

UNSIGNALIZED INTERSECTION SAFETY STRATEGIES



Clear Sight Triangles in the Medians of Divided Highways Near Intersections

WHERE TO USE

Unsignalized intersections on divided highways with (a) fixed sight obstructions in the median near the intersection and (b) patterns of crashes related to the lack of sight distance.



Photo by: Texas Transportation Institute

Note the vehicle hidden behind the median landscaping.

DETAILS

Adequate sight distance for drivers at stopped approaches to intersections has long been recognized as among the most important factors contributing to overall safety at unsignalized intersections. A particular concern at divided highway intersections is sight obstructions located in the highway median. Such obstructions can restrict sight distance for drivers of vehicles crossing the median, including through vehicles on the crossroad and vehicles making left turns onto and off of the divided highway. Sight obstructions can include vegetation, roadside appurtenances, or other natural and artificial objects. Since sight obstructions located in the highway median are, almost by definition, located in the highway right-of-way, highway agencies should have direct authority to remove them. If the objects are mature trees or plantings, then environmental issues may arise.

Intersection sight distance (ISD) related crashes include angle- and turning-related crashes.

KEY TO SUCCESS

Effectively diagnose whether a specific crash pattern observed at an intersection is, in fact, related to restricted sight distance. Currently this is a judgment made by an experienced safety analyst.



ISSUES

The difficulties with this strategy primarily relate to public acceptance. From a process and engineering perspective, implementation is relatively straightforward since, by definition, all work is well within the right-of-way. However, most plantings located in medians were deliberately placed there for aesthetic reasons, and the public will often object to their removal, particularly where no site-specific safety problem is evident.

TIME FRAME ●○○○

Projects involving clearing sight obstructions on the highway right-of-way can typically be accomplished in 3 months or less, assuming that the objects are readily moveable and their removal is not controversial.

COSTS ●○○○

Costs will generally be low, assuming that in most cases the objects to be removed are within the right-of-way.

EFFECTIVENESS

TRIED: There is no research that adequately quantifies the effectiveness of improving sight distance at unsignalized intersections. Based on existing literature, it has been estimated that if the available sight distance in any quadrant of an intersection is less than or equal to the design sight distance for a speed of 12 mph less than the actual 85th-percentile speed of the approach, then the frequency of related crashes at the intersection would be increased by 5%. Although this assessment was made for intersections on rural two-lane highways, it appears appropriate to extend it to intersections on divided highway intersections, as well. Since the median affects two quadrants on the approach to each side of the divided highway from the median roadway, it is estimated that a project to remove sight obstructions in the median may be 0 to 20% effective in reducing related crashes, depending upon the severity of the existing sight restriction and the number of intersection quadrants affected.

COMPATIBILITY

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

SUPPLEMENTAL INFORMATION

This strategy should be incorporated in highway design policies and in highway maintenance manuals. Since highway maintenance operations are often independent of safety operations in a highway agency, it is important that both groups be apprised of the need to protect sight triangles and that there be coordination between them.

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

For more information contact:

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