



Object Height	When S > L	When S < L
6-inches	$L = 2S - \frac{1329}{A}$	$L = \frac{AS^2}{1329}$
24-inches	$L = 2S - \frac{2158}{A}$	$L = \frac{AS^2}{2158}$

L= Length of Vertical Curve (feet)

S = Sight Distance (feet) (either SSD or DSD required, depending on category)

A = Algebraic Grade Difference (Percent)

K = L/A ; L= KxA

Crest Vertical Curves - Sight Distance, Object Height and Minimum Length Requirements ^E

Design Speed (V) (mph)	Category	DESIRABLE				MINIMUM				Min. VC L= 3 x V (feet) ^D	Category ^A	Design Speed (V) (mph)
		Basis ^B	Sight Distance (feet) ^C	obj. hgt. (inches)	* Kcr	Basis	Sight Distance (feet) ^C	obj. hgt. (inches)	* Kcr			
25	1	SSD	155	6	19	SSD	155	24	12	75	1	25
	2	DSD	375	24	66	SSD	155	24	12	75	2	
	3	DSD	375	24	66	SSD	155	6	19	75	3	
30	1	SSD	200	6	31	SSD	200	24	19	90	1	30
	2	DSD	450	24	94	SSD	200	24	19	90	2	
	3	DSD	450	24	94	SSD	200	6	31	90	3	
35	1	SSD	250	6	48	SSD	250	24	29	105	1	35
	2	DSD	525	24	128	SSD	250	24	29	105	2	
	3	DSD	525	24	128	SSD	250	6	48	105	3	
40	1	SSD	305	6	70	SSD	305	24	44	120	1	40
	2	DSD	600	24	167	SSD	305	24	44	120	2	
	3	DSD	600	24	167	SSD	305	6	70	120	3	
45	1	SSD	360	6	98	SSD	360	24	61	135	1	45
	2	DSD	675	24	212	SSD	360	24	61	135	2	
	3	DSD	675	24	212	SSD	360	6	98	135	3	
50	1	SSD	425	6	136	SSD	425	24	84	150	1	50
	2	DSD	750	24	261	SSD	425	24	84	150	2	
	3	DSD	750	24	261	SSD	425	6	136	150	3	
55	1	SSD	495	6	185	SSD	495	24	114	165	1	55
	2	DSD	865	24	347	SSD	495	24	114	165	2	
	3	DSD	865	24	347	SSD	495	6	185	165	3	
60	1	SSD	570	6	245	SSD	570	24	151	180	1	60
	2	DSD	990	24	455	SSD	570	24	151	180	2	
	3	DSD	990	24	455	SSD	570	6	245	180	3	
65	1	SSD	645	6	314	SSD	645	24	193	195	1	65
	2	DSD	1050	24	511	SSD	645	24	193	195	2	
	3	DSD	1050	24	511	SSD	645	6	314	195	3	
70	1	SSD	730	6	401	SSD	730	24	247	210	1	70
	2	DSD	1105	24	566	SSD	730	24	247	210	2	
	3	DSD	1105	24	566	SSD	730	6	401	210	3	

A See section "Stopping Sight Distance (SSD); Decision Sight Distance (DSD)" in text, and p.2 of Attachment 1 for definitions and criteria for Sight Distance Categories

B SSD = Stopping Sight Distance

DSD = Decision Sight Distance for Avoidance Maneuver C

C See [Attachment 5.1](#)

D Minimum length of crest vertical curve = the greater of either (Kcr x A), OR a distance in feet equal to 3 x the design speed in mph (3 x V)

E See [Attachment 5.5](#) for graphs of L vs. A vs. Design Speed for crest vertical curves