

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section:
**CHANNELIZATION &
DELINEATION DEVICES**

Subject:
DELINEATORS

APPLICATION

Delineation devices are used to warn and alert motorists of hazards created by work activities in or near the travelled way and to guide and direct motorists safely past the hazards.

Devices used for delineation (or channelization) should provide a smooth and gradual transition in moving traffic from one lane to another, onto a bypass or detour, or reduce the width of travelled way. They may also be used to separate traffic from the work area, pavement drop-offs, or storage areas.

Delineating cones, markers or flexible drums used for transition taper alignments may get out of their normal alignment and spacing due to being struck by vehicles or moved by the wind and suction created by fast-moving trucks, construction, maintenance, or utility activities. It is therefore necessary for the Traffic Accommodation Supervisor to patrol the delineation at frequent intervals to ensure it is functioning properly.

Since the delineators can be easily knocked down, displaced or blown over, some devices need extra weight to keep them in place. Sand bags or plastic collars may be used but solid materials such as rock, concrete, etc., are not acceptable for this purpose. Extra weights should be placed at the base of devices to provide maximum stability and to avoid the weights becoming projectiles in the event of a collision.

TYPES OF DELINEATORS

Delineation is achieved by proper placement of traffic cones, tubular markers, flexible drums, or other similar devices. Delineation devices used during the hours of darkness will be reflectorized or illuminated to show the same colour and shape by night as by day.

TRAFFIC CONES

Traffic cones are lightweight, flexible delineation devices.

Traffic cones are used primarily for daylight operations but may be used at night if equipped with white reflectorized bands.

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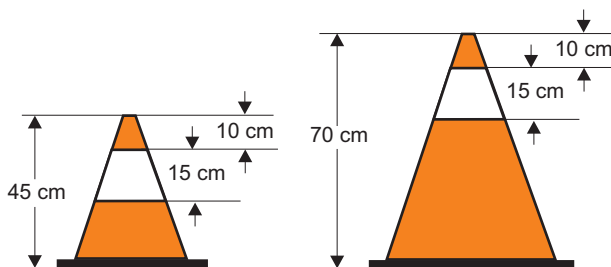
DELINEATORS

When traffic cones are used, the size required is dependant on traffic speed:

> 50 km/hr = minimum height of 70 cm

< 50 km/hr = minimum height of 45 cm

Night time = minimum height of 70 cm



TRAFFIC CONES

FLEXIBLE DRUMS

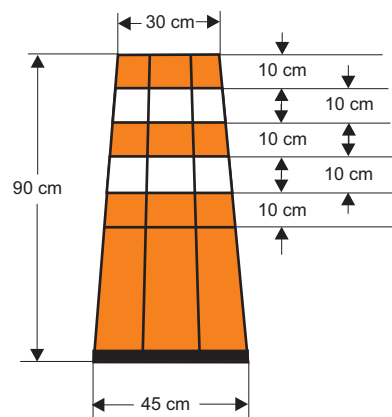
Flexible drums are generally used in work zones where delineation devices will remain in place for extended periods of time.

For night time use, flexible drums are reflectorized by application of alternating horizontal bands of orange and white reflectorized sheeting. There must be a minimum of two white bands and three orange bands, being 10 cm deep.

TOP VIEW



SIDE VIEW



FLEXIBLE DRUMS

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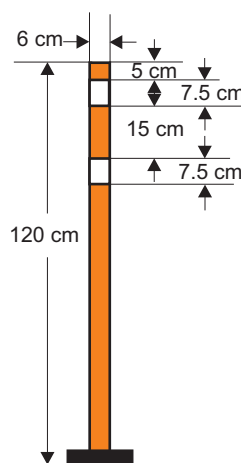
DELINEATORS

TUBULAR MARKERS (DELINEATION POST)

Tubular markers are similar to traffic cones in that they are lightweight and easy to install and remove.

They are particularly suited to delineating traffic lanes or separating two-way traffic for short duration work.

These orange markers must have at least two circular bands of white retroreflective sheeting.



TUBULAR MARKERS

TAPERS

The single most important element within the system of traffic control devices commonly used in work zones is the transition taper for full lane closure or for other reductions in the pavement width. An inadequate taper will almost always produce undesirable traffic operations with resulting congestion and possible collisions through the area.

The taper length will comply with the following minimum requirements:

MAXIMUM SPEED (km/hr)	TAPER LENGTH (m)
30 - <60	40 - 74
60 - 100	75 - 150

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SPACING OF DELINEATORS

The centre to centre distance between delineators on the taper will be as follows:

MAXIMUM SPEED (km/hr)	MAXIMUM CENTRE TO CENTRE SPACING (m)
30 - <60	5 - 9
60 - 100	10 - 15

The centre to centre distance between delineators adjacent to the direction of travel will be as follows:

MAXIMUM SPEED (km/hr)	MAXIMUM CENTRE TO CENTRE SPACING (m)
30 - <60	30 - 89
60 - 100	90 - 150

PAVEMENT EDGE DROP-OFF

At certain speeds, particularly during periods of darkness, a pavement edge drop-off becomes a potential hazard to the motorist. Every reasonable effort must be made to minimize the amount of pavement edge drop-off that is present when the travelled way is open to traffic. The length of pavement edge drop-off should be minimized by:

- scheduling the paving of adjacent lanes so that there is no pavement drop-off along the centre line of a road at the end of the day's operation; and
- scheduling the construction of shoulder base or shoulder fillets, concurrently with the paving operations.

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However, where a pavement edge drop-off is present and the travelled way is open to traffic, the following devices and practices will be utilized:

- pavement drop-off signs will be installed at not more than 3 km intervals;
- any pavement drop-off at the edge of the travelled way will be delineated when the drop-off exceeds 60 mm; and
- any pavement drop-off at centre line will be delineated when the drop-off exceeds 60 mm. Delineators will be weighed down or securely fastened to the pavement so they will not be blown over by the wind or passing vehicles.