

Group Activity – Traffic Control Plan

NOTE

Deterrence Gap (LIDG) between the crash truck and the work area should not be reduced, and the taper should not be reduced by more than 50% of its normal length (see Table C). Under such conditions, the use of a CT or other protection/attenuation device along with additional advance warning and guidance devices, must be in accordance with the guidelines outlined in [Section 5](#).

2.4.7.3 Horizontal and Vertical Clearance

Workers and/or equipment must not work or be positioned on the outboard side of cones or delineators. Sufficient horizontal clearance must be provided within the delineation of the work area to contain all work and/or equipment on or above ground, including elevated equipment such as bucket trucks used for work under bridge structures or overhead wires.

The travelled lane through the work zone must take into consideration height variance across the lane/shoulders and the effect of super elevation on tall vehicles (i.e. Tractor Trailers).

2.5 Duration of Work

Work duration is a major factor in determining the number and types of signs and devices to be used in temporary work zones and the manner in which they are used. The four categories of work duration used in OTM Book 7 are:

- Mobile Operations;
- Very Short Duration (VSD) work;
- Short Duration (SD) work; and
- Long Duration (LD) work.

The last three categories are all stationary operations.

Required component lengths and device spacing are treated differently for non-freeways and freeways because there is a greater expectation by drivers for smooth, uninterrupted traffic flow on freeways. Tables A, B, and C, and Section 8 provide the appropriate distances and are laid out as follows:

- Table A: Non-Freeways (Very Short Duration and Short Duration);
- Table B: Non-Freeways (Long Duration); and
- Table C: Freeways (Very Short Duration, Short Duration and Long Duration).



Group Activity – Traffic Control Plan

2.5.1 Mobile Operations

Mobile Operations involve work that is done while continuously moving, usually at low speeds (typically 5 to 30 km/h). Mobile Operations may have periodic brief stops related to the mobile activity which do not exceed a few minutes in duration. During a brief stop, no planned work takes place outside of the work vehicle. If a short stop is required at a predetermined specific location, it is VSD work rather than a Mobile Operation.

The advance warning area moves with the activity area. For some continuously moving operations where the volume is light and visibility is good, a well-marked and well-signed vehicle may be sufficient. If the volume and/or speed are higher, a BV equipped with a flashing arrow board should follow the work vehicle. Work vehicles must have, at a minimum, four way flashers and an amber 360 degree beacon (4WF/360°). A 360 degree beacon is a device with an intensely directed light source that continuously shows the light source thru all 360 degrees of the compass. This device must complete a full rotation every 1.5 seconds. The vehicle may also be equipped with, truck-mounted attenuators, and appropriate signs, as illustrated in the typical layouts. Where Mobile Operations are in effect in a travelled lane of a multi-lane divided high-speed highway (NPRS 70 km/h or greater), flashing arrow boards must be used.

Examples of Mobile Operations include longitudinal pavement marking, zone painting, and street sweeping.

Paving operations are a very low-speed type of Mobile Operation. However, their speed is so low that the typical layouts used for paving operations are those for stationary operations. Specific requirements for paving operations are described in [Section 5](#).

2.5.2 Very Short Duration Work (VSD)

Very Short Duration (VSD) work occupies a fixed location for 30 minutes or less, including the time that it takes to set up and remove traffic control devices. The work site may be moved along the road and make frequent and short stops where planned work takes place outside of the work vehicle. If a short stop is required at a specific location, it is VSD work rather than a Mobile Operation. If a worker is to be exposed to traffic for more than 30 minutes, including the time required to set up traffic control devices and work time, then greater protection is required and traffic control layouts for SD work should be used.

NOTE

Mobile Operations involve work that is done while continuously moving, usually at low speeds.

A 360 degree beacon is a device with an intensely directed light source that continuously shows the light source thru all 360 degrees of the compass. This device must complete a full rotation every 1.5 seconds.

Very short duration work occupies a fixed location for 30 minutes or less.



Group Activity – Traffic Control Plan

NOTE

Short duration work occupies a fixed location for more than 30 minutes but less than 24 hours.

Long duration work occupies a fixed location for more than 24 hours.

Examples of VSD work may include some utility work, minor road maintenance, pothole patching, surveying, and stormwater catch basin cleanout.

The use of active devices, such as flashing arrow boards, simplified set up and removal procedures, and rolling closures, is advocated for VSD work. The investment in these active devices helps to ensure adequate traffic control, reduces the time that the worker is exposed to traffic hazards, and yields more efficient and productive work operations.

2.5.3 Short Duration Work (SD)

Short Duration work refers to activities that require work areas that are continuously occupied by workers and/or equipment, for more than 30 minutes but less than one 24-hour period in duration. Short Duration work does not include work at a site that extends beyond 24 hours; such work is Long Duration.

Work at the same location may extend over more than one day, and still be considered Short Duration work for the purpose of traffic control device layout if all of the following conditions are met:

- The approval of the road authority is obtained.
- Any additional conditions stipulated by the road authority, including working hours, are complied with.
- Continuous work is less than 24 hours.
- The roadway (and sidewalk) are restored to the satisfaction of the road authority and returned to normal operation when the daily work shift (or authorized working period) is complete.

2.5.4 Long Duration Work (LD)

Long Duration work refers to activities which require a work area for longer than 24 hours. Longer exposure of workers and road users requires more positive guidance through a temporary condition. Temporary roadways and barriers may be provided, and inappropriate markings which cause driver confusion should be removed and replaced with temporary markings.

For stationary operations on freeways longer than five days in duration, TCBs are required, as required by Ontario Regulation 213/91, Section 67 under the OSHA.



Group Activity – Traffic Control Plan

TEMPORARY CONDITIONS · BOOK 7

Table A Work Zone Component Dimensions: Very Short and Short Duration Work (Non-freeways)

	Dimension	Normal Posted Regulatory Speed Limit **				
		50 km/h or lower	60 km/h	70 km/h	80 km/h	90 km/h
1a*	Taper length for full lane closure (m)	10 – 15	20 – 30	30 – 40	50 – 60	70 – 80
1b*	Taper length for roadside work (m) ***	3 – 5	5 – 7	7 – 10	10 – 12	15 – 20
2*	Longitudinal buffer area (LBA) (m)****	(30)	(40)	50	60	75
3*	Maximum distance between markers (m)*****	4 – 6	4 – 6	8 – 10	8 – 10	10 – 12
	Minimum number of markers for taper	at least 4 markers	at least 5 markers	at least 5 markers	at least 7 markers	at least 8 markers
4*	Minimum tangent between tapers (m)	30	30	60	60	80
5*	Distance between construction signs (m) *****	20 – 30	20 – 30	50 – 60	50 – 60	70 – 80

* Table A distances are based on good visibility, and should be increased if visibility is poor.

** The regulatory maximum speed posted on a highway applies under normal conditions; that is, when no construction zone or work activity is present. Guideline provisions required in OTM Book 7 are based on normal posted regulatory speed, and not on temporarily reduced construction zone regulatory or advisory speeds.

*** Roadside work includes shoulder work and roadway edge work.

**** LBAs are optional at speeds of 60 km/h or lower, but should be used for closed lanes on multi-lane roads if space permits.

***** Markers are channelizing devices. Application guidelines are shown in Table F. Cones with reflective collars may be used for daytime or night-time operations on non-freeways.

***** 5* also refers to the required distance for the placement of a TC Warning Sign ahead of the hazard where referenced in section 6.3.5 for the individual signs.



Group Activity – Traffic Control Plan

Table B Work Zone Component Dimensions: Long Duration Work (Non-freeways)

	Dimension	Normal Posted Regulatory Speed Limit**				
		50 km/h or lower	60 km/h	70 km/h	80 km/h	90 km/h
1a*	Taper length for full lane closure (m)	LV: 15 – 25 HV: 30 – 50	40 – 60	60 – 80	100 – 120	140 – 160
1b*	Taper length for roadside work (m)***	LV: 5 – 8 HV: 9 – 15	10 – 15	15 – 20	20 – 25	30 – 40
2*	Longitudinal buffer area (LBA) (m)****	(30)	(40)	50	60	75
3*	Maximum distance between markers (m)*****	6 – 8	8 – 10	8 – 10	10 – 12	12 – 14
	Minimum number of markers for taper	at least 5 markers	at least 7 markers	at least 9 markers	at least 11 markers	at least 13 markers
4*	Minimum tangent between tapers (m)	55	100	120	140	160
5*	Distance between construction signs (m) *****	40 – 50	90 – 100	110 – 120	130 – 140	150

* Table B distances are based on good visibility, and should be increased if visibility is poor.

** The regulatory maximum speed posted on a highway applies under normal conditions, that is, when no construction zone or work activity is present. Guideline provisions required in OTM Book 7 are based on normal posted regulatory speed, and not on temporarily reduced construction zone regulatory or advisory speeds.

*** Roadside work includes shoulder work and roadway edge work.

**** LBAs are not a requirement at speeds of 60 km/h or lower, but should be used for closed lanes on multi-lane roads if space permits.

***** Markers are channelizing devices. Application guidelines are shown in Table F. Cones with reflective collars may be used for daytime or night-time operations on non-freeways.

***** 5* also refers to the required distance for the placement of a TC Warning Sign ahead of the hazard where referenced in section 6.3.5 for the individual signs.

LV = Low Volume

HV = High Volume

LV is defined as the average daily traffic volume with less than 3000 vehicles per day (combined traffic for both directions). This figure can be obtained from the local road authority or estimated by counting the number of vehicles that pass the work site in 3 minutes and multiplying this figure by 300. The count may be taken in off-peak or peak traffic periods, corresponding to the period during which the work operations will be carried out.

Example: 20 cars in 3 minutes x 300 = 6000 vehicles per day (this would be an HV road).



Group Activity – Traffic Control Plan

Figure TL-8 Lane Encroachment

Two-Lane

Multi-Lane

Undivided Non-freeway

Divided Non-freeway

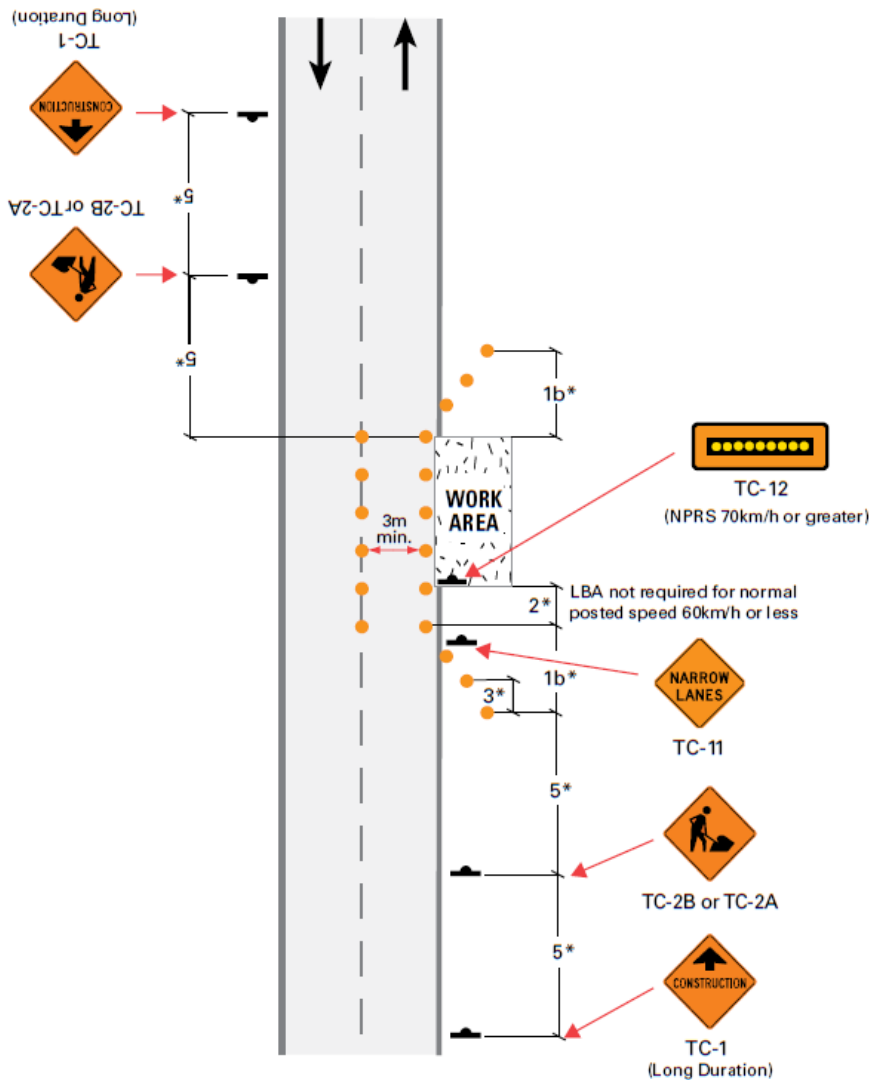
Freeway

Mobile Operations

Very Short Duration

Short Duration

Long Duration



* For Short Duration, see [Table A](#). For Long Duration, see [Table B](#).

NOTES

- i) If Available Lane Width (ALW) is less than 3m, use partial lane shift (See TL-9, TL-10) or lane closures (TL-20A, TL-20B, TL-21).
- ii) Center line cones are optional and are to be used if lane keeping is an issue.
- iii) On unpaved roads with low volume (<3000 vehicles per day):
 - Where remaining roadway width is at least 6m, and ALW is less than 3m, use Rb-91, a distance 5* upstream of start of taper, and move the TC-1 and TC-2B an additional distance 5* upstream.
- iv) Work area may or may not contain a work vehicle. See General Notes to Typical Layouts #4.
- v) A work vehicle with a TC-12 may replace cones for Short Duration work where NPRS is under 70km/h.

