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PEDESTRIAN SAFETY STEP Program Offers Proven Engineering Solutions

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About 6,000 pedestrians were killed across the United States in 2016, 169 of them in Pennsylvania. That means, on average that year, a pedestrian died nearly every 1.5 hours. According to the National Highway Traffic Safety Administration's Fatality Analysis Reporting System (FARS), pedestrian fatalities nationwide increased by 27 percent from 2007 to 2016 while all other traffic deaths decreased by 14 percent. Pedestrians accounted for 16 percent of all road fatalities in 2016.

The behavior of both drivers (*speeding, distracted, impaired, or a combination*) and pedestrians (*distracted, impaired, not using pedestrian accommodations or push buttons, or ignoring crossing signals*) contribute to the number and severity of crashes.

Infrastructure also plays a role. By analyzing crash data with road data, transportation planners can get a better understanding of how land use and road design can lead to systemic approaches that may help reduce pedestrian crashes.

For example, pedestrian crashes may be more common in an area where

a residential development is located on one side of the street and a large commercial shopping center on the other and there are either no or inadequate pedestrian accommodations for crossing.

Reducing pedestrian crashes

The Safe Transportation for Every Pedestrian (STEP) program, one of the Federal Highway Administration's (FHWA) Every Day Counts (EDC) initiatives, focuses on providing cost-effective countermeasures at uncontrolled crossing locations and signalized intersections to reduce

Pedestrian accidents account for a significant percentage of road fatalities nationwide. By implementing proven safety countermeasures, townships can reduce the number of pedestrian crashes and save lives.



PEDESTRIAN SAFETY

pedestrian fatalities. It is centered on the “engineering” portion of the “three E” approach to highway safety: education, engineering, and enforcement. (See the box on the adjacent page for more information about the STEP and EDC programs.)

Applying cost-effective countermeasures that have known safety benefits can help reduce pedestrian fatalities at both uncontrolled and signalized crossing locations. The following countermeasures are all proven yet relatively underused innovations that can enhance road and pedestrian safety:

- **Rectangular rapid flashing beacons** are LED lights that flash in a rapid, irregular manner when activated by a pedestrian. Their use can result in a 47 percent reduction in pedestrian crashes.
- **Leading pedestrian intervals** allow pedestrians to begin crossing three to

four seconds before vehicles get a green signal. Their use may reduce pedestrian crashes by up to 59 percent.

- **Crosswalk visibility enhancements**, such as signs, high-visibility markings, and overhead lighting, can enhance

the visibility of crossing locations and pedestrians for a relatively low cost and provide a 23 to 48 percent reduction in pedestrian crashes.

- **Raised crosswalks** combine a crosswalk with a speed table to improve the visibility of pedestrians on lower-speed, lower-volume roads. They can result in a 45 percent reduction in pedestrian crashes.

• **Pedestrian crossing or refuge islands** provide a break at the midpoint of a crossing to allow a pedestrian to cross one direction of traffic at a time. They can reduce pedestrian crashes by 32 percent.

• **Pedestrian hybrid beacons**, also known as hawk signals, are overhead flashing red light systems that will stop traffic when activated. This more expensive system is not approved for use in Pennsylvania because state laws require motorists to yield for pedestrians. These systems, however, can result in an 18 to 37 percent reduction in pedestrian crashes.

• **Road diets** reduce lanes and potentially lower vehicular speeds. This countermeasure may produce a decline in crashes overall in addition to reducing pedestrian crashes by 19 to 47 percent.

Selecting and implementing the right countermeasure

To implement one of the STEP countermeasures, engineers should urge



Proven countermeasures include (clockwise from top left) signage, pedestrian islands, rectangular rapid flashing beacons, and raised crosswalks.

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