Table C Work Zone Component Dimensions: Freeways

		Normal Posted Regulatory Speed Limit**		
*	**Dimension**	**80 km/h**	**90 km/h**	**100 km/h**
1a*	Taper length for full lane closure (m)	220	250	300
1b*	Taper length for roadside work (m)***	20 - 25	30 – 40	40 – 50
2*	Longitudinal buffer area (LBA) (m)****	60	75	95
3*	Maximum distance between markers (m)*****	10 - 14	18 – 24	18 – 24
4*	Minimum tangent between tapers (m)	220	250	300
5*	Distance between construction signs (m) ******	160	180	200

** Table C 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.*

***** For application of LBA and LIDG, see Table D and Sections 3 and 4.*

****** Markers are channelizing devices. Application guidelines are shown in Table F. Cones with reflective collars may be used for daytime VSD or SD operations only. Construction markers or flexible drums must be used for all other conditions.*

******* 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.*

Table D Application of Longitudinal Buffer Area and Lateral Intrusion Deterrence Gap

Stationary Work Operations		
Required Protection (Freeways): LBA + Buffer Vehicle + LIDG Required Protection (Non-freeways): LBA only		
(1) Normal Posted Regulatory Speed Limit (km/h)	**(2) Longitudinal Buffer Area (LBA) (m)**	**(3) Lateral Intrusion Deterrence Gap (LIDG) (m)**
50	(30)*	(35)*
60	(40)*	(40)*
70	50	50
80	60	60
90	75	65
100	95	70

Mobile Work Operations	
(1) Normal Posted Regulatory Speed Limit (km/h)	(2) Lateral Intrusion Deterrence Gap (LIDG) (m)
70	35
80	45
90	50
100	55

**LBA and LIDG are optional for normal posted regulatory speed of 50 km/h and 60 km/h.*

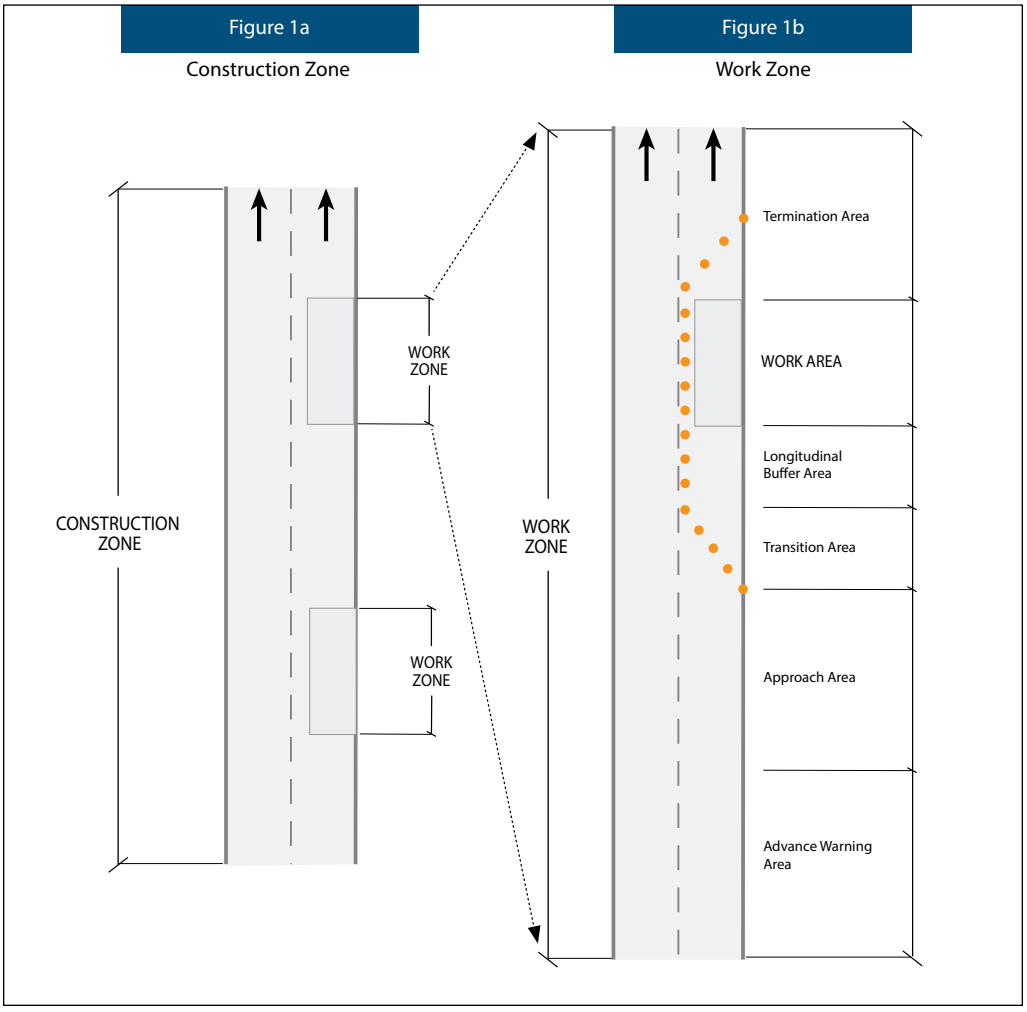
1. See also Section 3 and Section 4.

NOTE

2.4 Component Areas for Temporary Conditions

A ***construction zone*** encompasses the full length of a project (see Figure 1 Component Areas). Within a construction zone, there may be one or multiple work zones. The road authority may also legally establish a designated construction zone which will result in doubled speed fines within the designated construction zone when workers are present. See TL-1, TL-2 & Section 2.6 for designated construction zone signage.

Figure 1 Component Areas



A ***work zone*** is an area where traffic control devices have been set up to provide positive guidance to road users through a temporary situation. It includes the entire section from the first advance warning sign through to the last traffic control device, where traffic returns to its normal path and conditions. A work

zone can be in any of the configurations described in Section 2.3 and may be stationary or mobile. The amount of street space used by a work zone should be no more than is absolutely necessary.

A well-designed work zone normally contains six distinct component areas, in the following sequence:

- advance warning area;
- approach area;
- transition area;
- longitudinal buffer area;
- work area(s); and
- termination area.

These six component areas are described below in the order that drivers encounter them.

NOTE

A well-designed work zone normally contains six distinct component areas.

2.4.1 Advance Warning Area

The advance warning area lengths are used to alert road users of road work ahead. The required distances for the placement of advance signs, shown in Section 8 (Typical Layouts), must be adhered to as closely as practicable.

The advance warning area may need to be increased to accommodate obstacles such as interchanges, bridges, and sightline restrictions. The advance warning area should be actively monitored. If queues are generated that extend beyond the advance warning signs then additional traffic control devices should be set up in advance of the observed end of a queue.

2.4.2 Approach Area

The approach area is used to inform road users of actions that are required or prohibited. The road users are informed of lane changes, speed reductions, passing restrictions, and the like. Road users will require the information at a sufficient distance in advance in order to be able to adjust to an altered situation before reaching it. The devices may vary from a single sign or flashing lights to a series of signs in advance of the transition area.

NOTE

The required distances for the placement of devices in the approach area, shown in Section 8 (Typical Layouts), must be adhered to as closely as practicable.

2.4.3 Transition Area

In the transition area, traffic is channelled from the normal path to a new path required to move traffic past the work area. Work material, vehicles, and equipment must not be stored or parked in the transition area.

The transition area must be obvious to road users.

The transition area must be delineated by channelizing devices, unless otherwise indicated in the typical layouts. It contains the tapers and parallel sections (if more than one lane closed) that are used to effectively close the lanes. The length of the tapers and the parallel sections are extremely important. Guidelines for taper and parallel section lengths are outlined in Tables A, B, and C used in conjunction with typical layouts (see Section 8). If visibility is limited by a horizontal or vertical curve, a taper might need to be lengthened (beyond the length shown in typical layouts) so as to give drivers adequate warning and visibility of the start of the taper.

Note: The parallel sections referred to here are the lengths between successive tapers, and are not the same as the longitudinal buffer area (LBA) described below.

The transition area must be obvious to road users. The intended travel path must be clearly delineated so that road users will not mistakenly follow the wrong path. For long duration operations, there may be the requirement to remove or mask out existing pavement markings and possibly enhance the transition area with temporary pavement markings to identify a clear route where there could be confusion about the proper path.

2.4.4 Longitudinal Buffer Area (LBA)

In work zones, the LBA provides protection for traffic and workers, by providing an opportunity for road users to brake to a halt between the end of the transition area and the work area or Buffer Vehicle (BV) .

No traffic control devices, work material, vehicles, or equipment should be stored or parked in an LBA.

When a LBA with a BV is used, the appropriate distance to use in front (downstream) of the BV is called the Lateral Deterrence Intrusion Gap (LIDG). It is used in combination with the taper, LBA, and BV. (see Section 5.5)

An LBA is recommended in all situations where practicable, and may even be used in circumstances which are not indicated in the typical layouts. As a guideline, an LBA is not required:

- for partial lane shifts, provided lane widths of at least 3.0 m are maintained;
- for non-freeway shoulder operations;
- where traffic is controlled by means of TCPs, automated flagger assistance devices (remote control devices), portable lane control signals (PLCS), or portable temporary traffic signals (PTTS); or
- in urban areas where normal posted speeds are 60 km/h or lower. In urban areas, drivers face more stimuli, including traffic signals, and drivers are less likely to be drowsy or inattentive. The other traffic control devices in the work zone should be sufficient to alert the drivers of the work area ahead, without requiring an LBA. The LBA lengths are included in Tables A, B, C and D and illustrated on the typical layouts, where applicable.

NOTE

No traffic control devices, work material, vehicles, or equipment should be stored or parked in an LBA.

2.4.5 Work Area

The work area is where the work takes place and/or equipment and material are stored. It is still considered a work area when work is temporarily stopped yet the road has not returned to its normal operation conditions. A work area may or may not contain a work vehicle.

The work area may be in a fixed location or move as work progresses. There may be more than one work area within a work zone. Every practical effort should be made to minimize hazards and distractions to drivers and workers. See the requirements of Regulation 213/91 under the OHSA.

2.4.6 Termination Area

The termination area is used for traffic to make the transition back to the normal path of a road. The termination area extends from the downstream end of the work area to the point where traffic is able to resume normal driving, typically at the end of the delineation of the termination taper on multi-lane divided roadways or at the TC-2 in the opposing direction of an undivided roadway.