

Direction of Grade	Ratio of Deceleration Length on Grade to Length on Level			
	< 3%	3% ≤ Ratio < 4%	4% ≤ Ratio < 6%	≥ 6%
Upgrade*	1.00	0.90	0.80	0.70
Downgrade	1.00	1.20	1.35	1.50

* Upgrade adjustment is only used in a restricted location.

Notes:

1. Table applies to each highway design speed.
2. The grade in the table is the average grade over the distance used for measuring the length of deceleration.

Example

Given: Highway Design Speed 70 mph
 First Exit Curve Design Speed 45 mph
 Average Grade 5% downgrade

Problem: Determine length of deceleration.

Solution: Figure 54-3A yields a minimum deceleration length of 400 ft on the level. According to Figure 54-3B, this should be increased by 1.35.

Therefore: $L = (400 \text{ ft}) (1.35)$
 $L = 540 \text{ ft}$

GRADE ADJUSTMENT FOR DECELERATION

Figure 54-3B