FHWA Proven Safety Countermeasures

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Introduction and Background

• FHWA issued Nine Proven Countermeasures Guidance in 2008
• Many of those countermeasures have been widely applied
• In 2012 the guidance was updated

“While States should still be considering the application of half of the countermeasures listed in the 2008 guidance, we encourage safety practitioners to consider a new set of countermeasures that are research-proven, but not widely applied on a national basis.” – 2012 Countermeasure Guidance
2012 FHWA Proven Countermeasures

1. Delineation and Friction for Horizontal Curves
2. Rumble Strips and Stripes on 2-Lane Roads
3. Safety Edge
4. Roundabouts
5. Corridor Access Management
6. Signal Backplates with Retroreflective Borders
7. “Road Diet” (Roadway Reconfiguration)
8. Pedestrian Hybrid Beacon
9. Medians and Pedestrian Crossing Islands in Urban and Suburban Areas

Focus Areas
- Roadway Departure
- Intersection Corridor
- Pedestrian Safety
Data-Driven Safety Process

“...countermeasure selection should continue to be based on appropriate analytical techniques...”

- 2012 Countermeasure Guidance

Encourage States and local agencies to use Analytical Site-Specific Approaches (such as the Highway Safety Manual) and Systemic Planning Approaches to Make Safety Investment Decisions

• Conduct Appropriate Analysis of Quality Safety Data

• Use Evidence-Based Framework for Decision-Making

• Use the CMF Clearinghouse to Choose Appropriate Countermeasures

• Consider the Proven Countermeasures as Viable Options
Roadway Departure Focus Area

Roadway Departure Risk Management
1. Keep Vehicles on the Roadway
2. Reduce Likelihood of Crashes
3. Minimize Severity

Roadway Departure Crashes: 53%
- Run Off Road Left: 10%
- Run Off Road Right: 24%
- Crossovers: 17%
- Non Roadway Departures: 47%
- Undesignated Roadway Departures: 2%
Enhanced Delineation and Friction for Horizontal Curves

• Low-cost treatment
• Includes signs and markings that help drivers safely negotiate curves or...
• Additional pavement friction to address geometric deficiencies and low friction
• Safety benefits
  – Up to 43% reduction of all fatal crashes
Longitudinal Rumble Strips and Stripes on 2-Lane Roads

• Alerts drivers with sound and vibration when vehicles cross the edge or center line.

• Reduction of Severe Crashes:
  – Rural Edge, Run Off Road: 36%
  – Rural Center, Head-ons: 44%
  – Urban Center, Head-ons: 64%
Safety Edge℠

- Consolidating the pavement edge into 30° shape during paving to provide stability for vehicles recovering from a roadway departure due to pavement drop off
- Implement as a standard practice for paving and resurfacing projects
- 6% reduction of total crashes
- B/C range: 4 to 63
Intersection-Corridor Focus Area:

- Corridor Access Management
- Backplates with Retroreflective Borders
- “Road Diet” (Roadway Reconfiguration)
- Roundabouts

“There are approximately 300,000 signalized intersections in the United States. About 1/3 of all intersection fatalities occur at these locations; resulting in roughly 2,300 people killed in a single year. “

— Roundabouts Fact Sheet
Corridor Access Management

- Involves the design, implementation and control of entry and exit points along a roadway
- Reducing access points along urban/suburban corridor can reduce injury and fatal crashes by about 25%\(^1\)
- May be considered as a component of general corridor improvements or as its own project

1. AASHTO Highway Safety Manual, Chapter 14
Backplates with Retroreflective Borders

- Retroreflective strip added

As a systemic retrofit safety improvement

1. CMF Clearinghouse
“Road Diet” (Roadway Reconfiguration)

- Conversion of four-lane undivided roadway into three lanes with two through-lanes and a center two way left turn.
- Best on Roadways with ADT of 20,000 or less.

Safety results: 29% reduction in all roadway crashes
Pedestrian Safety Focus Area

- Medians and Pedestrian Crossing Islands in Urban and Suburban Areas

Pedestrian Safety Facts:
- Pedestrians represent over 12% of Highway Fatalities.
- Midblock locations account for over 70% of pedestrian fatalities.
- Over 80% of pedestrian fatalities hit by vehicles traveling at 40 mph or faster will die, while less than 10% die when hit at 20 mph or less.
Medians and Pedestrian Crossing Islands in Urban and Suburban Areas

- **Median** is between opposing lanes of traffic, excluding turn lanes (can be paint or concrete).

- Islands can be placed at intersections or midblock locations to separate crossing pedestrians from motor vehicles.

- Use in curbed sections of multi-lane roadways in urban areas with vehicular-pedestrian conflicts and med/high travel speeds.

Safety results:
- 46% reduction in pedestrian crashes
- 39% reduction in total crashes
Improving safety is a top priority for the U.S. Department of Transportation, and FHWA remains committed to redressing Nation’s highways. We are highly confident that certain processes, infrastructure design techniques, and highway improvements can significantly reduce injuries and fatalities.

In 2008, FHWA issued "Guidance Memos on the Design and Implementation of Proven Safety Countermeasures" which outlines the latest safety research. Safety practitioners are encouraged to consider these new recommendations.

Click on one of the nine countermeasures below for more information and a downloading option.

**Fact Sheets and Further Information**

Questions and Answers