New Hampshire DOT TSMO
Smart Work Zone Applications

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February 9, 2017

NHDOT Coverage Areas
State of NH:
• Divided into 6 Districts & NH Turnpike System
• Comprises approx. 9,266 lane miles
• Appro. 1,600 NHDOT employees

TMC

Real-Time System Management Information Program (1201)

Establishment / Purposes
• Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU): Section 1201
• Final rule published November 8, 2010
• Created new Section 511 under Code of Federal Regulations Title 23
• Establishes real-time system management information program


(1) Construction Activities
• Provide public information related to construction activities causing roadway/lane closures
• 10 minutes (Tier 1, within MPO)
• 20 minutes (All other)

(2) Roadway or Lane Blocking Incidents
• Provide public information related to incidents causing roadway/lane closures
• 10 minutes (Tier 1, within MPO)
• 20 minutes (All other)
Provisions for Traffic and Travel Conditions (Cont.)

(3) Roadway Weather Observations
- Provide information for hazardous driving conditions & lane closures due to adverse weather
- 20 minutes from time observed

(4) Travel Time Information
- Provide travel time information for limited access roadway segments within Metropolitan Areas
- ≤10 minutes from completion of travel time calculation

Real-Time System Management Information Program (1201) Cont.

Provisions for Traffic and Travel Conditions (Cont.)

(5) Real-Time Information Accuracy
- Minimally 85% accurate
- 15% maximum error rate

(6) Real-Time Information Availability
- Minimally 90% available

Real-Time System Management Information Program (1201) Cont.

Deadlines for establishment of the real-time information program for traffic and travel conditions:
- Interstate system highways—November 8, 2014
- State-designated Metropolitan Area Routes of Significance (RoS)—November 8, 2016

Real-Time System Management Information Program (1201) Cont.

What is Work Zone ITS?
- The use of ITS in/around work zones to
  - Enhance transportation
  - Improve safety and mobility
- Information provided by Work Zone ITS
  - Real-time traffic conditions
  - Immediate warnings of traffic hazards

Examples of Work Zone ITS Devices
- Portable Changeable Message Signs (PCMS)
- Traffic Sensors
- CCTV Cameras

Current Work Zones with ITS in NH
- I-93 Salem–Hooksett
  - 89 Total Devices
- Rte 16 Newington–Dover
  - 34 Total Devices
- I-95 Seabrook–Portsmouth
  - 5 Permanent Speed Sensors
  - 47 Inrix Speed Segments
Future Projects with Work Zone ITS
N-D Real Time Travel Management (RTTTM) System
Northfield-Tilton
14 Planned Devices

How Did This Happen? DOT Process?
Formal Process

Basis of Process
Federal Highway Administration
Work Zone ITS Implementation Guide

Work Zone ITS Program

Dry Runs
Concord-Pembroke I-393
- Closed right lane over bridge
- CCTV
- MVDS
- 511
- Travel Times

Work Zone ITS Program

Score Criteria

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<thead>
<tr>
<th>Factor</th>
<th>Criteria</th>
<th>Score</th>
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<tbody>
<tr>
<td>Factor 1</td>
<td>- Duration of work: Long-term stationary work will have a duration of:</td>
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<td>- Construction work (120 points)</td>
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<td>Factor 2</td>
<td>- Impact to traffic, businesses, other destinations, or other areas</td>
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<td>- Extremely long distances, high risk of speed variability, severe issues</td>
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<td>- Significant (10 points)</td>
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<td>Factor 3</td>
<td>- Queue and Delay (Queue lengths are estimated to be:</td>
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<td>- Average 3 hours per day (120 points)</td>
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<td>Factor 4</td>
<td>- Temporary aspects of traffic impacts: Expected traffic impacts are:</td>
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<td>- Traffic Speed Variability</td>
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<td>- High Speed/Chronic Spreading</td>
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<td>- Work Zone Congestion</td>
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<td>- Availability of alternate Routes</td>
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<td>- Merging Conflicts and Issues at Work Zone Tapers</td>
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<td>- Work Zone Hazards/Complex Traffic Control Layout</td>
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<td>- Frequent Changes Operating Conditions for Traffic</td>
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<td>Total</td>
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Work Zone ITS Toolbox

- Traffic Responsive Systems
  - Travel Time Information (Trip Time or Estimated Delay)
  - Speed Advisory Information
  - Congestion Advisory
  - Stopped Traffic Advisory
  - Dynamic Merge – Late or Early
- Vehicle Responsive Systems
  - Excessive Speed Display
  - Dynamic Speed Display
  - Over Dimension Warning
  - Construction Vehicle Warning – Merging, Crossing, and Exiting
- Environmentally Responsive Systems
  - Hazardous Conditions Warning
  - Temporary Traffic Control Devices
  - Changeable Work Zone Signage – Work Zone Speed Limits

Data Collection and Reporting

http://asti-traffic.com/tcm/login.aspx

ASTI Speed Data - Construction Event

ASTI Speed Data – Crash Event:

Incident Management: Public Notification

Work Zone ITS Program

ITS Device Relocation Form
- Used for existing projects with ITS already deployed
- Contractor fills out form, sends to TSMO
- TSMO staff reviews to ensure:
  - All necessary devices accounted for
  - All associated devices moved and/or reassigned properly corridor-wide