

## **TRAFFIC CONTROL PLAN CHECKLIST**

The primary function of Temporary Traffic Control, (TTC) is to provide for the reasonably safe and efficient movement of road users through or around TTC zones while reasonably protecting workers, responders to traffic incidents, and equipment. No one set of TTC devices can satisfy all conditions for a given project or incident. At the same time, defining details that would be adequate to cover all applications is not practical. For further guidance and information refer to the Manual on Uniform Traffic Control Devices, (MUTCD). Information may also be obtained on the Federal Highway Administration's (FHWA) website at: <http://mutcd.fhwa.dot.gov/index.htm>

1. Traffic Control Plans (TCP) must show a plan view of the roadway under construction including the number of lanes, width of shoulders, location of sidewalks and any other pertinent information such as location of Rail Road tracks and Pedestrian cross walks. **Do not use a photocopy from the MUTCD as your plan view.** All information must be clear and legible. Traffic Control Plans, when approved, must be followed by the contractor to set up TTC devices prior to the commencement of roadwork.
2. Indicate the type of signage used in accordance with MUTCD and the distance between advance warning signs A, B & C as appropriate for the work being done. See 6C-1 in the MUTCD, in Appendix A, Appendix C Figures 6H-1 through 6h-46, and also shown in the MUTCD.
3. Show work and buffer zones, including width and length of excavation. NOTE: The buffer zone shall not be used for work activity, or the storage of equipment, vehicles, or materials. The buffer zone is an area used to provide recovery space for an errant vehicle. See MUTCD or Table 6C-2 in Appendix A copied from the MUTCD.
4. Show length of taper (L) and width of offset see MUTCD for more information if needed, and other tapers used, i.e., shifting taper, shoulder taper, etc. See Table 6C-3 and Table 6C-4 in the MUTCD, and in Appendix A.
5. Indicate type and size of channelizing devices, (lighted or unlighted), and the typical distance between each. Ensure channelizing devices have the proper retroreflective material and or lighting if needed. See channelizing devices 6F-7 in Appendix B and or in the MUTCD.
6. Show location and type of barricades used. If sidewalks are closed indicate the alternate safe route proposed for pedestrian traffic.
7. Note flagger locations and ensure flaggers are trained and qualified as per MUTCD. Ensure flaggers and workers wear high-visibility safety apparel meeting MUTCD standards.
8. Ensure proper illumination is provided for nighttime operations. Ensure floodlights, if used, do not produce a disabling glare to road users, flaggers or workers.
9. Road closures are strongly discouraged. Alternate roadwork between lanes to prevent the disruption of traffic flow as much as possible. If closing a road is absolutely necessary and approved by Layton City Traffic Engineer, the TCP must show detour route and signage.

## APPENDIX A

### Section 6C.02 Temporary Traffic Control Zones

Support:

A TTC zone is an area of a highway where road user conditions are changed because of a work zone or an incident through the use of TTC devices, uniformed law enforcement officers, or other authorized personnel. A work zone is an area of a highway with construction, maintenance, or utility work activities. A work zone is typically marked by signs, channelizing devices, barriers, pavement markings, and/or work vehicles. It extends from the first warning sign or high-intensity rotating, flashing, oscillating, or strobe lights on a vehicle to the END ROAD WORK sign or the last TTC device.

### Section 6C.03 Components of Temporary Traffic Control Zones

Support:

Most TTC zones are divided into four areas: the advance warning area, the transition area, the activity area, and the termination area. Figure 6C-1 illustrates these four areas. These four areas are described in Sections [6C.04](#) through [6C.07](#).

### Section 6C.04 Advance Warning Area

Support:

The advance warning area is the section of highway where road users are informed about the upcoming work zone or incident area.

Option:

The advance warning area may vary from a single sign or high-intensity rotating, flashing, oscillating, or strobe lights on a vehicle to a series of signs in advance of the TTC zone activity area.

Guidance:

Typical distances for placement of advance warning signs on freeways and expressways should be longer because drivers are conditioned to uninterrupted flow. Therefore, the advance warning sign placement should extend on these facilities as far as 0.5 mi or more. On urban streets, the effective placement of the first warning sign in feet should range from 4 to 8 times the speed limit in mph, with the high end of the range being used when speeds are relatively high. When a single advance warning sign is used (in cases such as low-speed residential streets), the advance warning area can be as short as 100 ft. When two or more advance warning signs are used on higher-speed streets, such as major arterials, the advance warning area should extend a greater distance (see Table 6C-1).

**Table 6C-1. Suggested Advance Warning Sign Spacing**

Road Type	Distance Between Signs**		
	A	B	C
Urban (low speed)*	100	100	100
Urban (high speed)*	350	350	350
Rural	500	500	500
Expressway / Freeway	1,000	1,500	2,640

\*Speed category to be determined by highway agency

\*\* Distances are shown in feet. The column headings A, B, and C are the dimensions shown in Figures [6H-1](#) through [6H-46](#). The A dimension is the distance from the transition or point of restriction to the first sign. The B dimension is the distance between the first and second signs. The C dimension is the distance between the second and third signs. (The third sign is the first one in a three-sign series encountered by a driver approaching a TTC zone.)

**Table 6C-2. Stopping Sight Distance as a Function of Speed**

Speed* (mph)	Distance (ft)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820

\* Posted speed, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed

Option:

Buffer spaces may be positioned either longitudinally or laterally with respect to the direction of road user flow. The activity area may contain one or more lateral or longitudinal buffer spaces. A longitudinal buffer space may be placed in advance of a workspace. The longitudinal buffer space may also be used to separate opposing road user flows that use portions of the same traffic lane, as shown in Figure 6C-2 of the MUTCD. If a longitudinal buffer space is used, the values shown in Table 6C-2 may be used to determine the length of the longitudinal buffer space.

**Table 6C-3. Taper Length Criteria for Temporary Traffic Control Zones**

Type of Taper	Taper Length (L)*
Merging Taper	at least L
Shifting Taper	at least 0.5L
Shoulder Taper	at least 0.33L
One-Lane, Two-Way Traffic Taper	100 ft maximum
Downstream Taper	100 ft per lane

**Table 6C-4. Formulas for Determining Taper Lengths**

Speed Limit (S)	Taper Length (L) Feet
40 mph or less	$L = WS^2 / 60$
45 mph or more	$L = WS$

Where:

L = taper length in feet

W = width of offset in feet

S = posted speed limit, or off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph.

### Section 6C.05 Transition Area

Support:

The transition area is that section of highway where road users are redirected out of their normal path. Transition areas usually involve strategic use of tapers, which because of their importance are discussed separately in detail.

Standard:

When redirection of the road users' normal path is required, they shall be channelized from the normal path to a new path.

Support:

In mobile operations, the transition area moves with the work space.

## **Section 6C.06 Activity Area**

Support:

The activity area is the section of the highway where the work activity takes place. It is comprised of the work space, the traffic space, and the buffer space. The work space is that portion of the highway closed to road users and set aside for workers, equipment, and material, and a shadow vehicle if one is used upstream. Work spaces are usually delineated for road users by channelizing devices or, to exclude vehicles and pedestrians, by temporary barriers.

Option:

The work space may be stationary or may move as work progresses.

Guidance:

Since there might be several work spaces (some even separated by several kilometers or miles) within the project limits, each work space should be adequately signed to inform road users and reduce confusion.

Support:

The traffic space is the portion of the highway in which road users are routed through the activity area. The buffer space is a lateral and/or longitudinal area that separates road user flow from the work space or an unsafe area, and might provide some recovery space for an errant vehicle.

Guidance:

Neither work activity nor storage of equipment, vehicles, or material should occur within a buffer space.

Option:

Buffer spaces may be positioned either longitudinally or laterally with respect to the direction of road user flow. The activity area may contain one or more lateral or longitudinal buffer spaces. A longitudinal buffer space may be placed in advance of a work space. The longitudinal buffer space may also be used to separate opposing road user flows that use portions of the same traffic lane, as shown in Figure 6C-2. If a longitudinal buffer space is used, the values shown in Table 6C-2 may be used to determine the length of the longitudinal buffer space.

## **Section 6C.07 Termination Area**

Standard:

The termination area shall be used to return road users to their normal path. The termination area shall extend from the downstream end of the work area to the last TTC device such as END ROAD WORK signs, if posted.

Option:

An END ROAD WORK sign, a Speed Limit sign, or other signs may be used to inform road users that they can resume normal operations. A longitudinal buffer space may be used between the work space and the beginning of the downstream taper.

## **Section 6C.08 Tapers**

Option:

Tapers may be used in both the transition and termination areas. Whenever tapers are to be used in close proximity to an interchange ramp, crossroads, curves, or other influencing factors, the length of the tapers may be adjusted.

**Support:**

Tapers are created by using a series of channelizing devices and/or pavement markings to move traffic out of or into the normal path. Types of tapers are shown in [Figure 6C-2](#). Longer tapers are not necessarily better than shorter tapers (particularly in urban areas with characteristics such as short block lengths or driveways) because extended tapers tend to encourage sluggish operation and to encourage drivers to delay lane changes unnecessarily. The test concerning adequate lengths of tapers involves observation of driver performance after TTC plans are put into effect.

**Guidance:**

The appropriate taper length (L) should be determined using the criteria shown in Tables 6C-3 and 6C-4. The maximum distance in meters (feet) between devices in a taper should not exceed 0.2 times the speed limit in km/h (1.0 times the speed limit in mph).

Note: All figures and Tables have been copied from the FHWA Manual on Uniform Traffic Control Devices.

It is not necessary to purchase a copy of the MUTCD to complete your TCP. All the information you need may be obtained FREE of charge on the Internet at the following link:

<http://mutcd.fhwa.dot.gov/index.htm>

## **APPENDIX B**

**Guidance:**

Channelizing devices should be constructed and ballasted to perform in a predictable manner when inadvertently struck by a vehicle. Channelizing devices should be crashworthy. Fragments or other debris from the device or the ballast should not pose a significant hazard to road users or workers.

The spacing of channelizing devices should not exceed a distance 1.0 times the speed limit in mph when used for taper channelization and a distance 2.0 times the speed limit in mph when used for tangent channelization.

When channelizing devices have the potential of leading vehicular traffic out of the intended vehicular traffic space as shown in [Figure 6H-39](#), of the MUTCD, the channelizing devices should be extended a distance 2.0 times the speed limit in mph beyond the end of the transition area.

**Option:**

Warning lights may be added to channelizing devices in areas with frequent fog, snow, or severe roadway curvature, or where visual distractions are present.

**Standard:**

Warning lights shall flash when placed on channelizing devices used alone or in a cluster to warn of a condition. Warning lights placed on channelizing devices used in a series to channelize road users shall be steady-burn.

The retroreflective material used on channelizing devices shall have a smooth, sealed outer surface that will display a similar color day or night.