

Horizontal Curve Length Guide

The following guidelines may be used for the minimum lengths of open highway horizontal curves depending upon classification. The roadway classification for an existing road should be determined by consulting the latest LADOTD functional classification maps (found on the DOTD intranet). The functional classification (local, collector, arterial or freeway) for a new roadway should be determined in the pre-design meeting. The area type (rural or urban) is always determined from the functional classification map.

Deflection Angle

AASHTO (2004, p. 229; 2001, p. 233) – “For small deflection angles, curves should be sufficiently long to avoid the appearance of a kink. Curves should be at least 500 ft (150m) long for a central angle of 5°, and the minimum length should be increased 100 ft (30m) for each 1° decrease in the central angle.”

This criteria is primarily for aesthetic purposes, therefore it is a desirable, but not an absolute minimum requirement. This criteria should be followed on all roadways, but the impacts of lengthening the curve must be weighed against the right-of-way costs and other constraints. A valid engineering reason must be given if this criteria is not met.

Multi-lane Rural Arterials or 2-lane rural roads that need widening in the future

AASHTO (2004, p. 229-230; 2001, p. 233) – “The minimum length for horizontal curves on main highways, L_{CMIN} , should be about 15 times the design speed expressed in mph (3 times in metric), i.e., $L_{\text{CMIN}} = 15V$ ($L_{\text{CMIN}} = 3V$, metric).”

Freeways

Desirable, $L_c = 30V$ ($L_c = 6V$, metric)
Minimum, $L_{\text{CMIN}} = 15V$ ($L_{\text{CMIN}} = 3V$, metric)

AASHTO (2004, p. 230; 2001, p. 233) – “On high speed controlled access facilities that use flat curvature, for aesthetic reasons, the desirable minimum length for curves should be about double the minimum length, i.e., $L_c = 30V$ ($L_c = 6V$, metric).”

Urban areas

Give leeway in urban areas where right-of-way is expensive since the directives above are mainly for aesthetic reasons. The absolute minimum lengths for urban curves shall be the length requirements for superelevation development plus 1.0 second of travel time at full superelevation. For urban curves that do not require superelevation, the minimum curve length should be equal to the distance traveled in 1.0 second of travel time at the design speed.