

# UNSIGNALIZED INTERSECTION SAFETY STRATEGIES



## Avoid Signalizing Through Roads

### WHERE TO USE

Medium- to high-volume unsignalized intersections where installation of signals is being considered. Before a decision to install a signal is made, adequate consideration should be given to less restrictive forms of traffic control.



Photo by: Texas Transportation Institute

*This driveway into a major shopping center is close to a nearby signalized intersection. Rather than signalize this intersection, traffic is restricted to right-in/right-out.*

### DETAILS

Signalization of unsignalized intersections often leads to an increased frequency of crashes on major roadways. Signals associated with new developments introduce congestion and increase crashes on through roadways that previously operated relatively safely and smoothly. Thus, the key to crash reduction is to avoid installing signal control whenever possible. Alternatives to signal control include all-way stop control; roundabouts; turn prohibitions (e.g., limiting movements to right-turn in and right-turn out); indirect left-turn movements (e.g., jug handles, loops, and median crossovers); and provision of flyovers and other grade separations.

### KEY TO SUCCESS

Identify an appropriate alternative design or traffic control method that will operate more safely than a signalized intersection. Some intersections serve traffic volumes that are so high that signalization cannot be avoided.

### ISSUES

A potential difficulty with this strategy is that the selected intersection control strategy may operate less efficiently than a signal (i.e., may involve more delay to motorists or produce out-of-direction travel), or the costs and feasibility of alternatives to signals are much greater. The project development



process should include an explicit review of the traffic operational performance of the alternatives considered (e.g., roundabouts – see Fact Sheet F3).

Whenever implementing intersection control treatments, the safety of pedestrians, bicyclists and other users should always be considered.

### TIME FRAME ●●●

Simple changes in intersection traffic control, such as all-way stop control, can be made in 3 months or less. Projects involving more extensive construction, such as provision of roundabouts or construction of grade-separated interchanges, may involve a project development process up to 4 years or more in duration.

### COSTS ●●●●

Most construction alternatives, such as jug handles, grade separations, interchanges, and roundabouts, would require significant investment. In many cases, right-of-way acquisition would be a part of this.

### EFFECTIVENESS

**TRIED:** The strategies that can be used as alternatives to signals are known to be effective, but their safety effects are highly site specific. It is known that traffic signals generally increase crash frequency when installed. However, there are no established quantitative measures of the effects of traffic signals in increasing crashes or the effects of the alternative strategies in mitigating those effects. The effect of these strategies on crash severity distributions also has not been quantified. Some of the alternative strategies (e.g., indirect left turns) have been used by some highway agencies for many years, but there is no consensus on the strategies' quantitative safety effects. Other strategies (e.g., roundabouts) have only recently come into more widespread use.

### COMPATIBILITY

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

### SUPPLEMENTAL INFORMATION

There is a potential need for public information and education about the strategies selected, particularly when unfamiliar techniques such as roundabouts are used in an area for the first time.

If not already in place, a set of warrants and guidelines for the alternative controls or treatments should be developed as part of the agency's policies. For example, warrants and guidelines may be needed for determining the appropriate conditions under which roundabouts are to be used in rural areas.

Some highway agencies have adopted policies wherein construction of multilane divided arterials in rural areas will exclude provision of signalized intersections in favor of interchanges.

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

#### For more information contact:

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