

UNSIGNALIZED INTERSECTION SAFETY STRATEGIES



Improve Pedestrian and Bicycle Facilities to Reduce Conflicts between Motorists and Nonmotorists

WHERE TO USE

Unsignalized intersections that experience crashes involving pedestrians and/or bicyclists with motor vehicles or that have the potential for such crashes.



Photos by: FHWA

DETAILS

Nearly one-third of all pedestrian-related crashes occur at or within 50 feet of an intersection. Of these, 30% involve a turning vehicle. Another 22% of pedestrian crashes involve a pedestrian either running across the intersection or darting out in front of a vehicle whose view was blocked just prior to the impact. Finally, 16% of these intersection-related crashes occur because of a driver violation (e.g., failure to yield right-of-way). Improvements to pedestrian facilities (short of grade separation) that may reduce conflicts between motorists and nonmotorists include:

- continuous sidewalks;
- signed and marked crosswalks;
- pedestrian signs, signals, and markings;
- sidewalk set-backs; and
- lighting.

Some of the problems that bicyclists face at intersections include high traffic volumes and speeds and lack of space for bicyclists. Possible improvement projects include:

- widening the outside through-lanes or adding bike lanes;
- providing median refuges at key minor street crossings;
- providing independent bicycle/pedestrian structures where necessary;
- replacing poorly designed drain grates with bicycle-safe models; and
- providing smooth paved shoulders.

Further details may be found in the implementation guide (NCHRP Report 500, Volume 10) for addressing pedestrian crashes. FHWA maintains a site that provides detailed information on pedestrian crash countermeasures at intersections. (safety.fhwa.dot.gov)



KEY TO SUCCESS

Get the appropriate agencies to look at pedestrian and bicycle facilities from a more systematic point of view. That is, rather than making improvements where problems occur, the needs of pedestrians and bicyclists should be anticipated during the design of other intersection improvements, and appropriate improvements should be incorporated in the design before such problems occur. It is desirable to involve groups representing pedestrians and bicyclists in the early stages of a program's development.

ISSUES

Improving pedestrian and bicycle facilities is not a one-time process. The facilities also need to be properly maintained. For example, some issues are often overlooked—a missing or broken section of sidewalk or a construction zone that forces pedestrians to walk in a traffic lane.

TIME FRAME ●●○

The implementation time for improvements to pedestrian and bicycle facilities is highly variable.

COSTS ●●○○

The cost of improvements to pedestrian and bicycle facilities is highly variable.

EFFECTIVENESS

VARIABLES: It is expected that improvements to pedestrian and bicycle facilities at unsignalized intersections will reduce the number of crashes between motorists and nonmotorists. Quantitative estimates of effectiveness may exist for some of the countermeasures that may be employed, but not for others. See <http://safety.fhwa.dot.gov/saferjourney/Library/matrix.htm> for further details.

One study concluded that installing pedestrian crossings at rural locations can reduce pedestrian crashes by 60%. Another study indicated that bicycle crashes can be reduced by up to 36% by providing bicycle lanes.

COMPATIBILITY

Strategies to reduce pedestrian and bicycle crashes are compatible with most other strategies for improving safety at unsignalized intersections.

SUPPLEMENTAL INFORMATION

State and local highway agencies and other local agencies should ensure that policies for new roadway construction include pedestrian and bicycle considerations (e.g., provision of sidewalks or shoulders).

There are well-organized pedestrian and bicycling organizations that should be considered partners in any planning effort, such as the National Center for Bicycling and Walking (www.walkinginfo.org) and the Pedestrian and Bicycle Information Center (www.bikewalk.org).

For more details on this and other countermeasures: <http://safety.transportation.org>

For more information contact:

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