

## WELCOME...

*Employees being struck by vehicles or mobile equipment lead to many work zone fatalities and injuries. A work zone activity is dangerous business. This is not the place to cut corners or cheat on safety. It's your life on the line, so pay attention and know what it takes to keep you safe.*



This publication contains:

1. The purpose for the Occupational Safety and Health Administration (OSHA) and its enforcement duty under law.
2. An explanation of the Manual of Uniform Traffic Control Devices (MUTCD) and how it's used to enforce worker safety.
3. Important terms and definitions within the Manual of Uniform Traffic Control Devices (MUTCD).
4. Requirements for high visibility safety apparel.
5. Procedures for how to set-up, maintain and inspect temporary traffic control work zones and devices.
6. Training requirements for those who work in and around traffic, streets and highways, including flagger qualifications.
7. Emergency planning and response procedures for work zone operations.

This program is dedicated to all the workers who have lost their lives in work zones.

This publication was produced by:

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## OVERVIEW

In this course, students will learn about the role and responsibility of the employer to train all workers whose job brings them in or close to traffic; this work may take place on a street, highway or anywhere where the motoring public will have access, i.e. parking lots, access roads, etc.

In addition to the safe work practices and procedures involved with the motoring public – *external traffic control*, a special look at the hazards involved with on-site construction related traffic will also be addressed – *internal traffic control*.

***External Traffic Control*** – The primary function of temporary traffic control (TTC) is to provide for the reasonably safe and efficient movement of road users through or around work zones while protecting workers.

***Internal Traffic Control*** – An internal traffic control plan (ITCP) is a tool that an employer can use to coordinate the flow of construction vehicles, equipment, and workers on foot moving in close proximity to each other within the work zone.

Topics include the understanding and application of definitions relating to work zone safety, including terms used in the Manual of Uniform Traffic Control Devices.

At the conclusion of this course, the participant will be able to apply new knowledge and skills that are necessary in selecting, inspecting and maintaining a properly set up work zone.

## INTENDED AUDIENCE

The target audience is the contractor, manager, employee or employee representative who works in and/or around public or on-site vehicular traffic, including but not limited to: State and local highway agencies, public officials, the insurance industry, law enforcement agencies, incident management personnel, maintenance personnel, academic institutions, private industry, and construction & engineering organizations.





# OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA)

Part of the Department of Labor (DOL), OSHA is the authority for protecting worker's health and safety on the job; its mission is to eliminate on-the-job injuries, illnesses and fatalities. OSHA accomplishes its mission by setting and enforcing standards; providing training, outreach, and education; establishing partnerships; and encouraging continual improvement in workplace safety and health.



**For more information on OSHA, visit their website at [www.osha.gov](http://www.osha.gov)**

Because of the continuing incidence of work zone crashes and accompanying loss of life, the agency has determined that an ongoing OSHA enforcement presence at worksites where such operations are being conducted is warranted.

***WARNING!*** *OSHA compliance officers are driving around looking for work zone activities and will stop to conduct an inspection if unsafe conditions are noticed.*

## Work Zone Facts

- During peak construction season, approximately 20% of our nation's highway system is under construction with more than 3,000 work zones.
- Approximately 12 billion vehicle miles of travel a year will be through active work zones.
- Motorists can expect to encounter an active work zone 1 out of every 100 miles driven on the nation's highway system.
- More than 40,000 people are injured each year as a result of crashes in work zones.
  - One work zone fatality every 8 hours – 3 per day
  - One work zone injury every 9 minutes – 160 per day



Source: *The National Work Zone Safety Information Clearinghouse*  
[www.wzsafety.tam.edu](http://www.wzsafety.tam.edu)

# OSHA STANDARDS ON WORK ZONES

The OSHA standards that regulate work in traffic are found in 29 CFR 1926 Subpart G; *these are the Federal OSHA requirements (consult State plan requirements where applicable).*

29 CFR What? ...What do all those numbers and letters mean?

## 29 CFR 1926 Subpart G

(Department of Labor) (Code of Federal Regulations) (Construction Industry) (Signs, Signals, and Barricades)

### 29 CFR 1926.200 (g) Traffic Signs.

- (1) Construction areas shall be posted with legible traffic signs at points of hazard.
- (2) All traffic control signs or devices used for protection of construction workers shall conform to Part VI of the Manual of Uniform Traffic Control Devices (MUTCD).



### 29 CFR 1926.201 (a) Flaggers.

Signaling by flaggers and the use of flaggers, including warning garments worn by flaggers shall conform to Part VI of the Manual of Uniform Traffic Control Devices (MUTCD).

**NOTE:** *Warning garments must meet the requirements of ANSI 107 for high visibility safety apparel, see page 7.*



# WORK ZONE SAFETY STANDARDS

The *Manual on Uniform Traffic Control Devices* (MUTCD) defines the standards used by road managers nationwide to install and maintain traffic control devices on all streets and highways. The MUTCD is published by the Federal Highway Administration (FHWA), incorporated by the Department of Transportation (DOT) and referenced by the Occupational Safety and Health Administration (OSHA).

The MUTCD sets minimum standards, provides guidance and ensures uniformity of traffic control devices across the nation. The use of uniform traffic control devices (messages, location, size, shapes, and colors) helps reduce crashes and congestion, and improves the efficiency of the surface transportation system. The information contained in the MUTCD is the result of years of practical experience and research. This effort ensures that traffic control devices are visible, recognizable, understandable, and necessary. The MUTCD is a dynamic document that changes with time to address contemporary safety and operational issues.

There are five (5) basic considerations for traffic control devices:

1. Fulfill a specific need,
2. Command attention,
3. Convey a clear and simple meaning,
4. Command respect of the road user, and;
5. Give adequate time for proper response.

By following the specifications in the MUTCD a road user will have all the opportunity to be warned of and take the necessary action to avoid collision in a work zone.

The MUTCD is broken up into parts, part VI (6) relates to temporary traffic control or work zone situations.

**NOTE:** OSHA references the MUTCD as a compliance guide to ensure worker safety, see 29 CFR 1926 Subpart G.

# WORK ZONE SAFETY STANDARDS

## ***Fundamental Principles***

The needs and control of all road users (motorists, bicyclists, and pedestrians within the highway, including persons with disabilities in accordance with the Americans with Disabilities Act of 1990 (ADA), Title II, Paragraph 35.130) through a temporary traffic control zone must be an essential part of highway construction, utility work, maintenance operations, and the management of traffic incidents.

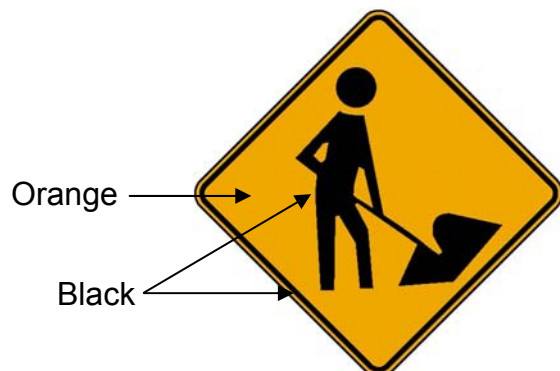
Construction, maintenance, utility, and incident zones can all benefit from temporary traffic control to compensate for the unexpected or unusual situations faced by road users.

The MUTCD assumes that road users exercise caution while driving through a work zone. Even though road users are assumed to be using caution, special care is still needed in applying temporary traffic control techniques.

### **Follow these fundamental principles for work zone safety:**

- Road user and worker safety and accessibility should be an integral and high-priority element of every project from planning through design and construction.
- Road user movement should be inhibited as little as practical.
- Motorists, bicyclists, and pedestrians should be guided in a clear and positive manner.
- To provide acceptable levels of operations, routine day and night inspections of the work zone should be performed
- Attention should be given to the maintenance of roadside safety during the life of the work zone
- Good public relations should be maintained.

Warning signs used in temporary traffic control “work zones” have a black legend and border on an orange background.



# WORKER SAFETY CONSIDERATIONS

The following are the key elements of worker safety and temporary traffic control management that should be considered to improve worker safety:

- A. **Training** – all workers should be trained on how to work next to motor vehicle traffic in a way that minimizes their vulnerability. Workers having specific responsibilities should be trained in the proper techniques, device usage, and placement.
- B. **Worker Safety Apparel** – all workers exposed to the risks of moving roadway traffic or construction equipment should wear high-visibility safety apparel meeting the requirements of ISEA “American National Standard for High-Visibility Safety Apparel” and labeled as ANSI 107 standard performance for Class 1, 2, or 3 risk exposures. A competent person designated by the employer to be responsible for the worker safety plan within the activity area of the job-site should make the selection of the appropriate class of garment.
- C. **Temporary Traffic Barriers** – temporary traffic barriers should be placed along the work space depending on factors such as lateral clearance of workers from adjacent traffic, speed of traffic, duration and type of operations, time of day, and volume of traffic.
- D. **Speed Reduction** – reducing the speed of vehicular traffic, mainly through regulatory speed zoning, funneling, lane reduction, or the use of uniformed law enforcement officers, or flaggers, should be considered.
- E. **Activity Area** – planning the internal work activity area to minimize backing-up maneuvers of construction vehicles should be considered to minimize the exposure to risk.
- F. **Worker Safety Planning** – a competent person designated by the employer should conduct a basic hazard assessment for the work site and job classifications required in the activity area. This safety professional should determine whether engineering, administrative, or personal protection measures should be implemented.



## COMPETENT PERSON

**COMPETENT PERSON** means one who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.



An employer must assign a competent person to each job-site. This person has the responsibility to conduct frequent and regular inspections of the job-site, materials and equipment; this includes traffic control devices. In addition to the inspection duties, a competent person will also perform regular and on-going safety training; this includes new hire worker orientation.

## SAFETY ORIENTATION FOR WORK ZONE WORKERS

Every work zone is different. Because of this, an effective worker safety orientation is necessary.



**Worker safety orientation for work zones includes, but is not limited to:**

- An identification of specific job-site hazards and an explanation of the safeguards to take;
- Information on the limitations and proper uses of traffic control devices and other protection; this includes the details of both the external & internal traffic control plan in place, and;
- A briefing on the emergency action plan for the site.

Once all workers have the opportunity to learn the use and limitations of traffic control devices, personal protective equipment, tools, etc., then good decisions are made that positively affects the safety and health of everyone on the job-site.

# HIGH VISIBILITY SAFETY APPAREL




- *Employees exposed to public vehicular traffic must be provided with, and must wear, warning vests or other suitable garments marked with or made of reflectorized or high-visibility material.*



## High Visibility Safety Apparel

Accepted as appropriate *warning vests or other suitable garments marked with or made of reflectorized or high-visibility material* are those garments that meet the requirements of ANSI 107. The most significant aspect of ANSI 107 is that it requires 360-degree visibility; meaning the wearer can be seen from all sides.

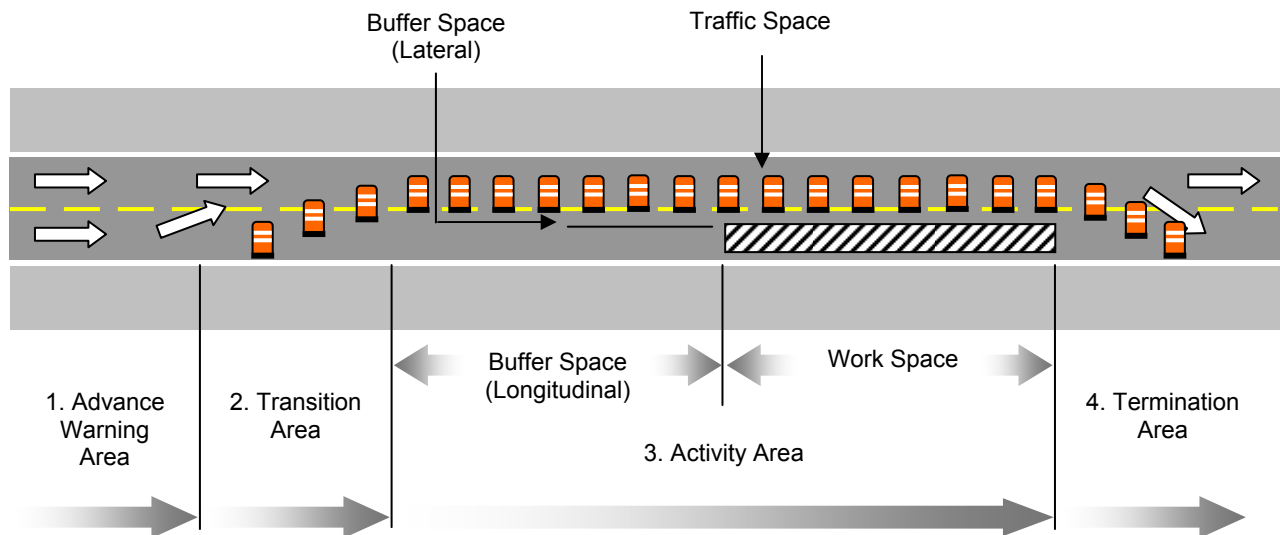
Within ANSI 107, three classes of conspicuity are defined:

Conspicuity Class	Use Description	
1		<ul style="list-style-type: none"> <li>• Worker can give full and undivided attention to approaching traffic.</li> <li>• Ample separation between worker and vehicular traffic.</li> <li>• Background is not too complex.</li> <li>• Vehicle/equipment speeds do not exceed 25 mph.</li> </ul>
2		<ul style="list-style-type: none"> <li>• Greater visibility is desired during inclement weather.</li> <li>• Complex backgrounds are present.</li> <li>• Employees perform tasks that divert attention away from approaching vehicles.</li> <li>• Vehicle/equipment speeds exceed 25 mph, but less than 50 mph.</li> <li>• Work activities take place in or near vehicle traffic space.</li> </ul>
3		<ul style="list-style-type: none"> <li>• Vehicle/equipment speeds exceed 50 mph.</li> <li>• Worker and vehicle operator have high task loads.</li> <li>• Wearer must be conspicuous through the full range of body motions at a minimum of a ¼ mile (390 m) and must be identifiable as a person.</li> </ul>

# TEMPORARY TRAFFIC CONTROL ZONES

## Temporary Traffic Control “Work Zone” – External Traffic

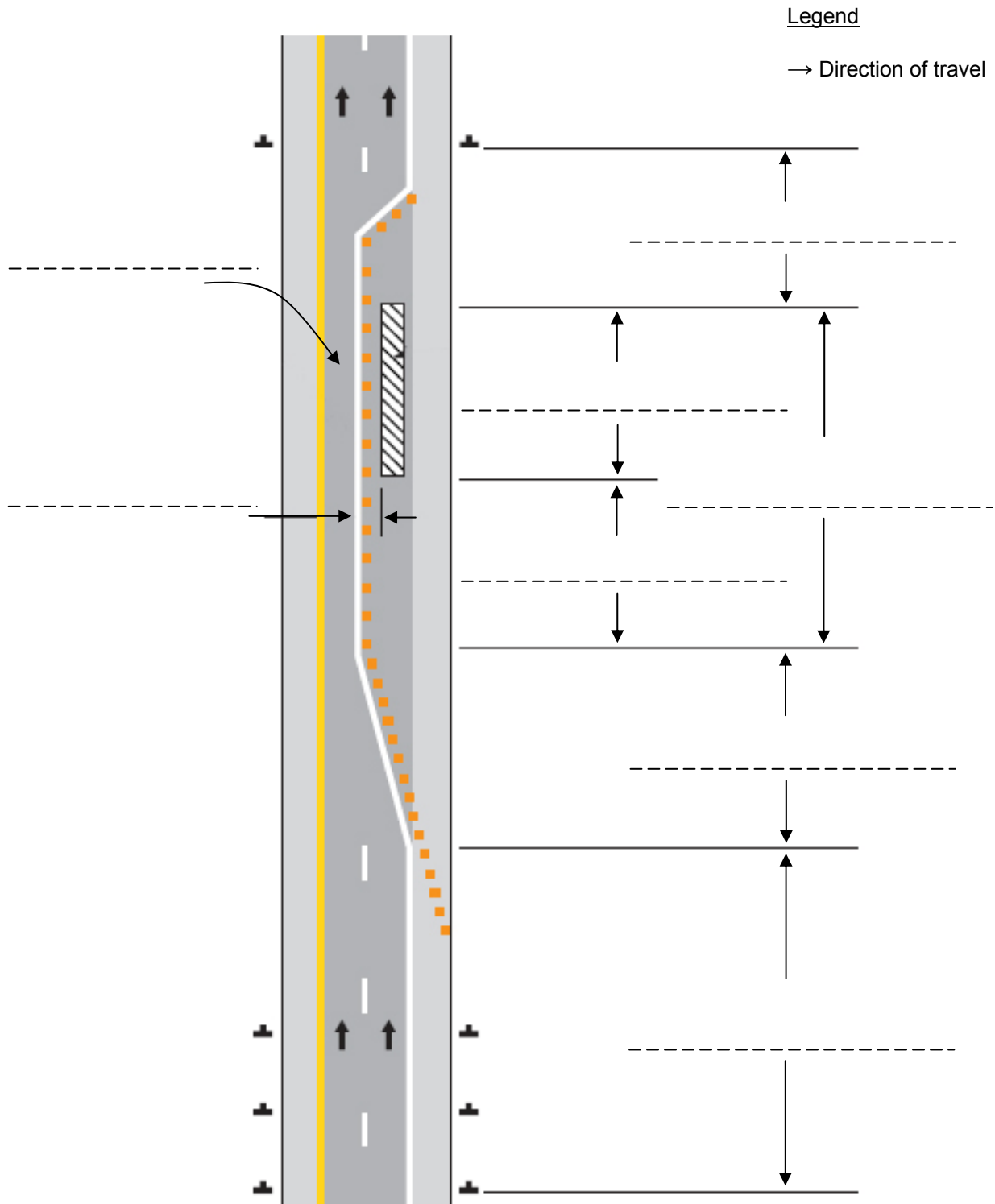
Temporary Traffic Control “Work Zone” components (diagram below); follow the requirements of *The Manual of Uniform Traffic Control Devices for Streets and Highways (MUTCD)*.



1. The **advance warning** area is the section where road users are informed about the upcoming work zone or incident area. 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 work zone activity area.
2. The **transition area** is that section where road users are redirected out of their normal path. Transition areas usually involve strategic use of tapers. Tapers are created by using a series of channelizing devices and/or pavement markings to move traffic out of or into the normal path.
3. The **activity area** is the section 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. Work spaces are usually delineated for road users by channelizing devices or, to exclude vehicles and pedestrians, by temporary barriers. Buffer spaces may be positioned either longitudinally or laterally with respect to the direction of road user flow.
4. 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 temporary traffic control device such as END ROAD WORK signs, if posted.

## Directions

- Name the components of a temporary traffic control work zone.
- Fill in the blanks \_ \_ \_ \_ \_...



# ADVANCED WARNING AREA

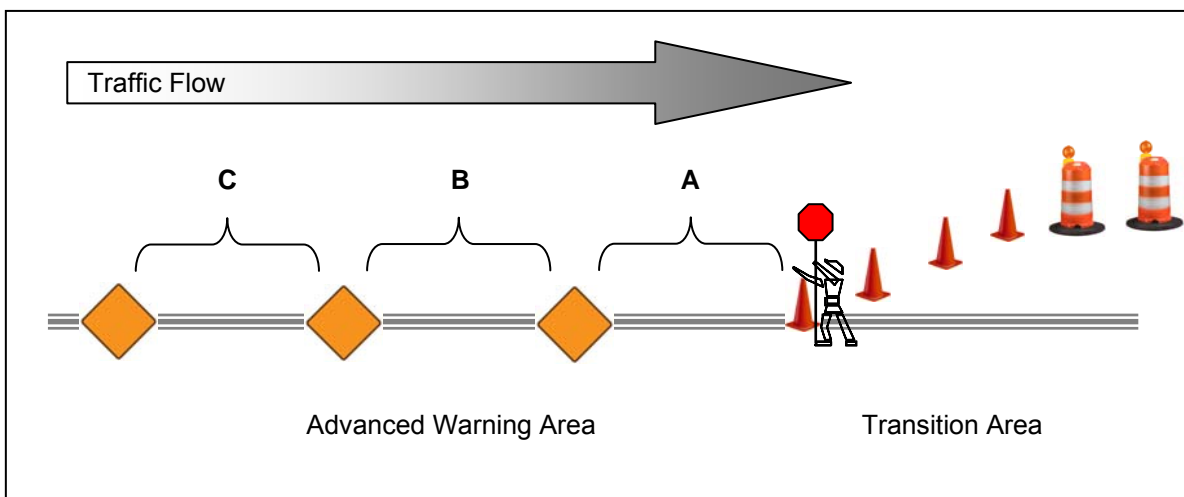
## Advanced Warning Sign Placement

Typical distances for placement of advance warning signs, as suggested by the *Manual on Uniform Traffic Control Devices* or MUTCD (Taken from Table 6C-1 of the MUTCD, 2003 Edition):

<b>Road Types</b>	<b>Suggested Distance Between Signs**</b>		
	<b>A</b>	<b>B</b>	<b>C</b>
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 State or Local highway agency.

\*\* Distances are shown in feet. The column headings A, B, and C are the dimensions shown in the figure below. 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 traffic control zone.)





# TRANSITION AREA

## Tapers

Tapers are used in the transition area to move traffic in or out of the normal path. Tapers are made with channelizing devices, i.e. cones, barrels, etc. Because the channelizing device may be placed in the roadway and would potentially be the first object that a motorist will strike, it must to be *crashworthy*; meaning that if a vehicle should hit the device, it causes minimal damage to the vehicle that hit it and it does not fly off and become a dangerous projectile. Examples of acceptable tapers are cones and/or barrels.



Channelizing Device

### Taper Length Criteria

(Taken from Table 6C-3 of the MUTCD, 2003 Edition)

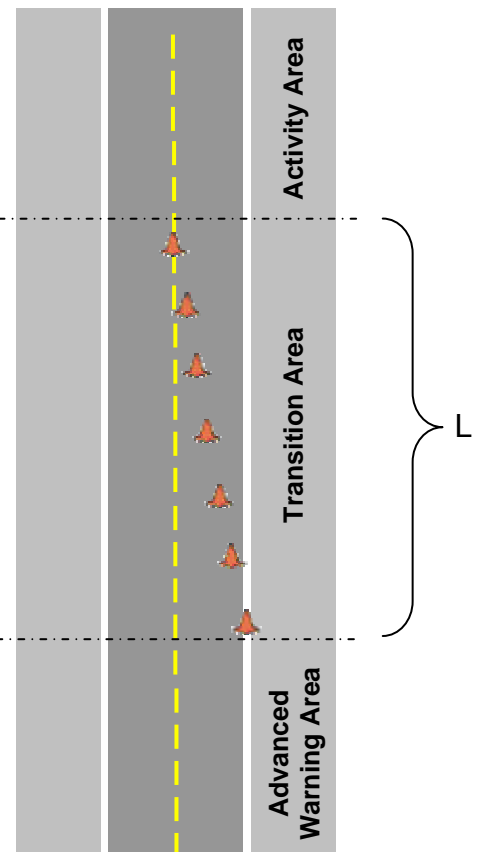
Type of Taper	Taper Length (L)
Merging Taper	At least L
Shifting Taper	At least ½ L
Shoulder Taper	At least ⅓ L
One-Lane, Two-Way Taper	100 feet maximum
Downstream Taper	100 feet per lane

“L” is the linear distance that a motorist will travel through the transition area.

### Formulas for Determining Taper Length

(Taken from Table 6C-4 of the MUTCD, 2003 Edition)

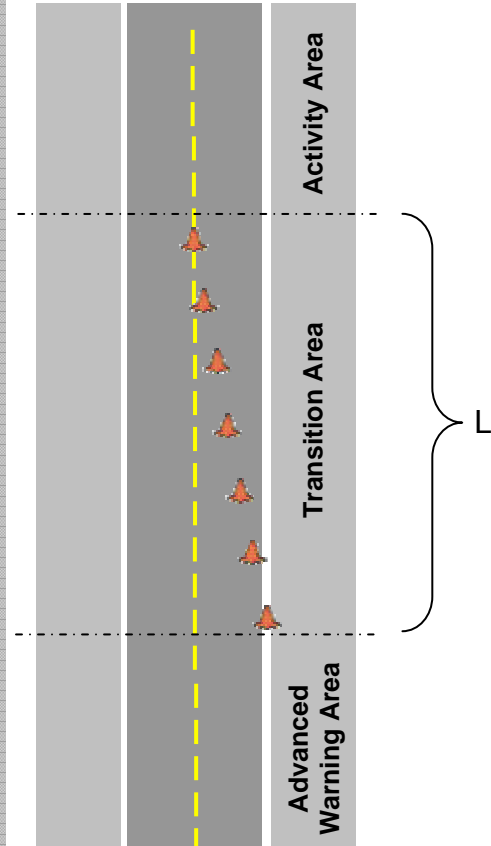
Type of Taper	Taper Length (L)
40 mph or less	$L = WS^2/60$
45 mph or more	$L = WS$



Where:  
 L = taper length in feet  
 W = width of offset in feet  
 S = posted speed limit, or off-peak 85<sup>th</sup>-percent speed prior to work starting, or the anticipated operating speed in mph.

## Directions

Using the information provided by the instructor, determine the amount of transition area (L) and the number of cones needed to fill in transition area.

<p>Posted Speed Limit: _____</p> <p>Width of Off Set: _____</p> <p>Work:</p>          <p>Distance (L) = _____</p> <p><i>To determine the number of cones needed...</i></p> $\frac{L}{\text{Posted Speed Limit}} + 1 = \# \text{ of Cones}$ <p>Work:</p>          <p style="text-align: right;"># of Cones _____</p>	
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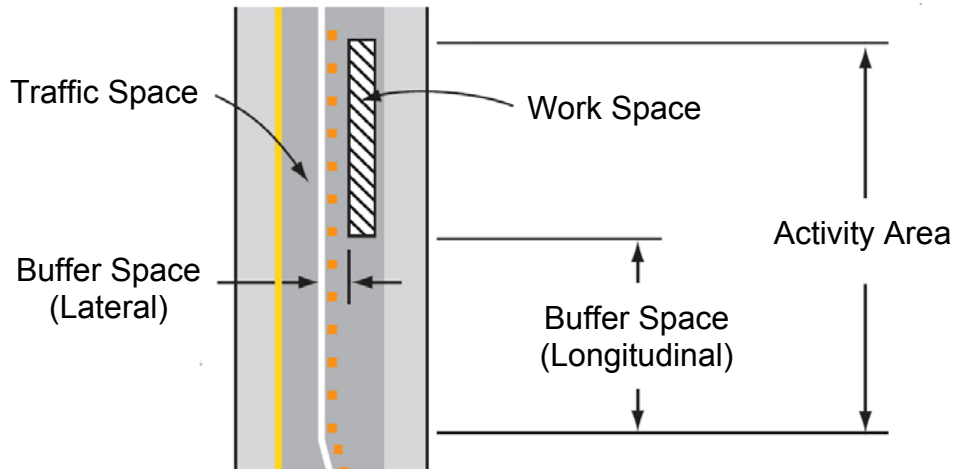
## Concrete Barriers

Concrete barriers are not crashworthy. The ends of these barriers, when encountered in the direction of travel, must be protected by a device that meets the crashworthy performance criteria contained in the National Cooperative Highway Research Program (NCHRP) Report 350.



# ACTIVITY AREA

Within the activity area, there are buffer spaces, traffic space and work space. Buffer spaces are based on the stopping distance as a function of speed. The traffic space is reserved for the motorist (10 foot minimum width) and the work space is for workers, equipment and materials.



## Stopping Sight Distance as a Function of Speed

Buffer space (longitudinal) is based on the posted speed limit of the roadway.  
(Taken from Table 6C-2 and 6E-1 of the MUTCD, 2003 Edition)

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









Crash! Make sure to allow for enough buffer space.

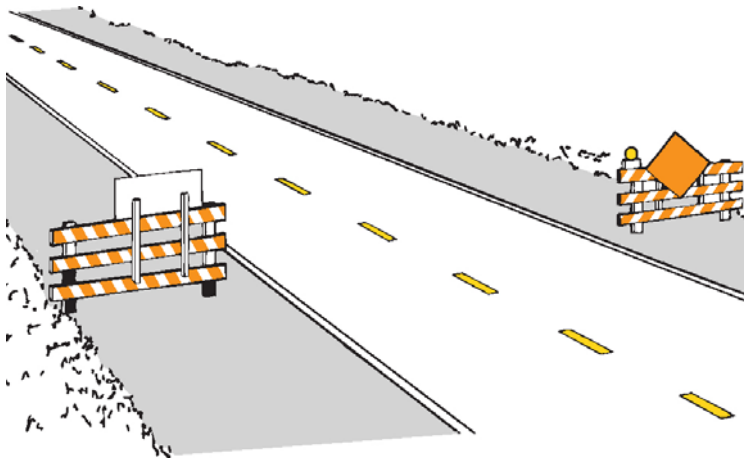
# TRAFFIC CONTROL DEVICES

*Traffic control devices* include all signs, signals, markings, and other devices used to regulate, warn, or guide road users. Only standardized devices and signs may be used to direct traffic through temporary work zones.



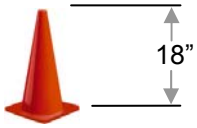
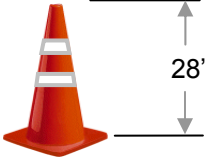
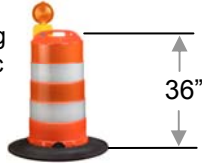



## Signs...

-  Should be located far enough in advance of the work area to allow vehicles to move smoothly and efficiently around work areas.
-  Must clearly inform motorists of approaching activity and guide drivers around or through the activity.
-  All signs used at night must be retroreflective.
-  Distance between signs is based on the suggested advance warning sign spacing established in the MUTCD.
-  Exact sign placement is based on roadway characteristics, such as, curves, bushes & trees, billboards, driveways, etc.
-  Warning signs in temporary traffic control zones must have a black legend and border on an orange background.



### ***Cones, Drums and Barricades***

Cones, drums and barricades are commonly used to alter, or channel the normal traffic flow. All channelizing devices must be made of lightweight materials and give way when struck by a vehicle, this is considered to meet the definition of *crashworthy*. Channelizing devices must not break apart or be capable of penetrating the passenger compartment of a vehicle.

	<p><b>Cones (18")</b> must be predominantly orange and be made of a material that can be struck without causing damage to the impacting vehicle. Use only during <u>daytime</u> and on <u>low-speed</u> roadways, 40 mph or less. Cones may be doubled up to increase their weight.</p>
	<p><b>Cones (28")</b> are used on freeways and other high-speed highways or at night on all highways, or when more conspicuous guidance is needed. For <u>nighttime</u> use, cones <u>must have two bands of retroreflectorized material</u>.</p>
<p>Facing Traffic</p> 	<p><b>Drums (36")</b> must be constructed of lightweight, deformable materials and have alternating orange and white retroreflective stripes. Drums must have closed tops. Metal drums must <u>never</u> be used.</p>
<p>Facing Traffic</p>  <p>One (1) Panel</p>	<p><b>Type I Barricades</b> should be crashworthy and are used to maintain traffic flow through the work zone. May be used on conventional roads or urban streets. Alternating orange and white retroreflective stripes sloping downward in the direction road users are to pass.</p>
<p>Facing Traffic</p>  <p>Two (2) Panels</p>	<p><b>Type II Barricades</b> should be crashworthy and are used to maintain traffic flow through the work zone. Are used on freeways and expressways or other high-speed roadways. Alternating orange and white retroreflective stripes sloping downward in the direction road users are to pass.</p>
 <p>Three (3) Panels</p>	<p><b>Type III Barricades</b> are used to close or partially close a road. Are placed completely across the road, from curb to curb, or space is left on the side for local traffic. Alternating orange and white retroreflective stripes sloping downward in the direction road users are to pass.</p>

## Traffic Control Devices

Ensure quality of the traffic control device... Follow these guidelines:

- Ballasts (sand bags) must not be placed on top of any striped rail.



- Sign supports must not be located on sidewalks, bicycle lanes, or areas designated for pedestrian or bicycle traffic.



- Do not modify, distort or change the design or function of any traffic control device.



- Devices that are damaged or have lost a significant amount of their retroreflectivity and effectiveness must be replaced.

# FLAGGER QUALIFICATIONS

Because flaggers are responsible for public safety and make the greatest number of contacts with the public of all highway workers, they should be trained in safe traffic control practices and public contact techniques.

Flaggers should be able to satisfactorily demonstrate the following abilities:

- A. Ability to receive and communicate specific instructions clearly, firmly, and courteously;
- B. Ability to move and maneuver quickly in order to avoid danger from errant vehicles;
- C. Ability to control signaling devices (such as paddles and flags) in order to provide clear and positive guidance to drivers approaching a temporary traffic control zone in frequently changing situations;
- D. Ability to understand and apply safe traffic control practices, sometimes in stressful or emergency situations; and
- E. Ability to recognize dangerous traffic situations and warn workers in sufficient time to avoid injury.



**Advanced Warning**  
 When ever a flagger is used, a “Flagger Ahead” sign or symbol must be used.



**Note:** Consult state specific training and certification requirements for flaggers.

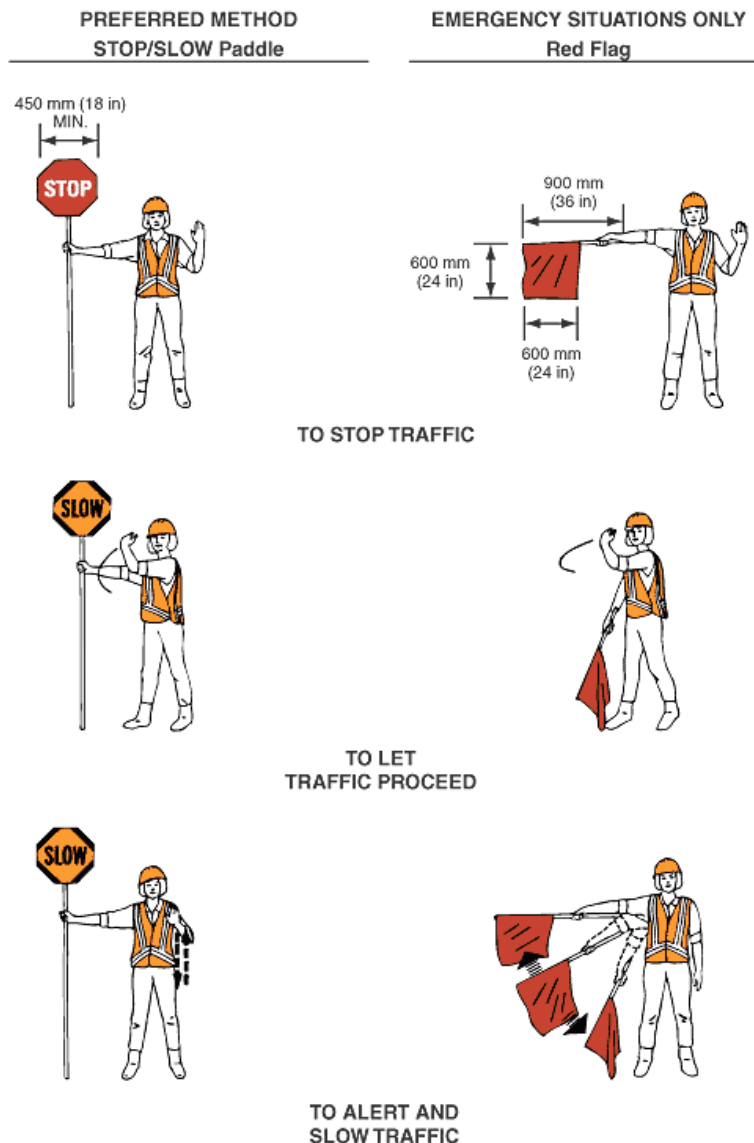
# FLAGGING OPERATIONS

Although the term “Flagger” is still used, and the recognized advanced warning sign is “Flagger Ahead” or the flagger symbol; **the preferred method for stopping and directing traffic in work zones is with the stop/slow paddle.**

The **STOP/SLOW Paddle** should be the primary and preferred hand-signaling device because the STOP/SLOW paddle gives road users more positive guidance than red flags. Use of flags should be limited to emergency situations.

(Figure 6E-1 of the MUTCD, 2003 Edition)

*Figure 6E-1. Use of Hand-Signaling Devices by Flaggers*

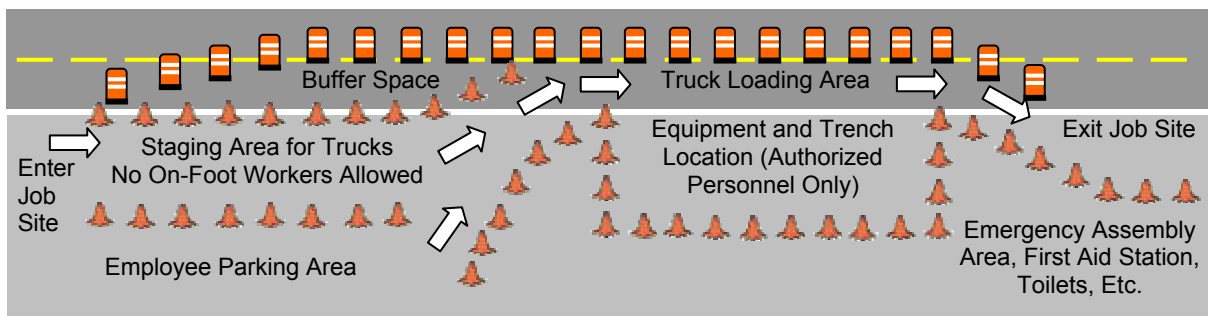




# INTERNAL TRAFFIC CONTROL PLAN (ITCP)

The purpose of an internal traffic control plan is to develop strategies to control the flow of construction workers, vehicles and equipment *inside* the work zone.

To reduce the hazard associated with backing construction vehicles and equipment, an ITCP can be developed to minimize the backing of all construction vehicles and equipment on site. This can be accomplished by taking into consideration the tasks to be performed and how the vehicles can safely navigate through the construction site to complete these tasks while backing as little as possible. The ITCP should also address workers on foot by creating walkways for these workers that are clear of backing construction vehicles and equipment. In addition, some areas within a construction work zone might have to be defined as areas that are prohibited for workers on foot.



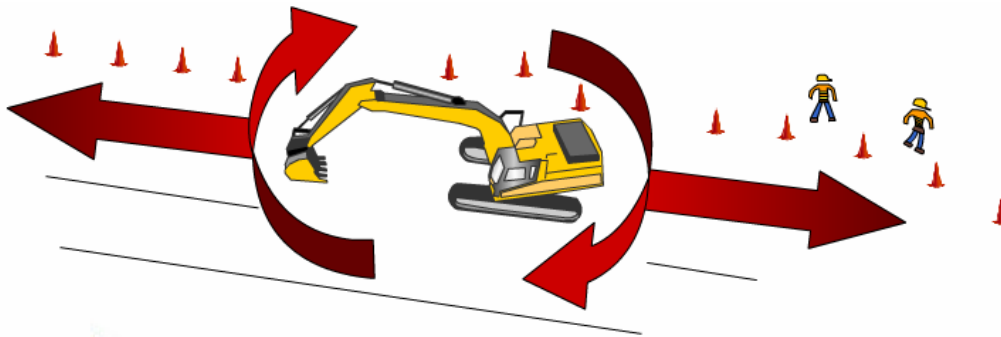
- When possible, set up the job-sites so equipment and materials flow in one single direction so as to minimize the need to back up.
- Establish “No On-Foot Worker Zones” and communicate to all workers the policies regarding back-up alarms, spotters, swing radius and other barricade protection.
- Use a signal person.
- Operators should get out of their vehicles and walk to the rear to look for people, objects and/or confirm clearances.
- Warn near-by workers who might be in the way.
- Near-by, *on-foot* workers must pay attention to the equipment and watch it come to a complete stop.

**IMPORTANT!**  
***If you ever see someone not paying attention to a backing up or moving piece of equipment, or if you see someone with their back to traffic –  
WARN THEM OF THE DANGER IMMEDIATELY!***

### **Warning System for Mobile Equipment**

Rotating and moving equipment has caused injury and death. By placing cones or other warning signs, posts, etc. around the equipment, workers are then warned of this hazard.

The competent person on the job can also conduct a daily briefing with all workers as to the location and expected work path and location of any piece of equipment.



### **Mobile Cranes**

Accessible areas within the swing radius of the rear of the rotating superstructure of the crane, must be barricaded so as to prevent an employee from being struck or crushed by the crane.



# MOTOR VEHICLE SAFETY

The majority of fatalities that occur in road construction work zones in the United States involve a worker being struck by a piece of construction equipment or other vehicle. A worker in this industry is just as likely to be struck by a piece of construction equipment inside the work zone as by passing traffic.

- ❑ All equipment left unattended at night must have appropriate lights or reflectors, or barricades equipped with appropriate lights or reflectors, to identify the location of the equipment.
- ❑ All vehicles with cabs must have windshield wipers and operable defogging or defrosting devices.
- ❑ All vehicles must have headlights and brake lights in operable condition.
- ❑ All vehicles must have audible horns.
- ❑ All vehicles with obstructed rear view must be equipped with back-up alarms or the vehicle is backed up only when an observer signals that it is safe to do so.
- ❑ All cab glass must be safety glass, or equivalent, that introduces no visible distortion affecting the safe operation of any machine.
- ❑ Vehicles used to transport employees must have as many seats as there are people and vehicle occupants must wear seat belts.
- ❑ Operators of excavators and backhoes must wear their seat belt when seated in the normal seating arrangement for tractor operation.



## EMERGENCY PLANNING & RESPONSE

Each emergency may require its own set of responses. Consider these things when planning for emergencies:

- ❑ Knowing how many workers are on the job-site at any given time. All workers must be trained to "check-in" with the competent person or, in his or her absence; another responsible person after an emergency has been called.
- ❑ Provide a medical response to minor injuries. In practical terms, members of the crew must have CPR and first aid skills and be prepared to use them. First aid kits must be available. Information about the closest clinic, hospital, or physician should also be available to workers.
- ❑ Know how to describe the location of the worksite to emergency dispatchers. In the initial emergency notification, workers should be trained to specifically state that the emergency is a work zone job-site.
- ❑ The names and telephone numbers of company personnel who are to be notified in case of emergency must be specified and available on the job site. Workers must be trained on where this information is kept.

### ***Procedures for Handling Emergency Vehicles***

- Communicate with other workers and coordinate the stoppage of traffic entering the work zone.
- If necessary, stop emergency vehicle to maintain safety.
- Clear the operation of the traveled way if possible.
- Stop the traffic and the haul trucks.
- Allow the emergency vehicle to pass as soon as safely possible.

### ***Methods of Dealing with Hostile Drivers***

- Walk away; do not argue; be courteous but firm.
- Record a description of the car, driver, and license plate.
- Notify your supervisor.
- Warn fellow workers.

## ***References in Chapter VI (6) of the MUTCD\****

<u>Item</u>	<u>Page in Chapter VI (6)</u>
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Types of Buffer Space.....	6C-6
Component Parts of a Temporary Control zone (Figure 6C-1).....	6C-2-3
Types of Tapers and Buffer Space (Figure 6C-2).....	6C-6
Tapers.....	6C-5-8
Qualifications for Flaggers.....	6E-1
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Use of Hand Signaling Devices by Flagger (Figure 6E-1).....	6E-3
Sign Criteria.....	6F-29-30
Suggested Advanced Warning Sign Spacing (Table 6C-1).....	6C-4
Channelizing Devices.....	6F-29-30
Cone Use.....	6F-30

**Note:** *These reference pages may change due to MUTCD updates. Make sure you are using the most recent edition of the MUTCD.*

\* As taken from ATSSA's Flagger Workbook. American Traffic Safety Services Association, 15 Riverside Parkway, Suite 100. Fredericksburg, VA 22406.

