

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

Pavement, Hazard and Delineation Markings

Location Criteria

It is important to ensure that chevron alignment signs are clearly visible to approaching drivers. Their effectiveness is dependent on their position and number.

Chevron alignment signs must be placed only on the outside of a sharp curve or turn, and positioned at right angles to oncoming traffic.

The typical placement of chevron alignment signs is so that the bottom is 1.5 m above the outside edge of the closest traffic lane. However, when vehicles are approaching on a gradient, chevron alignment signs may be placed higher or lower, so that they will be illuminated by low-beam headlights.

At least four chevron alignment signs must be used at a single location. Spacing of the chevron alignment signs is shown in Table 7, and is dependent on radius (or degree of curvature). Chevron alignment signs should be positioned to be visible for at least five seconds to an approaching driver at night.

Special Considerations

The signs must have Type III or IV high intensity sheeting, as a minimum requirement, as of January 1, 2002. Type I sheeting is the minimum requirement prior to the date indicated.

5. Object Markings

Purpose and Background

Objects within and immediately adjacent to the pavement constitute a hazard to passing traffic. Bridge piers and abutments, narrow structures, raised median islands, guide rail approach ends, trees, rocks, and poles are all objects that can encroach on the roadway. Object Marker signs and Object Markings warn road users that they are approaching these types of objects, so that they can adjust their path and reduce speed, if necessary, to avoid contact with them.

5.1 Object Marker Signs

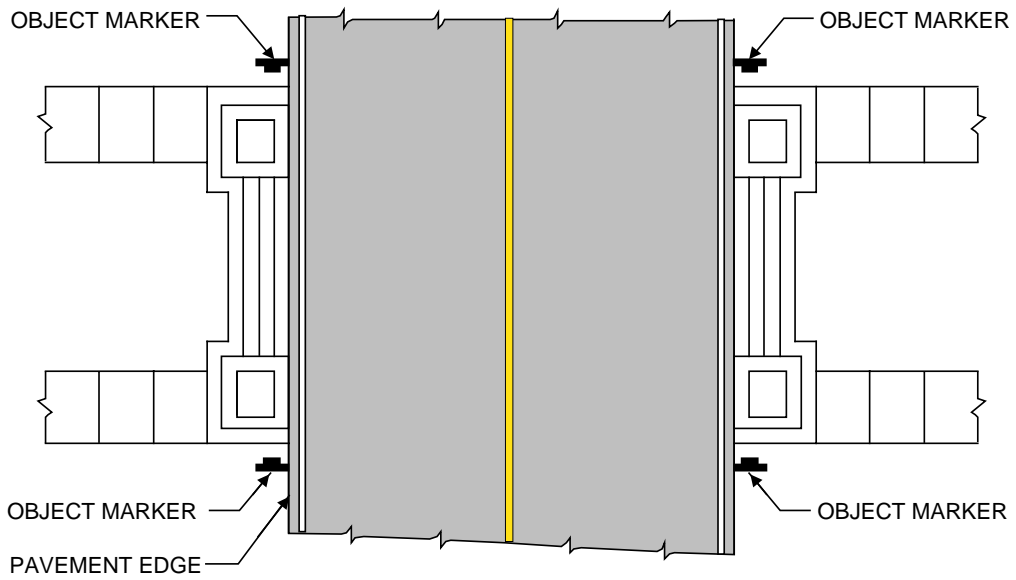
For object marker sign design details, refer to OTM Book 6 (Warning Signs).

Sign Types

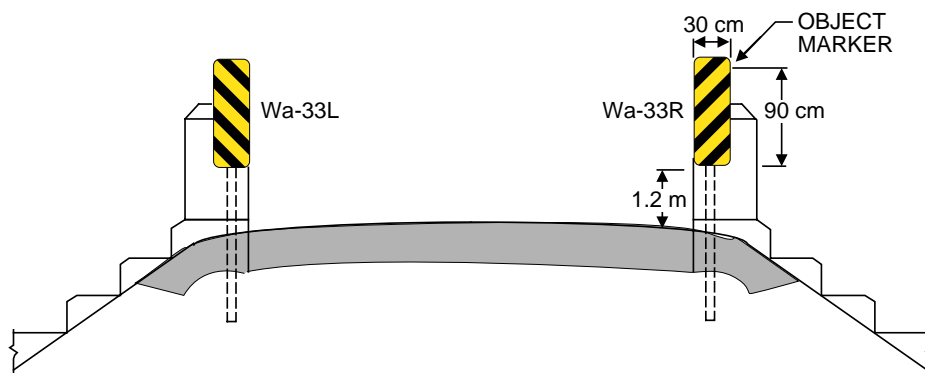
The object marker sign (One Direction) (Left Version) (Wa-33L) is placed to the left of approaching traffic, and has stripes which slope at a 45-degree angle down to the right, toward the travel lanes of the roadway.

The object marker sign (One Direction) (Right Version) (Wa-33R) is placed to the right of approaching traffic, and has stripes which slope at a 45-degree angle down to the left, toward the travel lanes of the roadway.

Figure 57 – Typical Marker Location at Bridge Ends



PLAN



CROSS SECTION

The object marker sign (Both Directions) (Wa-33LR) is placed so that approaching traffic can travel either to the left or right of the sign, and has stripes with slope at a 45-degree angle down to both the left and the right, toward the travel lanes of the roadway.

Guidelines for Use

If a structure such as a bridge pier or abutment is on the roadway shoulder or within 2 m of the roadway edge, and is not protected by an approved safety appurtenance or guide rail system, then an object marker sign must be used to mark all of its edges. Yellow and black markings must also be painted directly onto the structures. See Subsection 5.2 of this Book for additional details on painted markings.

The object marker sign must be used on a structure wherever a narrow structure sign (Wa-24) is used in advance of the structure (More information on the narrow structure sign is provided in Section 4 of Book 6). If the structure extends above the top of the marker, yellow and black markings must be painted onto the actual structure. Figure 57 shows the typical placement of object marker signs at bridge ends. See Subsection 5.2 of this Book for additional details on painted markings.

Object marker signs may be used to mark all other hazards (such as trees, rocks, poles, curbs or guide rail approach ends) on the shoulder or within 2 m of the edge of the roadway in rural areas.

Object marker signs must mark median dividers within the flow of traffic, and raised or depressed islands.

Object markers may be installed alone or in combination with signs such as the keep right sign (Rb-25), double arrow sign (Wa-17) or guide signs. More information on the double arrow sign is provided in Book 6, Section 2 (Roadway Alignment Signs) and more information on the keep right sign is provided in Book 5 (Regulatory Signs).

Object marker signs must be used on the approach ends of channelizing islands or dividers where traffic streams diverge and do not rejoin (such as right-turn channelization or freeway ramp gores). If inadequately indicated, this type of configuration may be unexpected by drivers, causing confusion and possibly erratic manoeuvres or other errors.

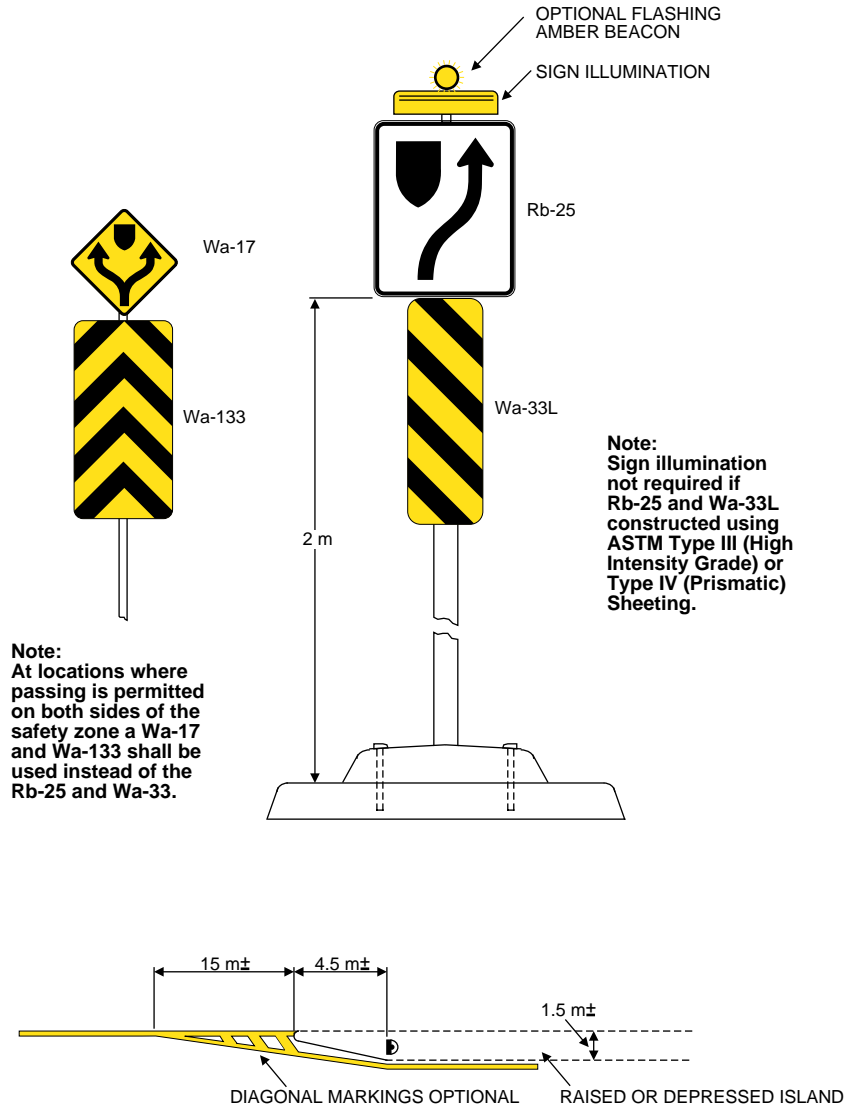
Location Criteria

The object marker sign should normally be installed so that the bottom of the sign is 1.2 m above the surface of the nearest traffic lane.

When the object marker sign applies to a hazardous object that by its nature requires a lower or higher mounting, the vertical mounting height may vary according to the need. The vertical mounting height may also be varied to accommodate the height at which the headlights of an approaching vehicle on an uphill or downhill gradient will strike the marker.

For object marker signs mounted on structures or objects, the inside edge of the sign (edge closest to the roadway) must be in line with the inside edge of the structure or object it marks.

Figure 58 – End Protection for Raised or Depressed Safety Zone



Winter Maintenance Considerations

Winter maintenance vehicle operators also receive beneficial guidance from object markers on hazards that are either on or adjacent to the roadway shoulder. An object marker, on or in front of the approach end treatment of a guide rail for example, assists operators in orienting themselves and avoiding damage to the device.

Where needed, object markers on guide rail should be supplemented with snowplow markers, indicating to winter maintenance vehicle operators the location of the start or end of the guide rail system. A standard for presenting this information should be adopted within the jurisdiction, and used consistently.

Special Considerations

Object marker signs must have Type III or IV high intensity sheeting, as a minimum requirement, as of January 1, 2002. The minimum requirement prior to the date indicated is Type I sheeting.

5.2 Markings on Objects Adjacent to the Roadway

If a structure such as a bridge pier or abutment is on the roadway shoulder or within 2 m of the roadway edge, and is not protected by an approved safety appurtenance or guide rail system, then painted markings must be used to mark all of its edges.

Painted markings are to consist of the following:

- Alternating yellow and black stripes sloping downward at a 45 degree angle toward the roadway.
- The stripes should be at least 30 cm wide, and must be at least 10 cm in width.
- On any one structure, there must be at least four black stripes of equal width.
- The portion of the structure facing approaching traffic must be striped from a point 30 cm above the roadway to an upper point 2 m to 3 m above the roadway surface. The width of the striped area must not exceed 45 cm.
- The inside edge of the markings must be in line with the inner edge of the obstruction.

The wall parallel to the roadway must not be striped.

For structures with restricted overhead clearance, see Subsection 5.3 of this Book.

5.3 Markings on Objects Within the Roadway

At night, an unreflectorized object in the roadway may not be visible to an approaching driver using low-beam headlights until the vehicle is too close to safely avoid it. For this reason, hazardous objects within the roadway must be marked with alternating black and yellow stripes. The stripes must be at least 10 cm wide and ideally should be 30 cm wide. The stripes may be widened to provide adequate visibility, depending upon the size of the obstruction and the speed of approaching traffic. At any one location the stripes must be uniform in width.

In addition to object markings on or before the obstruction, appropriate pavement markings (described below in this section) must be applied in advance of the obstruction as an approach warning. This combination of markings will help alert the driver to the obstacle, giving sufficient time to manoeuvre the vehicle along the safest path.