Design Speed (mph)	Calculated K Value $(K = V^2/46.5)$	K Value Rounded For Design
20	8.6	9
25	13.4	14
30	19.4	20
35	26.3	27
45	43.5	44
50	53.8	54
55	65.1	66
60	77.4	78
70	105.4	106
75	121.0	122

$$L = \frac{AV^2}{46.5} = KA$$

Where:

L = *Length of vertical curve, ft.*
A = *Algebraic difference between grades, %*
K = *Horizontal distance required to effect a 1% change in gradient*
V = *Design speed, mph*

K VALUE FOR SAG VERTICAL CURVE
(Comfort Criteria — 3R Project

Figure 55-4A