

# PACIFIC GAS & ELECTRIC COMPANY

# WORK AREA PROTECTION GUIDE

Version #PGEFM1A

Based upon US Department of Transportation MUTCD 2000 Millennium Edition, dated December 18, 2000,  
including Errata #1 dated June 14, 2001  
and CALTRANS Manual of Traffic Controls for Construction and Maintenance Work Zones - 1996 (Revision 1).

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# TRAFFIC CONTROL DEVICE SPECIFICATIONS & PROCEDURES

## 1. SIGNS - *Work zone signs convey messages to the motorists by means of words or symbols.*

### Three types: Regulatory, Warning and Guide

- All signs used at night shall be retroreflective.
- Usually located on the right-hand side of the roadway.
- May be placed on both the left and right sides of the roadway.
- Usually mounted on portable supports for short-term stationary, short-duration and mobile conditions.
- The bottom of signs mounted on portable supports shall be no less than 1 foot above the traveled way.
- Unprotected sign support systems shall meet federal/state crash testing requirements. Sign support systems identified in this manual meet federal/state crash testing requirements.
- Signs that are excessively worn, scratched, bent or have lost a significant amount of color or retroreflectivity shall be replaced.

**Regulatory Signs** - *Inform motorists of traffic laws, regulations and legal requirements (i.e. STOP, YIELD, NO LEFT TURN).*

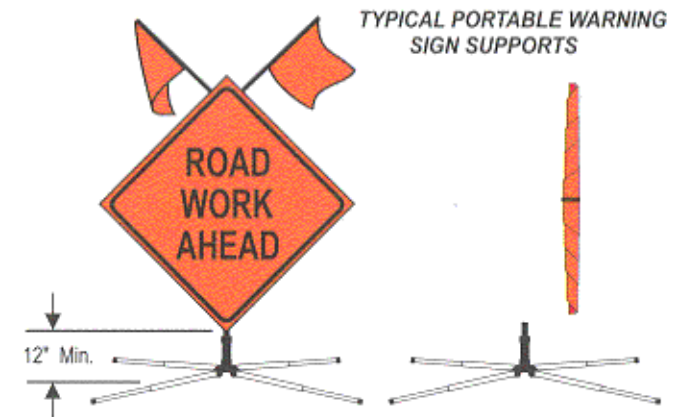
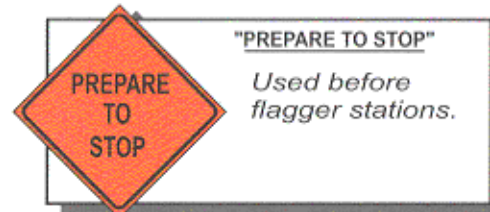
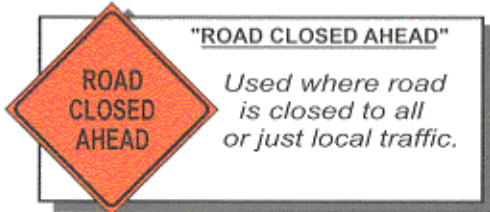
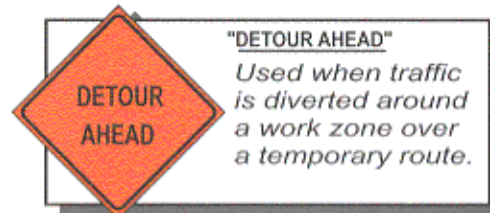
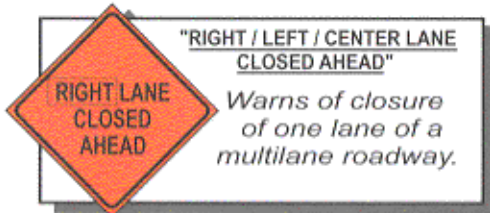
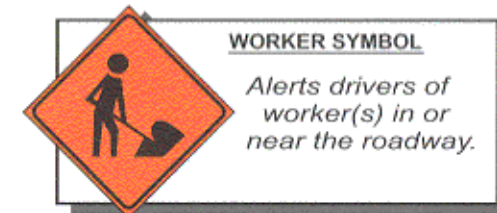
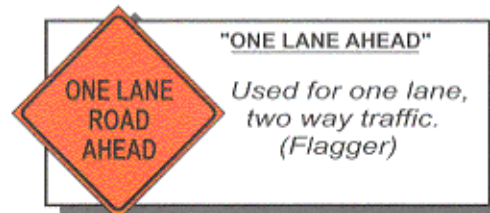
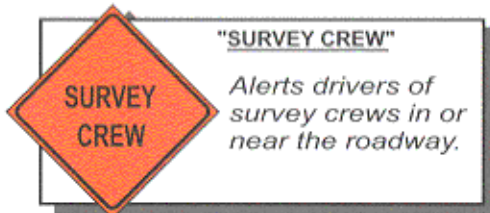
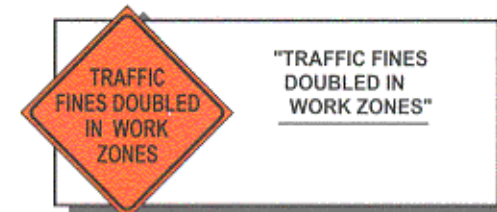
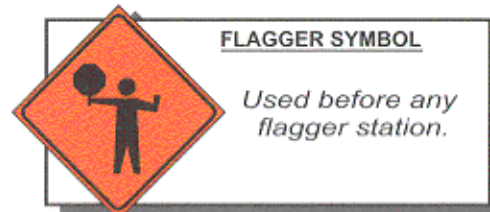
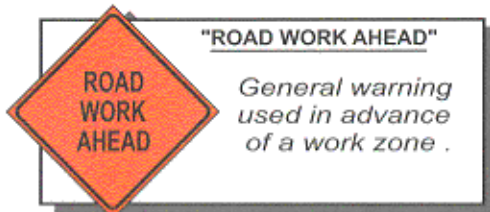
**Warning Signs** - *Notify motorists of hazardous conditions on or adjacent to a roadway (i.e. ROAD WORK AHEAD, ROAD CLOSED AHEAD).*

- Shall be diamond shaped with a black symbol on an orange background.
- Variations require prior approval of the highway authority having jurisdiction.
- **48" warning signs are required on any roadway where the posted speed limit is equal to or greater than 40 MPH. 36" warning signs can be used on roadways where the posted speed limit is less than 40 MPH. Cal-Trans recommends that 48" signs be used as these signs increase driver, pedestrian and bicyclist awareness.**
- Should be placed at varying distances in advance of the work zone, depending on the roadway type, condition, and speed.
- Standard warning flags (those attached to the warning sign) may be used to provide additional visual warning.
- TABLE 3 (on page 27) shows the spacing of warning signs for four general roadway types used in the Utility Typical Application Diagrams. The dimensions mark the locations of warning signs relative to the transition or point of restriction.

**Guide Signs** - *Guide drivers through a detour or provide other special information (see pages 11 & 15 for typical guide signs).*

# TRAFFIC CONTROL DEVICE SPECIFICATIONS & PROCEDURES

## Typical California Utility Warning Signs and Portable Sign Supports



# TRAFFIC CONTROL DEVICE SPECIFICATIONS & PROCEDURES

## 2. FLASHING ARROW SIGNS (FAS; "ARROW DISPLAY")

A sign with a matrix of either flashing or sequential lighted elements mounted on a vehicle or trailer that provides additional **guidance and directional** information to assist in merging and controlling traffic.

**NOTE:** A FAS can/should be used in combination with appropriate signs, barricades, or other traffic control devices. Check local city, county requirements to identify when Flashing Arrow Signs are required.

a. **FAS Specifications** - FAS shall be rectangular, of solid appearance and non-reflective black. The panel shall be mounted on a vehicle, trailer or other suitable support. Vehicle mounted panel should have remote controls. Panel should be mounted at 7' minimum from bottom to road or as high as practicable if on a vehicle. Use only approved FAS equipment.

### Operating Modes:

1. At least one of the three following modes shall be provided (Right shown, Left similar)

Flashing Arrow



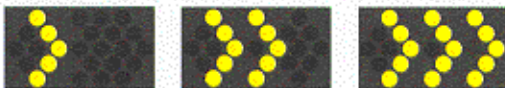
Move/Merge Right

Sequential Arrow



Move/Merge Right

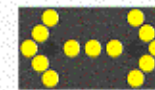
Sequential Chevron



Move/Merge Right

2. The following mode shall be provided

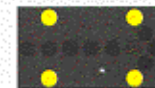
Flashing Double Arrow



Move/Merge Right or Left

3. The following mode shall be provided

Flashing Caution



or

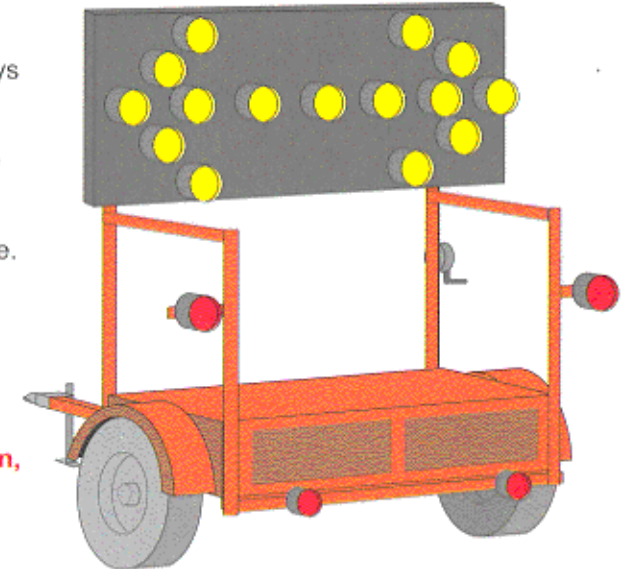


Caution

## TRAFFIC CONTROL DEVICE SPECIFICATIONS & PROCEDURES

### b. FAS Application

- An arrow display (FAS) in the arrow or chevron mode may be used for stationary or moving lane closure. The caution mode shall be used only for shoulder work, blocking the shoulder, roadside work near the shoulder or work within a closed lane.
- For stationary lane closing, the FAS should be located on the shoulder at the beginning of the taper. Where the shoulder is narrow, the FAS should be located in the closed lane.
- If they are used when multiple lanes are closed in tandem, the preferred position for additional arrow displays is in the closed lane at the start of the merge taper.
- Under various situations, such as for narrow shoulders, placement may be in the middle or at the end of the merge taper but always behind the channelizers.
- The FAS shall be located behind any channelizers (cones, etc.) used to transition traffic from the closed lane.
- For mobile operations where a lane is closed, the FAS arrow display should be located to provide adequate separation from the work operation to allow for appropriate reaction by approaching drivers.
- A vehicle displaying an arrow display shall be equipped with appropriate signing and/or lighting.
- **An arrow display shall not be used on a two-lane, two-way roadway for temporary one-lane operation, or within a closed lane.**
- **An arrow display shall not be used to laterally shift, or divert, lanes of traffic because it may cause unnecessary lane changing.**
- For stationary lane closures only one arrow display shall be used for each lane closed; it is normally placed at the beginning of the taper for the closed lane, where traffic must evacuate that lane.
- For moving lane closures the arrow display is also used on the advance warning vehicle (in the shoulder area), to reinforce the need for motorists to evacuate the lane(s) closed ahead in which the work vehicles are occupying.



# TRAFFIC CONTROL DEVICE SPECIFICATIONS & PROCEDURES

## 3. CHANNELIZING DEVICES (Cones, etc.)

*Lightweight, portable, yieldable (usually plastic) devices used to warn, guide and separate traffic from the work space, pedestrian paths or opposing directions of traffic.*

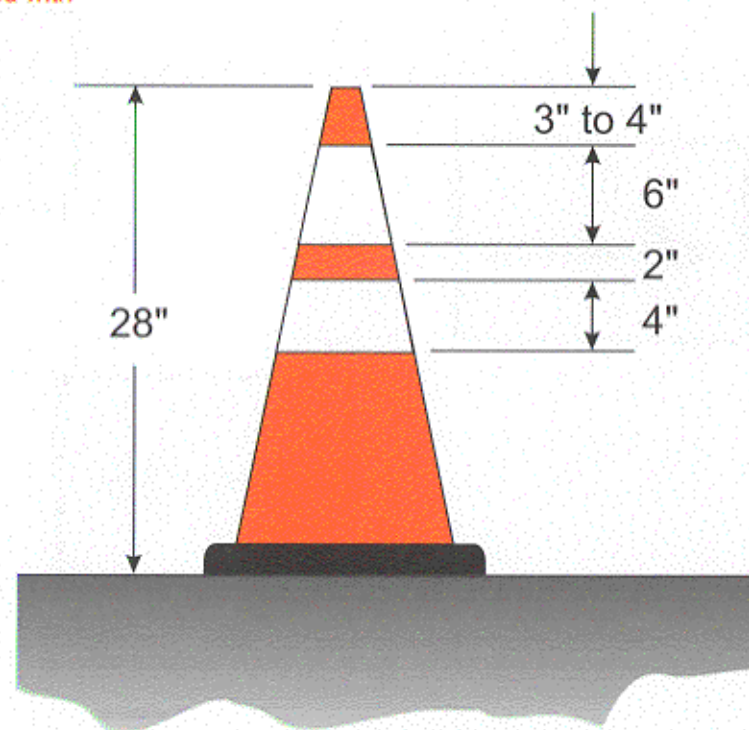
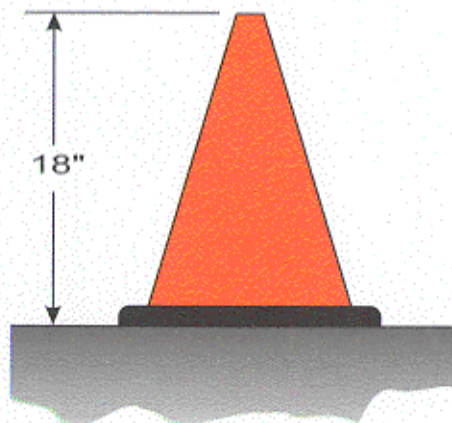
### a. General

- For Pacific Gas & Electric Company, typically cones.
- Should provide for smooth, gradual traffic movement.
- Should yield or break away when struck and should not be a potential hazard to workers, motorists or pedestrians.
- Spacing of channelizing devices (cones, etc.) shall meet the requirements of the state of California MUTCD.
- Shall be preceded by a subsystem of warning signs/devices that are adequate in size, number and placement for the type of roadway on which the work is to take place.
- Should be maintained, kept clean, visible and properly positioned at all times.
- Shall be retrofitted with reflectorized material when used at night.
- Retroreflective material used shall have a smooth, sealed outer surface.
- Retroreflective material shall be replaced if reflectivity or effectiveness is lost.

## TRAFFIC CONTROL DEVICE SPECIFICATIONS & PROCEDURES

b. **Cones** - Made of resilient plastic and shall be:

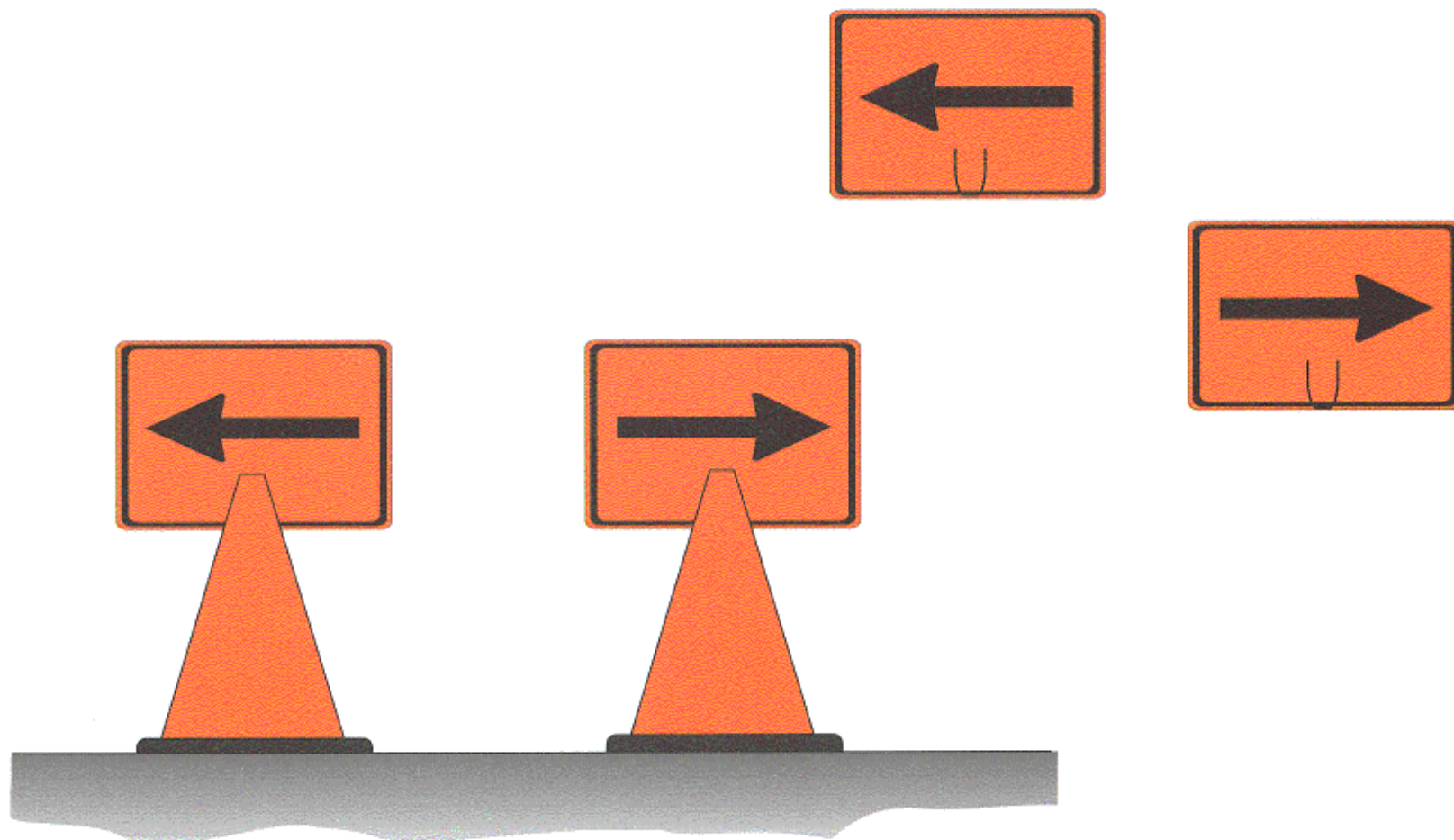
- Predominantly orange or fluorescent red orange.
- Not easily blown over or displaced by wind or moving traffic.
- 18" cones can only be used during daylight hours on roadways where the posted speed limit is less than 40 MPH.
- 28" cones are required on roadways where the posted speed limit is equal to or greater than 40 MPH. 28" cones can be used during hours of daylight and at night, when retrofitted with reflectorized material.



## TRAFFIC CONTROL DEVICE SPECIFICATIONS & PROCEDURES

### c. Directional Arrow Signs

- Directional arrow signs (left and right) are optional equipment to help guide and direct traffic and/or pedestrians.
- The signs are separate from the cones and do not come as a set.

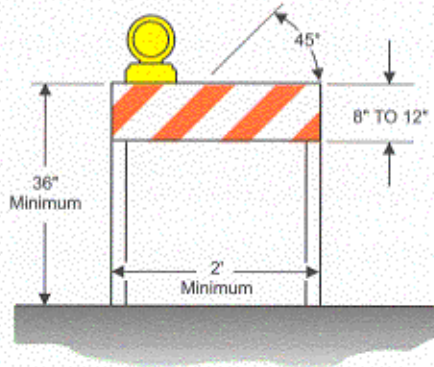




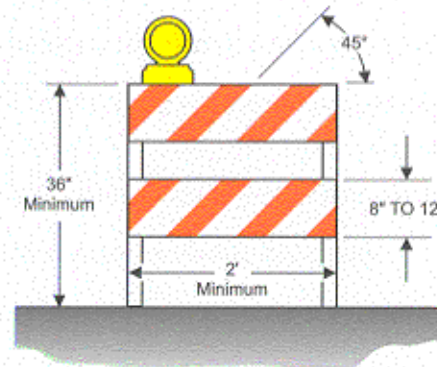
# TRAFFIC CONTROL DEVICE SPECIFICATIONS & PROCEDURES

d. **Barricades** - Portable devices having from one to three rails with striped markings, used to control traffic by closing, restricting, or delineating all or portion of the right of way.

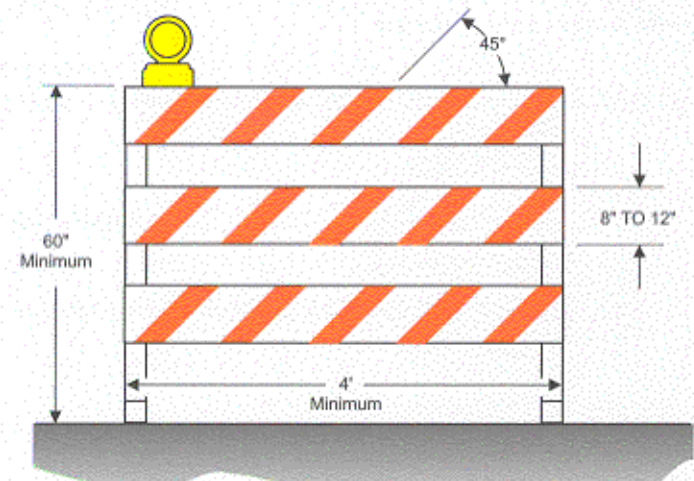
- Shall be of three types: Type I, Type II, or Type III
- Stripes on barricade rails shall be alternating orange and white retroreflective stripes sloping downward at an angle of 45 degrees in the direction traffic is to pass.
- Stripes shall be 6 inches wide or 4 inches wide where rail lengths are less than 36 inches.
- Minimum rail length is 24 inches.
- When used on expressways, freeways and other highspeed roadways only Type II barricades which have a minimum of 270 square inches of retroreflective area facing traffic shall be used.
- Barricades used on any street/roadway must meet federal/state crash testing requirements. Barricades identified in this manual meet federal/state crash testing requirements.



TYPE I



TYPE II



TYPE III  
(Not used by PG&E)

## TRAFFIC CONTROL DEVICE SPECIFICATIONS & PROCEDURES

- Barricades are intended for use in situations where traffic is maintained through the temporary traffic control zone.
- Where a barricade extends entirely across a roadway, the stripes should slope downward in the direction toward which traffic must turn.
- Where both right and left turns are provided, the stripes may slope downward in both directions from the center of the barricade or barricades.
- Where no turns are intended, the stripes should slope downward toward the center.
- Barricade rails should be supported in a manner that will allow them to be seen by the motorist and provide a stable support not easily blown over by the wind or traffic.
- For Type I barricades, the support may include other un-striped horizontal panels necessary to provide stability.
- Should be constructed of lightweight materials and have no rigid stay bracing for A-frame designs.
- On high-speed expressways or in other situations where barricades may be susceptible to overturning in the wind, sandbags can be placed on lower parts of the frame or stays to provide the required ballast but shall not be placed on top of or covering any striped rail.
- Barricades shall not be ballasted by heavy objects such as rocks or chunks of concrete, nor staked to the ground.
- May be used singly or in groups to mark a specific condition, or they may be used in a series for channelizing traffic.
- Type I barricades normally would be used on conventional roads or urban streets.
- Type II barricades have more retroreflective area and are intended for use on expressways and freeways or other high-speed roadways.
- When a roadway is legally closed but access must still be allowed for local traffic, a sign with the appropriate legend concerning permissible use by local traffic shall be mounted.
- The ROAD CLOSED and DETOUR ARROW signs and the LARGE ARROW warning signs can be mounted effectively on or above the barricade that closes the roadway.



# FLAGGING PROCEDURES - ONE LANE / TWO WAY TRAFFIC CONTROL

## FLAGGING PROCEDURES ONE LANE/TWO WAY TRAFFIC CONTROL

### 1. FUNCTION

Hand Signaling Control ("Flagging") procedures provide positive guidance to drivers alternately traversing a work zone activity that reduces the traveled way to a single lane. **Because of the increased exposure to vehicle hazards, flagging should only be employed when all other methods of traffic control are inadequate to warn and direct drivers.**

### 2. FLAGGER QUALIFICATIONS

Because flaggers are responsible for public safety and make the greatest number of public contacts of all roadway workers, they should have the following qualifications:

- Sense of responsibility for the safety of the public and workers
- Training in safe traffic control practices
- Courteous but firm manner

#### **State of California Title 8, Construction Safety Orders, Section 1599(f) "Training of Construction Site Flaggers" (eff. 9/25/99):**

(c) Placement of warning signs shall be according to the "Manual of Traffic Controls for Construction and Maintenance Work Zones-1996", published by the State Department of Transportation, which is herein incorporated by reference and referred to as the "Manual".

(f) Flaggers shall be trained in the proper fundamentals of flagging moving traffic before being assigned as flaggers. Signaling directions used by flaggers shall conform to the "Manual". The training and instructions shall be based on the "Manual" and work site conditions and also include the following:

1. Flagger equipment must be used.
2. Layout of the work zone and flagging station.
3. Methods to signal traffic to stop, proceed or slow down.
4. Methods of one-way traffic control.
5. Trainee demonstration of proper flagging methodology and operations.
6. Emergency vehicles traveling through the work zone.
7. Handling emergency situations.
8. Methods of dealing with hostile drivers.
9. Flagging procedures when a single flagger is used (when applicable).

Documentation of the training shall be maintained as required by Section 3202, Injury Illness and Prevention Program of the General Industry Safety Orders.

(g) Flaggers shall be trained by persons with the qualifications and experience necessary to effectively instruct the employee in the proper fundamentals of flagging moving traffic.

**Refer to the Pacific Gas & Electric Company "Flagger Instruction Package". This package is available from HRLS.**



## FLAGGING PROCEDURES - ONE LANE / TWO WAY TRAFFIC CONTROL

**3. HIGH VISIBILITY CLOTHING** - For daytime work, the flagger shall wear a hard hat and flagger's vest. The flagger's vest shall be orange. For night time work, the vest shall be retroreflective.

- The retroreflective material shall be silver and shall be visible at a minimum distance of 1000 feet.
- The retroreflective vest shall be designed to identify clearly the wearer as a person and be visible through the full range of body motions.
- Uniformed law enforcement officers may be used as flaggers in some locations, such as an urban intersection, where enforcement of traffic movements is important.



**4. HAND SIGNALING DEVICES** - The STOP/SLOW paddle, which gives drivers more positive guidance shall be the hand-signaling device used to control traffic through temporary traffic control zones.

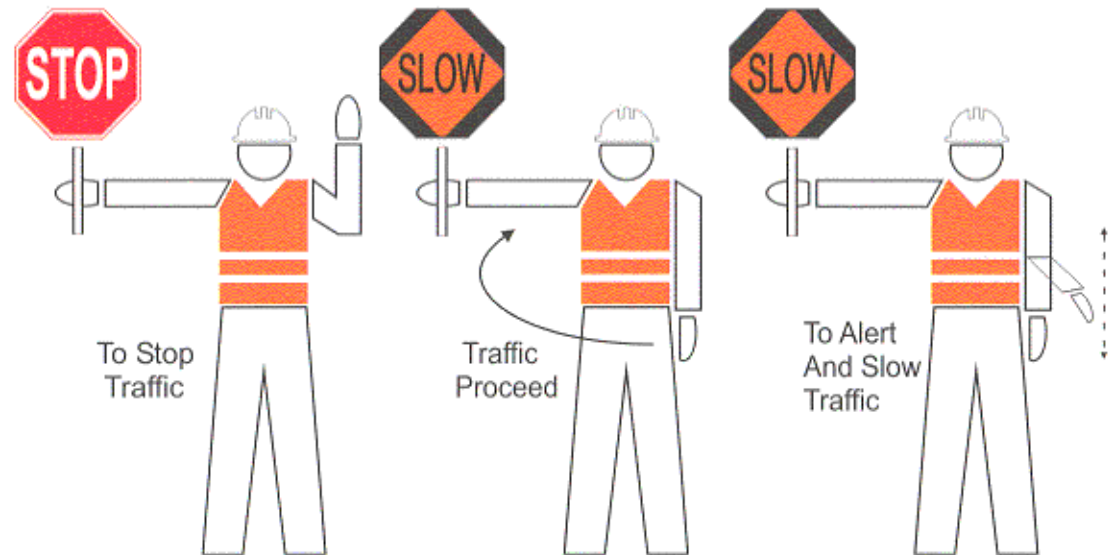
- Only approved items shall be purchased.
- When used at night, the STOP/SLOW paddle shall be retroreflective in the same manner as warning signs.



## FLAGGING PROCEDURES - ONE LANE / TWO WAY TRAFFIC CONTROL

### 5. HAND SIGNALING PROCEDURES

- **To Stop Traffic-**  
The flagger shall face traffic and extend the STOP sign paddle in a stationary position with the arm extended horizontally away from the body. The free arm should be raised with the palm toward approaching traffic.
- **To Direct Stopped Traffic to Proceed-**  
The flagger shall face traffic with the SLOW paddle held in a stationary position with the arm extended horizontally away from the body. The flagger should motion with the free hand for traffic to proceed.
- **To Alert or Slow Traffic-**  
The flagger shall face traffic with the SLOW sign paddle held in a stationary position with the arm extended horizontally away from body. The flagger may motion up and down with the free hand, palm down, indicating that the vehicle should slow down.



## FLAGGING PROCEDURES - ONE LANE / TWO WAY TRAFFIC CONTROL

### 6. FLAGGER STATIONS

- "Tailboard" before the job begins.
- Flagger stations shall be located far enough ahead of the work space so that approaching traffic has sufficient distance to stop before entering the work space.
- The flagger shall plan an escape route.
- The flagger should stand either on the shoulder adjacent to the traffic being controlled or in the barricaded lane.
- At a "spot" obstruction, a position may have to be taken on the shoulder opposite the barricaded section to operate effectively.
- A flagger should stand only in the lane being used by moving traffic after traffic has stopped, and the flagger needs to be visible to other traffic or to communicate with drivers.
- Because of the various roadway sight angles, flaggers should make sure to be clearly visible to approaching traffic at all times.
- The flagger should stand alone to be clearly visible to approaching traffic.
- Other workers should not be permitted to congregate around the flagger station.
- The flagger should be stationed far enough ahead of the work force to warn them with horns, whistles, etc. of approaching danger, such as vehicles out of control and /or emergencies.
- Flagger stations should be preceded by proper advance warning signs.
- Under certain roadway and traffic situations, more than one flagger station may be required for each direction of traffic.
- At night, flagger stations shall be illuminated.
- At very low-volume and very low-speed short lane closing where adequate sight distance is available for the safe handling of traffic, the use of one flagger may be sufficient.
- Multiple (2 or more) flaggers shall be in constant communication (i.e. two-way radios, line of sight, verbal, hand signals).

# EMERGENCY OPERATIONS

## 7. FLAGGER EMERGENCY OPERATIONS

During the job site tailboard, determine what signal(s) will be used for an emergency.

### Emergency Vehicles Traveling Through the Work Zone

Warn all workers in the area using the predetermined signal. Clear an unimpeded path for an approaching emergency vehicle, if advance notice has been received, by stopping traffic in all directions. Stop an emergency vehicle, if advance notice was not received, before stopping all traffic and construction equipment to clear a path for it to pass. Make arrangements with the local police agency who has jurisdiction over the roadway when the work will make the road impassable (blasting or excavation).

### Work Zone Traffic Violations

Warn all workers in the area using the predetermined signal. Stop all other vehicles from entering the work area without putting yourself in an unsafe situation. Note the license number and description of the vehicle, if possible, and report them to the authorities. Have an escape route planned.

### Traffic Incident In or Near the Work Zone

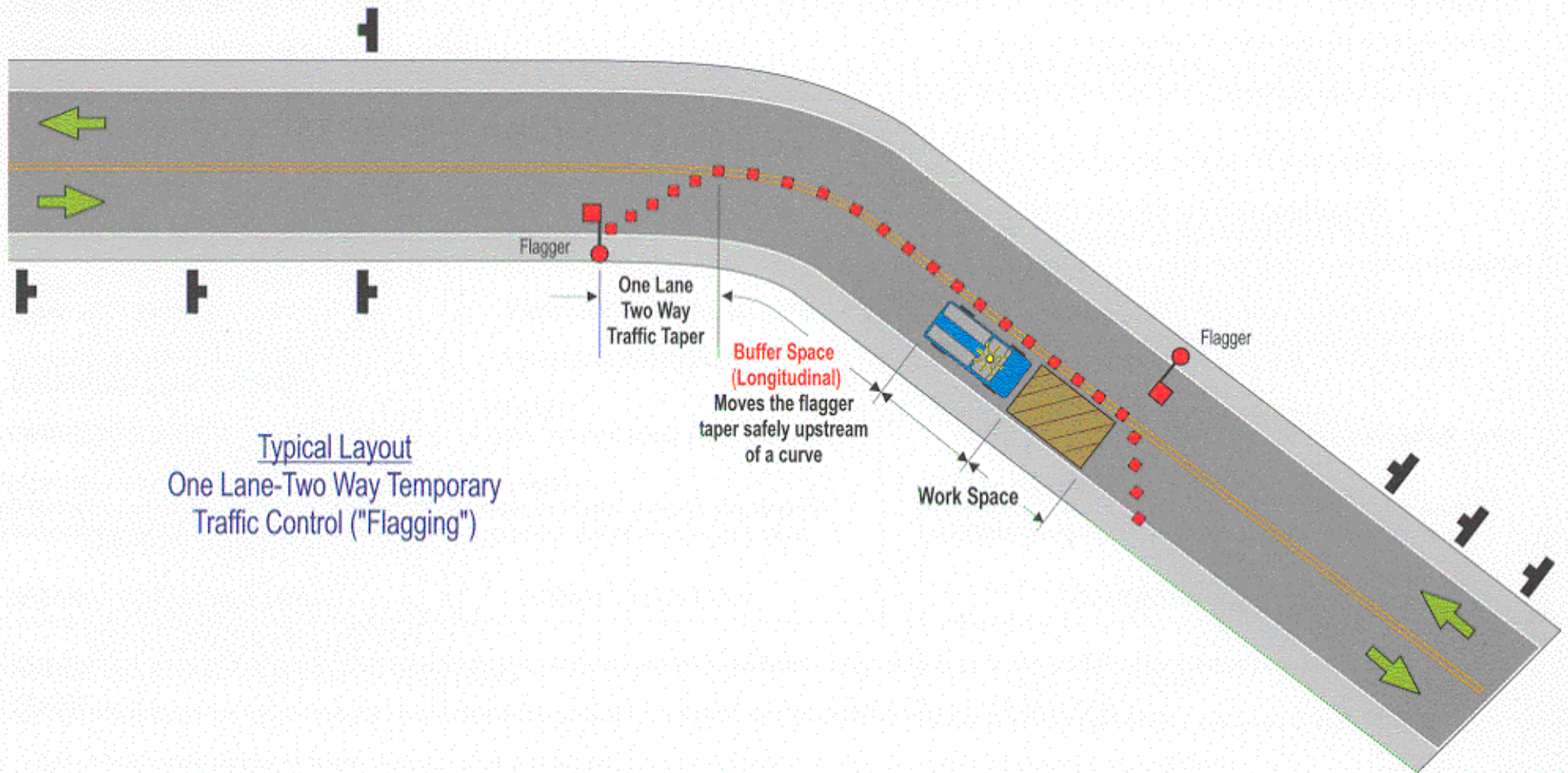
Warn all workers in the area using the predetermined signal. Determine during the tailboard the procedure for response to a traffic incident. Notify the supervisor and call for additional help (police, ambulance, fire). Stay at your station if an accident happens in the line of waiting traffic until a supervisor or police officer gives other instructions. Hold approaching traffic if an accident happens within the controlled area and wait for instructions from the supervisor or police officer. Communicate with the other flagger before releasing or stopping traffic.

### Respond to a Hostile Driver or Pedestrian

Be courteous, professional and firm. Avoid arguments with drivers or pedestrians. Note the vehicle license number and description of the vehicle and driver if he/she fails to follow instructions and threatens the safety of the work area. Report all information to the supervisor to assist in filing a police report. Keep a safe distance away from any possible altercation. Walk away from any driver or pedestrian who becomes belligerent. Warn the crew if a driver enters the work zone - this is an emergency.



# FLAGGING PROCEDURES - ONE LANE / TWO WAY TRAFFIC CONTROL

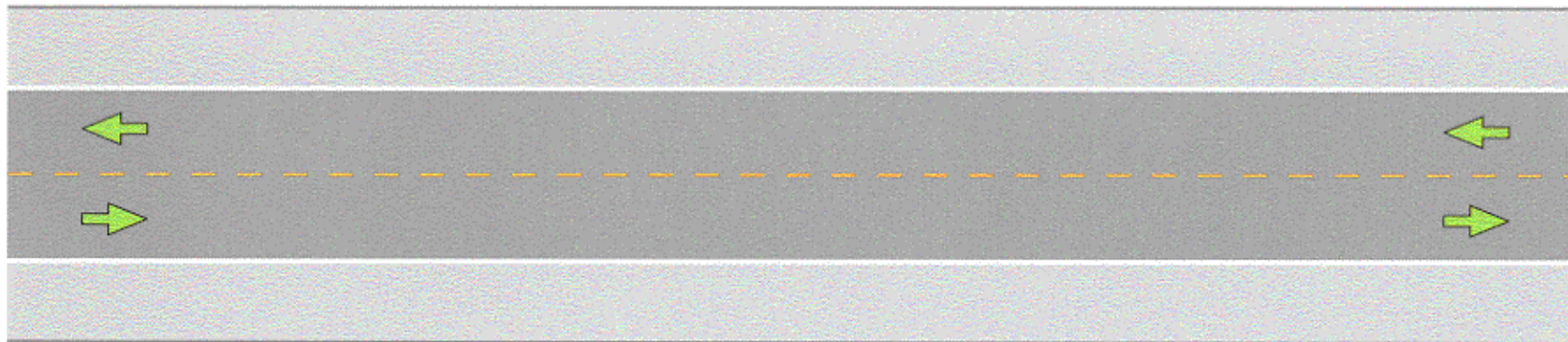




1. WORKER SYMBOL sign not required if the work space is 15 feet or more from the edge of any roadway. The WORKER SYMBOL sign should be used if motorists may be distracted by the work activity.
2. If the work space is in the median of a divided highway, an advance warning sign should also be placed on the left side of the directional roadway.
3. For short-term, short-duration, or mobile operation, all signs and channelizing devices (cones, etc.) may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.

## UTILITY TYPICAL APPLICATIONS

### UTA-1 Work Beyond the Shoulder



SIGN SPACING	DISTANCE
ROAD TYPE	A
Urban - 25 MPH or less	200'
Urban - 30 MPH or more	350'
Rural	500'
Expressway/Freeway	1000'

SEE:

• TABLE 1 for Buffer Length (page 26)

• TABLE 4 for "L" & Channelizer (cones, etc.) Quantity (page 28)

NOTE: LOCAL REGULATIONS MAY VARY.

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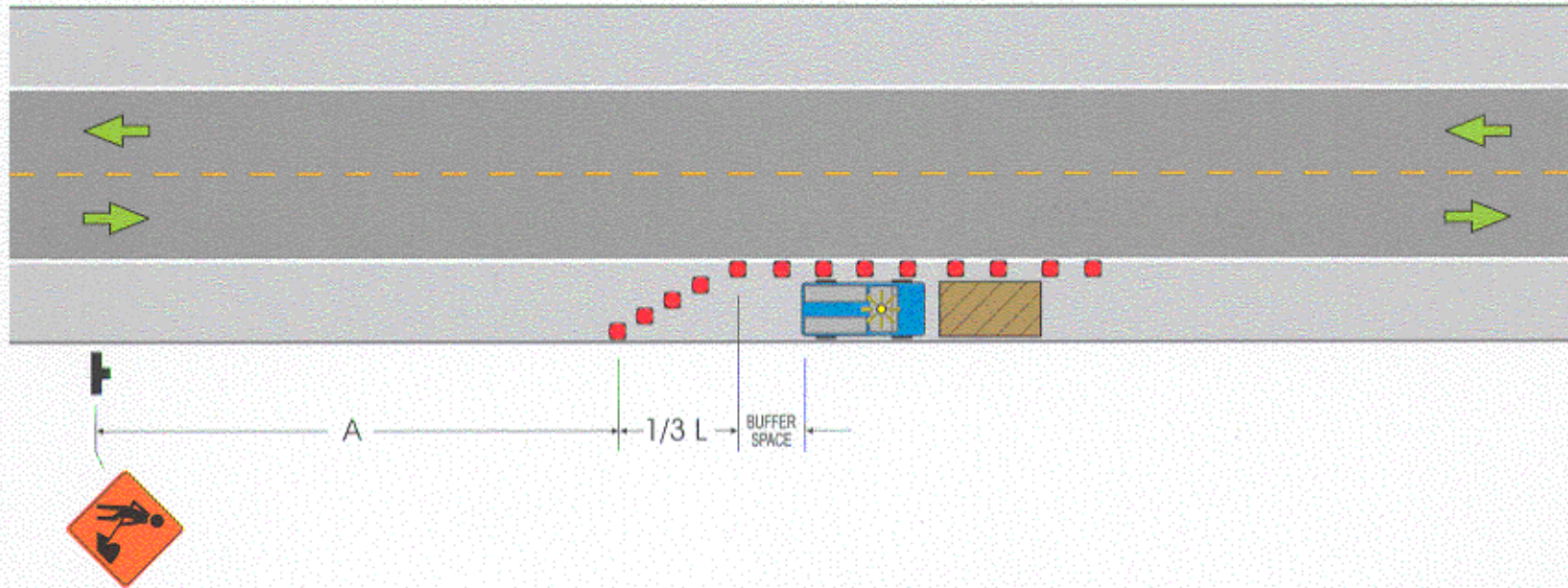
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## UTILITY TYPICAL APPLICATIONS

### UTA-2 Work on Shoulders

1. A WORKER SYMBOL sign should be placed on the left side of a divided or one-way roadway if only the left shoulder is affected.
2. For short-duration operations 60 minutes or less, all signs and channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.

NOTE: When no lane encroachment is required, "W" equals width of existing, adjacent lane.



SIGN SPACING	DISTANCE
ROAD TYPE	A
Urban - 25 MPH or less	200'
Urban - 30 MPH or more	350'
Rural	500'
Expressway/Freeway	1000'

SEE:

• TABLE 1 for Buffer Length (page 26)

• TABLE 4 for "L" & Channelizer  
(cones, etc.) Quantity (page 28)

NOTE: LOCAL REGULATIONS MAY VARY.

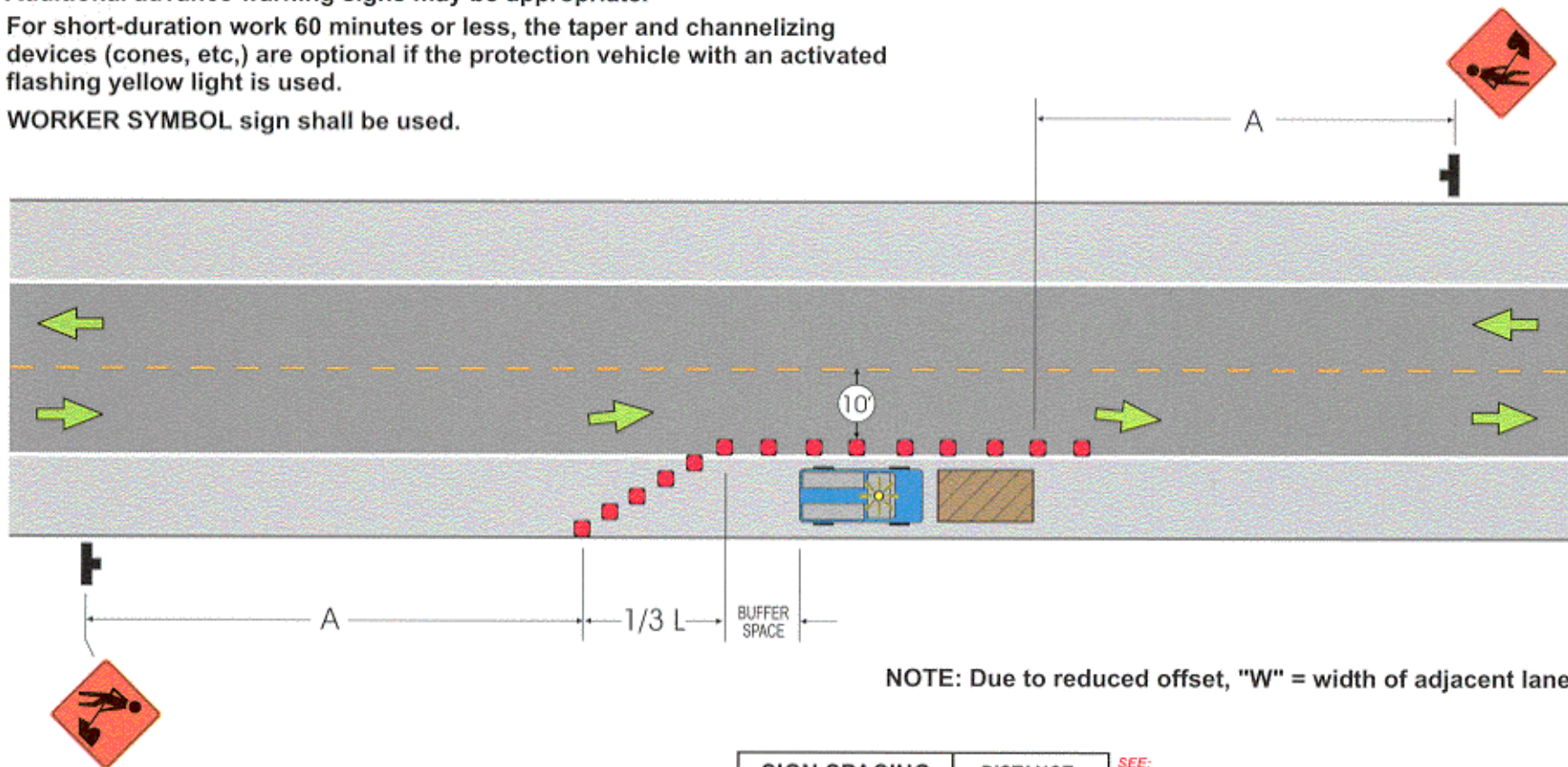
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1. May be used on a minor road having low speed volume. For higher speed traffic conditions, a lane closure should be considered.
2. **The lane must be at least 10' wide**
3. Where the opposite shoulder is suitable for carrying traffic and of adequate width, traffic lanes may be shifted by use of closely spaced channelizing devices, provided 10-foot-wide lanes are maintained.
4. Additional advance warning signs may be appropriate.
5. For short-duration work 60 minutes or less, the taper and channelizing devices (cones, etc.) are optional if the protection vehicle with an activated flashing yellow light is used.
6. WORKER SYMBOL sign shall be used.

## UTILITY TYPICAL APPLICATIONS

### UTA-3 Shoulder Work with Minor Encroachment



NOTE: Due to reduced offset, "W" = width of adjacent lane.

SIGN SPACING	DISTANCE
ROAD TYPE	A
Urban - 25 MPH or less	200'
Urban - 30 MPH or more	350'
Rural	500'
Expressway/Freeway	1000'

SEE:

• TABLE 1 for Buffer Length (page 26)

• TABLE 4 for "L" & Channelizer (cones, etc.) Quantity (page 28)

NOTE: LOCAL REGULATIONS MAY VARY.

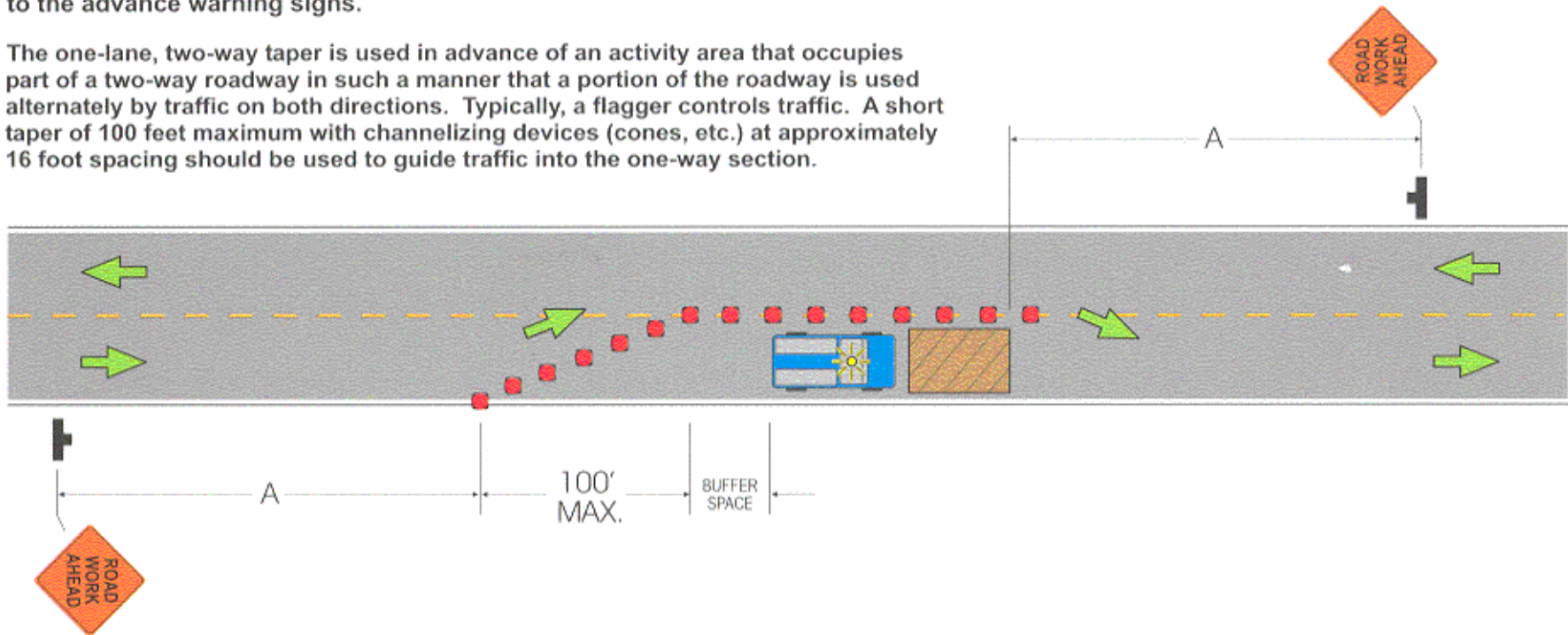
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**UTILITY TYPICAL APPLICATIONS**

**UTA-4 Lane Closure on Street, Self-regulating**

1. The traffic control procedure shown is **appropriate only for low-volume, low-speed streets / roads.**
2. Traffic can regulate itself when volumes are low and the length of the work space is short, if drivers can readily see the roadway beyond.
3. Flashing warning lights and/or flags may be used to call attention to the advance warning signs.
4. The one-lane, two-way taper is used in advance of an activity area that occupies part of a two-way roadway in such a manner that a portion of the roadway is used alternately by traffic on both directions. Typically, a flagger controls traffic. A short taper of 100 feet maximum with channelizing devices (cones, etc.) at approximately 16 foot spacing should be used to guide traffic into the one-way section.



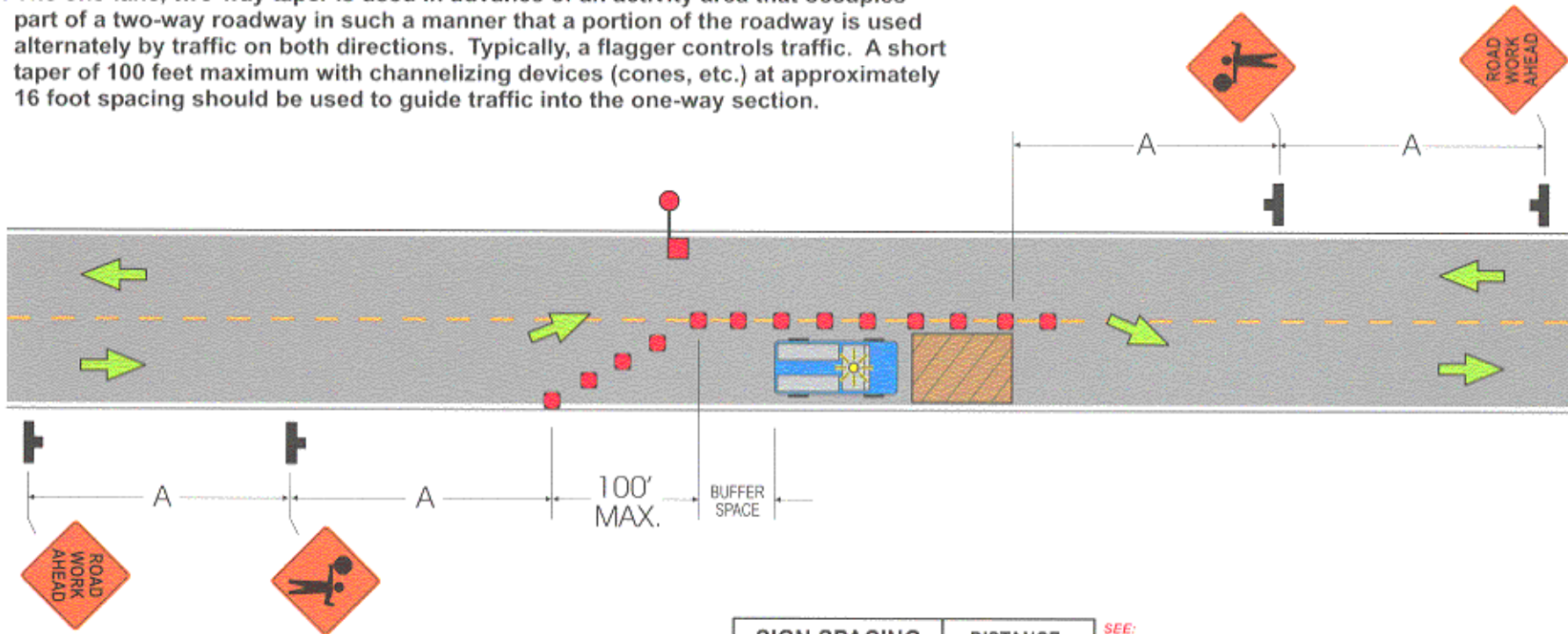
SIGN SPACING	DISTANCE
ROAD TYPE	A
Urban - 25 MPH or less	200'
Urban - 30 MPH or more	350'
Rural	500'
Expressway/Freeway	1000'

SEE:  
 • TABLE 1 for Buffer Length (page 26)  
 • TABLE 4 for "L" & Channelizer (cones, etc.) Quantity (page 28)  
**NOTE: LOCAL REGULATIONS MAY VARY.**  
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## UTILITY TYPICAL APPLICATIONS

1. The traffic control procedure shown is appropriate only for low-speed, low-volume streets/roads where traffic cannot regulate itself due to visibility, conditions, volume, etc.
2. A single flagger can regulate traffic when volumes are low and the length of the work space is short, thus enabling drivers to readily see the roadway beyond.
3. Flashing warning lights and/or flags may be used to call attention to the advance warning signs.
4. The one-lane, two-way taper is used in advance of an activity area that occupies part of a two-way roadway in such a manner that a portion of the roadway is used alternately by traffic on both directions. Typically, a flagger controls traffic. A short taper of 100 feet maximum with channelizing devices (cones, etc.) at approximately 16 foot spacing should be used to guide traffic into the one-way section.

### UTA-5 Lane Closure on Urban Street, Flagger Control



SIGN SPACING	DISTANCE
ROAD TYPE	A
Urban - 25 MPH or less	200'
Urban - 30 MPH or more	350'
Rural	500'
Expressway/Freeway	1000'

SEE:

• TABLE 1 for Buffer Length (page 26)

• TABLE 4 for "L" & Channelizer (cones, etc.) Quantity (page 28)

NOTE: LOCAL REGULATIONS MAY VARY.

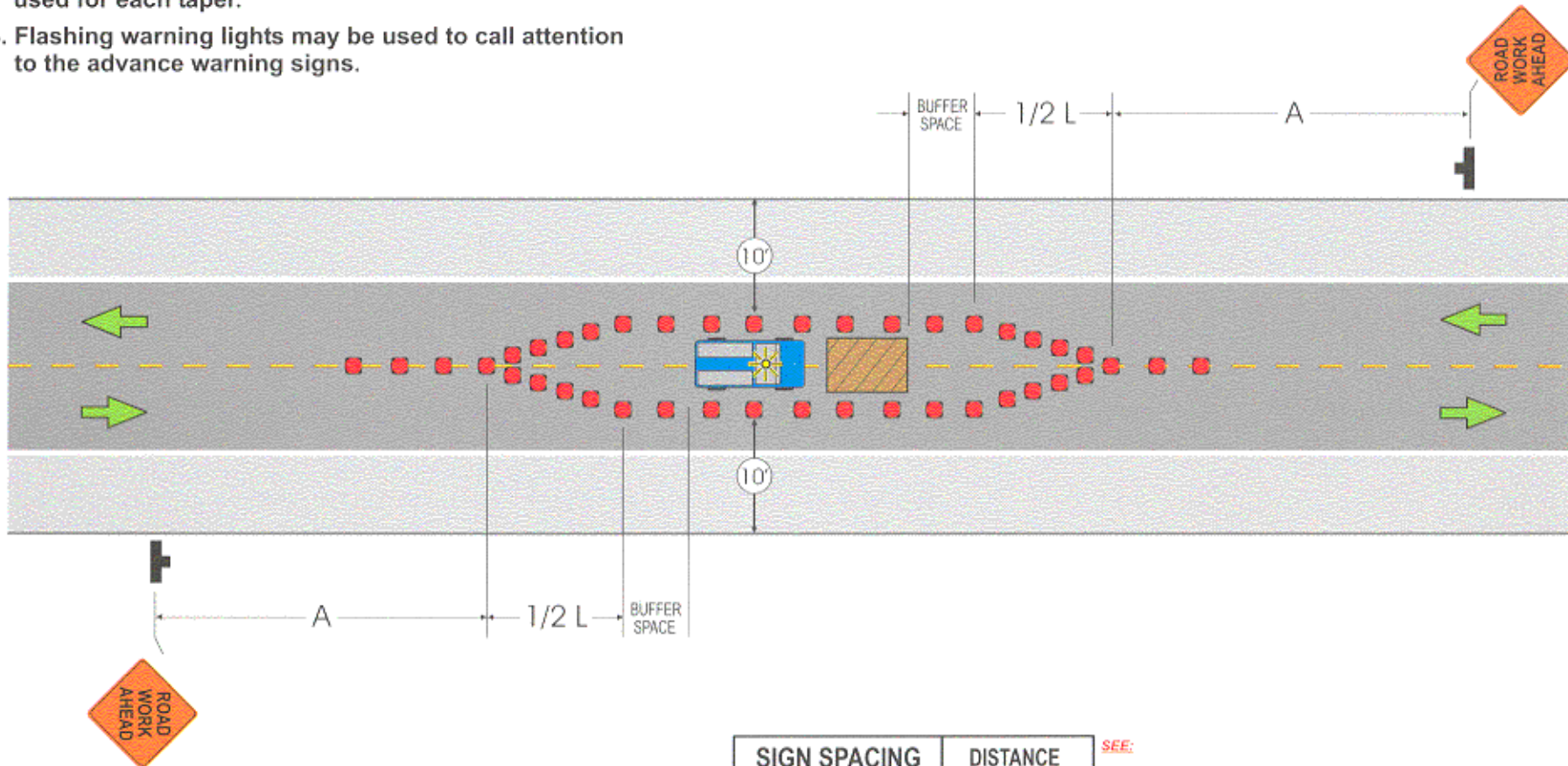
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## UTILITY TYPICAL APPLICATIONS

### UTA-6 Work in Center of Low-Volume Urban Street, with Improved Shoulder

1. The lanes either side of the center work space should have a minimum width of 10', as measured from the near edge of the channelizing devices to the edge of the pavement, or the outside edge of improved paved shoulder.
2. A minimum of six channelizing devices (cones, etc.) should be used for each taper.
3. Flashing warning lights may be used to call attention to the advance warning signs.



SIGN SPACING	DISTANCE
ROAD TYPE	A
Urban - 25 MPH or less	200'
Urban - 30 MPH or more	350'
Rural	500'
Expressway/Freeway	1000'

SEE:

• TABLE 1 for Buffer Length (page 26)

• TABLE 4 for "L" & Channelizer (cones, etc.) Quantity (page 28)

NOTE: LOCAL REGULATIONS MAY VARY.

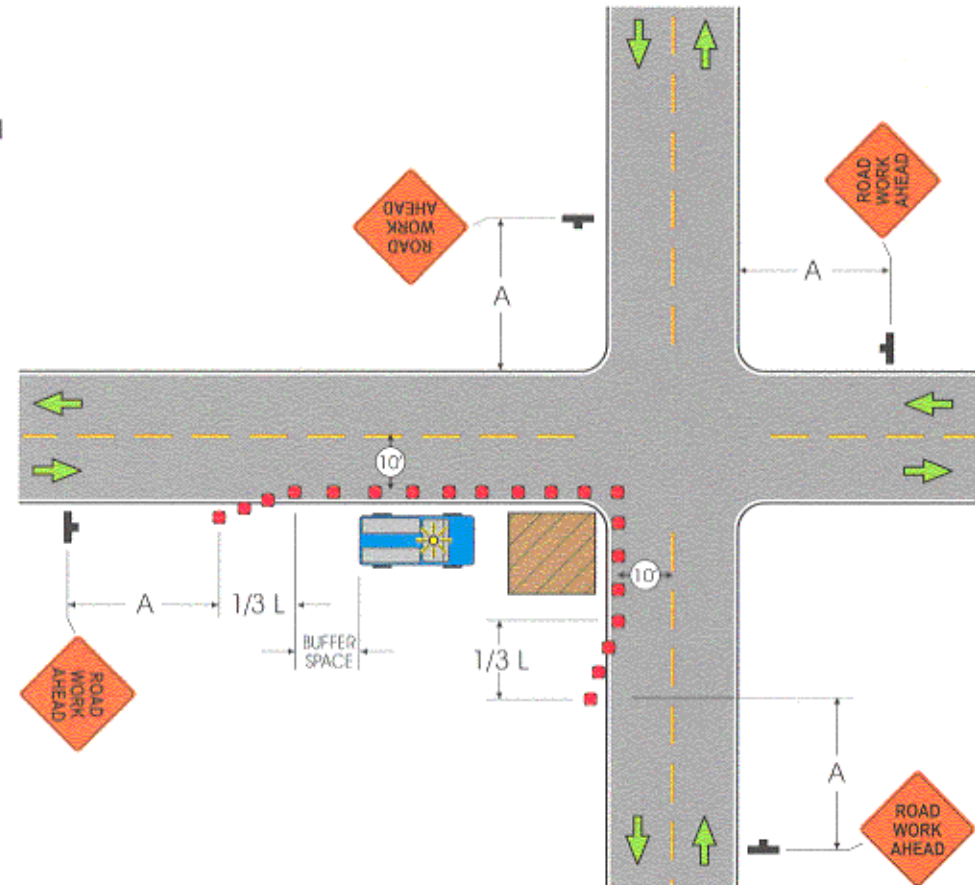
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## UTILITY TYPICAL APPLICATIONS

### UTA-7 Shoulder Work at Side of Intersection, with Minor Encroachment

1. May only be used on roads with low volume and speed. For higher speeds and volume, a lane closure should be considered (see UTA-8).
2. If the work space is in the median of a divided highway, an advance warning sign should also be placed on both the left and right side of the directional roadway.
3. For short-term, short-duration, or mobile operation, all signs and channelizing devices (cones, etc.) may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.



SIGN SPACING	DISTANCE
ROAD TYPE	A
Urban - 25 MPH or less	200'
Urban - 30 MPH or more	350'
Rural	500'
Expressway/Freeway	1000'

SEE:

• TABLE 1 for Buffer Length (page 26)

• TABLE 4 for "L" & Channelizer (cones, etc.) Quantity (page 28)

NOTE: LOCAL REGULATIONS MAY VARY.

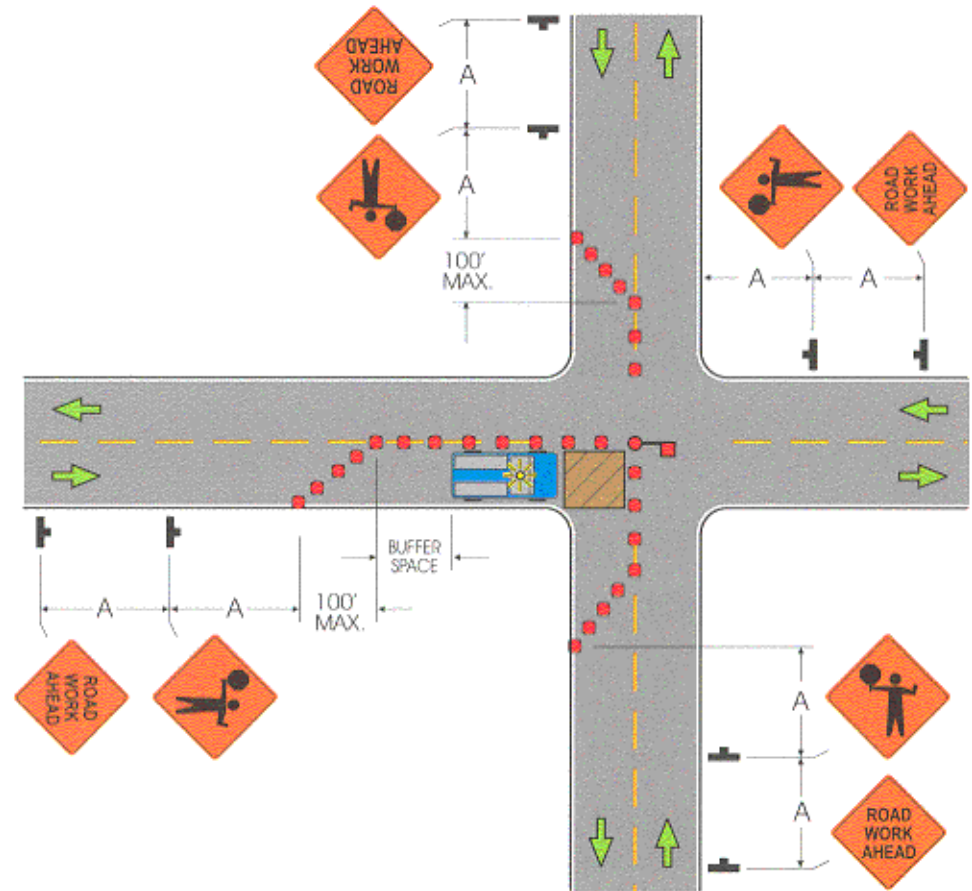
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## UTILITY TYPICAL APPLICATIONS

### UTA-8 Lane Closure at Corner of Intersection, Flagger Control

1. For low traffic volume and intersecting two-lane streets, one flagger positioned in the center of intersection may suffice.
2. For high traffic volume or when a four lane street is involved, additional signs (i.e. PREPARE TO STOP), additional flaggers or law enforcement personnel may be used.
3. The situation depicted can be simplified by closing one or more of the approaches. If this cannot be done, consider diverting traffic to other roads or streets.
4. Flashing warning lights may be used to call attention to the advance warning signs.



SIGN SPACING	DISTANCE
ROAD TYPE	A
Urban - 25 MPH or less	200'
Urban - 30 MPH or more	350'
Rural	500'
Expressway/Freeway	1000'

SEE:

• TABLE 1 for Buffer Length (page 26)

• TABLE 4 for "L" & Channelizer (cones, etc.) Quantity (page 28)

NOTE: LOCAL REGULATIONS MAY VARY.

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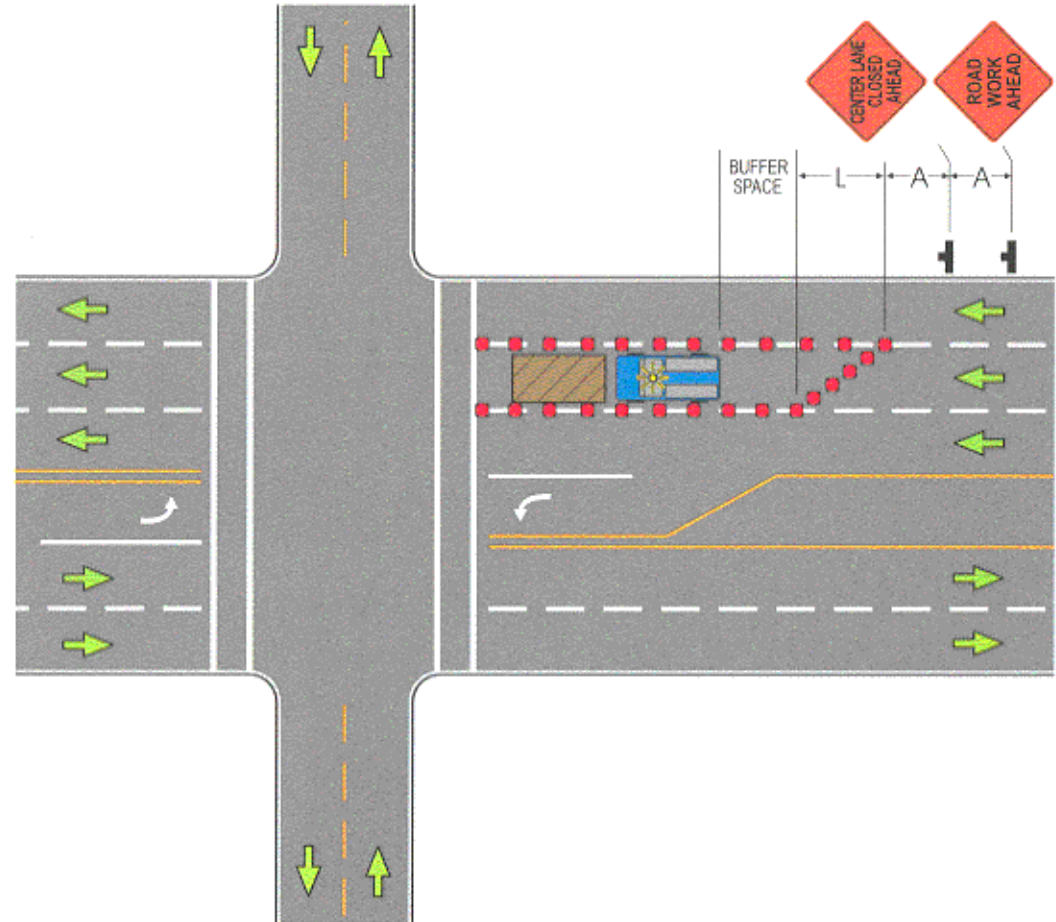
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## UTILITY TYPICAL APPLICATIONS

### UTA-9 Lane Closure Near Side of Intersection

1. If the work space extends across the crosswalk, then close the crosswalk.
2. The merging taper may direct traffic into either the right or left lane but not both. In this typical, a left taper should be used so that right turn movements will not impede traffic.
3. Flashing warning lights may be used to call attention to the advance warning signs.



SIGN SPACING	DISTANCE
ROAD TYPE	A
Urban - 25 MPH or less	200'
Urban - 30 MPH or more	350'
Rural	500'
Expressway/Freeway	1000'

SEE:

• TABLE 1 for Buffer Length (page 26)

• TABLE 4 for "L" & Channelizer (cones, etc.) Quantity (page 28)

NOTE: LOCAL REGULATIONS MAY VARY.

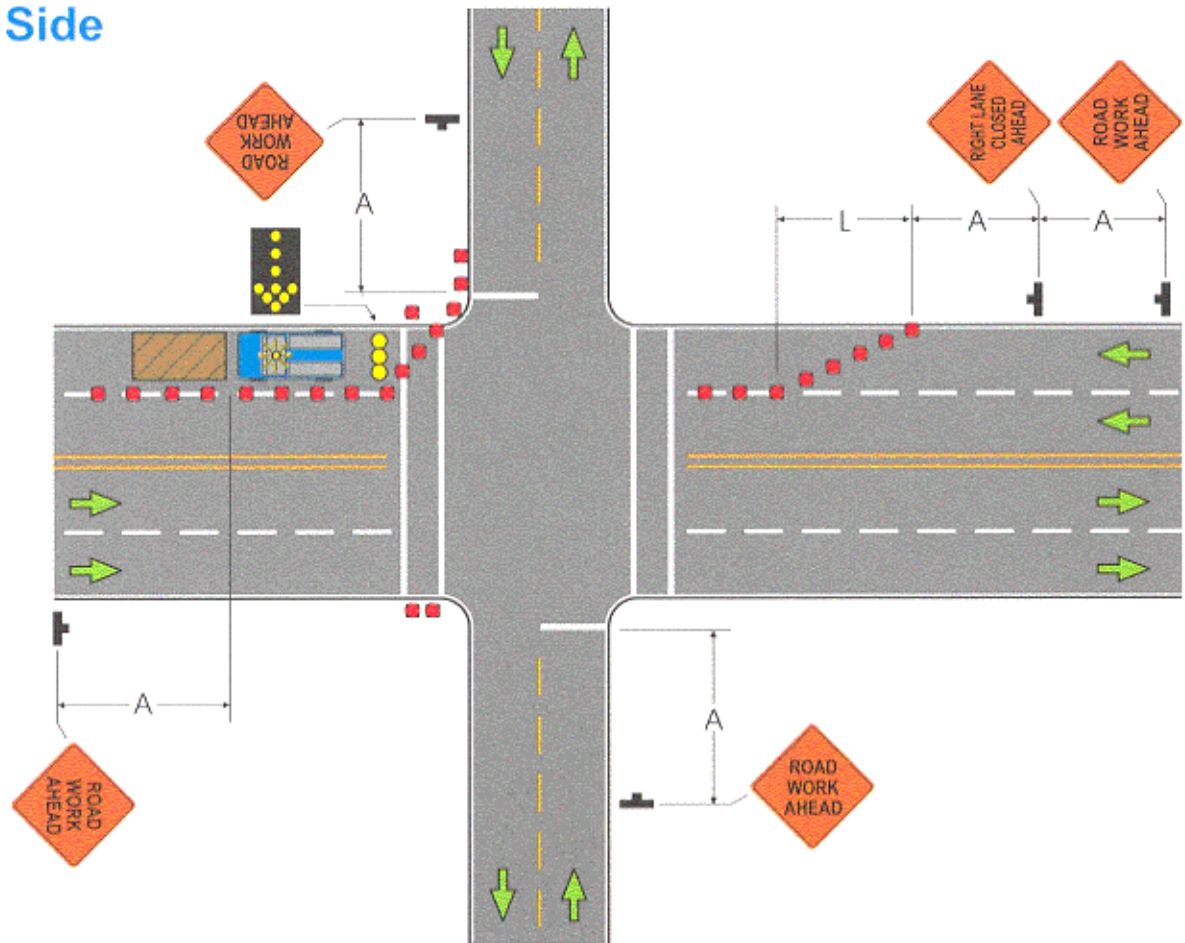
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# UTILITY TYPICAL APPLICATIONS

## UTA-10 Right lane Closure Far Side of Intersection

1. For intersection approaches reduced to a single lane, left turning movements may be prohibited to maintain capacity for through traffic.
2. The standard procedure is to close on the near side of the intersection any lane that is not carried through the intersection.
3. If the work space extends beyond a crosswalk then close the crosswalk.
4. Flashing warning lights may be used to call attention to the advance warning signs.



SIGN SPACING	DISTANCE
ROAD TYPE	A
Urban - 25 MPH or less	200'
Urban - 30 MPH or more	350'
Rural	500'
Expressway/Freeway	1000'

SEE:

• TABLE 1 for Buffer Length (page 26)

• TABLE 4 for "L" & Channelizer (cones, etc.) Quantity (page 28)

NOTE: LOCAL REGULATIONS MAY VARY.

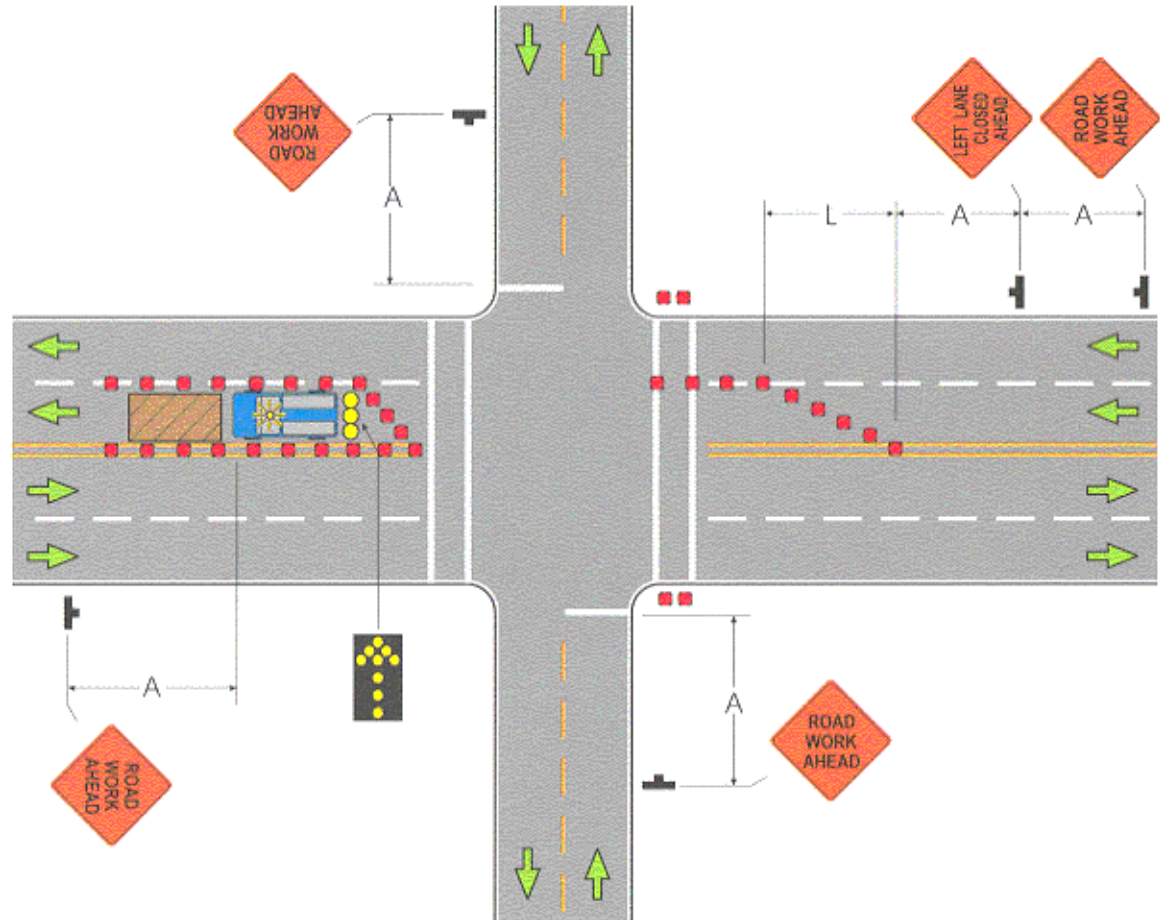
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## UTILITY TYPICAL APPLICATIONS

### UTA-11 Left Lane Closure Far Side of Intersection

1. For intersection approaches reduced to a single lane, left turning movements may be prohibited to maintain capacity for through traffic.
2. The standard procedure is to close on the near side of the intersection any lane that is not carried through the intersection.
3. If the work space extends beyond a crosswalk then close the crosswalk.
4. Flashing warning lights may be used to call attention to the advance warning signs.



SIGN SPACING	DISTANCE
ROAD TYPE	A
Urban - 25 MPH or less	200'
Urban - 30 MPH or more	350'
Rural	500'
Expressway/Freeway	1000'

SEE:

• TABLE 1 for Buffer Length (page 26)

• TABLE 4 for "L" & Channelizer (cones, etc.) Quantity (page 28)

NOTE: LOCAL REGULATIONS MAY VARY.

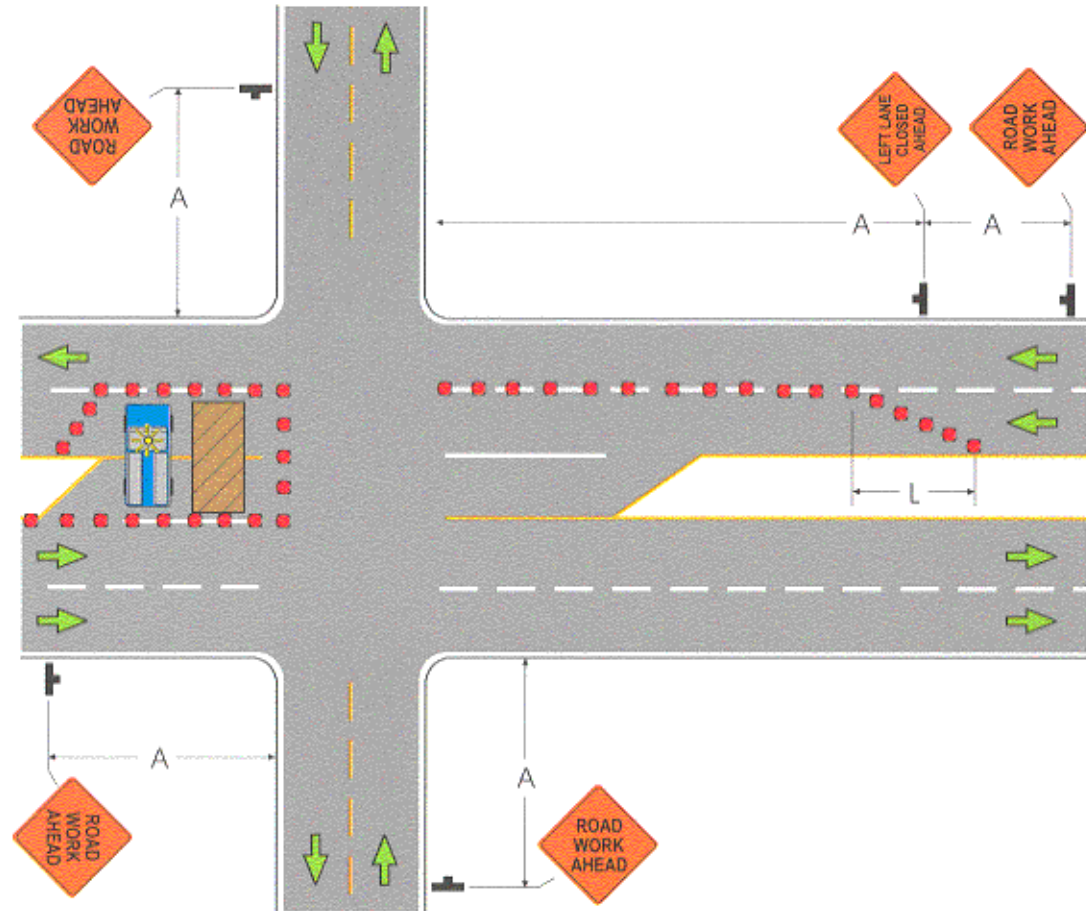
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## UTILITY TYPICAL APPLICATIONS

### UTA-12 Multiple Lane Closure at Intersection

1. The standard procedure is to close on the near side of intersection any lane that is not carried through the intersection. Therefore, the left through lane is closed on the near side approach.
2. If the work space extends beyond a crosswalk then close the crosswalk.
3. Flashing warning lights may be used to call attention to the advance warning signs.
4. This is a special case. Check with local city or county permit agencies before proceeding with this or similar typicals.



SIGN SPACING	DISTANCE
ROAD TYPE	A
Urban - 25 MPH or less	200'
Urban - 30 MPH or more	350'
Rural	500'
Expressway/Freeway	1000'

SEE:

• TABLE 1 for Buffer Length (page 26)

• TABLE 4 for "L" & Channelizer (cones, etc.) Quantity (page 28)

NOTE: LOCAL REGULATIONS MAY VARY.

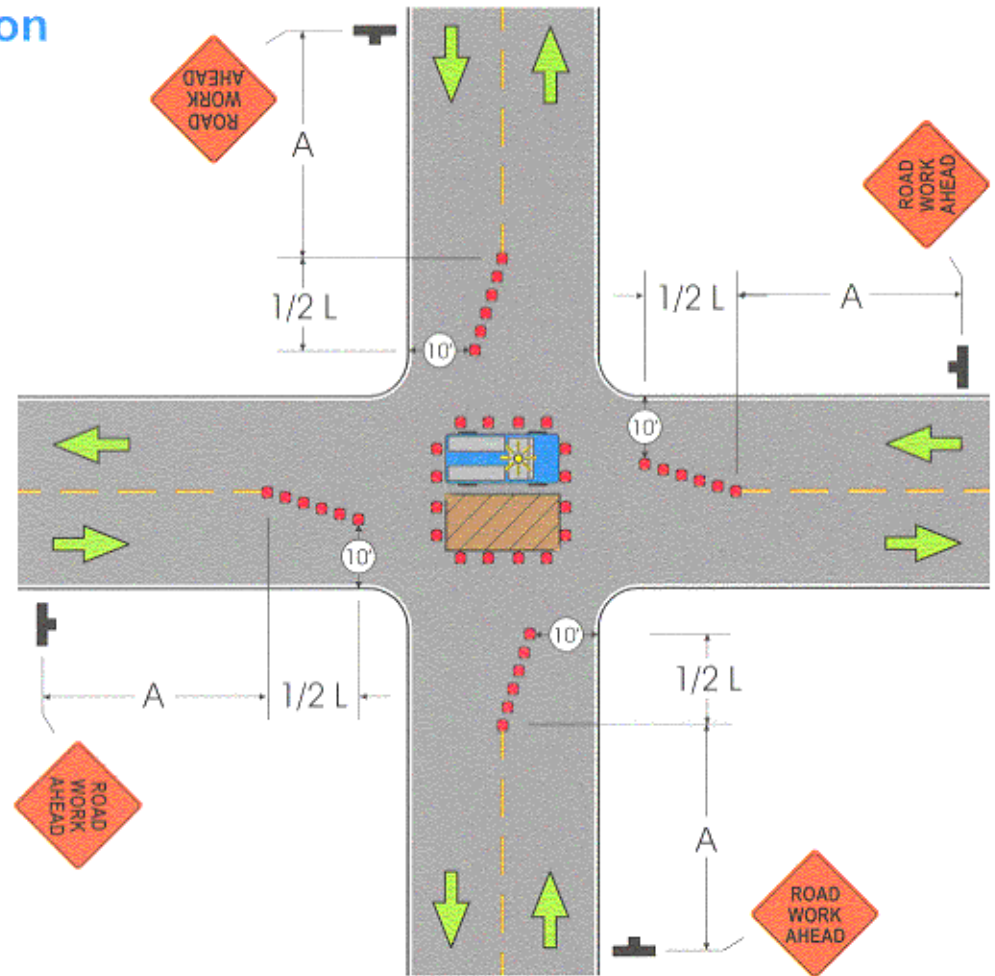
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## UTILITY TYPICAL APPLICATIONS

### UTA-13 Closure in Center of Intersection

1. Prohibit left turns if required by traffic conditions. It may be physically impossible to turn left, especially for large vehicles.
2. A minimum of six channelizing devices shall be used for each taper.
3. For short-duration operations, the channelizing devices (cones, etc.) may be eliminated if a flashing or revolving yellow light is displayed in the work space.
4. Flashing warning lights may be used to call attention to the advance warning signs.
5. This is a special case. Check with local city or county permit agencies before proceeding with this or similar typical.



SIGN SPACING	DISTANCE
ROAD TYPE	A
Urban - 25 MPH or less	200'
Urban - 30 MPH or more	350'
Rural	500'
Expressway/Freeway	1000'

SEE:

• TABLE 1 for Buffer Length (page 26)

• TABLE 4 for "L" & Channelizer (cones, etc.) Quantity (page 28)

NOTE: LOCAL REGULATIONS MAY VARY.

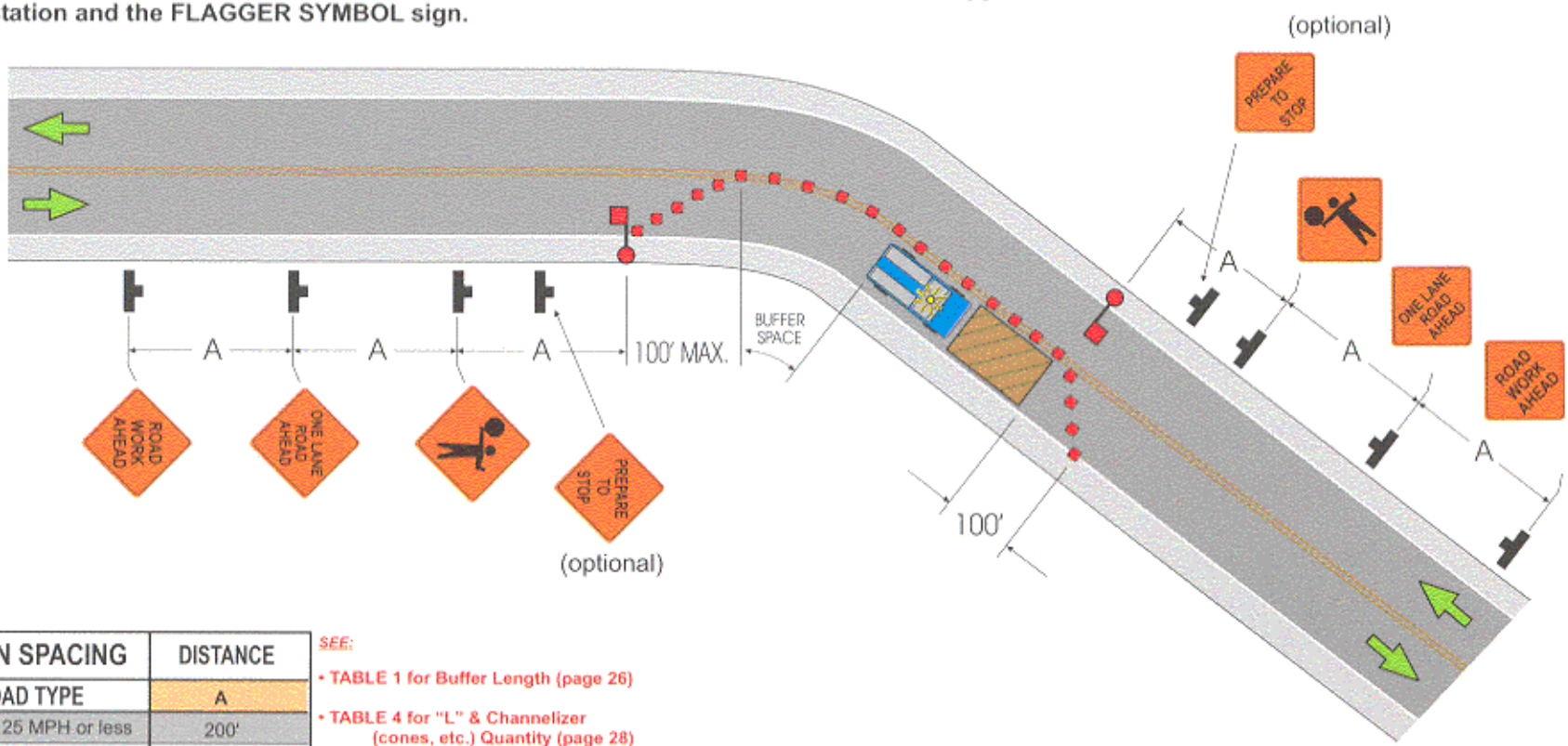
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**UTILITY TYPICAL APPLICATIONS**

**UTA-14 Lane Closure on Two-Lane Road Using Flaggers**

1. Floodlights should mark flagger stations at night.
2. Channelizing devices (cones, etc.) are to be extended to a point where they are visible to approaching traffic.
3. Flashing warning lights may be used to call attention to the advance warning signs.
4. The one-lane, two-way taper is used in advance of an activity area that occupies part of a two-way roadway in such a manner that a portion of the roadway is used alternately by traffic on both directions. Typically, a flagger controls traffic. A short taper of 100 feet maximum with channelizing devices (cones, etc.) at approximately 16 foot spacing should be used to guide traffic into the one-way section.
5. If optional PREPARE TO STOP signs are used, they shall be placed between the flagger station and the FLAGGER SYMBOL sign.



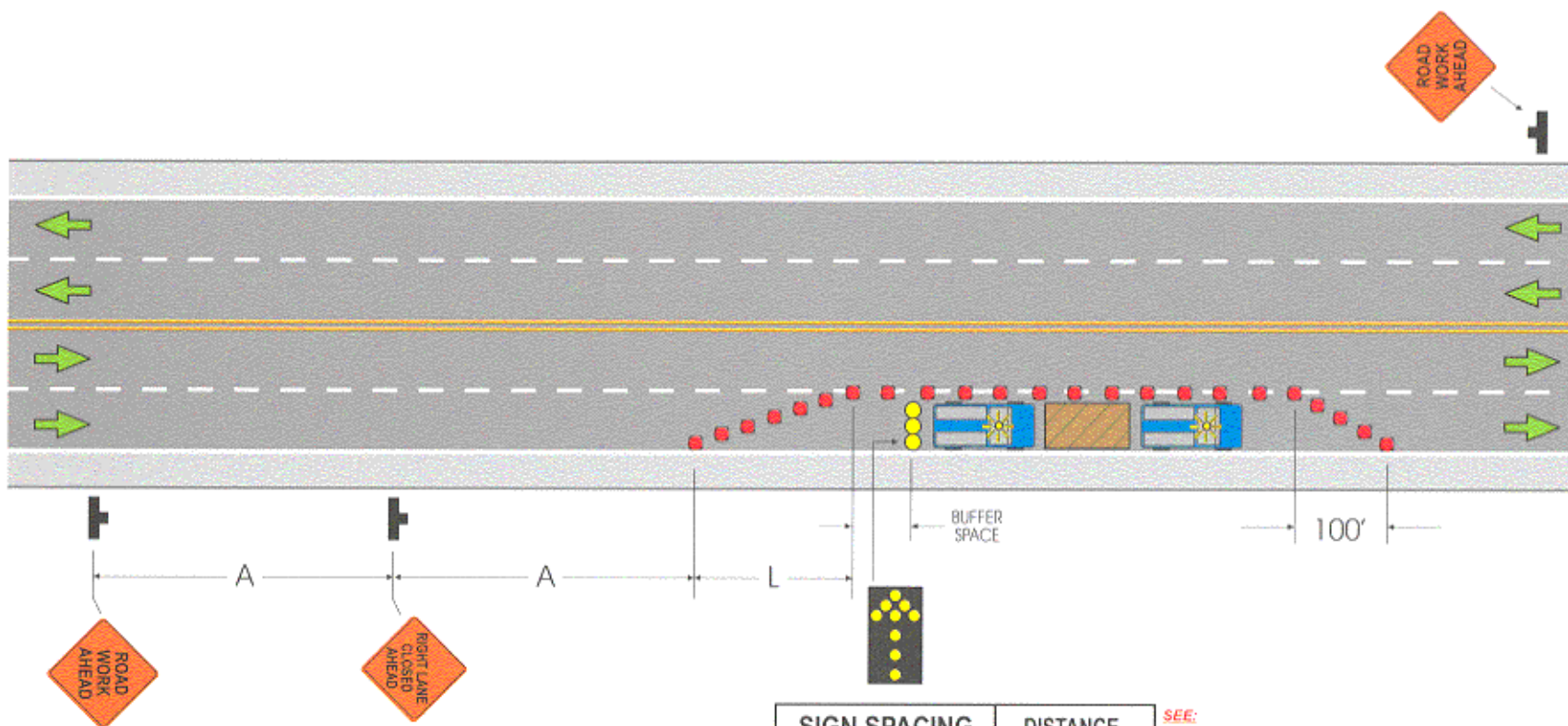
SIGN SPACING	DISTANCE
ROAD TYPE	A
Urban - 25 MPH or less	200'
Urban - 30 MPH or more	350'
Rural	500'
Expressway/Freeway	1000'

SEE:  
 • TABLE 1 for Buffer Length (page 26)  
 • TABLE 4 for "L" & Channelizer (cones, etc.) Quantity (page 28)  
 NOTE: LOCAL REGULATIONS MAY VARY.  
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## UTILITY TYPICAL APPLICATIONS

### UTA-15 Outside (Right) Lane Closure on Multilane Road

1. Additional advance warning may be necessary.
2. The arrow display may be trailer or vehicle mounted.
3. Flashing warning lights may be used to call attention to the advance warning signs.



SIGN SPACING	DISTANCE
ROAD TYPE	A
Urban - 25 MPH or less	200'
Urban - 30 MPH or more	350'
Rural	500'
Expressway/Freeway	1000'

SEE:

• TABLE 1 for Buffer Length (page 26)

• TABLE 4 for "L" & Channelizer (cones, etc.) Quantity (page 28)

NOTE: LOCAL REGULATIONS MAY VARY.

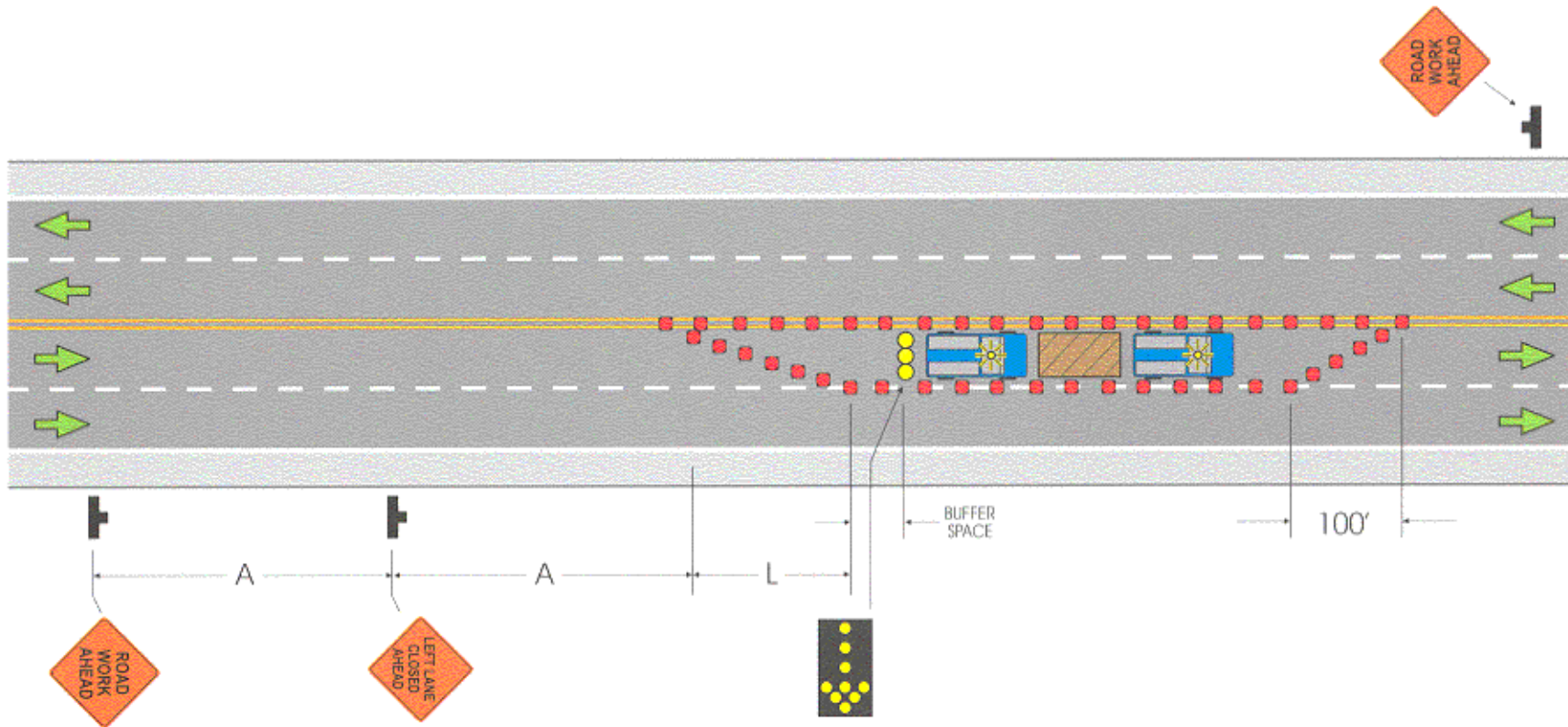
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## UTILITY TYPICAL APPLICATIONS

### UTA-16 Interior (Left) Lane Closure on Multilane Road

1. Additional advance warning may be necessary.
2. The arrow display may be trailer or vehicle mounted.
3. Flashing warning lights may be used to call attention to the advance warning signs.



SIGN SPACING	DISTANCE
ROAD TYPE	A
Urban - 25 MPH or less	200'
Urban - 30 MPH or more	350'
Rural	500'
Expressway/Freeway	1000'

SEE:

• TABLE 1 for Buffer Length (page 26)

• TABLE 4 for "L" & Channelizer (cones, etc.) Quantity (page 28)

NOTE: LOCAL REGULATIONS MAY VARY.

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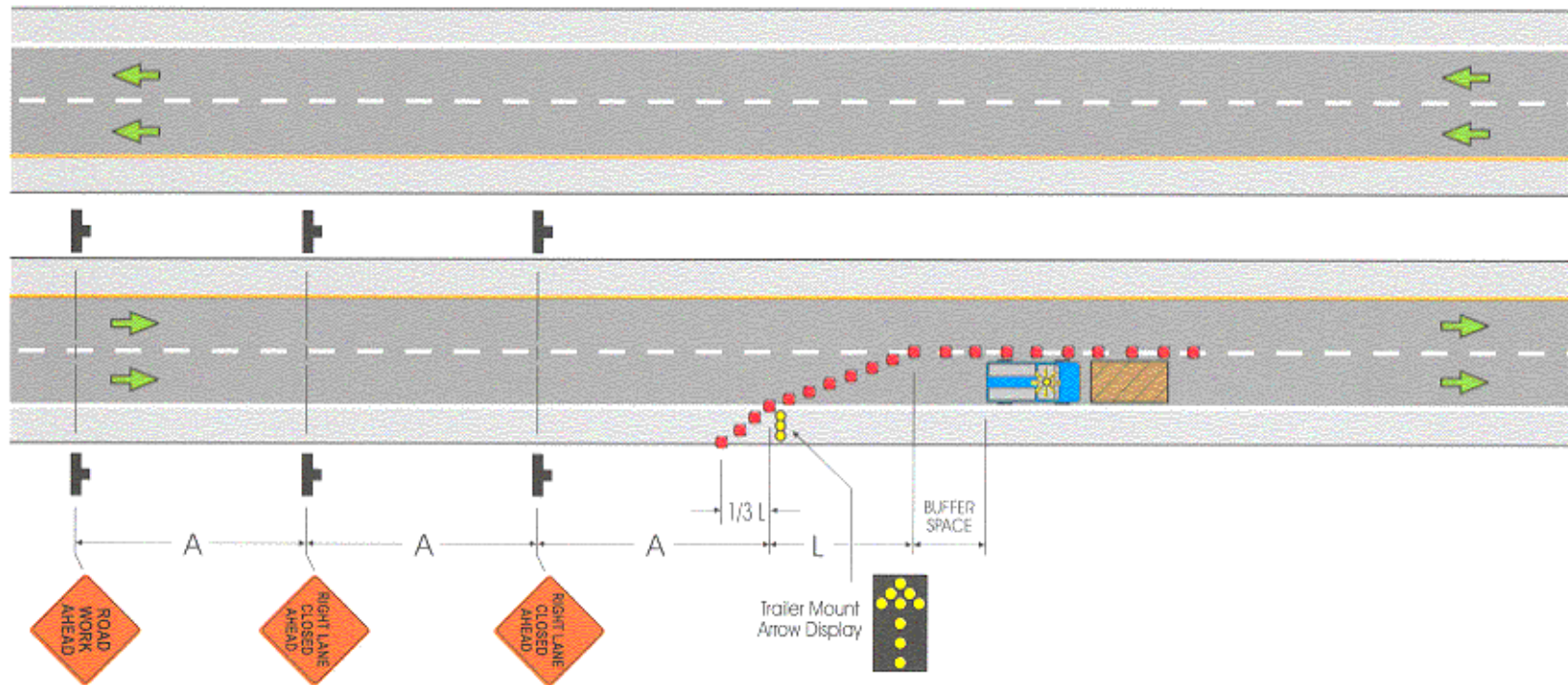
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## UTILITY TYPICAL APPLICATIONS

### UTA-17 Lane Closure on Divided Highway / Freeway

1. This procedure also applies when work is being performed in the lane adjacent to the median on a divided highway. Under these conditions, LEFT LANE CLOSED signs and the corresponding LANE REDUCTION symbol signs shall be used.
2. When a side road intersects the highway within the temporary traffic control zone, additional traffic control devices shall be erected, as needed.
3. Longitudinal dimensions may be adjusted slightly to fit field conditions.
4. All vehicles, equipment, workers and their activities should be restricted to one side of the pavement.



SIGN SPACING	DISTANCE
ROAD TYPE	A
Urban - 25 MPH or less	200'
Urban - 30 MPH or more	350'
Rural	500'
Expressway/Freeway	1000'

SEE:

• TABLE 1 for Buffer Length (page 26)

• TABLE 4 for "L" & Channelizer (cones, etc.) Quantity (page 28)

NOTE: LOCAL REGULATIONS MAY VARY.

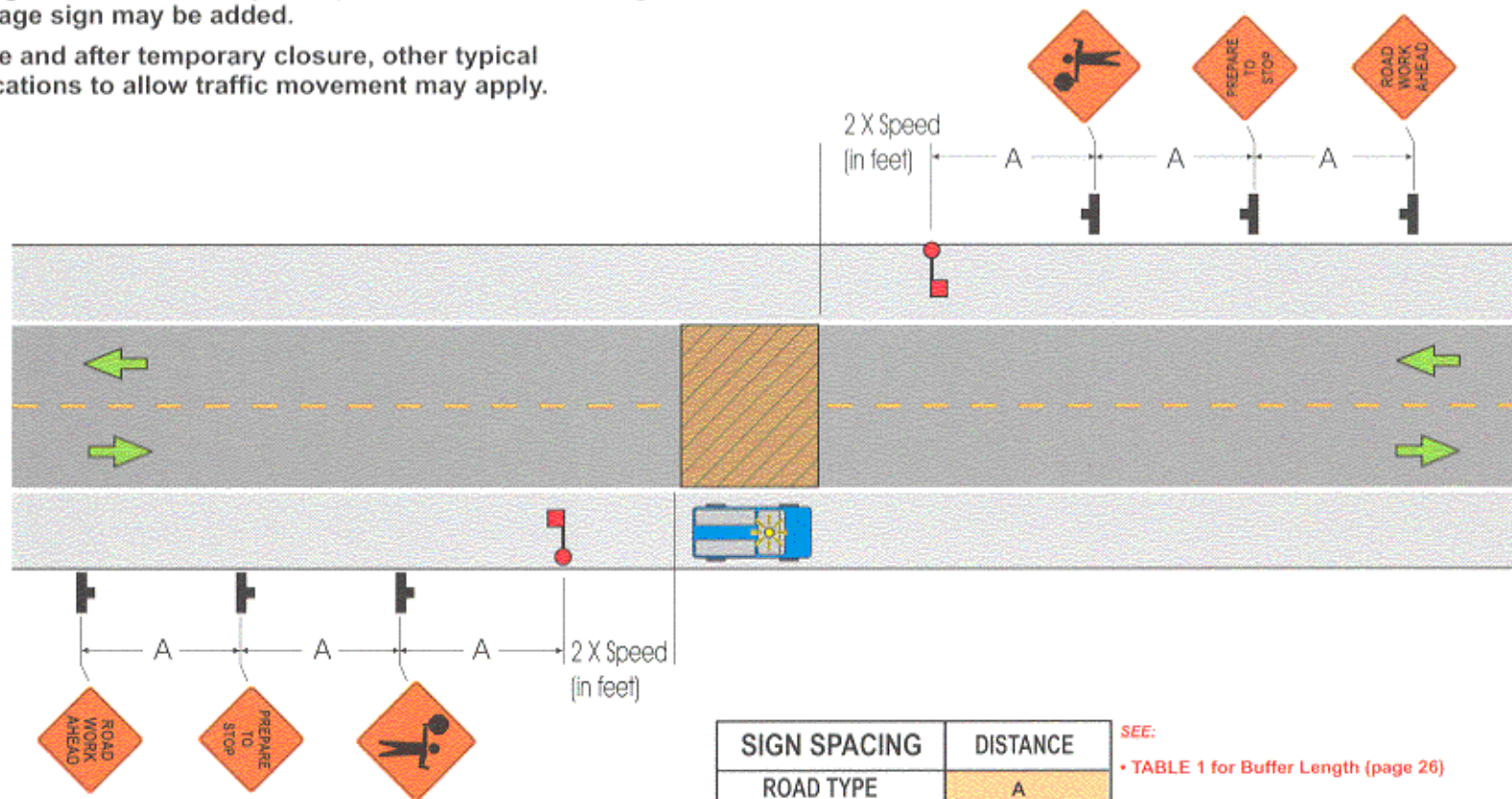
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## UTILITY TYPICAL APPLICATIONS

### UTA-18 Temporary Road Closure

1. Conditions represented are for work that requires closings during daytime hours only. Local regulations may require permits for any road closure.
2. This application is intended for a planned temporary closing not to exceed 15-20 minutes.
3. The flaggers shall stop the first vehicle from the position shown, then move to the centerline to stop approaching traffic.
4. For high-volume roads, a police patrol car and/or a changeable message sign may be added.
5. Before and after temporary closure, other typical applications to allow traffic movement may apply.



SIGN SPACING	DISTANCE
ROAD TYPE	A
Urban - 25 MPH or less	200'
Urban - 30 MPH or more	350'
Rural	500'
Expressway/Freeway	1000'

SEE:

• TABLE 1 for Buffer Length (page 26)

• TABLE 4 for "L" & Channelizer (cones, etc.) Quantity (page 28)

NOTE: LOCAL REGULATIONS MAY VARY.

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