Electrical Transmission & Distribution Partnership

Continuing Education Training

Presenter Guide – Q2 – Work Zone Protection

Introduction:

This **Work Zone Protection** Refresher course is a presenter lead (supervisor, safety professional) process. The presenter may choose to augment the material with videos, handouts, or other media to enhance the learning experience. The presenter may want to incorporate visual aids to enhance the presentation.

Using this material in combination with practical experience, good presentation skills and knowledge of adult learning techniques, the presenter has a greater opportunity to deliver the information.

Edgar Dale stated that 2 weeks after a learning event, adult learners remember:

- 10% of what they read
- 20% of what they hear
- 30% of what they see
- 50% of what they see and hear
- 70% of what they say
- 90% of what they say while performing a task

Microsoft® PowerPoint® combined with good instructional skills and instructor/student dialogue work strongly in the fifty to seventy percent range. PowerPoint® presents the information to the attendee, and the instructor summarizes the content of the slides. It is critical to engage and involve the attendee in the process. Ask open-ended questions that will elicit conversation and discussion but be cautious to maintain control of the discussion.

Conversation and scenarios are good but can cause the discussion to run long. If it seems like the group is losing focus during the course, the presenter can direct the group back on track by using comments like "Good discussion, but let's get back to the subject at hand".

Another tool is the "Parking Lot" which is simply a newsprint chart or dry erase board or note pad where the presenter records questions/discussion points not answered or addressed during the meeting and that may require more research. It is vital to capture any ongoing discussions or questions on the "Parking Lot" and follow up when the information is known.

Deliver this refresher during the second quarter of 2026. Delivery time is approximately 45 minutes to 1 hour, in one setting or divided-up into three, 15-to-twenty-minute settings. The presenter may deliver the topic in a formalized meeting room setting using the PowerPoint slide deck or by using the three key point sheets (located at the end of each session) as in a tailgate safety talk. **It is critical that the facilitator makes him or herself familiar with the material prior to delivery.**

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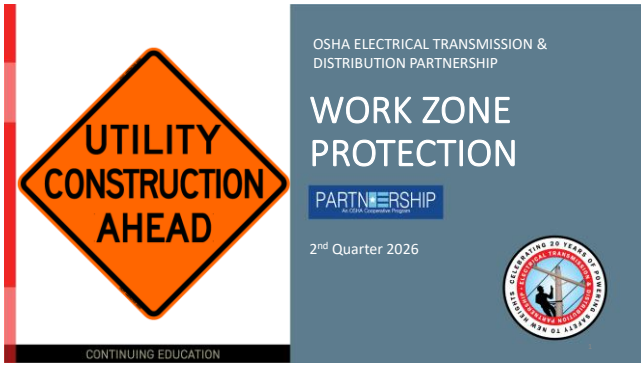
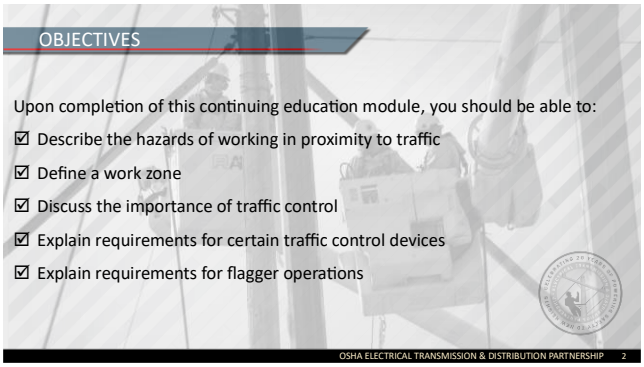
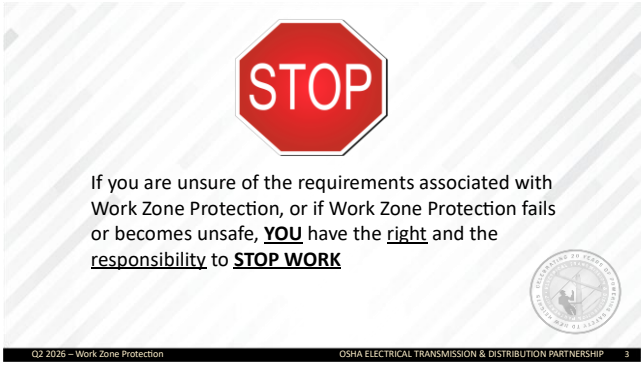


Introduce the module. Explain that the intent of this presentation is to provide a continuing education training topic related to certain aspects from the either the ET&D 10-Hour OSHA training class, the OSHA Partnership Best Practices, and/or incident trending analysis.

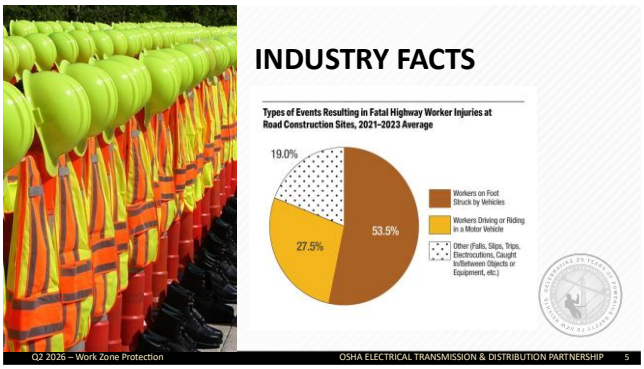


Thank the attendees for their attention and explain the objectives of this course and the duration. Explain that this is second quarter 2026 topic.

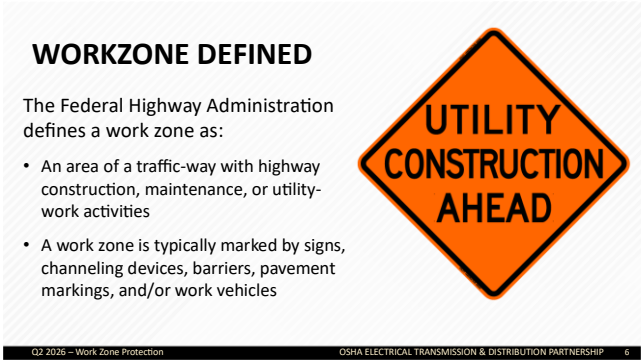


Explain that workers have the right, the responsibility and the authority to STOP WORK. If they are unsure of the possible hazards and controls, or if the controls fail to protect. They must STOP WORK.

Explain that work zone safety is critical for protection of both workers and the public. Because the public highway system can be a very hazardous place to work, it is essential that our workers have a basic understanding of the hazards involved and understand certain measures used to help minimize the risks.

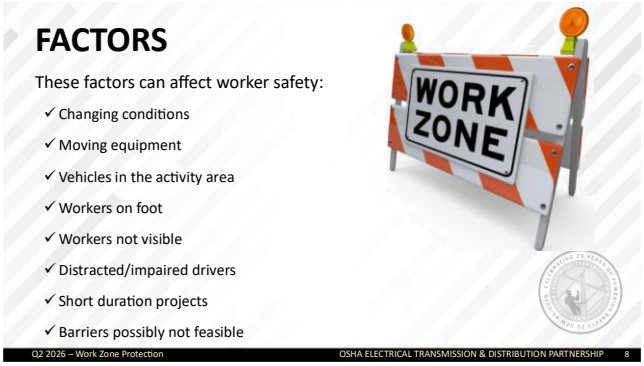


Data from 2021 to 2023 indicate that more than 80 percent of all worker fatalities at road construction sites are the result of a) motor vehicle crashes where the worker is the driver or a passenger (28 percent), or b) a worker on foot who is struck by a motor vehicle (54 percent). Other types of events, such as falls/slips/trips, struck by objects or equipment, caught in/between objects or equipment, and electrocutions were responsible for the remaining 19 percent of highway worker fatalities at road construction sites. (Source: BLS CFOI)

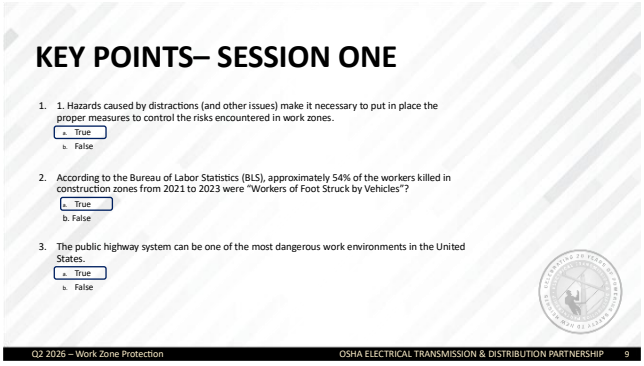


Explain that it may be surprising to hear that there are currently no nationally recognized definitions of work zones. Almost every state has its own definition. Work planners such as managers, supervisors, foremen, and leads, should be aware of the safety impact of work zones to understand the full impact of working on or near a roadway. The Federal Highway Administration (FHWA) is currently involved in an effort to develop a standardized definition of work zone. Ultimately, this effort will allow researchers the opportunity to assess the current state of work-zone safety and to recommend possible countermeasures to eliminate or mitigate safety problems.

Explain that Traffic Control Plans (TCP's) play a vital role in providing continuity of safe and efficient traffic flow. To a certain extent, interruptions in normal flow are necessary for temporary traffic control operations. A traffic control plan, in detail appropriate to the complexity of the work project or incident, must be prepared and understood by all responsible parties before work starts. Any changes in the plan must be approved by a competent person trained in safe traffic control practices.



Explain that because of the type, location and duration of work, and roadway/traffic characteristics, work zones can be very diverse. Applicable standards and procedures may vary depending on several factors.



The presenter should have touched on the following items when Explaining session one:

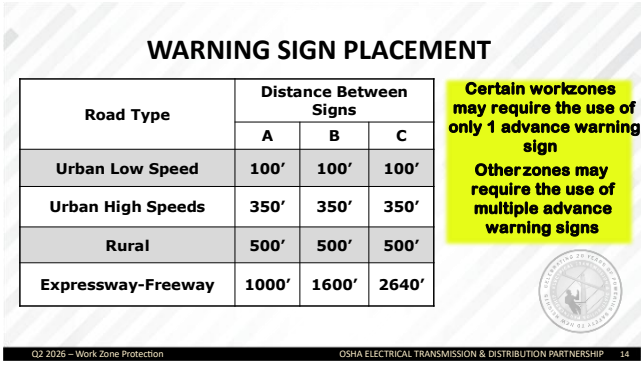
1. Hazards caused by distractions (and other issues) make it necessary to put in place the proper measures to control the risks encountered in work zones.
    - **a. True**
    - b. False
2. According to the Bureau of Labor Statistics (BLS), approximately 54% of the workers killed in construction zones from 2021 to 2023 were "Workers of Foot Struck by Vehicles"?
    - **a. True**
    - b. False
3. The public highway system can be one of the most dangerous work environments in the United States.
    - **a. True**
    - b. False

Explain that the following section will discuss traffic control. The information in this section is based on the Manual for Uniform Traffic Control Devices known as the MUTCD. The Manual is a document issued by the Federal Highway Administration (FHWA) of the United States Department of Transportation (USDOT) to specify the standards by which traffic signs, road surface markings, and signals are designed, installed, and used. The MUTCD is generally considered the minimum requirement for traffic control and devices.

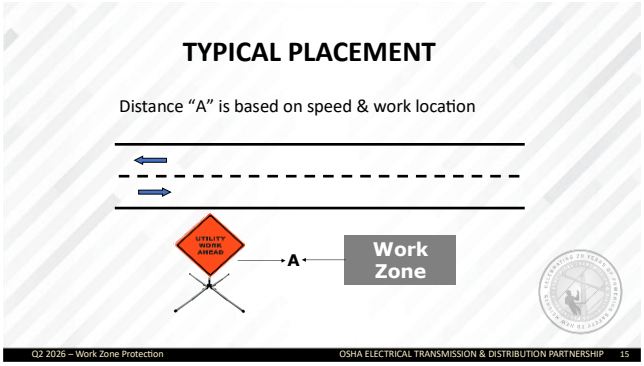
Explain that the four main purposes of traffic control is to warn the traveling public of a potential work zone ahead, to inform what type of work zone they may encounter, to guide them safely through the work zone, and lastly to regulate the traffic so worker and public exposure is mitigated.

Explain that there are numerous factors that may influence the effectiveness of traffic control. Hills, curves, intersections, shade, color contrast, and driveways just to name a few. Add to that, distractions caused by driver behavior, other operations in the area, and possible bad weather and there is a recipe for disaster.

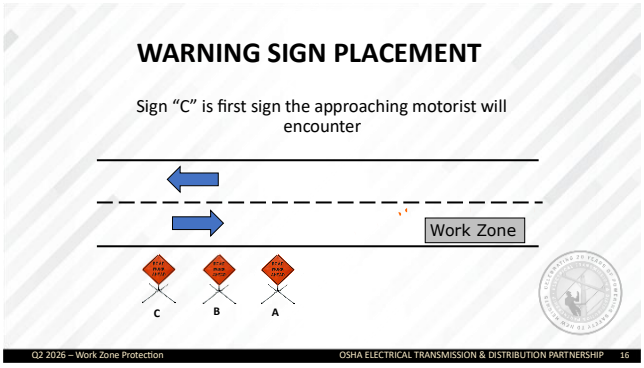
Explain that damaged, soiled, or illegible signs will not provide the necessary protection. Also, use the correct sign for the application. The sign shown in the picture indicates that there may be a flagger ahead. However, there was no flagger or need to stop. A "Utility Work Ahead" sign would be more appropriate. Signs used in temporary traffic control zones are moved frequently, loaded and unloaded from trucks, and in general receive much harsher treatment than permanent signs. For this reason, particular attention must be given to maintaining signs properly for cleanliness, visibility, and correct positioning.



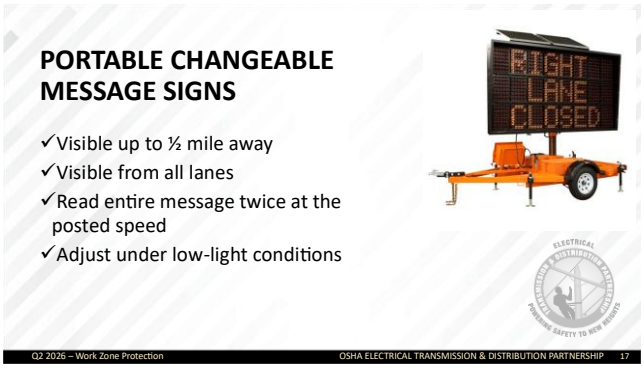
Explain that this chart is from the MUTCD. On urban streets, the effective placement of the first warning sign in feet should range from 4 to 8 times the speed limit in mph, with the high end of the range being used when speeds are relatively high. When a single advance warning sign is used (in cases such as low-speed residential streets), the advance warning area can be as short as 100 feet. When two or more advance warning signs are used on higher-speed streets, such as major arterials, the advance warning area should extend a greater distance. The distances contained in Table 6C-1 are approximate, are intended for guidance purposes only, and should be applied with engineering judgment. These distances should be adjusted for field conditions, if necessary, by increasing or decreasing the recommended distances.



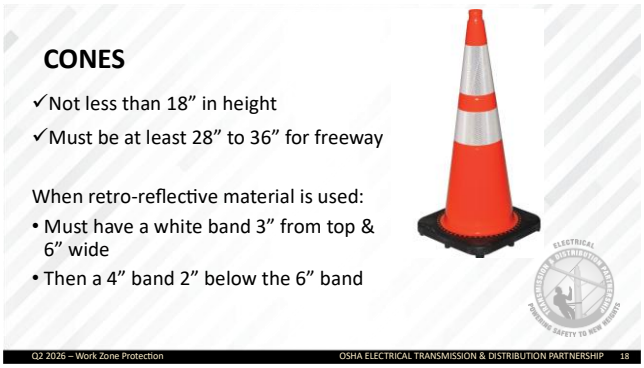
Explain that depending on traffic speed and other work zone requirements the spacing between signs and the work zone may vary. The table shown on the previous slide is from the MUTCD.



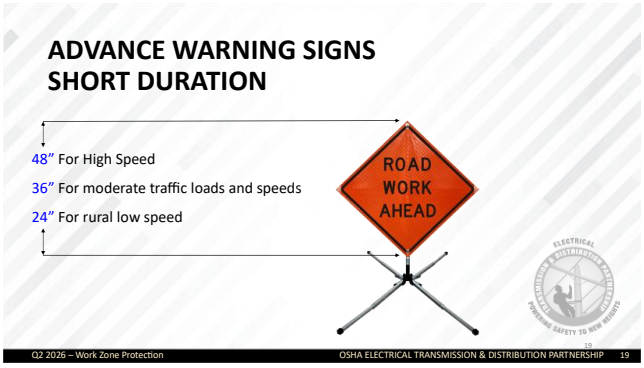
Explain that this slide shows the order of the signs from a driver's point of view. The driver will encounter sign "C" first as he or she approaches the work zone.



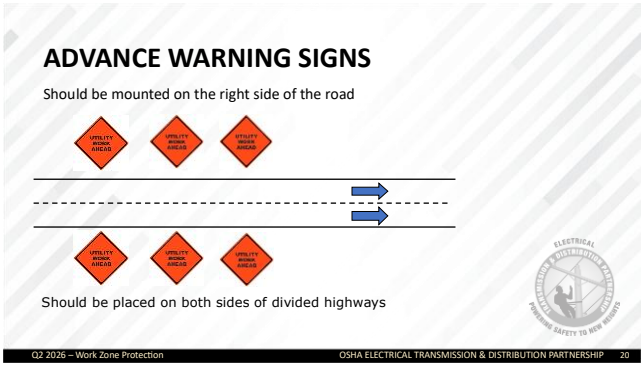
Explain that Portable Changeable Message Signs (PCMS) are traffic control devices with the flexibility to display a variety of messages to fit the needs of road and street authorities. Each message consists of one or more displays. Portable Changeable Message signs are used most frequently on high density, urban freeways, but have applications on all types of highways where highway alignment, traffic routing problems or other pertinent conditions require advance warning and information. The signs should be visible from 1/2 mile under ideal day and night conditions. Each sign message should be legible from all lanes, from the sign up to a minimum of 650 feet. In the field, the PCMS should be sited and aligned to optimize driver performance. The message panel should have adjustable flash rates, so that the entire message can be read at least twice at the posted speed, the off-peak 85th percentile speed prior to work starting, or the anticipated operating speed. Under low light level conditions, the sign shall automatically adjust its light source so as to meet the legibility requirements and not impair the drivers, vision.



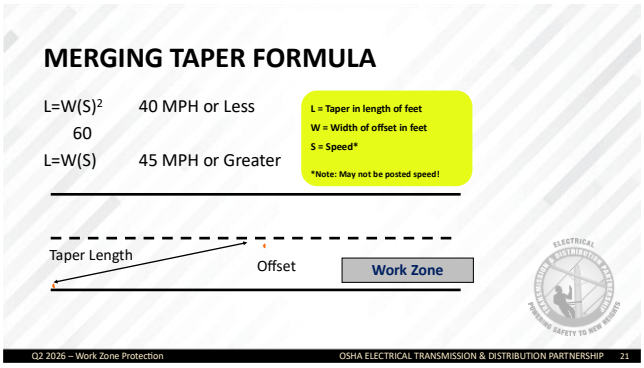
Explain that this requirement is also from the MUTCD. 36" is recommended.



Explain that where any part of the roadway is obstructed or closed, advance-warning signs are required to alert traffic well in advance of these obstructions or restrictions. These signs may be used singly or in combination. Because of their importance, they shall have a standard size of 48 inches square and shall be the standard diamond shape for warning signs. Signs larger than 48 inches square may be used for additional emphasis of the temporary traffic control zone. Where speeds and volumes are moderately low, a minimum size of 36 inches square may be used for advance warning signs, if they have a minimum letter size of 5 inches. On secondary roads or city streets where speeds are very low, signs smaller than the standard size, but not less than 24 inches square, may be used for warning signs having short word messages or clearly understood symbols. Where distances are not shown on warning signs as part of the message, a separate panel with the distance legend may be mounted immediately below the sign on the same support.



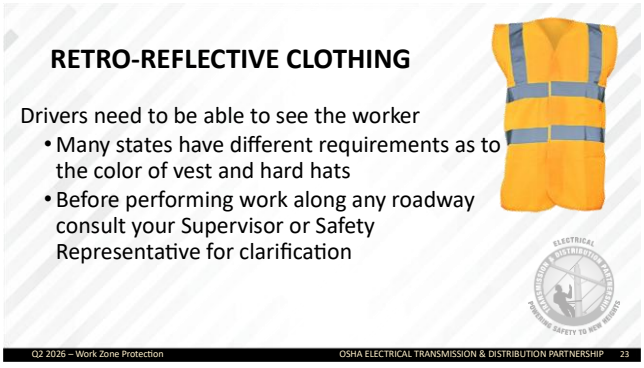
*Signs shown are for illustration purposes only and not intended to indicate what sign to use.
Explain that on divided highways, the MUTCD requires that warning signs be placed so that both travel lanes see the signs



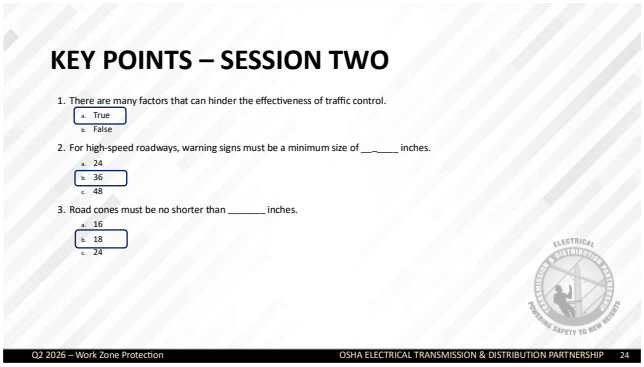
Explain that when redirection of the driver's path is required, traffic is channelized from the normal path to a new path. The traffic control should try to inhibit the driver's speed as little as possible. In addition, traffic movement should be inhibited as little as possible. Frequent and abrupt changes in geometries should be avoided. Roadway occupancy and work completion should be minimized to reduce exposure.

Explain that if our work zone activity affects pedestrian walkways, then we must provide them safe access through the work zone or route them to a safe area. A wide range of pedestrians might be affected by traffic temporary work zones, including the young, elderly, and people with disabilities such as hearing, visual, or mobility. These pedestrians need a clearly delineated and usable travel path. The following three items should be considered when planning for pedestrians in work zones:

1. Pedestrians should not be led into conflicts with vehicles, equipment, and operations.
2. Pedestrians should not be led into conflicts with vehicles moving through or around the worksite.
3. Pedestrians should be provided with a convenient and accessible path that replicates as nearly as practical the most desirable characteristics of the existing sidewalk(s) or footpath(s).



Explain that retro-reflective clothing will shine light back toward the source. States have different requirements as to the color of vest and hard hats required.



The presenter should have touched on the following items when explaining session two:

1. There are many factors that can hinder the effectiveness of traffic control
   a. True
   b. False
2. For high-speed roadways, warning signs must be a minimum size of _____ inches.
   a. 24
   b. 36
   c. 48
3. Road cones must be no shorter than _____ inches.
   a. 16
   b. 18
   c. 24

Explain that the following section will discuss traffic control. The information in this section is based on the Manual for Uniform Traffic Control Devices known as the MUTCD. The Manual is a document issued by the Federal Highway Administration (FHWA) of the United States Department of Transportation (USDOT) to specify the standards by which traffic signs, road surface markings, and signals are designed, installed, and used. The MUTCD is generally considered the minimum requirement for traffic control and devices.

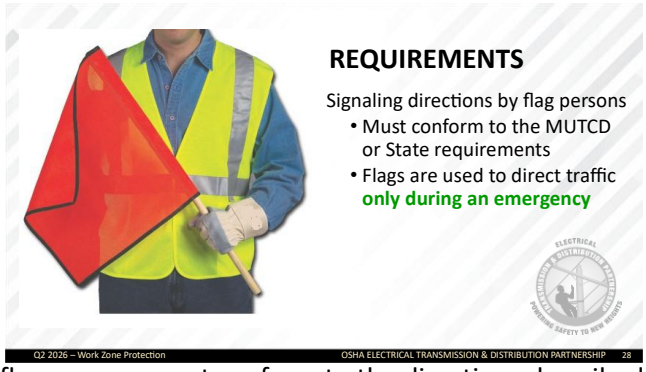
Explain that each flagger should be trained in the techniques necessary to recognize the hazards associated with performing flagger operations. Flaggers should only use "Stop/ Slow" paddles to flag traffic and flags should only be used in emergency situations. Because flaggers are responsible for public 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:

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

Explain that flaggers should always wear retro reflective vest. 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 1,000 feet. The retroreflective safety apparel shall be designed to identify the wearer as a person.

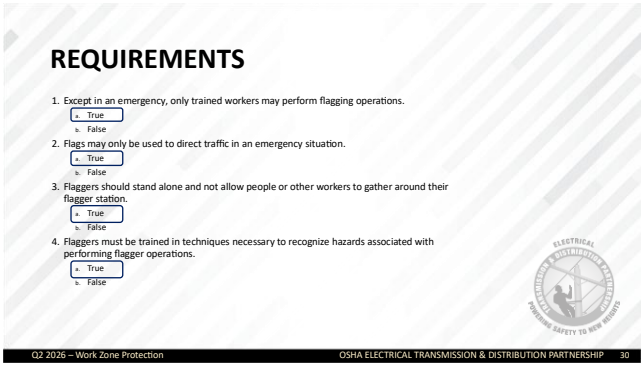
For nighttime activity, high-visibility safety apparel that meets the Performance Class 3 requirements of the ANSI/ISEA 107–2004 publication entitled "American National Standard for High-Visibility Apparel and Headwear" and labeled as meeting the ANSI 107-2004 standard performance for Class 3 risk exposure should be considered for flagger wear.

Flaggers must be physically fit to perform the necessary duties and flaggers must be courteous and conscientious. Also, explain that flag persons must be provided with clean drinking water at their flagging station (water cooler) when the flag person is to be at the flagger station for a period exceeding 30 minutes.



Explain that signaling directions by flag persons must conform to the directions described in Chapter 6E, "Flagger Control", of the Manual on Uniform Traffic Control Devices (MUTCD) or state requirements. One must ensure that flags are used to direct traffic only during an emergency. Also, explain that flag persons must use a legible, 18-inch STOP/SLOW paddle mounted on a 7-ft PVC pole for hand signaling. Red lights may be used in periods of darkness and a flagger's station must be illuminated to the point that the flag person is visible to oncoming traffic when the flagger is working in darkness. Ensure that flagger stations are set up far enough ahead of the workspace, so that approaching traffic has sufficient distance to stop before entering the work zone. Always position flag persons on the shoulder of the road and adjacent to the traffic being controlled or place them in a barricaded area.

Instruct flaggers to stand in an open area, not under trees, in curves, over the crest of the hill or directly behind parked vehicles to enhance their visibility to oncoming motorists. Ensure that flag persons do not leave their flagging stations unless relieved by another trained flag person or in the event of an emergency. Also, explain that flag persons with a horn, whistle, or other sounding device are stationed far enough ahead of the workforce to warn workers of approaching dangers, such as out-of-control vehicles. Importantly, give the flag person a break. Relive them occasionally.



The presenter should have touched on the following items when explaining session two:

1. Except in an emergency, only trained workers may perform flagging operations.
    a. **True**
    b. False
2. Flags may only be used to direct traffic in an emergency situation.
    a. **True**
    b. False
3. Flaggers should stand alone and not allow people or other workers to gather around their flagger station.
    a. **True**
    b. False
4. Flaggers must be trained in techniques necessary to recognize hazards associated with performing flagger operations.
    a. **True**
    b. False

Thank You!