MUTCD Part 6:
Temporary Traffic Control
OMUTCD – English units are preferred.

OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES

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Emergency Management Series
Recreational and Cultural Interest Series
Object Markers and End-of-Roadway Markers
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MUTCD Part 6A: General
The Manual on Uniform Traffic Control Devices (MUTCD) provides for uniform design and setup of highway work zones, and includes guidance for the development of temporary traffic control plans (TCPs) that determine the flow of traffic through work zones [FHWA 2000]. Frequent updates have been made to specific sections of the MUTCD.
The needs of all road users (motorists, bicyclists, and pedestrians) shall be considered in work zones, including persons with disabilities in accordance with the Americans with Disabilities Act of 1990 (ADA), Title II, Paragraph 35.130. This will be accomplished through the management of traffic incidents and the appropriate design of Temporary Traffic Control (TTC) zones that are essential parts of highway construction, utility work, and maintenance operations.
Fundamental Principles of Temporary Traffic Control (TTC)

Needs words.
Section 6A.01 General

The primary function of 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.

Of equal importance to the public traveling through the TTC zone is the safety of workers performing the many varied tasks within the work space. TTC zones present constantly changing conditions that are unexpected by the road user. This creates an even higher degree of vulnerability for the workers and incident management responders on or near the roadway (see Section 6D.03). At the same time, the TTC zone provides for the efficient completion of whatever activity interrupted the normal use of the roadway..
Section 6B.01
Fundamental Principles of Temporary Traffic Control
MUTCD Part 6B: Fundamental Principles
Section 6B.01
Fundamental Principles of Temporary Traffic Control

Road user and worker safety and accessibility in TTC zones should be an integral and high-priority element of every project from planning through design and construction. Similarly, maintenance and utility work should be planned and conducted with the safety and accessibility of all motorists, bicyclists, pedestrians (including those with disabilities), and workers being considered at all times. If the TTC zone includes a highway-rail grade crossing, early coordination with the railroad company should take place. While these principles provide guidance for good temporary traffic control for the practitioner, they do not establish standards and warrants.
Road user movement should be inhibited as little as practical, based on the following considerations:

A. TTC at work and incident sites should be designed on the assumption that drivers will only reduce their speeds if they clearly perceive a need to do so (see Section 6C.01).

B. Frequent and abrupt changes in geometrics such as lane narrowing, dropped lanes, or main roadway transitions that require rapid maneuvers, should be avoided.

C. Provisions should be made for the reasonably safe operation of work, particularly on high-speed, high-volume roadways.
D. Road users should be encouraged to use alternative routes that do not include TTC zones.

E. Bicyclists and pedestrians, including those with disabilities, should be provided with access and reasonably safe passage through the TTC zone.

F. Roadway construction should be scheduled during off-peak hours and, if necessary, night work should be considered.

G. Early coordination with officials having jurisdiction over the affected cross streets and providing emergency services should occur before roadway or ramp closings.

H. Roadway construction or maintenance work should be completed in order to minimize or reduce exposure to potential hazards.
MUTCD Part 6C: Temporary Traffic Control Elements
Section 6C.01
Temporary Traffic Control Plans

TTC plans range in scope from being very detailed to simply referencing typical drawings contained in the OMUTCD Manual, standard approved ODOT drawings and manuals, or specific drawings contained in the contract documents. The degree of detail in the TTC plan depends entirely on the nature and complexity of the project.
Section 6C.01
Temporary Traffic Control Plans

Provisions for effective continuity of accessible circulation paths for pedestrians should be incorporated into the TTC process. Where existing pedestrian routes are blocked or detoured, information should be provided about alternative routes that are usable by pedestrians with disabilities, particularly those who have visual disabilities. Access to temporary bus stops, reasonably safe travel across intersections with accessible pedestrian signals (see Section 4E.06), and other routing issues should be considered where temporary pedestrian routes are channelized. Barriers and channelizing devices that are detectable by people with visual disabilities should be provided.
Section 6C.02
Temporary Traffic Control Zones

An incident area (a work zone) is an area of a highway where temporary traffic controls are imposed by authorized officials in response to a traffic incident (see Section 6I.01) or special event. It extends from the first warning device (such as a sign, light, or cone) to the last TTC device or to a point where road users return to the original lane alignment and are clear of the incident. A TTC zone to account for first responders to an incident may be provided.
Section 6C.03
Components of Temporary Traffic Control Zones
Section 6C.06
Activity Area

An incident area (a work zone) is an area of a highway where temporary traffic controls are imposed by authorized officials in response to a traffic incident (see Section 6I.01) or special event. It extends from the first warning device (such as a sign, light, or cone) to the last TTC device or to a point where road users return to the original lane alignment and are clear of the incident.

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

<table>
<thead>
<tr>
<th>Speed* (km/h)</th>
<th>Distance (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>35</td>
</tr>
<tr>
<td>40</td>
<td>50</td>
</tr>
<tr>
<td>50</td>
<td>65</td>
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<tr>
<td>60</td>
<td>85</td>
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<td>105</td>
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<td>80</td>
<td>130</td>
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<td>100</td>
<td>185</td>
</tr>
<tr>
<td>110</td>
<td>220</td>
</tr>
<tr>
<td>120</td>
<td>250</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Speed* (mph)</th>
<th>Distance (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>115</td>
</tr>
<tr>
<td>25</td>
<td>155</td>
</tr>
<tr>
<td>30</td>
<td>200</td>
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<td>65</td>
<td>645</td>
</tr>
<tr>
<td>70</td>
<td>730</td>
</tr>
<tr>
<td>75</td>
<td>820</td>
</tr>
</tbody>
</table>

* Posted speed, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed.
Section 6C.06

Activity Area

If used, an incident response and emergency-vehicle storage area should not extend into any portion of the buffer space.
Section 6C.07
Termination Area

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.
Section 6C.07
Termination Area

A longitudinal buffer space may be used between the work space and the beginning of the downstream taper.
Section 6C.08

Tapers

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

<table>
<thead>
<tr>
<th>Type of Taper</th>
<th>Taper Length (L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Merging Taper</td>
<td>at least L</td>
</tr>
<tr>
<td>Shifting Taper</td>
<td>at least 0.5L</td>
</tr>
<tr>
<td>Shoulder Taper</td>
<td>at least 0.33L</td>
</tr>
<tr>
<td>One-Lane, Two-Way Traffic Taper</td>
<td>30 m (100 ft) max</td>
</tr>
<tr>
<td>Downstream Taper</td>
<td>30 m (100 ft) per lane</td>
</tr>
</tbody>
</table>

Table 6C-4. Formulas for Determining Taper Lengths

<table>
<thead>
<tr>
<th>Speed Limit (S)</th>
<th>Taper Length (L) Meters</th>
<th>Speed Limit (S)</th>
<th>Taper Length (L) Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 km/h or less</td>
<td>( L = \frac{WS^2}{155} )</td>
<td>40 mph or less</td>
<td>( L = \frac{WS^2}{60} )</td>
</tr>
<tr>
<td>70 km/h or more</td>
<td>( L = \frac{WS}{1.6} )</td>
<td>45 mph or more</td>
<td>( L = WS )</td>
</tr>
</tbody>
</table>

Where: \( L \) = taper length in meters (feet)
\( W \) = width of offset in meters (foot)
\( S \) = posted speed limit, or off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in km/h (mph)
Section 6C.08

Tapers

Figure 6C-3  Example of a One-Lane, Two-Way Traffic
Taper revised
Section 6C.10
One-Lane, Two-Way Traffic Control

If traffic on the affected one-lane roadway is not visible from one end to the other, then flagging procedures, a pilot car with a flagger used as described in Section 6F.54, or a traffic control signal should be used to control opposing traffic flows.