

Work Zone Set Up

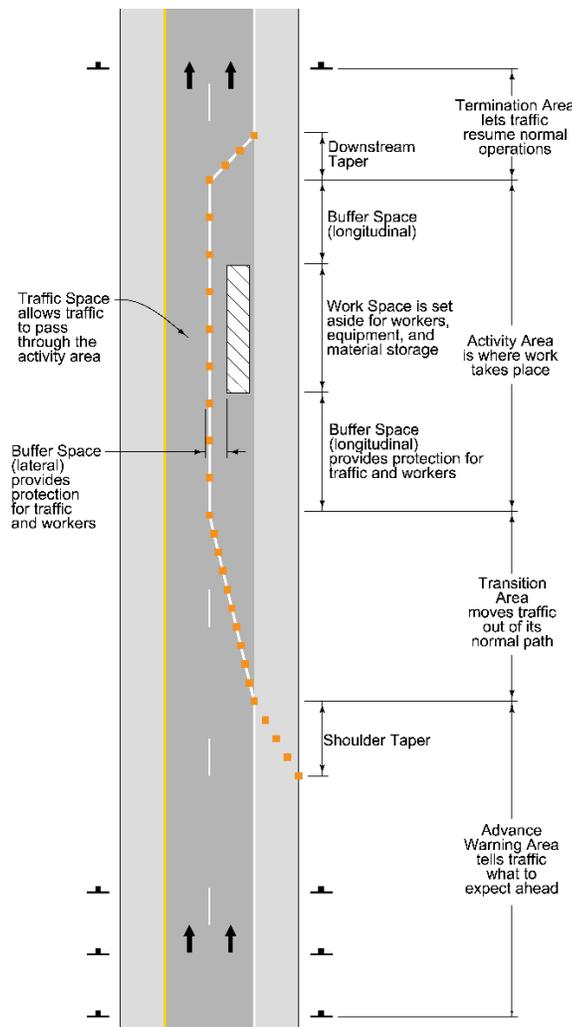
A. Major Elements

A typical work zone, designated with signs and various other traffic control devices, is defined as extending from the first advance warning sign or vehicle with amber, high-intensity, rotating, flashing, oscillating, or strobe light to an END ROAD WORK (G20-2) sign or other device beyond which traffic returns to normal paths.

Most work zones involving major traffic obstructions can be divided into four major areas:

- advance warning
- transition
- activity
- termination

Figure 13B-2.01: Work Zone Temporary Traffic Control - Major Elements



1. **Advance Warning Area:** Advance warning is crucial to safety, and every work zone should include this important feature. Without effective warning, road users cannot be expected to react properly. The advance warning area is that section of roadway where road users are informed about the activity ahead. Depending on the type of road, traffic volumes and speeds, and degree of obstruction, advance warning might consist of a
 - vehicle with amber, high-intensity, rotating, flashing, oscillating, or strobe light,
 - single sign, or
 - series of signs.

Vehicle hazard lights may be used to supplement amber, high-intensity, rotating, flashing, oscillating, or strobe lights (hereinafter called vehicle warning lights), but they shall not be used alone. Flags may be used to call attention to the advanced warning signs

When a series of signs is required, information is presented in this order:

- a. General information, such as ROAD WORK AHEAD (W20-1)
 - b. Description of activity or obstruction, such as RIGHT LANE CLOSED AHEAD (W20-5R) or ONE LANE ROAD AHEAD (W20-4)
 - c. Specific action, such as BE PREPARED TO STOP (W20-7b) or FLAGGER AHEAD (W20-7a)
2. **Transition Area:** In a transition area, traffic is directed from the normal, intended path to a new course, such as from one lane to another. To accomplish this, the MUTCD requires channelizing. Channelization, or redirection of traffic, is usually accomplished with tapers.
 3. **Tapers:** Part 6 of the MUTCD discusses tapers in detail. Several types of tapers are available for work zones, depending on circumstances:
 - Merging tapers are used for lane closures on multi-lane roadways.
 - Shifting tapers divert traffic to alternate paths without closing lanes.
 - Shoulder tapers can be used to delineate shoulder closures.

The recommended minimum length of all these taper types depends on the speed of approaching traffic and the width of the lane being closed. Lengths of merging tapers for various speeds are shown in Table 13B-2.01. Speed limit refers to the legally established and signed speed limit.

Two other taper types do not depend on traffic speed or lane width:

- one lane, two-way taper (used mostly for flagging or self-regulating)
- downstream (termination) taper

One hundred feet is the maximum recommended length for a one-lane, two-way taper, but a length of 50 feet can benefit flagging operations. Refer to the [Iowa DOT's *Flagger's Handbook*](#) for more details. At least 100 feet for each closed lane is recommended for a termination taper length. For merging taper lengths on multi-lane roadways, see Table 13B-2.01.

Speed Limit (mph)	Taper Length (L) (ft)	Number of Devices	Spacing of Devices (ft)
20	80	5	20
25	125	6	25
30	180	7	30
35	245	8	35
40	320	9	40
45	540	13	45
50	600	13	50
55	660	13	55

* This table does not apply to one lane, two-way (flagger) tapers.

4. **Channelizing Devices:** Several channelizing devices are available for use in tapers, including cones, vertical panels, drums, and barricades.
5. **Activity Area:** The activity area of many work zones can be divided into three main parts:
 - a. **Buffer Space:** Buffer spaces are recommended wherever workers are exposed to high-speed moving traffic. Neither work activity nor storage of equipment, vehicles, or material should occur within a buffer space.
 - 1) **Longitudinal buffer spaces** are a safety protection for workers and road users. They give drivers space to recover in emergency situations. Like many other work zone dimensions, longitudinal buffer space is based largely on the traffic speed. Table 13B-2.02 includes buffer lengths for various traffic speeds and are applicable to all temporary traffic control situations. The length of the longitudinal buffer space used may need to be modified based on site conditions.

Table 13B-2.02: Longitudinal Buffer Space

Speed (mph)	Length (ft)
20-35	0-200
40	0-300
45	0-400
50	400
55	600

- 2) **Lateral buffer spaces** are especially effective in high-speed and heavy traffic situations where maximum possible separation of workers from moving vehicles is desired. Flaggers are often beneficial in these circumstances as well.
- b. **Work Space:** The work space is that area closed to traffic where maintenance and construction activities are accomplished. This area can be occupied by equipment, materials, and workers and should be made as secure and safe as possible.
- c. **Traffic Space:** Motor vehicles and other road users occupy the traffic space, also known as the open lane. Workers and equipment should respect this area and not intrude or otherwise hamper free movement of traffic in the open lane.
4. **Termination Area:** The termination area begins at the end of the work space and extends to the END ROAD WORK (G20-2) sign, if posted. This sign is optional, but is recommended by the MUTCD. A downstream or termination taper (50 to 100 feet) may be installed in this area for traffic guidance.