Cable Guardrails – How Does that Grab ya?

Centerline and Edgeline Rumble Strips

Presented By: Jeremy L. VanVleet, P.E.
Office of Traffic Safety

Purdue Road School
10 March 2010

Agenda

• Introduction – What are Centerline and Edgeline Rumble Strips?
• Crash Data and Analysis
• Decision tree for implementation
• INDOT Statewide Programmatic Studies Results
• INDOT’s next step for implementation
• Questions
Introduction

• What are centerline (CLRS) and edgeline (ELRS) rumble strips?
• NCHRP Report 500, Volumes 4 and 6, states that the CLRS are tried and the ELRS are experimental
• Rumble strips (milled or rolled) along edgeline of roadway or along the centerline
• Provides a warning device for drivers that are about to leave their lane

FHWA Crash Reduction Factors – CLRS
Crash Data and Analysis

- Crash Data Time Frame:
- Target Crash Types – Fatal and Injury Only
  - Centerline Rumble Strips
    - Opposite Direction Sideswipes
    - Head On Collisions
  - Edgeline Rumble Strips
    - Run off Road Crashes
- The Crash data was filtered for the above types of crashes and were placed in ArcGIS using the latitude and longitude fields from the crash data that was pulled from ARIES.
Crash Data and Analysis

Figure A1: Left of Centerline Crashes in 5 Mile Segments

Legend:
- 1 - 2
- 3 - 8
- 9 - 19
- 20 - 100
- 11 - 19
- Interstate
- State Route
- 2 Lane
- 1 Lane
- County Boundaries

Figure A1: ROR crashes in 5 mile segments

Legend:
- 1 - 9 ROR Crashes
- 10 - 29 ROR Crashes
- 30 - 100 ROR Crashes
- Interstate, 15 and 65 Highways
- Urban Area Boundaries
- County Boundaries
Crash Data and Analysis

- After the crash data was graphically shown using ArcGIS, candidate locations were determined and were then field checked to verify the feasibility of the rumble strips as a counter measure.
- A decision tree was produced to determine appropriate locations for the use of the rumble strip countermeasures.
- Along with checking the feasibility of the rumble strips during the field check, logical start and end points were also determined.

CLRS Decision Tree

Notes:
1. The posted speed limit determines where centerline rumble strips should be implemented; advisory speed limit signs have no affect on the placement of centerline rumble strip.
2. Rumble strips should be broken at intersections and driveways. A suggestion would be a 500 ft gap centered on the intersection and driveways.
3. If there is a left turn lane present at the intersection then the rumble strips should stop at the beginning of the left turn lane.
4. Rumble strips should also be broken at bridges so that the rumble strips are not milled into the bridge deck.
INDOT Programmatic Studies

- CLRS Study
  - Study was completed August of 2008
  - Report produced 28 candidate sites
    - Approximately 380 miles of centerline rumble strips
- ELRS Study
  - Study was completed November 2009
  - Report produced 24 candidate sites
    - Approximately 250 miles of edgeline rumble strips

INDOT’s Next Step

- INDOT has not yet implemented these countermeasures. The Office of Traffic Safety is planning to have specifications and detail sheets completed for centerline and edgeline rumble strips sometime during 2010.
- Sometime, within 2010, test projects using rumble strips will be going in on the state system.
Questions?