1 Right-Angle Intersections

Right-angle intersections are those whose legs meet at an angle of 88 to 90 degrees For these right-angle intersections the sight distances shown in Appendices 5-3A, 5-3B, and 5-3C are to be used with Figure 5 3-26 to calculate the sight triangle Appendices 5-3A and 5-3B present the intersection sight distances for all street classifications which were determined assuming passenger car traffic Appendix 5-3C presents the sight distance requirements for varying roadway widths and design speeds for passenger cars, single unit trucks, and combination trucks If high volumes of truck traffic are anticipated, sight distances given in Appendix 5-3C will be used Sight distances for vehicles turning left from the main street should also be considered and calculated based on the *AASHTO Geometric Design of Highways and Streets*

2 Skewed Intersections

For skewed intersections where the intersection angles are less than 88 degrees, sight distances must be calculated in accordance with the procedures described in *AASHTO's Geometric Design of Highways and Streets*

3 Intersections Within or Near a Curve

Sight distance measurements, identified as S in Figure 5 3-26, need to follow the curved street alignment when the intersection is within or near a horizontal curve

4 Traffic Safety Triangles

Traffic Safety Triangles should be used as a means to limit the height of structures, vegetation, and other improvements on corner properties immediately adjacent to intersections **Safety triangles are not to be used as a substitute for intersection sight distance!** Safety triangles provide additional visibility around corners for all intersection approaches, and should be applied to the design of perimeter walls and landscape features Items within the safety triangle cannot be higher than 24" measured from the roadway surface Figure 5 3-27 depicts the method used to determine the safety triangle location The sight distance requirements contained in both Figure 5 3-26 and Figure 5 3-27 are applied at all corner lots

5 Right-of-Way at Corners

A minimum of 25-foot radius rights-of-way shall be dedicated at street intersections to provide room for traffic control and sight distance

E Auxiliary Lanes

An exclusive turning lane permits separation of conflicting traffic movements and removes turning vehicles from the flow of through traffic Figures 5 3-28 and 5 3-29 depict the design standards for auxiliary lanes These standards apply for right and left turn lanes at street intersections and for deceleration lanes at mid-block driveways The requirement for an auxiliary lane may necessitate additional rights-of-way Modifications to the storage and transition lengths may be allowed by the Transportation Department where the conditions do not allow the full design standard to be met

1 Right-Turn Lanes

Right-turn lanes are required at all street intersections on major arterials Right-turn lanes may be required by the Transportation Department on minor arterial and collector street intersections The lane lengths should be determined based on the anticipated turning volume and whether there is signalized or unsignalized traffic control The standard storage length for a right-turn lane is 150 feet, with a 100-foot minimum length

2 Left-Turn Lanes

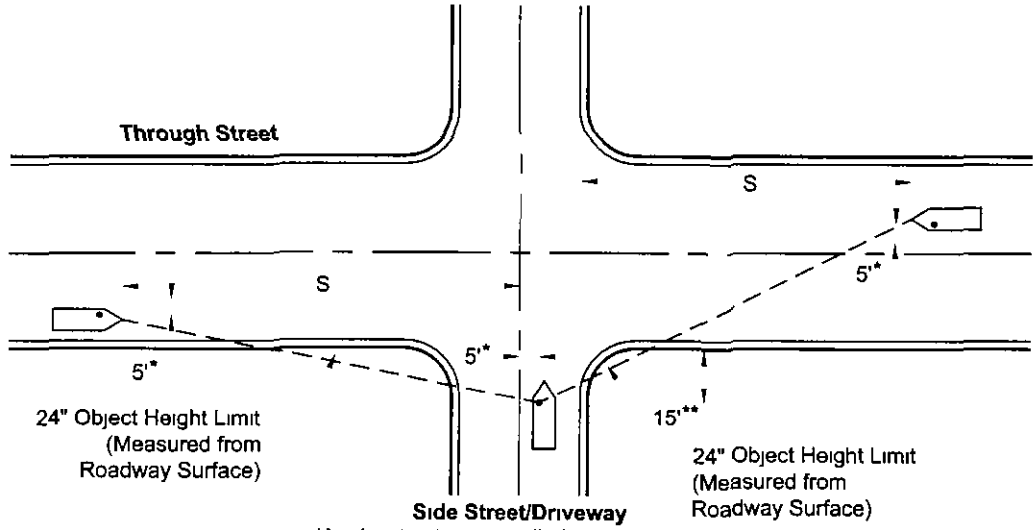
Left-turn lanes are required at all street intersections on major collectors and arterials Left-turn lanes may also be required at street intersections on minor collectors based on the projected left-turn volume and conflicting through volume The lane lengths should be determined based on the anticipated turning volume and whether there is signalized or unsignalized traffic control For left turn lanes at signalized intersections, dual turn

The maximum profile grade through an intersection is 6 percent for arterials and collector streets and 8 percent for local streets The intersecting streets' profiles and cross slopes need to be coordinated with one another to ensure a safe and comfortable driving surface Typically this may mean extending grades through the intersection for approximately 75 feet to 150 feet Short vertical curves may be necessary in lieu of grade breaks

D. Intersection and Driveway Sight Distance

In order to provide the opportunity for vehicles at an intersection to safely cross or make left or right turns onto a through street, adequate sight distance must be provided Sight distance should be based on the design speed for the roadway Design speeds for new roadways should conform to those identified in Section 5-3 101 and Appendices 5-3A and 5-3B Typically design speeds are 10 mph higher than the anticipated posted speed limit The sight distance requirements outlined below are required for all private and public street intersections and at all intersections of driveways onto public or private streets Internal driveway intersections on private property are excluded from these requirements

Figure 5 3-26 depicts the technique used to determine the driver's eye location and an approaching vehicle, a line is then drawn to connect these 2 points Continuous unobstructed line of sight must be provided along this line and throughout the approach to the intersection, providing an unobstructed sight triangle to the side street driver Sight lines are to be drawn on roadway and landscaping plans to represent the areas that must be free of all objects and topography in excess of 24 inches above the roadway surface, however, certain vegetation will be allowed Vegetation placed within the sight triangle will be of a low variety that remains below 24 inches when mature Trees can be considered within the triangle as long as the canopies are above 7 feet, they are a single trunk variety, and they are not spaced in a configuration that creates a "picket fence" effect



* 5 feet measured to nearest lane line or centerline

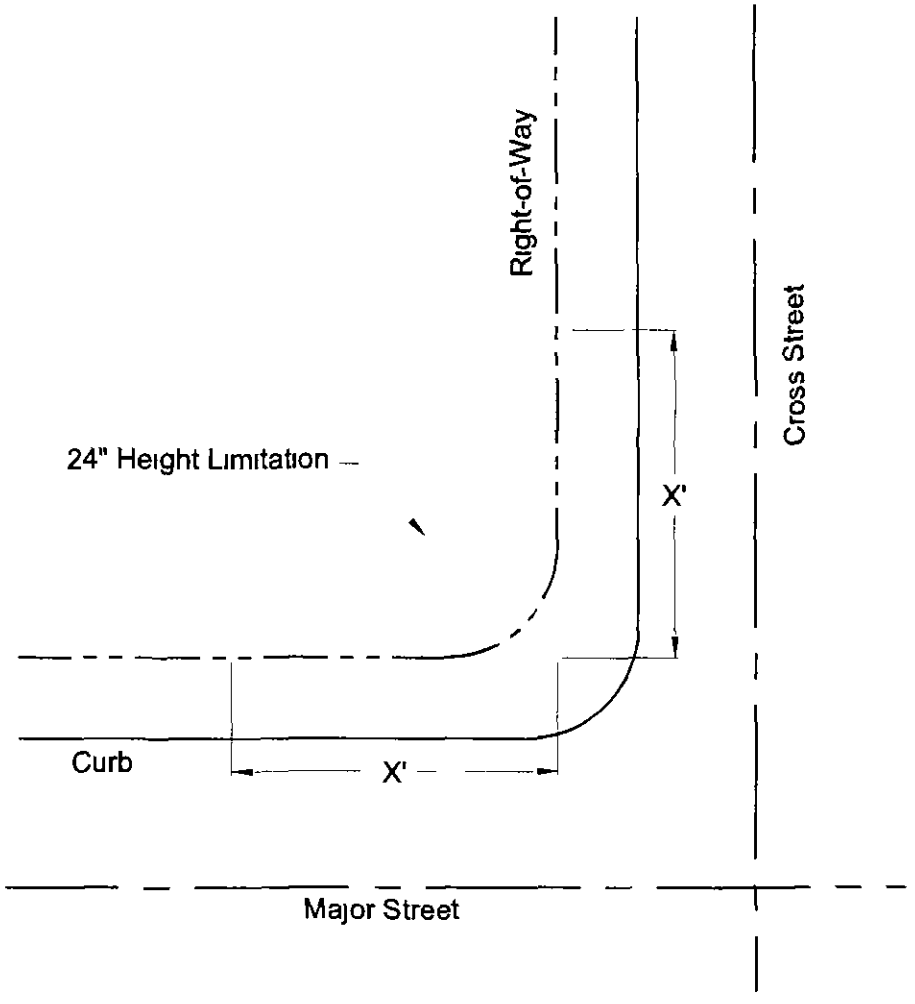
**15 feet measured from face-of-curb or edge-of-travelway

S = Intersection sight distance in feet on drivers left and right for right turns, left turns and through traffic (From the *2004 AASHTO Geometric Design of Highways and Streets*)

(See Appendices 5-3A, 5-3B, and 5-3C for distance S)

FIGURE 5 3-26 INTERSECTION & DRIVEWAY SIGHT DISTANCE REQUIREMENTS

lanes should be considered when the turn volume exceeds 200 vehicles per hour, the opposing through volume exceeds 1,000 vehicles per hour, or the delay to left turning vehicles exceeds 45 seconds Sight distance must be considered and calculated for these movements based on the AASHTO Policy on Geometric Design in order to determine the allowance of permitted left turns



Major Street Classification	X (in feet)
Parkway, Expressway, Arterials, Major Collector	25
Minor Collector,	35
* Local Streets	35 / 60 / 70

* If the standard right-of-way (46 ft local residential, 60 ft local collector) is not available, the safety triangle (X) shall measure 60 ft on local residential streets and 70 ft on local collector streets from the centerlines of the streets

FIGURE 5 3-27 TRAFFIC SAFETY TRIANGLE ON CORNER PROPERTY