

SIGNALIZED INTERSECTION SAFETY STRATEGIES



Clear Sight Triangles

WHERE TO USE

Signalized intersections where there is a high frequency of crashes between vehicles turning right on red from one street and through vehicles on the other street or crashes involving left turning traffic where landscaped medians are present.



Photo by: Texas Transportation Institute

DETAILS

Sight distance improvements can often be achieved at relatively low cost by clearing sight triangles to restore sight distance obstructed by vegetation, roadside appurtenances, buildings, bus stations, or other natural or man-made objects.

Since sight distance is a greater issue at intersections with stop control than at signalized intersections, more research has been performed on the effectiveness of sight distance improvements at stop-controlled intersections. There are several movements at signalized intersections that operate similarly to stop-controlled intersections (such as right turn on red and permitted left turns) for which expected effectiveness of sight distance improvements at signalized intersections may be inferred from similar studies at stop-controlled intersections. Such estimates should be performed with caution, taking into consideration the other characteristics of signalized intersection operation that would alter the effectiveness estimates. Sight distance obstructions can also affect visibility of pedestrians by vehicles turning right on green.

Refer to Unsignalized Strategies C1 and C2 for more information.



KEY TO SUCCESS

A key to success for this strategy is effective diagnosis of 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 most difficult aspect of this strategy is the removal of sight restrictions located on private property. The legal authority of highway agencies to deal with such sight obstructions varies widely, and the time (and possibly the cost) to implement sight distance improvements by clearing obstructions may be longer if those obstructions are located on private property. If the object is a mature tree or planting, then local concerns over adverse environmental consequences may arise. For a more detailed discussion of trees, see *NCHRP Report 500: Volume 3*.

TIME FRAME ●○○○

Projects involving clearing sight obstructions on the highway right-of-way can typically be accomplished in three months or less, assuming the objects are readily moveable. Clearing sight obstructions on private property requires more time for discussions with the property owner.

COSTS ●○○○

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

EFFECTIVENESS

TRIED: Research has established a relationship between intersection safety and sight distance at unsignalized intersections (5% reduction in crashes per quadrant). No such research quantifies the effectiveness of improving sight distance at signalized intersections. One may expect that crashes related to inadequate sight distance (specifically, angle and turning related) would be reduced if the sight distance problems were improved. However, because the signal assigns right-of-way for most vehicles crossing paths at right angles and because traffic volumes affected by the other situations cited above are low, the overall impact on crashes could be relatively small.

For jurisdictions that operate signals on late-night flash, these intersections effectively operate as two-way stop control. Therefore, clearing sight triangles would have an impact on safety.

COMPATIBILITY

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

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

For more information contact:

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