

Maine Department of Transportation

Highway Program

Design Guidance

Title: Sag Vertical Curves

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Background:

When developing a vertical alignment, the Department's criterion for acceptable vertical curvature is whether or not the curve provides Stopping Sight Distance (SSD). As a general practice, designers should determine the required SSD for the project design speed and compare that to the existing condition. If the existing condition does not provide adequate SSD then changes to the vertical alignment should be evaluated.

Guidance:

For sag vertical curves Headlight Sight Distance (HLSD) is the primary control. At a minimum, curves should be designed so that the HLSD is equal to the required SSD. On fully lighted sections of highway and where it is impractical to provide HLSD, it may be warranted to design a sag vertical curve based on passenger comfort, as described in Chapter 3 of the AASHTO publication *A Policy on Geometric Design of Highways and Streets (the Green Book)*. Designing to meet the comfort criteria should not be standard practice. The length of vertical curve to satisfy comfort criteria is about 50% of that needed to satisfy SSD. For Rehabilitation Projects the designer should evaluate the existing sag vertical curves and compare to HLSD. Where it is impractical to provide HLSD, the designer should flatten the curves to meet the comfort criteria as a minimum.

Impacts to wetlands, resources, utilities, right of way and safety should be considered when determining how much to flatten curves.