IMPROVING SAFETY AT RURAL INTERSECTIONS

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The Problem

- US Intersections
  - 9,000 fatalities
  - 1.5 million injuries
  - 44% of all reported crashes (2.8 million).
The Problem
Current Situation

Unsigned or minimally signed
Limited Visibility
Current Situation 2

Sign clutter
Inefficient
Current Situation 3

- No deceleration/acceleration lanes
- No turn protection
Current Situation 4

Weather Issues

Impact of rain, snow, fog, dust
Current Research

- Sweden
  - 500 fatalities per year
  - SRA field trials
  - 2003-2007
Variable speed limits: evaluation at intersections

Between 2003 and 2007 the Swedish Road Administration (SRA) is conducting variable speed limit field trials at 19 places in different parts of the country. Adjustable road signs have been installed making access from the side roads difficult, particularly for heavy vehicles. Some of these intersections are accident black spots, and some have adjacent bus stops.
Current Research

- 19 sites across the country
  - Urban to Rural
  - Interstate to County road
  - Data collection
  - Equipment testing
General Concept

- Data Collection
  - Probes
- Monitor/Analysis
  - TMC
- Dissemination
  - VSL
Figure 1. When a vehicle on the side road approaches the intersection the speed limit is reduced automatically from 90 to 70 km/h in both directions. When a vehicle is turning left, the speed limit is reduced to 70 km/h – but only for oncoming traffic.
Legal Implications

- Can speed limits be reduced?
  - “Statutory”
  - “Recommended”

Statutory maximum speed

Recommended maximum speed
Findings

- 5-15km/h reduction in average speed at intersections
- Even fastest (85th percentile) drivers reduced speed
- 99.8% system uptime
Recommendations

- Side road traffic low (10% volume)
  - Dynamic warning signs

- Side road traffic higher (40% +)
  - Fixed signs
Michigan Study

- Phase One – Research
- Phase Two – Field Test
Federal/State sign requirements
Speed limit rules

Phase One
Findings

- Development of sign
  - Unobtrusive when off
  - Clear when active

- “Recommendation” or “Warning” rather than mandatory speed limit change
Phase Two

- Site Selection
  - Rural Michigan

- Equipment Procurement

- Deployment
  - Summer 2008
Phase Two

- 12 Month test period
- Report
- Statewide deployment?