

SIGNALIZED INTERSECTION SAFETY STRATEGIES



U.S. Department
of Transportation
**Federal Highway
Administration**

Control Speed on Approaches

WHERE TO USE

Signalized intersections with a high frequency of crashes attributed to drivers who intentionally disobey posted approach speed limits.



Photos by: FHWA

DETAILS

Since speed contributes to crash severity, lowering speeds on approaches to intersections can help reduce the severity of crashes. Slowing vehicle speeds on intersection approaches can improve safety for motorists, pedestrians, and bicyclists. Various techniques for attempting to control speeds on approaches involve geometric design, signal control technology, and other traffic calming treatments.

While warning signs or reduction of speed limits on an intersection approach cannot be expected to be extremely effective in lowering speeds, redesign of the approach can be more effective. Construction of a horizontal curve with an appropriate design speed could accomplish speed reduction. However, the curve should be designed so as not to create problems related to violations of driver expectancy or limited sight distance to the intersection, signed and delineated.

Some jurisdictions are using signal control technology to change the signal indication to red when a vehicle is detected traveling at a speed significantly over the speed limit on the approach to the intersection. Speeding vehicle-activated traffic signals have been deployed in the northern Virginia suburbs of Washington, D.C. Additional information can be found on the USDOT's Intelligent Transportation System Joint Program Office (ITS JPO) website (<http://www.its.dot.gov/>).

A raised intersection is another example of a design that could be implemented to slow vehicles. Traffic calming is not intended to be used in place of a signal that meets warrants but can be used as a method of addressing crash severity if designed to slow vehicle speeds. Roadway treatments such as chicanes, speed tables, and reduced lane widths through widening sidewalks or landscaped areas can be used to slow speeds on roadway approaches to intersections.



Traffic calming strategies are typically intended to reduce vehicle speeds or traffic volumes on collector and local streets. A main benefit of traffic calming is the potential improvement in pedestrian safety. The history of traffic calming is one centered upon neighborhood traffic management rather than collector and arterial streets. Care must be taken not to extend these methods beyond their range of appropriate application.

KEY TO SUCCESS

A key to the success of this strategy is careful planning and determination of the type of traffic calming measure viable for the specific intersection approach. Such intersections should have a combination of high speed-violation rates and related crash patterns.

ISSUES

Traffic calming measures are often controversial, especially when used to divert traffic from one road or street to another.

TIME FRAME ●●●○

The implementation time for traffic calming measures will depend upon the type of measure used. Some types of traffic calming improvements may take three months or less, while others, especially when geometric improvements are required, may take one year or more.

COSTS ●●○○

The capital costs and maintenance costs involved in traffic calming measures vary depending on the type of traffic calming measure used. Some may be low cost, while others that require geometric design improvements and/or acquisition of right-of-way may be moderate cost.

EFFECTIVENESS

EXPERIMENTAL: No conclusive studies have been performed to determine the effectiveness of these strategies.

COMPATIBILITY

This strategy can be used in conjunction with most other strategies for improving safety at intersections.

SUPPLEMENTAL INFORMATION

The Institute of Transportation Engineers (ITE) has assembled information on traffic calming on its website. (<http://www.ite.org/traffic/>). The ITE site includes links to websites for organizations that are implementing traffic calming strategies. Traffic calming is discussed in the guide for crashes at unsignalized intersections (*NCHRP Report 500: Volume 5*) and in even more detail in the guide for crashes involving pedestrians (*Volume 10*).

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

For more information contact:

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