

Table 10-4. Minimum Acceleration Lane Lengths for Entrance Terminals with Flat Grades of Less Than 3 Percent

U.S. Customary										
Acceleration Lane Length, L_a (ft) for Design Speed of Controlling Feature on Ramp, V' (mph)										
Highway		Stop Condition	15	20	25	30	35	40	45	50
Design Speed, V (mph)	Merge Speed, V_a (mph)	Average Running Speed (i.e., Initial Speed) at Controlling Feature on Ramp, V'_a (mph)								
		0	14	18	22	26	30	36	40	44
30	23	180	140	—	—	—	—	—	—	—
35	27	280	220	160	—	—	—	—	—	—
40	31	360	300	270	210	120	—	—	—	—
45	35	560	490	440	380	280	160	—	—	—
50	39	720	660	610	550	450	350	130	—	—
55	43	960	900	810	780	670	550	320	150	—
60	47	1200	1140	1100	1020	910	800	550	420	180
65	50	1410	1350	1310	1220	1120	1000	770	600	370
70	53	1620	1560	1520	1420	1350	1230	1000	820	580
75	55	1790	1730	1630	1580	1510	1420	1160	1040	780
80	57	2000	1900	1800	1750	1680	1600	1340	1240	980

Note: Uniform 50:1 to 70:1 tapers are recommended where lengths of acceleration lanes exceed 1,300 ft.

V = design speed of highway (mph)

V_a = merge speed (mph)

V' = design speed of controlling feature on ramp (mph)

V'_a = average running speed (i.e., initial speed) at controlling feature on ramp (mph)

L_a = acceleration lane length (ft)

Metric									
Acceleration Lane Length, L_a (m) for Design Speed of Controlling Feature on Ramp, V' (km/h)									
Highway		Stop Condition	20	30	40	50	60	70	80
Design Speed, V (km/h)	Merge Speed, V_a (km/h)	Average Running Speed (i.e., Initial Speed) at Controlling Feature on Ramp, V'_a (km/h)							
		0	20	28	35	42	51	63	70
50	37	60	50	30	—	—	—	—	—
60	45	95	80	65	45	—	—	—	—
70	53	150	130	110	90	65	—	—	—
80	60	200	180	165	145	115	65	—	—
90	67	260	245	225	205	175	125	35	—
100	74	345	325	305	285	255	205	110	40
110	81	430	410	390	370	340	290	200	125
120	88	545	530	515	490	460	410	325	245
130	92	610	580	550	530	520	500	375	300

Note: Uniform 50:1 to 70:1 tapers are recommended where lengths of acceleration lanes exceed 400 m.

V = design speed of highway (km/h)

V_a = merge speed (km/h)

V' = design speed of controlling feature on ramp (km/h)

V'_a = average running speed (i.e., initial speed) at controlling feature on ramp (km/h)

L_a = acceleration lane length (m)