for increasing/decreasing speed limits
  - Conditions that affect both directions of travel
  - Use safest speed if multiple triggers in an area
Enforcement

- System sends alerts to Virginia State Police

- Intent is to alert drivers - not intended to enforce reduced speeds in unsafe conditions
Environmental Inputs
Next Steps

- VDOT will be pursuing this as a design-build
- I-77 will initially have VSL
- I-64 will add VSL in a later phase
Questions?

Paul Lamb, AICP
URS Corporation
612-373-6463
paul.lamb@urs.com