

Whenever VDOT criteria (provided above in cases 1-3) are not met, a design waiver is required to document the design speed.

A Design Exception is required if AASHTO minimum design speeds for individual geometric elements are not met.

Additional information is available in NCHRP Report 504 "Design Speed, Operating Speed and Posted Speed Practices", at:

http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_504.pdf .

For the determination of the roadway posted speed limits, the plans are to indicate the Design Speed (V) of each horizontal and vertical (crest and sag) curve along with the horizontal and vertical curve data.

The Design Speeds (V) are to be determined as follows:*

- Crest Vertical Curves

- See "Sight Distance on Crest Vertical Curves" (VDOT's [Road & Bridge Standards](#), Section 600) to determine sight distance parameters.
- See 2011 AASHTO Green Book "Crest Vertical Curve" criteria, pages 3-151 through 3-157 to determine the Design Controls.

- Sag Vertical Curves

- See 2011 AASHTO Green Book "Sag Vertical Curve" criteria, pages 3-157 through 3-161 to determine the Design Controls.

Horizontal Curves

- The appropriate Transition Curve Standard (TC-5.01R, TC-5.01U, or TC-5.04ULS, TC-5.11R, TC-5.11U, or TC-5.11ULS) from VDOT'S [Road and Bridge Standards](#), Section 800, provides the Design Speed (V) for horizontal curves (based on the radius of curvature (R) and the superelevation rate (E) provided by GeoPak.

SHOWING DESIGN SPEED (V) FOR HORIZONTAL CURVES ON PLANS

The Design Speed shown on the plans for each horizontal curve is not necessarily the Minimum Design Speed shown on the Title Sheet.

GEOPAK supplies the superelevation dependent upon the input (urban/rural, radius, etc.) for each curve but does not provide the design velocity.

Designers shall determine the Design Speed (V) for each curve. This data is to be shown on the plans in the horizontal curve data for each curve.

* Added 7/14