

Table 5-10(a). Suggested Runout Lengths for Barrier Design (Metric Units)

Design Speed (km/h)	Runout Length (L_R) Given Traffic Volume (ADT), (m)			
	Over 10,000 veh/day	5,000 to 10,000 veh/day	1,000 to 5,000 veh/day	Under 1,000 veh/day
130	143	131	116	101
110	110	101	88	76
100	91	76	64	61
80	70	58	49	46
60	49	40	34	30
50	34	27	24	21

Table 5-10(b). Suggested Runout Lengths for Barrier Design (U.S. Customary Units)

Design Speed (mph)	Runout Length (L_R) Given Traffic Volume (ADT) (ft)			
	Over 10,000 veh/day	5,000 to 10,000 veh/day	1,000 to 5,000 veh/day	Under 1,000 veh/day
80	470	430	380	330
70	360	330	290	250
60	300	250	210	200
50	230	190	160	150
40	160	130	110	100
30	110	90	80	70

Once L_R and L_A have been selected, the length of barrier required at a specific location depends on the tangent length of barrier upstream from the Area of Concern (L_1), its lateral distance from the edge of the traveled way (L_2), and the flare rate (a:b) specified for the installation. Several factors should be considered in the selection of these three variables.

As previously noted, a traffic barrier should be set as far as practical from the traveled way. This practice minimizes the likelihood that the barrier will be hit by providing a motorist with the maximum amount of traversable, unobstructed recovery area. It is critical that a vehicle makes contact with most types of barriers with its center-of-gravity at or near its normal position. This reduces the tendency for a vehicle to wedge under or go over the barrier. Thus, the slopes between a barrier installation and the roadway should be 1V:10H or flatter, or the barrier should be far enough from the road that a vehicle is on the ground with its suspension system neither compressed nor extended at the time of contact. Figure 5-38 approximates the acceptable location of a traffic barrier for approach slopes as steep as 1V:6H.

A second reason for installing a barrier as far as practical from the traveled way is to keep the barrier from causing drivers to slow down, change lanes, or shift positions within their own lanes. As noted in Section 5.6.1, the distance beyond which a driver will not react to an object near the roadway is called the shy-line offset. This distance varies by design speed, as shown in Table 5-7, and by type and location of objects. An object outside a paved or graveled shoulder generally has no measurable effect on a motorist's behavior. Problems arise when the roadway appears narrower or is narrowed, such as at a bridge that is narrower than the approach roadway. On facilities with no shoulders, barriers or other fixed objects 1.8 m [6 ft] or more from the edge of the traveled way may not create driver reactions. It also is worth noting that median barriers can be set closer to the edge of the driving lane without affecting vehicle placement. When the barrier is to the left, the driver can clearly see how close the barrier is; however, for a right shoulder installation, depth perception becomes more of a problem for many drivers and they tend to position their vehicles farther from the barrier than is necessary.