I-35 SMART WORK ZONE UPDATE

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WASHTO 2015 Subcommittee on Materials & Construction
Overview

Current scope of I-35 Widening. (South of Salado to Hillsboro)

TxDOT is committed to finishing the widening of Main Street Texas (I-35) to six lanes from San Antonio to Hillsboro.
Overview

- 200 directional miles – Central Texas
- 14 segments / 19 projects
- Costs: ~$2.1B
- Traffic Volumes
  - 55,000 – 111,000 vehicles/day
  - Trucks: 25% – 30%
  - Over 5 years ~ 185 million trips
- TxDOT mitigation of impacts
  - Limited lane closures
  - Blackout dates
  - Completion incentives
- Complete 2018
I-35 Demographics

- **$2.1 billion**: Coordination of 17 different projects with multiple contractors.
- **55,000 to 111,000 vehicles** per day.
- **30 million travelers** per year.
- **25% to 35% truck traffic**.
- **Peak construction** 2012–2014.
- **200 directional miles** in Central Texas.
Corridor Impacts

I-35 Miles Under Construction

63 miles

$2.1 Billion

<table>
<thead>
<tr>
<th>Year</th>
<th>Miles Under Construction</th>
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<td>2017</td>
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<td>2018</td>
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Traveler Information During Construction

- Provide information on current and forecasted travel conditions across multiple construction zones to assist:
  - Local residents
  - Regional travelers
  - Long-distance travelers

- Focus of system is on the construction-related impacts
I-35 Construction Traveler Information System Components

- Real-time queue warning
- Lane and road closure information
- Current travel time information
- Expected construction delay information
- Volume and spot speed data
- Traffic cameras at high incident locations
- Portable Changeable Message Signs
Current I-35 field deployments

- **Bluetooth**
  - Travel time detection
  - 40 segments, 2-5 miles in length

- **Wavetronix**
  - Volume detector sites
  - 17 sites with volume/classification

- **CCTV**
  - Digital with PTZ
  - 6 current, at locations of interest

- **PCMS**
  - Display travel time messages
  - ~10 per direction at ~10 mile spacing
Travel Time Information Component

- Point-to-point travel times obtained via Bluetooth technology
- Presented for short distances ahead on PCMS signs throughout the corridor
- Travel times are automatically updated every 5 minutes through Center-to-Center protocol and TxDOT’s Lonestar ITS platform
Examples of Support: Lane Closures
Lane and Road Closure Information Component

- Database of all planned closures maintained
- Public closure notices:
  - Daily
  - Rolling 7-day advance schedule (2x weekly)
  - High-impact only
- Each freeway lane closure analyzed to predict queues and delays
### Lane Closure Analysis

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<th>1B</th>
<th>1C</th>
<th>2A</th>
<th>2B</th>
<th>3A-1</th>
<th>3A-2</th>
<th>3B</th>
<th>3C</th>
<th>4</th>
<th>4A</th>
<th>BRB</th>
<th>5A</th>
<th>5B</th>
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I-35 Smart Work Zones

End of Queue Warning Safety System

- Automated monitoring near a work zone
- Warning of slow speeds
- Warning of end of ‘stop and go’ traffic
Real-Time Queue Warning Component

ROAD WORK AHEAD

Speed Sensors

67 mph  66 mph  65 mph  63 mph
Real-Time Queue Warning Component

3 miles

TRAFFIC SLOWS 3 MILES

64 mph  62 mph  56 mph  42 mph

Speed Sensors
Real-Time Queue Warning Component

2 miles

STOPPED TRAFFIC 2 MILES

64 mph  52 mph  31 mph  25 mph

Speed Sensors

I-35 Smart Work Zones
# I-35 Smart Work Zones

<table>
<thead>
<tr>
<th>PCMS Message</th>
<th>Last 5-Minute Average Speed V (mph)</th>
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<tbody>
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<td></td>
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<tr>
<td>ROAD WORK AHEAD</td>
<td>V &gt; 55 OR V = 0.0</td>
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<td>V &gt; 55 OR V = 0.0</td>
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<td>V &gt; 55 OR V = 0.0</td>
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<td>SLOW TRAFFIC 1 MILE</td>
<td>V &gt; 55 OR V = 0.0</td>
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<td>SLOW TRAFFIC AHEAD</td>
<td>40 ≤ V &lt; 55</td>
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<td>STOPPED TRAFFIC 3 MILES</td>
<td>V &gt; 40 OR V = 0.0</td>
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I-35 Smart Work Zones
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Variable Speed Limits
Questions or Comments