Using High-Tech to Offer Alternate Route Choices

I-39/90 Expansion Project

www.i39-90.wi.gov
Interstate Improvements

- Originally built in 1958 – 1961
- Reconstruct and expand 45 miles of I-39/90 from four to six lanes
- Expand from four to eight lanes from WIS 11 to the WIS 26 interchange in Janesville
- Reconfigure 11 interchanges
- Construction through 2021
Why improve I-39/90?

Safety
- Interchanges and roadways have substandard features compared to today’s design standards
- Crash rate is approximately 20 percent higher than statewide average

Congestion & Increased Traffic
- Current Traffic: 45,000 - 60,000 vehicles per day
- Projected 2040 Traffic: 80,000 - 100,000 vehicles per day
- Higher volumes: Friday, Sunday & in summer
Why improve I-39/90?

Traffic backup on I-39/90

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Why improve I-39/90?

**Major Tourism Route**
- $1.2 billion impact from visitor expenditures in communities along I-39/90. *(2013 data)*
  - Food, lodging, retail sales and recreation.

**Movement of Goods**
- Trucks handle 90% of all freight shipped in Wisconsin
- Trucks account for nearly 30% of total traffic.

*Heavy truck traffic on I-39/90*
Traveler Information Enhancements

- Madison
- Edgerton
- Janesville
- Beloit

- Full matrix color DMS
- Bluetooth Detectors
- CCTV
- Median DMS
- Adaptive Signals

www.i39-90.wi.gov
**Alternate Route Enhancements**

- Resurface/Reconstruct
- Interchange
- Bridges
- Traffic Signals
- Adaptive Signals

**Map Details:**
- Madison
- Edgerton
- Janesville
- Beloit

**NORTH Diversion**
Alternate Route Enhancements

North Segment

Madison

Janesville

Edgerton

Beloit

Cottage Grove

McFarland

Stoughton

Dane County

Rock County

Routes 1 & 2

NORTH
Alternate Route Enhancements

Madison

Central Segment
Edgerton

Janesville

Beloit

Dane County
Rock County

Routes 3 & 4

Lake Koshkonong

Routes 5 & 6

NORTH

www.i39-90.wi.gov
Alternate Route Enhancements

North Route

South Route

Janesville

Madison

Edgerton

Janesville

Beloit

Avalon Road

Townline Road

Sunny Lane Road

County G

Hart Rd

South Segment

Routes 7 & 8

Wisconsin

Illinois

www.i39-90.wi.gov
Operational Challenge
Operational Challenge

I-39/90 NB at Prairie Hill Rd (S of IL/WI State Line)
DELAYS AHEAD
ALT ROUTE
AT EXIT 185

I-39/90 NB at Hart Rd
SEVERE DELAYS
NEXT 6 MILES
ALT ROUTE AT EXIT 183
Operational Challenge
Objective – Comparable TT

173 Total Directional Miles
Initial Data Investigation

Alt Route Travel Time – Technology Investigation

- Probe Data
- License Plate
- Bluetooth
- Magnetometers
- Radar Detection

- Data Type
- Familiarity
- Integration
- Reliability
- Cost

- Probe Data - $90k
- Microwave - $1.5M
- Bluetooth - $1M
- Magnetometers - $2M
- License Plate Readers - $2.5M

2012

Data Investigation
Initial Data Investigation

RFI/Webinar

- Probe Data
- License Plate
- Bluetooth
- Magnetometers
- Radar Detection

5 Vendors

- INRIX
- Traffax Inc.
- TomTom
- DRAKEWELL
- SENSYS Networks

Established/Known Technology

Spring 2013

RFI/Webinar
What is Probe data?

Data taken from these sources to provide Real-Time Travel times
How data becomes a travel time

- **Speed for each roadway segment**
- **Segments selected by project team**
- **TomTom speed data received by WisDOT**
- **ATMS software processes travel time data & posts on DMS**

Diagram:
- Speed data from TomTom
- Segments selected by project team
- TomTom data received by WisDOT
- ATMS software processes travel time data
- DMS posting

Webpage: www.i39-90.wi.gov
Probe Data RFP Schedule

- Draft RFP
- Draft Concept Ops.
- Final RFP Posted
- Question/Answer
- Award
- Final Concept Ops.
- Negotiation

CMT Approval

- Fall 2013
- Winter
- Spring 2014
- Summer
- Fall 2015

August 2013 – January 2015

Probe Data RFP
Probe Data RFP Schedule

Sample Data Set - Comparison

- Data Format
- Quality
- Real Time/Historic

Sample Data Set
- IH 39/90
- Hwy 73
- US 51
- Local Rds.

Memorial Day Weekend 2014
Concept Of Operations

DMS/PCMS Use for Alternate Routes

• Establish Alternate Route Segments
• Define Message Set Priorities
• Assign Message Sets to DMS/PCMS
• Develop Algorithm for Comparative TT
  • Original -> Schedule
  • Current -> Comparative
Train Detection Alerts

NB Incident

At-grade Railroad Crossing

Railroad Detection

www.i39-90.wi.gov
Train Detection Alerts
Lessons Learned / Highlights / Next Steps

- Dynamic Work Zones
- Integration and Changes of TomTom Links
- New ATMS Integration Features
- Incident / Queue Detection
Questions?

Luke Holman Luke.Holman@Strand.com