
622 LEFT TURN SIGNAL TIMING

This guidance shall only be applicable to protected-only left turn movements. For the timing of all other movements, see TGP 621.

The yellow change interval may be calculated using the Institute of Transportation Engineers equation for yellow clearance interval to determine the values of t_1 and t_2 as shown in Section 621.1.

The minimum yellow clearance interval shall be 3.0 seconds, but should not exceed 6.0 seconds.

In the case of a left-turning vehicle, the distance through the intersection is measured from the near-side stop line to the far edge of the last conflicting traffic lane along the left-turning vehicle path.

The typical approach speed for left turning vehicles is assumed to be 25 mph. A different speed may be used at complex intersections, such as at single-point diamond interchanges and at multi-legged intersections.

The following formula may be used to determine the red clearance interval, based on the Institute of Transportation Engineers (ITE) equation:

$$t_3 = \frac{W + L}{1.47V}$$

- where:
- t_3 = maximum length of red clearance interval, to the nearest 0.1 second;
 - W = Travel distance of left turning vehicle, in feet, measured in a straight line chord from the point where the near-side stop line intersects the outermost left turn lane line, directly to the point where the extension of the outside edge of the receiving lane for the outermost turning movement intersects the extension of the outside edge of the outermost conflicting traffic lane.
 - L = length of vehicle, assumed to be 20 feet; and
 - V = speed of left turning vehicle through the intersection, assumed to be 25 mph.

The minimum value for red clearance intervals shall be 1.0 second, but should not exceed 6.0 seconds.

These formulas are general and should only be used as a guide. Other factors at an intersection (such as approach grades, visibility, truck traffic and local traffic characteristics) may be considered. Approach grades and truck traffic may also be considered in determining the yellow change and red clearance intervals.

The yellow change interval should not be too short (causing quick stops and/or red violations) nor too long (encouraging vehicles to enter late in the yellow interval).