
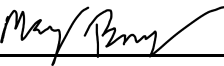


## Nebraska Department of Transportation (NDOT)

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  $\geq 0^{\circ}30'$  on high-speed roadways ( $\geq 50$  mph) or  $\geq 1^{\circ}$  on low-speed ( $\leq 45$  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  $5^{\circ}$ , and the minimum length should be increased 100 feet for each  $1^{\circ}$  decrease in the central angle. The minimum length for horizontal curves on main highways, ( $L_{c \text{ min}}$ ) should be 15 times the design speed expressed in mph ( $V$ ), or  $L_{c \text{ min}} = 15V$ . On high-speed controlled access facilities that use flat curvature for aesthetic reasons, the desirable minimum length for curves ( $L_{c \text{ des}}$ ) should be double the minimum length described above, or  $L_{c \text{ des}} = 30V$ .

#### **Implementation**

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