



# A Guide for Addressing Unsignalized Intersection Collisions

One of a Series of Guides to Help States Improve Highway Safety

## Intersection Crashes—Large Part of the Problem

Intersections constitute only a small part of the overall highway system, yet intersection-related crashes constitute more than 50 percent of all crashes in urban areas and more than 30 percent in rural areas. Nearly 36 percent of crashes at unsignalized intersections involve injuries and 9 percent involve fatalities.

### Representative Countermeasures

- ✓ **Improve management of access near unsignalized intersections:** Improve driveway closures and relocations, and implement driveway turn restrictions.
- ✓ **Reduce the frequency and severity of intersection conflicts through geometric design improvements:** Provide left/right-turn lanes or longer or offset left/right-turn lanes at intersections; provide by-pass lanes on shoulders at T-intersections; provide left-turn acceleration lanes at divided highway intersections; provide full-length paved shoulders in intersection areas; restrict or eliminate turning maneuvers by signing, providing channelization, or closing media openings; close or relocate high-risk intersections; convert 4-legged intersections to 2 T-intersections; convert offset T-intersections to 4-legged intersections; realign intersection approaches to reduce or eliminate intersection skew; use indirect left-turn treatments to minimize conflicts at divided highway intersections;
- improve pedestrian and bicycle facilities to reduce conflicts between motorists and non-motorists.
- ✓ **Improve sight distance at unsignalized intersections:** Clear sight-triangles on stop- or yield-controlled approaches to intersections, clear sight triangles in the medians of divided highways near intersections, change horizontal and/or vertical alignment of approaches to provide more sight distance, and eliminate parking that restricts sight distance.
- ✓ **Improve availability of gaps in traffic and assist drivers in judging gap sizes at unsignalized intersections:** Provide an automated real-time system to inform drivers of the suitability of available gaps for making turning and crossing maneuvers, provide roadside markers or pavement markings to assist drivers in judging the suitability of gaps for making turning and crossing maneuvers, and retime adjacent signals to create gaps at stop-controlled intersections.
- ✓ **Improve driver awareness of intersections as viewed from the intersection approach:** Improve visibility of the intersection by providing enhanced signing and delineation and lighting; install splitter islands on the minor-road approach to an intersection;



provide a stop bar or wider stop on minor road approaches; install regulatory and warning signs at intersections; call attention to the intersection by installing rumble strips on intersection approaches; provide dashed markings for major road continuity across the median opening at divided highway intersections; provide supplementary stop signs mounted over the roadway; provide pavement markings with supplementary messages, such as STOP AHEAD; provide improved maintenance of stop signs; and install flashing beacons on stop-controlled intersections.

- ✓ **Choose appropriate intersection control to minimize crash frequency and severity:** Avoid signaling through roads, provide all-way stop control at appropriate intersections, and provide roundabouts at appropriate intersections.
- ✓ **Improve driver compliance with traffic-control devices and traffic laws at intersections:** Provide targeted enforcement to reduce stop sign violations, and provide targeted public information and education on safety problems at specific intersections.
- ✓ **Reduce operating speeds on specific intersection approaches:** Provide targeted speed enforcement, provide traffic calming on intersection approaches through a combination of geometrics and traffic control devices, and post appropriate speed limit on intersection approaches.
- ✓ **Guide motorists more effectively through complex intersections:** Provide turn path markings, provide double-yellow centerline on the median opening of a divided highway at intersections, and provide lane-assignment signing or marking at complex intersections.



## How the Implementation Guide Helps You

The guide lists practical countermeasure strategies, categorized by relative cost to implement. Many of these strategies have been formally evaluated to demonstrate effectiveness. Other strategies lack formal evaluation, but have been implemented with promising results.

The guide lays out the technical attributes of each countermeasure strategy in detail: target audience, expected effectiveness, keys to success, potential difficulties, appropriate measures and data, and associated need for support services.

The guide reveals organizational, institutional, and policy issues; issues affecting implementation time; costs involved; training and other personnel needs; and legislative needs (if any).

## Web-Based Support for More Information

Backing up the guide is a series of appendixes and exhibits developed specifically to provide in-depth information useful to anyone implementing this part of the Strategic Highway Safety Plan, together with a collection of general knowledge sharing documents providing background, data, and information of significant value to state and local implementers.

This guide is one in a series developed to assist states in their efforts to improve highway safety. Copies of the plan, the guides, along with the Integrated Safety Management System, Self-Assessment Tool, related documents, may be obtained on the Internet at [safety.transportation.org](http://safety.transportation.org).



Printed copies of the guides can be obtained from:

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Implementing the AASHTO Strategic Highway Safety Plan

