

- Consider the design vehicle. The shapes and dimensions of turning paths vary for different turning speeds, different angles of turn, and different types and sizes of vehicles. The design vehicle must be identified and utilize Auto Turn to verify the design.\* See Table 4-1 for Design Vehicle Chart.
- Consider a roundabout design. Roundabouts offer an attractive design alternative to conventional intersections. Roundabouts are circular intersections with specific design and traffic control features that convert all vehicular movements to right turns and force traffic to enter and circulate at lower, more consistent speeds. The safety benefits of low vehicle speeds include less severe and less frequent crashes. See the Roundabouts Section for additional information on the use of, and VDOT's efforts to promote, roundabouts.

At-grade intersections must provide adequately for anticipated turning and crossing movements. AASHTO's *A Policy on Geometric Design of Highways and Streets*, "Intersections" should be reviewed for additional information to be considered in the design since the site conditions, alignment, sight distance, the need for turning lanes and other factors enter into the type of intersection design which would satisfy the design hour volume of traffic, the character or composition of traffic, and the design speed.

A Highway Capacity Manual (HCM) capacity or other appropriate analysis (Corsim/Synchro) shall be performed for intersection capacity and signalization requirements, and include a queuing analysis.

Sufficient offset dimensions, pavement widths, pluses, and radii shall be shown in the plans by the Engineer to insure that sign islands are properly positioned. Care should be taken in the design of four-lane roadways with intersecting two-lane roadways.

If traffic conditions clearly warrant a four-lane divided design for the two-lane road at the intersection, the divided design must be constructed for a sufficient distance to allow for the approaching divided design and the subsequent stop condition ahead to be properly signed. The four-lane divided design should not be constructed unless it is clearly warranted and the approaches can be properly signed or the minor road is expected to be improved to a divided status in the near future.

\* Rev. 1/14