

* Not to exceed 18 ft from the edge of traveled way.

Posted Speed Limit (mph)	25	30	35	40	50	60	70
<u>AWDVTE 100 or less</u>	<u>155</u>	<u>200</u>	230	<u>295</u>	<u>395</u>	<u>525</u>	<u>625</u>
<u>AWDVTE 100 to 1500</u>	<u>155</u>	200	<u>250</u>	<u>305</u>	<u>425</u>	<u>570</u>	<u>645</u>
Road Approach Sight Distance (ft)							

These distances require an approaching vehicle to reduce speed or stop to prevent a collision.

Design road approach sight distance for road approaches with AWDVTE over 1500 as an intersection, see Chapter 910.

Provide decision sight distance (Chapter 650) for through traffic at all utility and special use road approaches on facilities with full access control.

For road approaches where left turns are not allowed, a sight triangle need only be provided to the left, as shown.

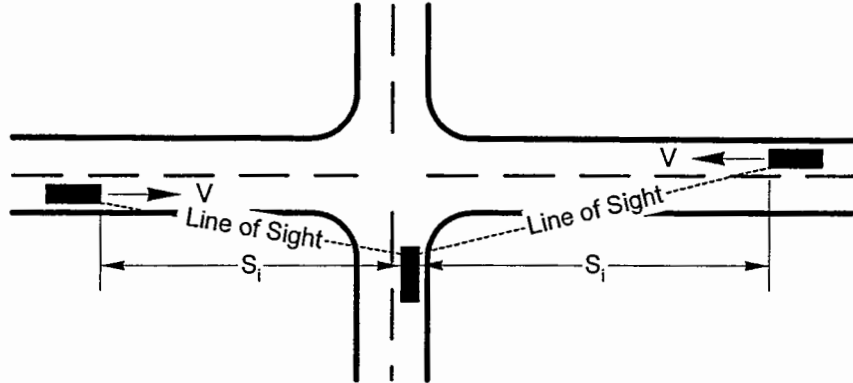
For road approaches where left turns are allowed, provide a sight triangle to the right in addition to the one to the left.

The sight distance to the right is measured along the center line of the roadway.

For additional information on calculating the sight triangle, see Chapter 910.

Road Approach Sight Distance

Figure 920-6



$$S_i = 1.47Vt_g$$

Where:

S_i = Intersection Sight Distance (ft)

V = Design speed of the through roadway (mph)

t_g = Time gap for the minor roadway traffic to enter or cross the through roadway (sec)

Intersection Sight Distance Equation

Table 1

Design Vehicle	Time Gap (t_g) in sec
Passenger car (P)	9.5
Single unit trucks and buses (SU & BUS)	11.5
Combination trucks (WB-40, WB-50, & WB-67)	13.5

Note: Values are for a stopped vehicle to turn left onto a two-lane two-way roadway with no median and grades 3% or less. Includes 2 sec for perception/reaction time.

Intersection Sight Distance

Gap Times (t_g)

Table 2

The t_g values listed in Table 2 require the following adjustments:

Crossing or right-turn maneuvers:

All vehicles subtract 1.0 sec

Multilane roadways:

Left-turns, for each lane in excess of one to be crossed and for medians wider than 4 ft:

Passenger cars add 0.5 sec

All trucks and buses add 0.7 sec

Crossing maneuvers, for each lane in excess of two to be crossed and for medians wider than 4 ft:

Passenger cars add 0.5 sec

All trucks and buses add 0.7 sec

Note: Where medians are wide enough to store the design vehicle, determine the sight distance as two maneuvers.

Crossroad grade greater than 3%:

All movements upgrade, for each percent that exceeds 3%:

All vehicles add 0.2 sec

Sight Distance at Intersections

Figure 910-17a

from the median roadway should be provided for the largest design vehicle that can be stored on the median roadway with adequate clearance to the through lanes. If a divided highway intersection has a 12-m [40-ft] median width and the design vehicle for sight distance is a 22-m [74-ft] combination truck, departure sight triangles should be provided for the combination truck turning left from the minor-road approach and through the median. In addition, a departure sight triangle should also be provided to the right for a 9-m [30-ft] single unit truck turning left from a stopped position in the median.

If the sight distance along the major road shown in Exhibit 9-55, including any appropriate adjustments, cannot be provided, then consideration should be given to installing regulatory speed signing on the major-road approaches.

Case B2—Right Turn from the Minor Road

A departure sight triangle for traffic approaching from the left like that shown in Exhibit 9-50B should be provided for right turns from the minor road onto the major road. The intersection sight distance for right turns is determined in the same manner as for Case B1, except that the time gaps (t_g) in Exhibit 9-54 should be adjusted. Field observations indicate that, in making right turns, drivers generally accept gaps that are slightly shorter than those accepted in making left turns (10). The time gaps in Exhibit 9-54 can be decreased by 1.0 s for right-turn maneuvers without undue interference with major-road traffic. These adjusted time gaps for the right turn from the minor road are shown in Exhibit 9-57. Design values based on these adjusted time gaps are shown in Exhibit 9-58 for passenger cars. Exhibit 9-59 includes the design values for the design vehicles for each of the time gaps in Exhibit 9-57. When the minimum recommended sight distance for a right-turn maneuver cannot be provided, even with the reduction of 1.0 s from the values in Exhibit 9-54, consideration should be given to installing regulatory speed signing or other traffic control devices on the major-road approaches.

Case B3—Crossing Maneuver from the Minor Road

In most cases, the departure sight triangles for left and right turns onto the major road, as described for Cases B1 and B2, will also provide more than adequate sight distance for minor-road vehicles to cross the major road. However, in the following situations, it is advisable to check the availability of sight distance for crossing maneuvers:

- where left and/or right turns are not permitted from a particular approach and the crossing maneuver is the only legal maneuver;
- where the crossing vehicle would cross the equivalent width of more than six lanes; or
- where substantial volumes of heavy vehicles cross the highway and steep grades that might slow the vehicle while its back portion is still in the intersection are present on the departure roadway on the far side of the intersection.

Design vehicle	Time gap (t_g) (seconds) at design speed of major road
Passenger car	6.5
Single-unit truck	8.5
Combination truck	10.5

Note: Time gaps are for a stopped vehicle to turn right onto or cross a two-lane highway with no median and grades 3 percent or less.

The table values require adjustment as follows:

For multilane highways:

For crossing a major road with more than two lanes, add 0.5 seconds for passenger cars and 0.7 seconds for trucks for each additional lane to be crossed and for narrow medians that cannot store the design vehicle.

For minor road approach grades:

If the approach grade is an upgrade that exceeds 3 percent, add 0.1 seconds for each percent grade.

Exhibit 9-57. Time Gap for Case B2—Right Turn from Stop and Case B3—Crossing Maneuver

Metric				US Customary			
Design speed (km/h)	Stopping sight distance (m)	Intersection sight distance for passenger cars		Design speed (mph)	Stopping sight distance (ft)	Intersection sight distance for passenger cars	
		Calculated (m)	Design (m)			Calculated (ft)	Design (ft)
20	20	36.1	40	15	80	143.3	145
30	35	54.2	55	20	115	191.1	195
40	50	72.3	75	25	155	238.9	240
50	65	90.4	95	30	200	286.7	290
60	85	108.4	110	35	250	334.4	335
70	105	126.5	130	40	305	382.2	385
80	130	144.6	145	45	360	430.0	430
90	160	162.6	165	50	425	477.8	480
100	185	180.7	185	55	495	525.5	530
110	220	198.8	200	60	570	573.3	575
120	250	216.8	220	65	645	621.1	625
130	285	234.9	235	70	730	668.9	670
				75	820	716.6	720
				80	910	764.4	765

Note: Intersection sight distance shown is for a stopped passenger car to turn right onto or cross a two-lane highway with no median and grades 3 percent or less. For other conditions, the time gap must be adjusted and required sight distance recalculated.

Exhibit 9-58. Design Intersection Sight Distance—Case B2—Right Turn from Stop and Case B3—Crossing Maneuver