



Traffic Control Device: **Work Zone**

Date of Revision: **March 15, 2002**

Division:

Subject: **Requirements**

Page **1 of 3**

### **Purpose**

A traffic control device is any device placed upon, over or adjacent to a roadway that is intended to regulate, warn or guide motorists and provide for the orderly movement of traffic. In construction and maintenance work zones, traffic control devices are used to ensure safe passage for the travelling public through or around the work area, and to safeguard the personnel involved in the work. Traffic control devices include signs, delineators, channelizers, barricades, pavement markings, lighting devices, flagperson/flagging equipment, and any other device placed upon a public roadway which warns motorists of dangerous conditions or provide for the safe movement of traffic.

### **Policy**

Only those devices that are approved by the Department of Transportation and Government Services may be used on provincial highway projects. Traffic Engineering Branch must be contacted before any non-standard traffic control device is placed on the road.

### **Standard**

#### **Basic Requirements**

To be effective, a traffic control device must meet five basic requirements:

- X fulfill a need
- X command attention
- X convey a clear, simple message
- X command the respect of motorists
- X give adequate time for proper response

Five basic considerations are employed to ensure that these requirements are met:

- X device design
- X uniformity
- X placement
- X application
- X maintenance

RECOMMENDED: \_\_\_\_\_  
Director, Traffic Engineering

APPROVED: \_\_\_\_\_  
Executive Director  
Highway Engineering

**Device Design**

The following design elements must be considered when selecting traffic control devices:

- X size
- X shape
- X colour(s)
- X contrast
- X composition
- X reflectivity
- X message simplicity
- X message legibility

These design elements combine in various ways to influence how effectively a device meets the basic traffic control device requirements.

**Device Uniformity**

Traffic control device uniformity aids in recognition, interpretation and message comprehension, simplifying the task of the motorist. Uniformity applies not only to the design of traffic control devices but also to how the devices are used. A standard device used inappropriately is as objectionable as a non-standard device. Misuse can result in disrespect for the standard device at locations where it is needed. Uniformity also reduces the costs associated with device manufacture, installation, maintenance, and administration. Minor modifications of a specified device may be allowed due to necessity. However, the essential device characteristics must be maintained. The *Uniform Traffic Control Devices for Canada* (UTCD) manual should be used as a resource document to help ensure uniformity.

**Device Placement**

Traffic control devices should be placed within the cone of vision of the motorist (approximately 10 degrees from the roadway alignment) so that they command attention. Devices must be located with respect to the point, object or situation to which they apply to aid in conveying the proper meaning. Device location, combined with legibility, must allow for an adequate response time from motorists travelling at normal speeds. Traffic control devices must be spaced far enough apart to allow a motorist to respond correctly to each in turn, while avoiding rapid or sudden reactions which could cause loss of control.

**Device Application**

Device application should ensure that sufficient and applicable devices and related equipment are installed to meet the traffic requirements at any given location. The motorist must be guided into and through the work zone by a series of signs and devices which give the driver an opportunity to adjust to upcoming conditions. Devices must be installed only if they are necessary; unnecessary traffic control devices contribute to work zone "clutter" and detract from those that are needed.

Devices must be applied in a uniform and consistent manner. This uniformity allows motorists to anticipate traffic control situations similar to those previously experienced, and helps to ensure they respond properly.

Due to decreased visibility, motorist safety is compromised more at night than during the day. Therefore, traffic control in work zones, particularly detours with speed drops greater than 30 km/h, must be assessed at night as well as during the day to determine the adequacy of the traffic control devices.

The following factors influence how well a system of traffic control devices performs at night:

- device condition
- size
- reflectivity
- enhancements
- longitudinal position
- lateral position
- the "total effect"

The most important factor is the relationship between traffic control devices and other construction and/or permanent devices, i.e., the "total effect". A work zone where the traffic control is relatively straightforward during the day may become quite confusing to motorists at night. The clutter of reflectorized signs, delineators, and barricades can make it difficult to travel through a work zone safely. If work zone traffic control must be left in place overnight, any permanent or temporary devices that are not needed and may tend to confuse motorists must be covered or removed. Special emphasis involving positive guidance, illumination and/or sequential flashers may be required at transitions from four-lane divided highways to two-lane roadways.

### **Device Maintenance**

Maintenance of traffic control devices can be divided into two types - Physical and Functional:

X **Physical Maintenance** - All traffic control devices used in construction and maintenance work zones must be maintained to high standards to ensure that visibility and legibility are retained both day and night. Clean, legible, properly installed devices in good working condition command the respect of motorists. Traffic control devices must be monitored to ensure their satisfactory condition, and if necessary, must be immediately repaired or replaced.

If traffic control devices are left in place overnight, inspections must be performed periodically to ensure that nighttime reflective levels are adequate. Traffic control devices with inadequate reflective levels must be immediately replaced.

X **Functional Maintenance** - Functional Maintenance involves adjusting traffic control devices to changes in work zone conditions. When operations cease due to darkness or a change in the sequence of the work, only those traffic control devices necessary to protect motorists must remain in place. Devices which are no longer applicable must be removed or replaced.

Functional maintenance includes ensuring that the system of traffic control devices operates as specified in the Traffic Management Plans. This includes making sure that only those traffic control devices approved by the Department are used and that no obsolete, inappropriate or otherwise objectionable devices are installed.