Nebraska Department of Transportation (NDOT)

Roadway Design Division – Policy Letter

Policy Number: **DES 22–02**

Approval Date: 7/12/22 By: _____ NDOT Roadway Design Engineer

Approval Date: 7/20/22 By: _____ FHWA – Nebraska

This policy affects Roadway Design Manual: Chapter Three: Roadway Alignment, Section 2.A

Maximum Allowable Deflection on a Horizontal Alignment Without a Curve

Purpose

To improve the aesthetics of a roadway by reducing the appearance of kinks.

Policy

As a general guide, any change in direction of the horizontal alignment with a deflection angle ≥ 0°30′ on high-speed roadways (≥ 50 mph) or ≥ 1° on low-speed (≤ 45 mph) and urban roadways will require a horizontal curve. Section 3.3.13, "General Controls for Horizontal Alignment", in Chapter 3 of the *Green Book* (Ref. 3.1) contains the following guidance:

- For small deflection angles, curves should be sufficiently long to avoid the appearance of a kink. Curves should be at least 500 feet long for a central angle of 5°, and the minimum length should be increased 100 feet for each 1° decrease in the central angle. The minimum length for horizontal curves on main highways, ($L_{c\ min}$) should be 15 times the design speed expressed in mph (V), or $L_{c\ min}$ = 15V. On high-speed controlled access facilities that use flat curvature for aesthetic reasons, the desirable minimum length for curves ($L_{c\ des}$) should be double the minimum length described above, or $L_{c\ des}$ = 30V.

Implementation

This policy is effective on the date it is executed by NDOT and FHWA.

Sent to: NDOR Roadway Design, NDOR "Distribution B", and selected consultants.