



10. APPENDIX B DRIVER ORIENTATION

Project # and Name: _____

Receiving Company (PCL or Subcontractor): _____

Part 1: Requirements for Deliveries		Yes	No
1.	I acknowledge I am entering a construction site and the following PPE are required? <input type="checkbox"/> Safety Glasses <input type="checkbox"/> Hard Hat <input type="checkbox"/> Safety Footwear <input type="checkbox"/> Reflective Vest <input type="checkbox"/> Other _____	<input type="checkbox"/>	<input type="checkbox"/>
2.	I understand no vehicle is to be reversed on site unless there is a signal person in place?	<input type="checkbox"/>	<input type="checkbox"/>
3.	I understand that no work (unfastening, unloading, and/or loading) is to be performed without direction from the Receiving Contact?	<input type="checkbox"/>	<input type="checkbox"/>
4.	I understand I will stay with my vehicle at all times unless a PCL employee or designate who has completed the full health safety and environment orientation escorts me while on the project site.	<input type="checkbox"/>	<input type="checkbox"/>
5.	I understand that if I must exit the vehicle cab, Part 2 must be completed with my Receiving Contact?	<input type="checkbox"/>	<input type="checkbox"/>

[illegible]

Delivery Company (print)

Delivery Driver (print)

Delivery Driver (signature)

Date Signed (print) _____

Receiving Contact (print)

Receiving Contact (signature)

Date Signed (print) _____

Subcontractors: A copy of the completed form must be provided to PCL (ex. at your next scheduled coordination meeting).

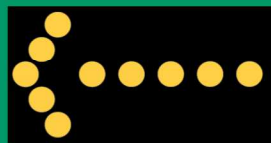


11. APPENDIX C OHIO DEPARTMENT OF TRANSPORTATION TRAFFIC CONTROLS

Guidelines for
**Traffic Control
in Work Zones**



OHIO DEPARTMENT OF
TRANSPORTATION



September 2014

Guidelines for Traffic Control in Work Zones

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Introduction

The primary function of temporary traffic control is to provide for the reasonably safe and efficient movement of road users through or around temporary traffic control zones while reasonably protecting workers, responders to traffic incidents, and equipment. Concurrent objectives of the temporary traffic control are the efficient construction and maintenance of the highway and the efficient resolution of traffic incidents.

Part 6 of the Ohio Manual of Uniform Traffic Control Devices (OMUTCD) is Ohio's standard for all traffic control devices used during construction, maintenance, and utility activities as well as incident management. This handbook summarizes some guidelines listed in the OMUTCD. It is directed to state and local government road and street departments, utilities, companies performing construction by permit, and any other entity providing maintenance or construction on a public roadway. It contains basic principles, a description of the standard traffic control devices used in work areas, guidelines for the application of the devices, and typical application diagrams. This handbook gives the basic principles and provides examples for the design, application, installation, and maintenance of the various types of traffic control devices used in temporary traffic control or for incident management. This information is intended to provide the principles of proper work zone traffic control, but is not a standard. **Part 6 of the OMUTCD contains the standards for work zone traffic control.**

The application diagrams shown represent common applications for typical situations. They are not intended as substitutes for engineering judgment and should be altered to fit the conditions of a particular site – keeping in mind that all traffic control devices used must be in compliance with Part 6 of the OMUTCD.

To obtain a copy of the current OMUTCD, contact ODOT's Office of Roadway Engineering (614-995-2263) or Office of Contracts (1-800-459-3778).

Major Traffic Control Considerations

Every work zone situation is different so several items must be considered in determining the traffic control needed. Following is a list of some questions that illustrate the major traffic control considerations.

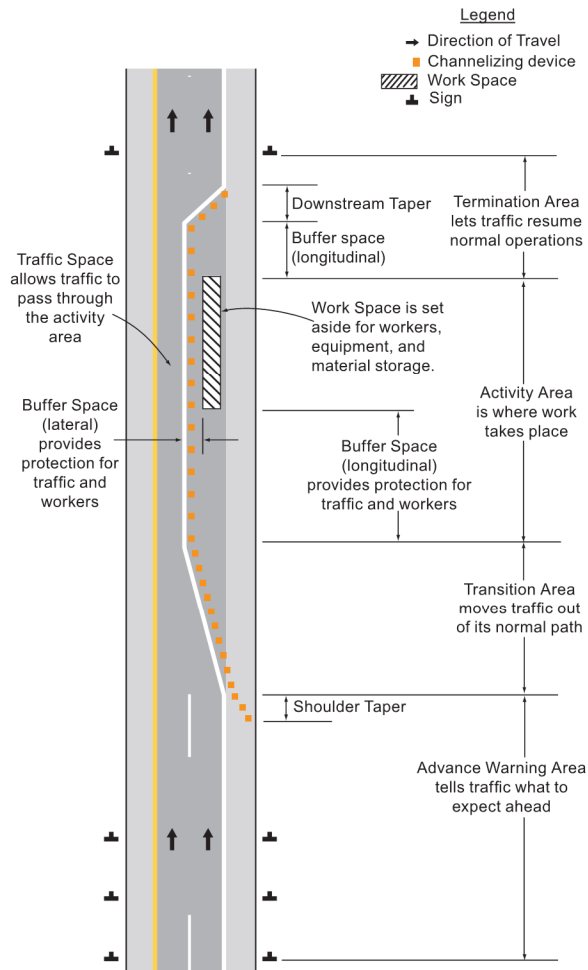
1. What will be the time duration of the work?
 - Long-term stationary – Work that occupies a location more than three days.
 - Intermediate-term stationary – Work that occupies a location more than one daylight period up to three days, or nighttime work lasting more than one hour.
 - Short-term stationary – Daytime work that occupies a location for more than one hour, within a single daylight period.
 - Short duration – Work that occupies a location up to one hour.
 - Mobile – Work that moves intermittently or continuously.
2. Where is the work zone located (on the roadway, on the shoulder, or beyond the shoulder)?
3. What type of road is involved?
4. What is the speed of the traffic?
5. What is the traffic volume on the roadway? Should the work be rescheduled to avoid heavy volume conditions?
6. Will the nature of traffic change while work is underway?
7. Will the work impact pedestrians and/or bicycle facilities?
8. Do the local law enforcement agencies need to be notified?
9. What kind of signing will be required?
10. Are cones, drums, barricades, or an arrow board needed for traffic channelization?
11. Will a flagger be required?

Fundamental Principles

The control of road users through a temporary traffic control zone shall be an essential part of highway construction, utility work, maintenance operations, and incident management. The following principles provide guidance to assist road users and help protect workers in the vicinity of temporary traffic control zones.

1. Road user and worker safety in temporary traffic control zones should be an integral and high priority element of every project from planning through design and construction.
2. General plans or guidelines should be developed to provide safety for drivers, bicyclists, pedestrians, workers, enforcement/emergency officials, and equipment.
3. Road user movement should be inhibited as little as practical.
4. Motorists, bicyclists, and pedestrians should be guided in a clear and positive manner while approaching and traversing temporary traffic control zones and incident sites.
5. Routine day and night inspections of temporary traffic control elements should be performed.
6. Attention should be given to the maintenance of roadside safety during the life of the temporary traffic control zone.
7. Each person whose actions affect temporary traffic control zone safety should receive training appropriate to the job decisions each individual is required to make.
8. Good public relations should be maintained.
9. All temporary traffic control devices shall be removed as soon as practical when they are no longer needed.

Components of Temporary Traffic Control Zone



Definitions

Rural Highway

A type of roadway normally characterized by lower volumes, higher speeds, fewer turning conflicts, and less conflicts with pedestrians.

Urban Street

A type of street normally characterized by relatively low speeds, wide ranges of traffic volumes, narrower lanes, frequent intersections and driveways, significant pedestrian traffic, and more businesses and houses.

Other Terms

Some terms used commonly in discussing temporary traffic control applications are not specifically defined in Part 6 of the OMUTCD. Therefore, as part of the traffic control planning process, each agency should review Part 6 (and other appropriate sources, if needed) to determine generally how it will define the terms “low speed”, “high speed”, “low volume”, and “high volume” for streets and highways under its jurisdiction.

For example, page 17 of this handbook includes the OMUTCD table “Suggested Advance Warning Sign Spacing”, which indicates that the speed category (Urban low speed or high speed) is to be determined by the highway agency.

The term “low volume road(s)” is used in the typical applications on pages 27, 29 and 31 of this handbook. Since Part 6 of the OMUTCD does not provide a specific definition of the term, each agency is responsible for addressing how these applications are used, if at all, on its system of streets and highways.

Tapers

Merging Taper

A merging taper requires the longest distance because drivers are required to merge into common road space. A merging taper should be long enough to enable merging drivers to have adequate advance warning and sufficient length to adjust their speeds and merge into an adjacent lane before the downstream end of the transition.

Following is a table of merging taper lengths (L) and the maximum spacing of channelizing devices for various speeds and widths of closing.

Taper Length*

Speed Limit (mph)	Lane Width (Feet)			Max. Spacing of Devices (Feet)
	10	11	12	
25	105	115	125	25
30	150	165	180	30
35	205	225	245	35
40	270	295	320	40
45	450	495	540	45
50	500	550	600	50
55	550	605	660	55
60	600	660	720	60
65	650	715	780	65
70	700	770	840	70

*Following are the formulas used to calculate taper length:

Posted Speed	Formula
40 mph or under	$L = WS^2/60$
45 mph or over	$L = WS$

where: L = taper length in feet; W = width of offset in feet; and S = posted speed limit, or off-peak 85th percentile speed prior to work starting, or the anticipated speed in mph.

Shifting Taper

A shifting taper is used when a lateral shift is needed. A shifting taper should be approximately L in length; however, it may be approximately 1/2 L when the speed is less than 50 mph.

Tapers (continued)

Shoulder Taper

A shoulder taper may be beneficial on a high-speed roadway where shoulders are part of the activity area and are closed, or when improved shoulders might be mistaken as a driving lane. If used, shoulder tapers should have a length of approximately 0.33 L.

Downstream Taper

If used, a downstream taper should have a minimum length of 50 feet and a maximum length of 100 feet with devices placed at a spacing of approximately 20 feet.

One-Lane, Two-Way Taper

A one-lane, two-way taper is used in advance of an activity area that occupies part of a two-way roadway in such a way that a portion of the road is used alternately by traffic in each direction. A one-lane, two-way taper should have a minimum length of 50 feet and a maximum length of 100 feet with channelizing devices at approximately 20-foot spacings.

Flagging

Flaggers

A flagger shall be a person who provides temporary traffic control. A flagger should be able to demonstrate the following abilities:

1. Ability to receive and communicate specific instructions.
2. Ability to move and maneuver quickly.
3. Ability to control signaling devices.
4. Ability to understand and apply safe traffic control practices.
5. Ability to recognize dangerous situations and warn coworkers.

Flagger Use

When a one-lane, two-way temporary traffic control zone is short enough to allow a flagger to see from one end of the zone to the other, traffic may be controlled by either a single flagger or by a flagger at each end of the section.

When a single flagger is used, the flagger should be stationed on the shoulder opposite the constriction or work space, or in a position where good visibility and traffic control can be maintained at all times.

High Visibility Clothing

For daytime and nighttime activity, flaggers shall wear high-visibility safety apparel that meets the Performance Class 2 or 3 requirements of the ANSI/ISEA 107-2004 publication entitled "American National Standard for High-Visibility Apparel and Headwear" and labeled as meeting the ANSI 107-2004 standard performance for Class 2 or 3 risk exposure. The apparel background (outer) material color shall be fluorescent orange-red, fluorescent yellow-green, or a combination of the two as defined in the ANSI standard. The retroreflective material shall be orange, yellow, white, silver, yellow-green, or a fluorescent version of these colors, and shall be visible at a minimum distance of 1000 feet. The retroreflective safety apparel shall be designed to clearly identify the wearer as a person.

Hand-Signaling Devices

The sign paddle bearing the message STOP or SLOW provides road users with more positive guidance than flags and should be the primary hand-signaling device.

The STOP/SLOW paddle shall have an octagonal shape on a rigid handle. STOP/SLOW paddles shall be at least 18 inches wide with letters at least 6 inches high. The STOP (R1-1) face shall have white letters and a white border on a red background. The SLOW (W20-8) face shall have black letters and a black border on an orange background. When used at night, the STOP/SLOW paddle shall be retroreflectorized.

Flags, when used, shall be red or fluorescent orange/red in color, a minimum of 24 inches square, and securely fastened to a staff that is approximately 36 inches in length.

The free edge of a flag should be weighted so the flag will hang vertically, even in heavy winds. When used at nighttime, flags shall be retroreflectorized red.

Flagger Stations

Flagger stations shall be located such that approaching road users will have sufficient distance to stop at an intended stopping point.

Guidelines for determining the distance of the flagger station in advance of the work space are shown in the table on page 17. The distances shown may be increased for downgrades and other conditions that affect stopping distance.

Except in emergency situations, flagger stations shall be preceded by advance warning signs. Except in emergency situations, flagger stations shall be illuminated at night.

The flagger should stand either on the shoulder adjacent to the road user being controlled or in the closed lane prior to stopping road users. A flagger should only stand in the lane being used by moving road users after road users have stopped. The flagger should be clearly visible to the first approaching road user at all times. The flagger also should be visible to other road users. The flagger should be stationed sufficiently in advance of the workers to warn them (for example, with audible warning devices such as horns or whistles) of approaching danger by out-of-control vehicles. The flagger should stand alone, away from other workers, work vehicles, or equipment.

At spot lane closures where adequate sight distance is available for the reasonably safe handling of traffic, the use of one flagger may be sufficient. The table on page 17 may be used to determine the visibility distance for road users approaching the flagger.

Flagging Procedures

The following methods of signaling with paddles shall be used:

1. **To stop road users**, the flagger shall face road users and aim the STOP paddle face toward road users in a stationary position with the arm extended horizontally away from the body. The free arm shall be held with the palm of the hand above shoulder level toward approaching traffic.



2. **To direct stopped road users to proceed**, the flagger shall face road users with the SLOW paddle face aimed toward road users in a stationary position with the arm extended horizontally away from the body. The flagger shall motion with the free hand for road users to proceed.



3. **To alert or slow traffic**, the flagger shall face road users with the SLOW paddle face aimed toward road users in a stationary position with the arm extended horizontally away from the body.



Communication

When two flaggers are used, they can communicate verbally or visually if they are close enough and visible to each other. One of the flaggers should be designated as the coordinator. Where the end of a one-lane section is not visible from the other end, the flaggers may maintain control using such methods as:

1. Radio or field telephone,
2. Flag transfer method where the driver of the last vehicle proceeding into the one-lane section is given a red flag (or other token) and instructed to deliver it to the flagger at the other end,
3. An official car that follows the last road user proceeding through the section, or
4. A pilot car to guide a queue of vehicles through the temporary traffic control zone or detour. The flag transfer or official car method should only be used for a maximum length of about one mile. The pilot car shall have a sign (G20-4) mounted on the rear of the vehicle.

Arrow Boards

An arrow board shall be a sign with a matrix of elements capable of either flashing or sequential displays. This sign shall provide additional warning and directional information to assist in merging and controlling road users through or around a temporary traffic control zone. Arrow boards shall meet the minimum size, legibility distance, number of elements, and other specifications shown on Figure 6F-6. Arrow board elements shall be capable of at least a 50 percent dimming from full brilliance. The dimmed mode shall be used for nighttime operation of arrow boards. For shoulder work, blocking the shoulder, for roadside work near the shoulder, or for temporarily closing one lane of a two-lane, two-way roadway, an arrow board shall be used only in the

caution mode.

An arrow board should be used in combination with appropriate signs, channelizing devices, or other temporary traffic control devices. An arrow board should be placed on the shoulder of the roadway or, if practical, further from the traveled lane. It should be delineated with retroreflective temporary traffic control devices. When an arrow board is not being used, it should be removed; if not removed, it should be shielded; or if the previous two options are not feasible, it should be delineated with retroreflective temporary traffic control devices.

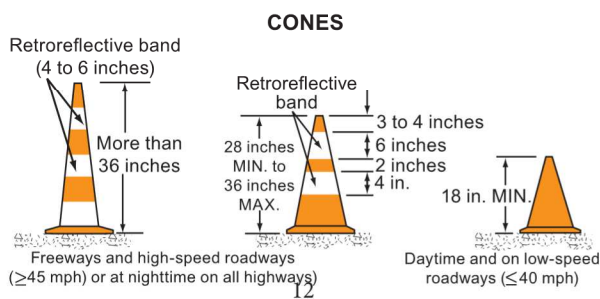
NOTE: Review and understand the full text of Section 6F.61 of the OMUTCD prior to implementing a traffic plan using Arrow Boards.

Channelizing Devices

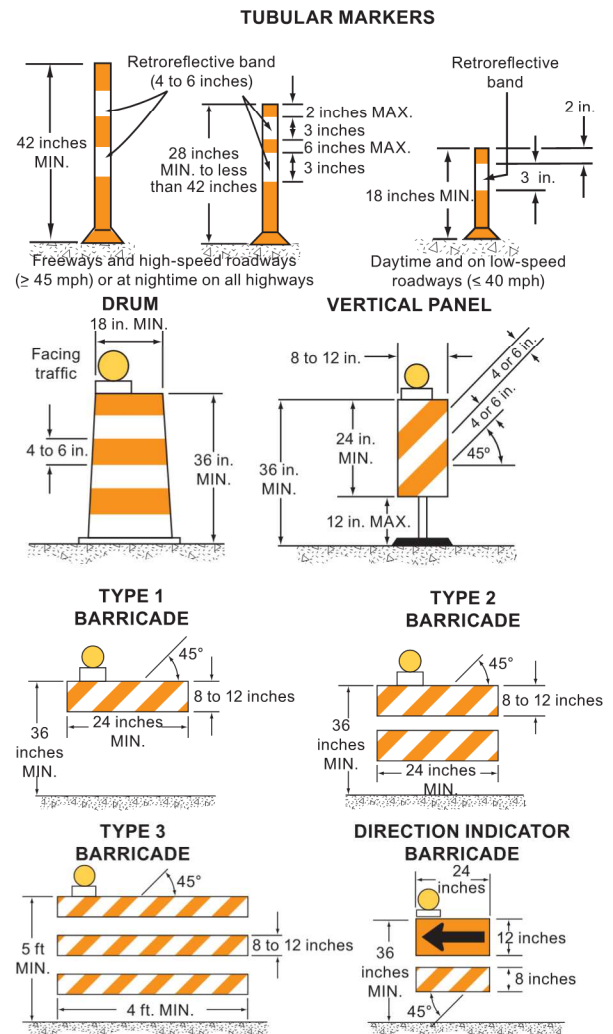
The function of channelizing devices is to warn road users of conditions created by work activities in or near the roadway and to guide road users.

All channelizing devices shall be crashworthy. The spacing between cones, tubular markers, vertical panels, drums, and barricades should not exceed a distance in feet equal to 1.0 times the speed limit in mph when used for taper channelization, and a distance in feet 2.0 times the speed limit in mph when used for tangent channelization.

Devices that are damaged or have lost a significant amount of their retroreflectivity and effectiveness shall be replaced. See OMUTCD Part 6 for additional information.



NOTE: Warning lights on Channelizing Devices are optional.



Warning Lights

Warning lights shall be in accordance with the current ITE “Purchase Specification for Flashing and Steady-Burn Warning Lights.” When warning lights are used, they shall be mounted on signs or channelizing devices in a manner that, if hit by an errant vehicle, they will not be likely to penetrate the windshield.

Type A Low-Intensity flashing warning lights are used to warn road users during nighttime hours that they are approaching or proceeding in a potentially hazardous area. Type A warning lights may be mounted on channelizing devices.

Type B High-Intensity flashing warning lights are used to warn road users during both daylight and nighttime hours that they are approaching a potentially hazardous area. Type B warning lights are designed to operate 24 hours per day and may be mounted on advance warning signs or on independent supports.

Type C Steady-Burn warning lights and Type D 360-degree Steady-Burn warning lights may be used during nighttime hours to delineate the edge of the traveled way. When used to delineate a curve, Type C and Type D 360-degree warning lights should only be used on devices on the outside of the curve, and not on the inside of the curve.

Nighttime Operations

All traffic control devices shall be retroreflectorized when used at night. Workers shall wear high-visibility safety apparel that meets the Performance Class 2 or 3 requirements of the ANSI/ISEA 107-2004 publication. Some employers require a higher performance class of apparel to be worn above the levels required by the national standard. Cones shall be equipped with reflective collars when used at night. When barricades are used, it is desirable to add flashing lights when the barricades are used singly and steady burn lights

when they are used in a series for channelization. If a flagger is used, the flagger station shall be adequately illuminated.

Signs

Types

1. **Regulatory signs** inform road users of traffic laws or regulations and indicate the applicability of legal requirements that would not otherwise be apparent. Regulatory signs shall be authorized by the public agency or official having jurisdiction. They are generally rectangular with a black legend and border on a white background. Exceptions include the STOP, YIELD, DO NOT ENTER, WRONG WAY, and ONE WAY signs.
2. **Warning signs** in temporary traffic control zones notify road users of specific situations or conditions on or adjacent to a roadway that might not otherwise be apparent. Temporary traffic control warning signs shall be diamond-shaped with a black legend and border on an orange background, except for the Railroad Crossing sign which shall have a black legend and border on a yellow background, and except for signs that are required or recommended in Part 2 or 7 of the OMUTCD to have fluorescent yellow-green backgrounds.
3. **Guide signs** provide road users with information to help them along their way through the temporary traffic control zone. The design of guide signs is presented in Part 2 of the OMUTCD. The following guide signs should be used in temporary traffic control zones as needed: standard route markings (where temporary route changes are necessary), directional signs, street name signs, and special guide signs relating to the condition of work being done. If additional temporary guide signs are used in temporary traffic control zones, they shall have a black legend on an orange background.

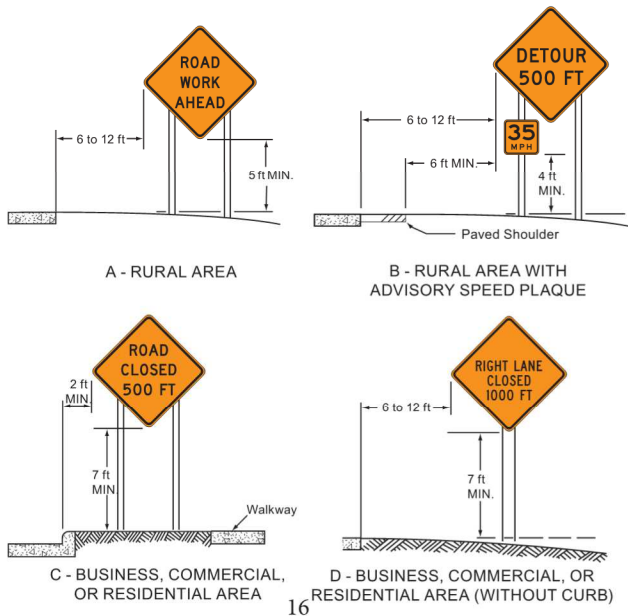
For information on sign sizes, refer to OMUTCD Table 6F-1.

Sign Supports

Fixed sign supports should be used on long-term projects. Portable supports are more practical for intermediate and short-term projects. Following are illustrations of height and lateral locations of signs on fixed supports and methods of mounting other than on posts. Signs mounted on barricades or other supports may be at lower heights than on fixed supports but the bottom of the sign shall be no less than one foot above the traveled way.

Sign Placement

Signs should normally be located on the right-hand side of the roadway. Where special emphasis is needed, signs may be placed on both the left-hand and right-hand sides of the roadway. Neither portable nor permanent signs supports should be located on sidewalks, bicycle facilities, or areas designated for pedestrian or bicycle traffic. Signs mounted on portable supports should not be used for a duration of more than 3 days.



Advance Warning Area

The distance from the first sign to the start of the transition area should be long enough to give motorists adequate time to respond to the conditions. The tables below summarize layout dimensions as referenced in the typical application diagrams (see pages 18 – 48).

Summary of Layout Dimensions

Recommended Advance Warning Sign Minimum Spacing

Road Type	Distance Between Signs (in feet)		
	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 the highway agency.

Maximum Spacing of Channelizing Devices (in feet)

Road Type	Taper	Buffer/Work Space	Downstream
Two-lane	20'	2 x Speed Limit	20'
Multi-lane	Speed Limit	2 x Speed Limit	20'

Tapers and Flag Station Distances (in feet)

Speed Limit (mph)	Two-Lane	Multi-Lane **			Flagger Station/ Buffer
	Max. Two-Way Taper *	Merging Taper 12' lane	Shifting Taper 12' lane	Shoulder Taper 10' shoulder	
25	50' MIN. - 100' MAX.	125'	70'	35'	155'
30		180'	90'	50'	200'
35		245'	130'	70'	250'
40		320'	160'	90'	305'
45		540'	280'	150'	360'
50		600'	600'	170'	425'
55		660'	660'	190'	495'
60		720'	720'	200'	570'
65		780'	780'	220'	645'
70		840'	840'	240'	730'

* Refers to a one-lane, two-way traffic taper (see pages 7 and 26).

** Multi-lane layouts use buffer zones instead of flagger stations

Note: If used, a downstream taper should be 50' MIN and 100' MAX.

Typical Application Diagrams

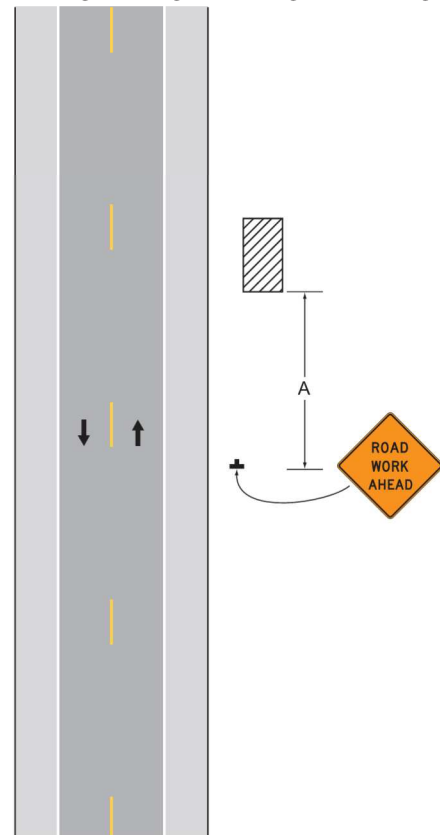
The diagrams on the following pages represent examples of the application of principles and procedures for safe and efficient temporary traffic control in work zones. It is not possible to include illustrations to cover every situation which will require work area protection. They are not intended as a substitute for engineering judgment and should be altered to fit the conditions of a particular site. All traffic control devices used must be in compliance with the OMUTCD. Guidelines for taper lengths are given. Refer to pages 6, 7 and 17 for more specific information on taper lengths. For further information, refer to Part 6 of the OMUTCD (using the "TA-" number listed on each layout to identify that illustration in the OMUTCD). A matrix showing setups applicable to typical activities can be found on the back cover of the booklet.



Work Beyond the Shoulder (TA-1)

If the work space is in the median of a divided highway, an advance warning sign should also be placed on the left side of the directional roadway.

The ROAD WORK AHEAD sign may be omitted where the work space is behind a barrier, more than 24 inches behind the curb, or 15 feet or more from the edge of any roadway. Although vehicle hazard warning signals may be used to supplement, they shall not be used instead of high-intensity rotating, flashing, oscillating, or strobe lights.

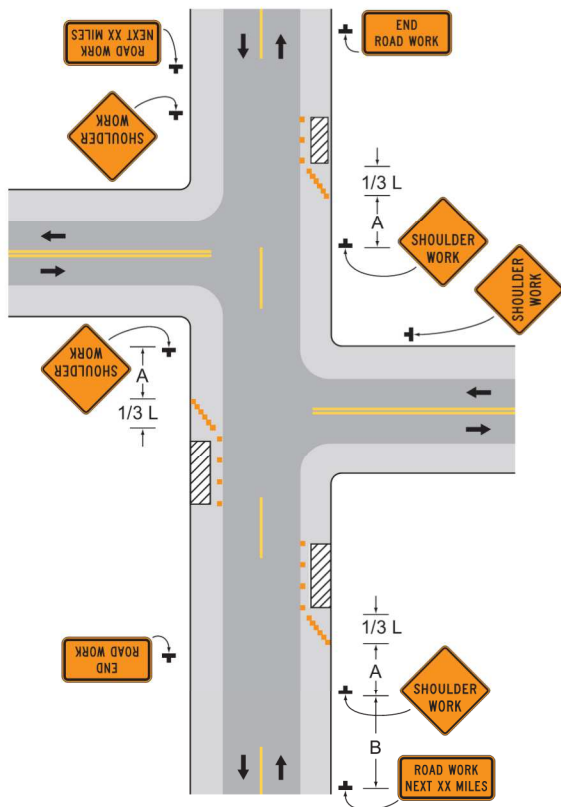


Note: For layout dimensions see page 17.

Work on the Shoulders (TA-3)

A SHOULDER WORK sign should be placed on the left side of the roadway for a divided or one-way street only if the left shoulder is affected.

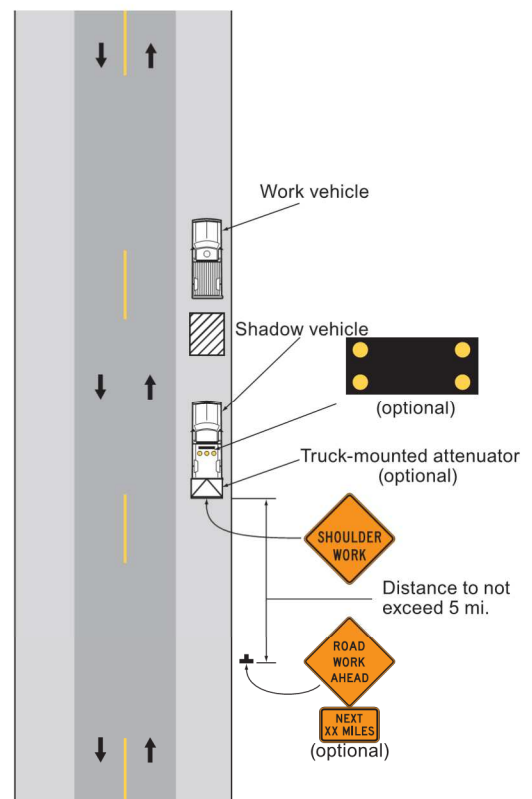
Although vehicle hazard warning signals may be used to supplement, they shall not be used instead of high-intensity rotating, flashing, oscillating, or strobe lights.



Note: For layout dimensions see page 17.

Short-Duration or Mobile Operation on a Shoulder (TA-4)

Although vehicle hazard warning signals may be used to supplement, they shall not be used instead of high-intensity rotating, flashing, oscillating, or strobe lights. If an arrow board is used for an operation on the shoulder, the caution mode shall be used.



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in

Case No(s). 17-1152-EL-BGN

Summary: Report Notice of Compliance with Certificate Condition 27 - Traffic Management Plan_TCP02a electronically filed by Ms. Julia M Mancinelli on behalf of Hillcrest Solar I, LLC