

**EXAMPLE**

- When the Functional Classification for a project would normally warrant either Geometric Design Standard GS-1, GS-2, GS-3, or GS-4 and Geometric Design Standard GS-5, GS-6, GS-7 or GS-8, respectively, is used then it will be necessary to show the standard used in the design on the title sheet under the Functional Classification.
- If the normal Geometric standard would be GS-3 and Geometric Standard GS-7 is used, the title sheet is to show:

RURAL COLLECTOR-ROLLING-DIVIDED (Urban St'd. GS-7 was used)

**LANE/SHOULDER/PAVEMENT TRANSITIONS, MERGING TAPERS & SPEED CHANGE LENGTHS**

Lane/shoulder/pavement transitions typically occur where new or reconstructed roadways tie-in to existing roadways. This also applies to where roadways tie-in to bridges. Lane/shoulder/pavement transitions, merging tapers and speed change lengths shall meet the minimum length provided by the following equations:

Less than 45 mph

$$L = S^2W \div 60$$

45 mph and greater

$$L = W \times S$$

L = length of transition

S = Design Speed

W = Width of offset on each side

Source: 2009 MUTCD, Section 6, Table 6C-4

For Permanent Shoulder and Shifting Tapers see 2009 MUTCD, Section 6, Table 6C-3 and 6C-4.\*

**NOTE:**

A pavement transition length of 1/2L (calculate L by using the applicable formula above) is to be used when establishing project termini for the majority of small bridge replacement and/or major bridge rehabilitation projects when "NO" horizontal or vertical geometric changes are required to tie into the existing approach alignment. For additional information see Volume 5, Part 2, of the Structure and Bridge Manual.

Pavement transition is separate from the length of need for guardrail. Length of need and shoulder prep for guardrail shall be in accordance with the VDOT RDM Appendix A and the Road & Bridge Standards.

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\* Rev. 1/14