

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/pavement transitions, merging tapers and speed change lengths shall meet the minimum length provided by the following equations:

For 40 mph or less

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

For 45 mph or 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 Temporary Merging, Shifting and Shoulder * Tapers see 2009 MUTCD, Section 6, Table 6C-3 and 6C-4.

For Passing/ Left Turn lanes on Two-Lane Highway See [Appendix "F"](#), [Figure 3-4](#).

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](#).