

# UNSIGNALIZED INTERSECTION SAFETY STRATEGIES



## Retime Adjacent Signals to Create Gaps at Stop-Controlled Intersections

### WHERE TO USE

Unsignalized intersections (between signalized intersections) with a high frequency of right-angle or turning-related crashes due to a lack of sufficient gaps in through traffic on the major road.



Photo by: FHWA

### DETAILS

Drivers have difficulty making turning maneuvers at some unsignalized intersections because of the lack of sufficiently large gaps in through traffic. The lack of gaps can lead some impatient drivers to accept gaps shorter than needed for safe turning maneuvers, thus leading to turn-related crashes. Such crashes could be minimized if longer gaps could be made available. One method to provide longer gaps is to retime traffic signals at nearby intersections to create more gaps in traffic for turning maneuvers at the unsignalized intersection. The process of retiming signals may also involve rephasing.

### KEY TO SUCCESS

Identify signal timing for operation of the signalized intersections that results in suitable gaps in traffic at downstream unsignalized intersections.



## ISSUES

A potential pitfall can occur when signal timing changes significantly reduce the level of service and/or progression on the through street or elsewhere in the system. Furthermore, the distribution of gaps at other unsignalized intersections may be negatively affected. Care must be taken to check for system effects of a timing change. This pitfall can theoretically extend to conflicts with other programs. For example, arterial and major intersection signal-timing projects are often justified by, and funded through, special congestion mitigation and air quality improvement programs. Suggestions to alter the signal timing in a corridor to achieve safety improvements could result in unintended consequences to previous engineering decisions focusing on other issues.

## TIME FRAME ●○○○

This strategy requires only changes to signal timing or hardware, so it can be implemented very quickly. The strategy can be implemented in 1 month or less if only reprogramming of signal hardware is required. Where signal hardware must be upgraded to implement this strategy, a lead time of 6 months to 1 year is needed.

## COSTS ●○○○

Unless new hardware is required, costs to retune signals are nominal; the greatest costs will be associated with conducting the necessary traffic field studies to verify the problem and develop an effective solution.

## EFFECTIVENESS

**TRIED:** The strategy is presumed to be effective in reducing right-angle and turn-related crashes, but its actual effectiveness has not been quantified.

## COMPATIBILITY

The strategy can be used in conjunction with most other strategies for improving safety at unsignalized intersections. This strategy may be an alternative to closing or restricting turning movements associated with existing crash patterns.

## SUPPLEMENTAL INFORMATION

This strategy often requires close cooperation among multiple agencies. In many cases, particularly in urban and suburban areas, the through roadway and signalization is the responsibility of one agency (e.g., a state highway agency), and the intersecting roadway is the responsibility of a local community.

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

### For more information contact:

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