National Rural ITS Conference

Seaside, Oregon
August 22-27, 2009

USDOT
Rural Safety Innovation Program

Rural Intersection Collision Avoidance System (RICAS)

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PRESENTATION AGENDA

• Project Background
• Intersection Safety Characteristics
• RICAS Goal
• RICAS Components
• System Overview
• RICAS Project Outreach
• Expected Project Benefits
• Project Schedule
• Questions
PROJECT BACKGROUND

- Pooled Fund Study - Reducing Crashes at Rural Intersections: Toward a Multi-State Consensus on Rural Intersection Decision Support
- Focus: develop a better understanding of the causes of crashes at rural unsignalized intersections and then develop a technology solution to address the cause(s).
PROJECT BACKGROUND

• Pooled Fund Study Focused on US 53 from Rice Lake, WI to Superior, WI
PROJECT BACKGROUND

2008 FHWA Competitive Rural Safety Innovation Program

• **Goal:** improve rural road safety by assisting rural communities in addressing highway safety problems.

• **Objectives:**
  1. Improve safety on local and rural roads with innovative approaches in which rural communities develop and design local solutions to their roadway safety problems.
  2. Provide best practices and lessons learned on innovative safety technologies to assist rural road owners and operators in the development and implementation of infrastructure-based rural safety countermeasures that complement behavioral safety efforts.
  3. Promote national awareness and interest in addressing rural safety issues.
  4. Promote the use of intelligent transportation systems (ITS) technologies to improve safety on rural roads.
INTERSECTION SAFETY CHARACTERISTICS

• US 53 corridor between Rice Lake and Superior has a number of intersections with higher than expected crash rates.

• US 53 and STH 77 in Minong still suffers from high crash rates despite a variety of special treatments (pavement markings, median stop bars, median stop signs with flashing beacons, etc.).

• US 53/STH 77 intersection on the State of Wisconsin’s 5% list, which includes an inventory of the most severe safety problems on state routes.
RICAS GOAL

- Demonstrate technology that improves the safety of rural thru-stop intersections by providing drivers information that promote safer gap selection (i.e., intersection crossing)
RICAS COMPONENTS

- Sensing – on mainline, used to determine position, speed, and lane of traffic approaching the intersection
• Computation – collecting sensor data and assesses threats
  – 3 threat categories
    1. Inactive – no traffic threat
    2. Alert – conditions require careful consideration
    3. Warning – dangerous maneuvers should be avoided
RICAS COMPONENTS

- Electronic Message Signs – relay alerts and warnings to side-road drivers as determined by the computational system
View of the near-side DII. Unsafe to cross.

Mainline traffic on the left and right is less than 7.5 seconds away.

Actual sign: 66” x 92”; 80 x 112 pixels (20 mm pitch)
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RICAS PROJECT OUTREACH

- Intended to avoid intensive driver education – technology is supposed to be intuitive
- Work with Local Media
- Outreach material developed
  - Tri-fold brochure
  - Website
  - Presentations

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EXPECTED PROJECT BENEFITS

• Reduce the frequency of crashes at the intersection of US 53 and STH 77 in Minong

• Better understanding of drive behavior, both by frequent and infrequent users of the intersection

• Documentation of the safety benefits to support a benefit-cost analysis

• Pending proper evaluation, provide motivation for further deployments throughout the U.S.
## Project Schedule

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Questions?

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