

 Ontario**Book 11****Ontario
Traffic
Manual****March 2000**

Pavement, Hazard and Delineation Markings

150 m is calculated using the preceding equation, using inputs of speed limit (80 km/hr) and lane offset (3 m). An additional minimum length of 70 m is required on the basis of Table 6, using inputs of operating speed (80 km/hr) and obstruction width (2 m). The total minimum length of the approach marking is therefore 220 m, the sum 150 m and 70 m.

5.4 Barricades

Barricades are portable or fixed devices with one to three marked rails. Barricades are used to control traffic by closing, restricting, or delineating all or part of a road. Their primary function is to delineate excavation or construction areas in or near the

Table 6 – Minimum Length of Approach Markings (m) for Obstructions within the Pavement Area

Operating Speed	Road Type	Obstruction Width (m)						
		1	2	3	4	5	6	7
30	Rural	50	50	50	50	50	70	80
	Urban	20	30	40	50	60	70	80
40	Rural	50	50	50	65	80	95	110
	Urban	25	40	50	65	80	95	110
50	Rural	50	50	65	80	100	120	135
	Urban	30	50	65	80	100	120	135
60	Rural	50	55	75	100	120	140	165
	Urban	35	55	75	100	120	140	165
70	Rural	50	65	90	115	140	165	190
	Urban	40	65	90	115	140	165	190
80	Rural	50	70	100	130	160	190	215
	Urban	45	70	100	130	160	190	215
90	Rural	50	80	115	145	180	210	245
	Urban	50	80	115	145	180	210	245
100	Rural	55	90	125	165	200	235	270
	Urban	55	90	125	165	200	235	270
110	Rural	60	100	140	180	220	260	300
	Urban	60	100	140	180	220	260	300
120	Rural	65	110	150	195	240	280	325
	Urban	65	110	150	195	240	280	325

Note: The above values are derived from $D = (0.36W + 0.18)S$, where D = approach distance in metres, W = width of obstruction in metres, and S = speed in kilometres per hour. (For rural conditions, distance must not be less than 50 m.)

traveled portion of the roadways, and block off all or part of the street where partial or full road closures become necessary. A description of the types of barricades and their design criteria is provided in OTM Book 7 (Temporary Conditions). Approaches to barricades should be adequately marked, as the presence of barricades may surprise motorists, especially commuters who are accustomed to a routine drive.

On divided roads with high traffic volumes, vehicular penetration into work sites can be prevented by using a "New Jersey" concrete barrier. "New Jersey" barriers should not be used to channelize traffic and their use should be determined by worksite protection requirements. Temporary pavement edge lines and reflective delineation should be used with "New Jersey" barriers.

Stripes on barricades must be alternating vertical orange and black retroreflective stripes. Normally stripes must be 150 mm wide, but on rails less than 900 mm long, they may be only 100 mm wide.

Where a barricade extends entirely across a roadway, the stripes should slope downward in the direction toward which traffic must turn. If both right and left turns are possible, the stripes may slope downward in both directions from the centre. If turns are not intended, the stripes should slope downward toward the centre of the barricade or barricades.

Barricades may include other unstriped horizontal panels necessary to provide support or stability.

The safety of vehicle occupants, pedestrians, and worksite personnel should be considered in the design and installation of barricades. In the event of an impact, the barricade should not pose an undue hazard to road users or worksite personnel.

5.5 Channelizing Devices

Channelizing devices are intended to alert drivers to hazards in or near the traveled way which have been created by construction or maintenance activities, and guide traffic safely past these hazards.

Channelizing devices include traffic cones, tubular markers, flexible drums, and pavement markings. Traffic cones and tubular markers are sometimes used outside construction and maintenance areas for general traffic control. They help to emphasize reversible lane delineation, channelizing lines, and islands. A description of the types of channelizing devices and their design criteria is provided in OTM Book 7 (Temporary Conditions).

Channelizing devices used on low-speed roads during the daytime must be at least 450 mm high. On freeways and other high-speed roads, on any facility during hours of darkness, or when more conspicuous guidance is needed, their minimum height must be increased to at least 700 mm.

Channelizing devices must be made of materials that can withstand impact without damage to themselves or vehicles.

Cones and tubular markers used outside construction and maintenance areas must be the same colour as the pavement marking they supplement or for which they are substituted. They should be kept clean and bright for maximum target value. For nighttime use they must be reflectorized.

Retroreflectivity of tubular markers must be achieved using at least two 75 mm white retroreflective bands no more than 150 mm apart. The top band must be placed no more than 50 mm from the top of the device.