

UNSIGNALIZED INTERSECTION SAFETY STRATEGIES



Provide Bypass Lanes on Shoulders at T-Intersections

WHERE TO USE

At three-legged unsignalized intersections on two-lane highways with moderate through and turning volumes, especially intersections that have a pattern of rear-end collisions involving vehicles waiting to turn left from the highway.



Photo by: FHWA

DETAILS

At three-legged intersections on two-lane highways, shoulder bypass lanes can provide an effective substitute for a left-turn lane on the major road where provision of a left-turn lane is economically infeasible. Instead of providing a left-turn lane for drivers turning left from the major road, part of the shoulder may be marked as a travel lane to encourage following through drivers to use this shoulder lane to bypass vehicles waiting to turn left. This treatment involves substantially less cost than providing a conventional left-turn lane, and, at low-volume intersections, it may be just as effective.

KEY TO SUCCESS

Provide a shoulder area for the bypass lane that has sufficient structural strength to withstand repeated usage, even by trucks.



ISSUES

There may be an upper limit of traffic volumes above which shoulder bypass lanes should not be used. No such limit has been quantified, but highway agencies should still carefully consider the appropriateness of shoulder bypass lanes on high-volume two-lane roads.

Shoulder bypass lanes should not be viewed as a substitute for conventional left-turn lanes as part of a reconstruction or major redesign project where right-of-way is available and construction is feasible.

TIME FRAME ●○○○

This strategy can be implemented within 3 months at locations with an existing paved shoulder. Some locations may need only pavement marking and signing changes. Paving an unpaved shoulder or strengthening a paved shoulder may take longer. In rare cases where acquisition of right-of-way is needed, a project development process of up to 4 years may be required.

COSTS ●○○○

Costs should be relatively low since little to no additional right-of-way is necessary for this strategy. Construction involves paving and marking a portion of the existing shoulder.

EFFECTIVENESS

TRIED: Minnesota evaluated the operational and safety effects of using bypass lanes at rural intersections by comparing the operational and safety characteristics of rural intersections without turning lanes, with bypass lanes, and with left-turn lanes. Based upon a comparative crash analysis and a before-after evaluation, Minnesota was unable to conclude that the use of a bypass lane provides a greater degree of safety when compared to intersections without a bypass lane or a left-turn lane. However, Nebraska has reported a marked decrease in rear-end collisions at shoulder bypass lanes, and other states have reported relatively few crashes occurring at shoulder bypass lane installations. A Florida study concluded that left-turn injury crashes were reduced up to 36% and rear-end injury crashes were reduced 24%. Property damage only crashes were also reduced up to 28% and 53% for left-turn and rear-end crashes, respectively.

COMPATIBILITY

This strategy can be used in conjunction with most others for improving safety at unsignalized intersections. It is, however, an alternative to providing a left-turn lane.

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

For more information contact:

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