Improving Pedestrian Safety at Uncontrolled Crossing Locations

Lifesavers Conference
April 2018
5,987 Pedestrian Fatalities in 2016

Pedestrian Fatalities

- 2010: 3,500
- 2011: 4,000
- 2012: 4,500
- 2013: 5,000
- 2014: 5,500
- 2015: 6,000
- 2016: 5,987

Pedestrian Fatality Rate per 100,000 Population

- 2010: 0.00
- 2011: 0.20
- 2012: 0.40
- 2013: 0.60
- 2014: 0.80
- 2015: 1.00
- 2016: 2.00
“On average, a pedestrian was killed nearly every 1.5 hours in traffic crashes in 2016.”

NHTSA
72% of pedestrian fatalities occur at non-intersection locations.

Source: VHB
STEP Countermeasures

- Crosswalk Visibility Enhancements
- Raised Crosswalk
- Pedestrian Refuge Island
- Pedestrian Hybrid Beacon (PHB)
- Road Diet

*Rectangular Rapid Flashing Beacon (RRFB) to be included in updated materials
Crosswalk Visibility Enhancements
Reduce crashes by 23%-48%
Raised Crosswalk

Reduce pedestrian crashes by 45%
Refuge Island
Reduce pedestrian crashes by 32%
Pedestrian Hybrid Beacon
Reduce pedestrian crashes by 55%
Reduce all crashes by 19%-47%
Safe Transportation for Every Pedestrian (STEP)

Cost-effective countermeasures with known safety benefits can help reduce pedestrian fatalities at uncontrolled crossing locations and un-signalized intersections.

Pedestrians account for over 17.5 percent of all fatalities in motor vehicle traffic crashes, and the majority of these deaths occur at uncontrolled crossing locations such as mid-block or un-signalized intersections. These are among the most common locations for pedestrian fatalities generally because of inadequate pedestrian crossing facilities and insufficient or inconsistent crossing opportunities, all of which create barriers to safe, convenient, and complete pedestrian networks.

Expecting pedestrians to travel significantly out of their way to cross a roadway to reach their destination is unrealistic and counterproductive to encouraging healthier transportation options. By focusing on uncontrolled locations, agencies can address a significant national safety problem and improve quality of life for pedestrians of all ages and abilities.

Pedestrian Safety Countermeasures

FHWA is promoting the following pedestrian safety countermeasures through the fourth round of Every Day Counts (EDC-4):

- Road Dots: can reduce vehicle speeds and the number of times pedestrians cross, and they create space to add new pedestrian facilities.
- Pedestrian Hybrid Beacons (PHBs): are a beneficial intermediate option between RFTIs and a full pedestrian signal. They provide positive stop control in areas without the high pedestrian traffic volumes that typically warrant signal installation.
- Pedestrian refuge islands allow pedestrians a safe place to stop at the midpoint of the roadway before crossing the remaining distance. This is particularly helpful for older pedestrians or others with limited mobility.

Resources

Fact Sheet

STEP Tech Sheets

Guide to Improve Uncontrolled Crossings

- Pocket version
- Process Graphic

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Resources

Fact Sheet
STEP Tech Sheets
Guide to Improve Uncontrolled Crossings

- Pocket version
- Process Graphic

Webinars/Videos

STEP for Local Transportation Agencies

www.fhwa.dot.gov/innovation/everydaycounts/edc_4/step.cfm
Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations

Follows a 6-step process

Guides the selection of countermeasures to improve pedestrian safety

Supported by a “Field Guide for Selecting Countermeasures at Uncontrolled Pedestrian Crossing Locations”
• Collect pedestrian crash and safety data
• Evaluate pedestrian accommodation policies
• Initiate a Pedestrian Safety Action Plan
• Review pedestrian and traffic safety plans
• Conduct a walkability audit
• Inventory pedestrian crossings and observed traffic behavior
• Classify pedestrian crossings: controlled vs uncontrolled
• Inventory roadway characteristics
• Screen the network for high-crash or high-risk locations
Diagram crash reports

Identify crash factors

Lead an informal site visit

Conduct a Road Safety Audit
Table 1: Application of Pedestrian Crash Countermeasures by Roadway Feature

<table>
<thead>
<tr>
<th>Roadway Configuration</th>
<th>Speed Limit</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</td>
<td>35 mph</td>
<td>≥40 mph</td>
<td>≤30 mph</td>
</tr>
<tr>
<td>2 lanes*</td>
<td>1 2 3 4</td>
<td>1 5 6 7</td>
<td>1 3 4</td>
<td>1 5 6 7</td>
</tr>
<tr>
<td>3 lanes with raised median*</td>
<td>1 2 3 4</td>
<td>1 5 6 7</td>
<td>1 3 4</td>
<td>1 5 6 7</td>
</tr>
<tr>
<td>3 lanes w/o raised median</td>
<td>1 2 3 4</td>
<td>1 5 6 7</td>
<td>1 3 4</td>
<td>1 5 6 7</td>
</tr>
<tr>
<td>4+ lanes with raised median</td>
<td>1 3 5 7</td>
<td>1 5 7 9</td>
<td>1 3 5</td>
<td>1 5 7 9</td>
</tr>
<tr>
<td>4+ lanes w/o raised median</td>
<td>1 3 5 7</td>
<td>1 5 7 9</td>
<td>1 3 5</td>
<td>1 5 7 9</td>
</tr>
</tbody>
</table>

*One lane in each direction  *One lane in each direction with two-way left-turn lane

- **1** High-visibility crosswalk markings, parking restriction on crosswalk approach, adequate nighttime lighting levels
- **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** Pedestrian Hybrid Beacon
- **8** Road Diet

Given the set of conditions in a cell,

- • 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 the countermeasure is a candidate treatment at a marked uncontrolled crossing location.

The absence of a number signifies that the countermeasure is generally not an appropriate treatment, but exceptions may be considered following engineering judgment.
<table>
<thead>
<tr>
<th>Pedestrian Crash Countermeasure for Uncontrolled Crossings</th>
<th>Safety Issue Addressed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Conflicts at crossing locations</td>
</tr>
<tr>
<td>Crosswalk visibility enhancement</td>
<td>✅</td>
</tr>
<tr>
<td><em>High-visibility crosswalk markings</em></td>
<td>✅</td>
</tr>
<tr>
<td>Parking restriction on crosswalk approach*</td>
<td>✅</td>
</tr>
<tr>
<td>Improved nighttime lighting*</td>
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*These countermeasures make up the STEP countermeasure “crosswalk visibility enhancements.” Multiple countermeasures may be implemented at a location as part of crosswalk visibility enhancements.

Table 2: Safety Issues Addressed per Countermeasure
Consult design and installation resources

- Manual on Uniform Traffic Control Devices (MUTCD)
- AASHTO Guide for the Design of Pedestrian Facilities
- Local design guidance and selection criteria

Pedestrian Hybrid Beacon
6 Identify opportunities and monitor outcomes

- Construct improvements
- Monitor results of implementation
- Consider funding options
- Identify implementation opportunities

Raised Crosswalk
Source: FHWA
Interdisciplinary Approach

- Form a committee or coalition to discuss pedestrian crossing safety issues
- Share the safety benefits of countermeasures with decision-makers
- Ask local officials to create a pedestrian safety policy and data-driven action plan
- Conduct road safety audits
- Identify non-engineering strategies to improve safety
- Engage the public to support investments in crossing improvements
FHWA EVERY DAY COUNTS 4 / STEP
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