Variable Speed Limits: Texas Pilot Project

88th Annual Transportation Short Course
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Today’s Presentation

• VSL Defined
• VSL in Operations
• Texas HB 2204 Pilot Study
• Questions
Variable Speed Limits (VSL) Defined

What is a Variable Speed Limit?

Simply put, it’s a speed limit that changes when activated based on the conditions of the road including construction, congestion, and weather. Changes to the speed limit can occur in real time with modern systems. Also known as dynamic speed limits.
A History of VSL

Michigan (1960) – First VSL

Europe

Netherlands
Germany
Sweden
Denmark
Finland
England

Flag Images: http://www.flags.net/
Why use VSL?

Greater Safety
Efficient Use of Highway Facilities
Increased Compliance
Congestion Relief

More Speed Deviations = More Risk

Risk

ACCIDENT INVOLVEMENT

OVERTAKINGS

Deviation from Mean Speed (mph)
What activates VSL?

What Activates a VSL?

Congestion
- Volume
- Speed
- Occupancy

Construction
- Lane Closures

Weather
- Surface Friction
- Visibility
VSL in Operation

- ½ mi to 1 mi spacing
- Transitions of 5, 10, 15 mph – except downstream
- Speed harmonization via Troupes
VSL in Operation

**Activation**

- VSL system pings the traffic management center if it detects need for VSL
- An operator has the ability to accept/deny the implementation of VSL

**De-activation**

- System will notify operator when conditions have returned to normal
- Operator “acknowledges” deactivation. Important information is logged in the system, such as date, time, speeds that were set during VSL, etc.
HB 2204 Pilot Study

Select 3 locations with Construction, Congestion, & Weather pilot studies

Bill expires February 2015

Advanced warning signs required

Inter-agency contract with TTI

Working with Southwest Research

83rd Session 2013
Pilot Study Advanced Warning

Legislative bill requires an advance warning sign

Beacons will flash when VSL is in operation
Pilot Study Advanced Warning

Legislative bill requires an advance warning sign

Beacons will flash when VSL is in operation
Pilot Study Time Line

Tasks
1. Site Selection Assistance
2. Implementation Plan
3. Develop Evaluation Plan
4. Equipment Assistance
5. Implementation Assistance

Contract Terminates
Pilot Study Time Line

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   | 2  |   |   |   |   |   |   |   |   |   | Contract Terminates
2 |   |   |   |   |   |   |   |   |   |   | Feb. 1
3 |   |   |   |   |   |   |   |   |   |   | Bill Expires
4 & 5 |   |   |   |   |   |   |   |   |   |   |   
6 |   |   |   |   |   |   |   |   |   |   | 2014 | 2015

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HB 2204 Pilot Study

Weather

Construction

Congestion
San Antonio
SL 1604
HB 220
HB 2204 Pilot Study | Construction VSL

I-35 (NB) Temple - Belton

Visibility

ROAD WORK AHEAD

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HB 2204 Pilot Study | Construction VSL

I-35 (NB)
Temple – Belton

SPEED LIMIT 65

ROAD WORK AHEAD
X Visibility

WORK ZONE
SPEED LIMIT 65

WORK ZONE
SPEED LIMIT 65

WORK ZONE
SPEED LIMIT 65

SPEED LIMIT 65

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HB 2204 Pilot Study | Construction VSL

I-35 (NB) Temple – Belton

Visibility in Work Zone

Congestion in Work Zone
Activation

- Began on June 23, 2014
- Thunderstorm 15 min after
- Includes Pavement Sensors

Initial Observations

- Weather detection devices needed calibration
- Complaints on visibility / location of signs
- July 3 – Thunderstorm destroyed two signs
HB 2204 Pilot Study | Congestion VSL

Loop 1604 (WB) San Antonio
HB 2204 Pilot Study | Congestion VSL

Loop 1604 (WB)
San Antonio

Visibility

SPEED LIMIT 70

maps.google.com
HB 2204 Pilot Study | Congestion VSL

Loop 1604 (WB) San Antonio

Uh oh, 5:00 Traffic...that starts at 3-ish
Activation

- Activated on June 30, 2014
- Includes Pavement Sensors

Initial Observations

- Congestion related activation occurs on a daily basis
HB 2204 Pilot Study | Weather VSL
HB 2204 Pilot Study | Weather VSL

I-20
Ranger Hill

SPEED LIMIT 45
SPEED LIMIT 50
SPEED LIMIT 60
SPEED LIMIT 65
SPEED LIMIT 50
SPEED LIMIT 45

Heavy Rain

maps.google.com

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I-20 Ranger Hill

**Activation**
- Activated on July 21, 2014
- Includes Pavement Sensor & Visibility Sensor

**Observations**
- Weather “hot spots” hard to predict
- No major weather flare-ups yet
Variable speed limits

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