

# UNSIGNALIZED INTERSECTION SAFETY STRATEGIES



## Provide Offset Left-Turn Lanes at Intersections

### WHERE TO USE

Unsignalized intersections with a high frequency of crashes between vehicles turning left and opposing through vehicles, as well as rear-end crashes between through vehicles on the opposing approach. Also at intersections on divided highways with medians wide enough to provide the appropriate offset but can be implemented on approaches without medians if sufficient width exists.



Photo by: FHWA

### DETAILS

A potential problem in installing left-turn lanes at intersections is that vehicles in opposing turn lanes on the major road may block drivers' views of approaching traffic. This can lead to crashes between vehicles turning left from the major road and through vehicles on the opposing major-road approach. To reduce the potential for crashes of this type, the left-turn lanes can be offset by moving them laterally so that vehicles in opposing lanes no longer obstruct the opposing driver. Two treatments for offsetting turn lanes are parallel and tapered offset left-turn lanes. These treatments have been evaluated in research and are addressed in the *AASHTO Policy on Geometric Design of Highways and Streets*. While offset left-turn lanes have been used most extensively at signalized intersections, they are suitable for use at unsignalized intersections.

### KEY TO SUCCESS

Identify candidate locations where opposing left-turn vehicles block drivers' views of approaching traffic. This can be determined by measuring the amount of offset (or lack of offset) present at existing intersections. Any intersection with a pattern of crashes between left-turning vehicles and opposing through vehicles that has existing left-turn lanes (or where installation of left-turn lanes is being considered) should be checked to determine the amount of available offset.



## ISSUES

A potential pitfall of installing offset left-turn lanes is that drivers initially may be confused by the change in traffic patterns, particularly in areas where offset left-turn lanes are not prevalent. This can be minimized by effective use of advance guide signing and pavement markings. Research has verified that, in areas where drivers have become familiar with offset left-turn lanes, they operate effectively.

When installation of offset left-turn lanes increases the overall width of the intersection, the additional width may cause potential problems for pedestrians crossing the intersection. One possible solution to this problem is to provide a refuge island in the median for pedestrians.

## TIME FRAME ●●●○

The implementation period for provision of offset left-turn lanes is 2 to 4 years. Intersections at which offset left-turn lanes can be provided simply by restriping the roadway are relatively rare. Therefore, time for project development and construction is required. Where a wide median is available, offset left-turn lanes can usually be provided without purchasing additional right-of-way; in such cases, implementation in 2 years may be possible. If the median must be widened, additional right-of-way may be needed and there may be substantial social and environmental impacts that need to be evaluated; in such cases, the implementation may take up to 4 years.

The implementation period can be reduced when an agency adopts this design by policy and implements it on projects in preliminary or final design.

## COSTS ●●●○

Costs may be highly variable and depend largely on the existing median width.

## EFFECTIVENESS

TRIED: Research has verified that offset left-turn lanes operate safely, but there are no reliable estimates of their safety effectiveness. Safety effectiveness is likely to depend upon the traffic volumes of the conflicting turning and through movements and the amount of offset between the left-turn lanes at the intersection.

## COMPATIBILITY

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

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

### For more information contact:

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