Proven Safety Countermeasures
FHWA Proven Safety Countermeasures

- Roadside Design Improvement at Curves
- Reduced Left-Turn Conflict Intersections
- Systemic Application of Multiple Low Cost Countermeasures at Stop-Controlled Intersections
- Leading Pedestrian Interval
- Local Road Safety Plan
- USLIMENTS
- Enhanced Delineation and Friction for Horizontal Curves
- Longitudinal Rumble Strips and Stripes on Two-Lane Roads
- Median Barrier
- Safety Edge
- Backplates with Retroreflective Borders
- Corridor Access Management
- Dedicated Left- and Right-Turn Lanes at Intersections
- Roundabouts
- Yellow Change Intervals
- Medians and Pedestrian Crossing Islands in Urban and Suburban Areas
- Pedestrian Hybrid Beacon
- Road Diet
- Walkways
- Road Safety Audit

https://safety.fhwa.dot.gov/provencountermeasures/
Enhanced Delineation and Friction for Horizontal Curves

**Enhanced Delineation**
- Pavement Markings
- Post-mounted delineators
- Brighter/larger signs
- Dynamic curve warning signs

**Increased Pavement Friction**
- Sharp Curves
- Wet Conditions
- Polished Surfaces
- Excessive Speeds

https://safety.fhwa.dot.gov/provencountermeasures/enhanced_delineation/
LCSIs for Horizontal Curves

https://www.youtube.com/watch?v=4riUd1MJ5Yw
High Friction Surface Treatment - Pennsylvania
Rumble strips and stripes are designed to address these crashes caused by distracted, drowsy, or otherwise inattentive drivers who drift from their lane.
Rumble Strip Video
Systemic Application of Multiple Low-Cost Countermeasures at Stop Controlled Intersections

(1) analyze systemwide data to identify a problem
(2) look for similar risk factors present in severe crashes
(3) deploy on a large scale low-cost countermeasures that address the risk factors contributing to crashes
Systemic Approach to Intersections

https://www.youtube.com/watch?v=zghd9qUtFgs
Roundabouts

- Slow speeds for all users
- Reduced conflict points
- Less severe crashes
Roundabouts - Georgia

- **Population:** 10+ million
- **Area:** 59,425 sq. miles
- **Miles of public Roadway:**
  - 128,620 Total
  - 17,926 On System
  - 1,247 Interstate
- **Traffic Signals:**
  - +/- 10,000 Total
  - +/- 6,000 On System
Roundabouts - Georgia

- **170+ existing**
  - 22 On System/or GDOT $$
  - 150+ Off System
  - 13 Multi-lanes/Hybrids
  - 150+ Single-lanes
  - 7 Minis
- **25+ Currently Under Construction**
  - 16 On System
- **300+ Other Circular Intersections**
• Originally side-street stop
• Single-lane roundabout
• Open to traffic June 2015
Local Road Safety Plans

- 150+ planned/programmed RBs
- 135+ On System/or GDOT $$
- 25+ Multi-lanes

In the works!
ICE

Intersection Control Evaluation

*Process to determine the ‘best’ intersection design/traffic control for a given location* - FHWA

**Why ICE??**

Integrate safety into our decision making process for intersection control on **ALL** projects

- 25%+ of fatality crashes in GA are intersection related
- 75% of all crashes in GA are intersection related
Pedestrian Crossing Islands

- Pedestrian crashes account for approximately 15 percent of all traffic fatalities annually, and over 75 percent of these occur at non-intersection locations.
- Pedestrians must estimate vehicle speeds, adjust their walking speed, determine gaps in traffic, and predict vehicle paths.
- Installing raised medians or pedestrian crossing islands can help improve safety by simplifying these tasks and allowing pedestrians to cross one direction of traffic at a time.
  - Mid-block areas.
  - Approaches to multi-lane intersections.
  - Areas near transit stops or other pedestrian-focused sites.

SAFETY BENEFITS:
- Raised Median
  - 46% Reduction in pedestrian crashes
- Pedestrian Crossing Island
  - 56% Reduction in pedestrian crashes

Leading Pedestrian Interval

- Increased visibility of crossing pedestrians
- Reduced conflicts between pedestrians and vehicles
- Increased likelihood of motorists yielding to pedestrians
- Enhanced safety for pedestrians who may be slower to start into the intersection

Source: pedbikeimages.org / Burden

SAFETY BENEFIT:
60%
Reduction in pedestrian-vehicle crashes at intersections
LPI Video

https://youtu.be/_s561eNon8w
Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations

Table 1. Application of pedestrian crash countermeasures by roadway feature.

<table>
<thead>
<tr>
<th>Roadway Configuration</th>
<th>Posted Speed Limit and AADT</th>
<th>Vehicle AADT &lt;9,000</th>
<th>Vehicle AADT 9,000–15,000</th>
<th>Vehicle AADT &gt;15,000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>≤30 mph (35 mph ≥40 mph)</td>
<td>≤30 mph (35 mph ≥40 mph)</td>
<td>≤30 mph (35 mph ≥40 mph)</td>
<td></td>
</tr>
<tr>
<td>2 lanes</td>
<td>2 4 5 6</td>
<td>4 5 6 7</td>
<td>5 6 7 9</td>
<td>6 7 9 10</td>
</tr>
<tr>
<td>(1 lane in each direction)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 lanes with raised median (1 lane in each direction)</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>3 lanes w/o raised median (1 lane in each direction with a two-way left-turn lane)</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>4+ lanes with raised median (2 or more lanes in each direction)</td>
<td>1 2 3 4 5 6</td>
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</tr>
</tbody>
</table>

Given the set of conditions in a cell,

# Signifies that the countermeasure is a candidate treatment at a marked uncontrolled crossing location.

● Signifies that the countermeasure should always be considered, but not mandated or required, based upon engineering judgment at a marked uncontrolled crossing location.

○ Signifies that crosswalk visibility enhancements should always occur in conjunction with other identified countermeasures.

The absence of a number signifies that the countermeasure is generally not an appropriate treatment, but exceptions may be considered following engineering judgment.

1. High-visibility crosswalk markings, parking restrictions on crosswalk approach, adequate nighttime lighting levels, and crossing warning signs
2. Raised crosswalk
3. Advance Yield Here To (Stop Here For) Pedestrians sign and yield (stop) line
4. In-Street Pedestrian Crossing sign
5. Curb extension
6. Pedestrian refuge island
7. Rectangular Rapid-Flashin (RRFB)**
8. Road Diet
9. Pedestrian Hybrid Beacon (PHB)**

VERY Low Cost Countermeasures

• **Clear the vegetation**
  • Signs, signals, intersections, driveways, and sidewalks

• **Observe and adjust signal timing**
  • Particularly off-peak
NHTSA’s Countermeasures that Work

1. Impaired Driving
2. Seatbelts
3. Speed Limits
4. Distracted Driving
5. Motorcycles
6. Young Drivers
7. License Renewal
8. Education Campaigns
9. Bicycle Helmets

Publicized Sobriety Checkpoints

- Authorized in 38 States + DC
- Documented Crash Reduction
  - All Crashes: 10-15%
  - Alcohol-related crashes: 17%
  - Alcohol-related fatal crashes: 9%

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Short-Term High-Visibility Belt Law Enforcement

- **Documented Belt Use Increase**
  - 16% increase
- Increased use in conjunction with public education/outreach and paid/donated media

LRSP - Brown County, WI

“Do what you can, with what you have, where you are.”

– Theodore Roosevelt
Local Road Safety Plans
Safe Roads Ahead