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.

Example:

Title Sheet:
Urban Principal Arterial (TC-5.11U - 2011 AASHTO Green Book)
45 mph Minimum Design Speed

Horizontal Curve on plans:
Radius = 1533'
Superelevation = 3.3% (provided by GEOPAK)
V = ?

1. *To verify the velocity of the horizontal curve compare project radius and superelevation with Design Factors Charts in Section 800 of the Road and Bridge Standards.*

2. *Start with Page 803.29 TC-5.11U for given Design Speed shown above (45 mph).*

   ⇨ *Chart shows that a curve with 3.3% superelevation and radius of 1446' will support a velocity of 45 mph. The radius on the plans is greater than 1446' (1533').*

3. *Go to Page 803.30 (50 mph Design Speed).*

   ⇨ *Chart shows that a curve with 3.3% superelevation and radius of 1857' will support a velocity of 50 mph, but the radius on the plans is less than 1857' (1533').*

4. *Therefore, the project radius and superelevation will not support a 50 mph design velocity. The more conservative V = 45 mph shall be shown on the plans as the velocity of the curve.*

A Design Exception is required whenever the curve radius and superelevation do not support the minimum design speed. (See IIM-LD-227 for information on Design Exceptions.

ADDITIONAL RESOURCES

Transportation Research Board, NCHRP Report 504, Design Speed, Operating Speed, and Posted Speed Practices, available at:
http://trb.org/publications/nchrp/nchrp_rpt_504.pdf .

2004 AASHTO Green Book, "Speed", Chapter 2.