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# **Work Zone Safety**

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# Objectives

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In this course, we will discuss:

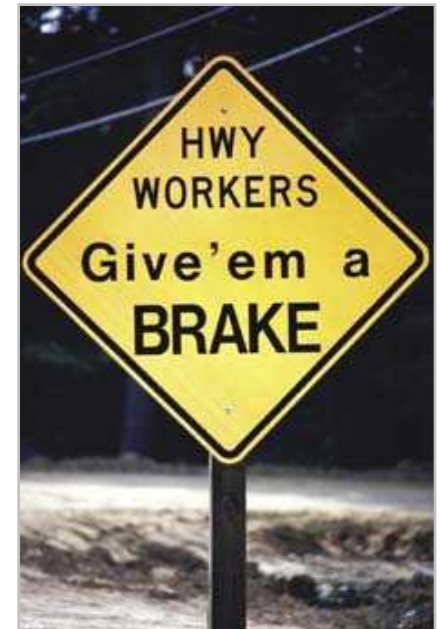
- Identification of work zones
- Work zone elements
- Manual on Uniform Traffic Control Devices (MUTCD)
- OSH standards
- Control zones and measures
- Flagger safety
- Employer/employee responsibilities



# Work Zone Identified

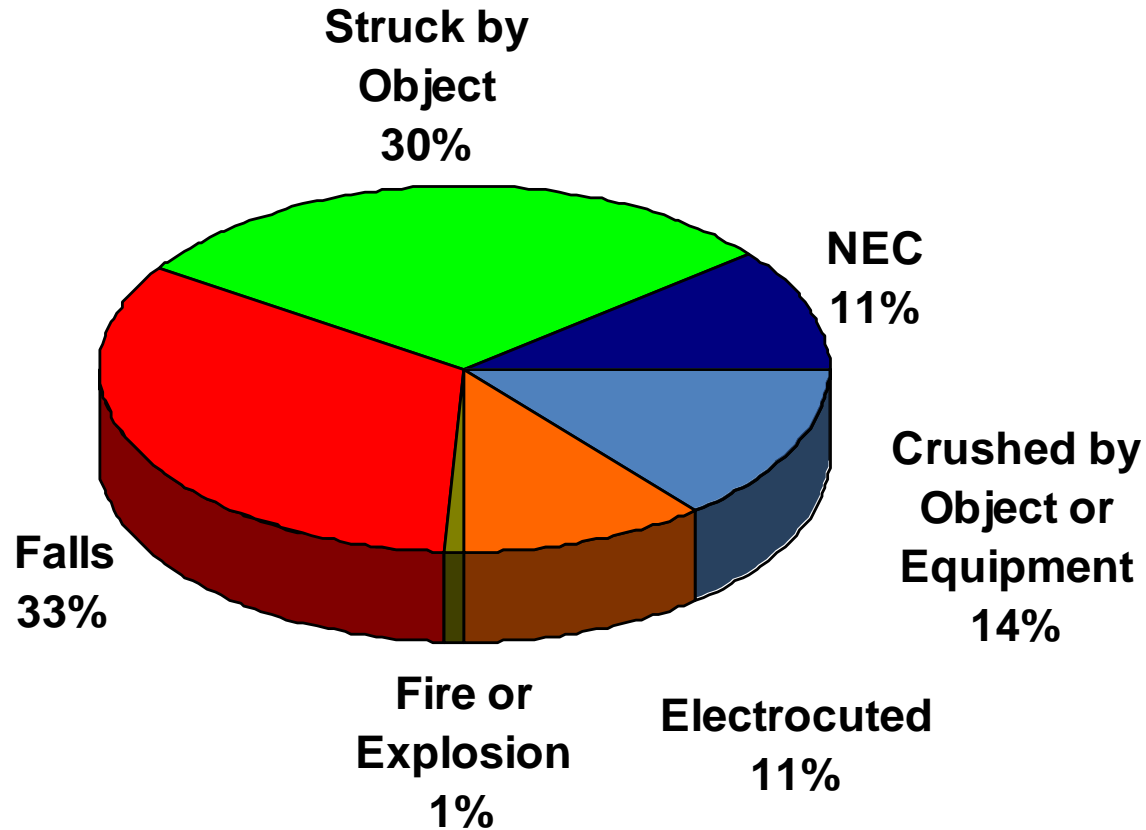
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- Any agency performing construction and/or maintenance work on or adjacent to a street or highway on the Highway System is responsible for using the proper traffic control devices.
- The devices used are subject to approval by the Division of Highways and shall conform to the **MUTCD**.



# Work Zone Statistics

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# Work Zone Statistics

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- More than four out of five persons killed in work zone crashes are motorists.
- Speeding and distracted driving account for more than 50% of all work zone crashes.
- In 2008, N.C. work zones accounted for:
  - 21 fatalities
  - 2,381 crashes
  - 1,463 injuries

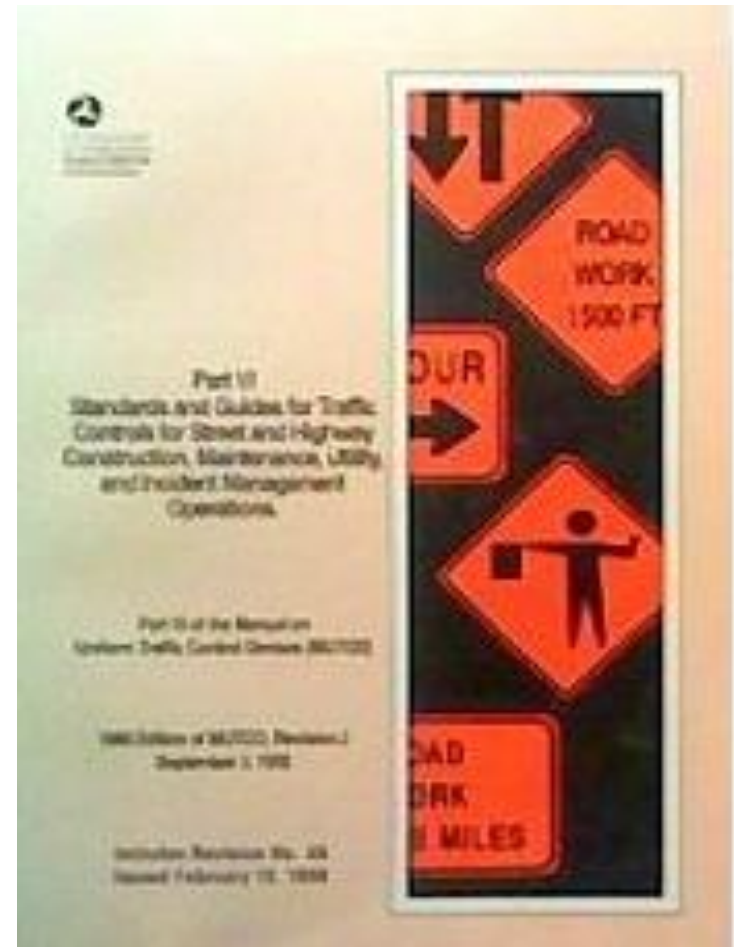
Source: NCDOT

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# Manual on Uniform Traffic Control Devices

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- The current edition of the MUTCD is published by the Federal Highway Administration (FHWA) under 23 Code of Federal Regulations (CFR), Part 655, Subpart F.



# Work Zone Elements

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**A  
T  
B  
A  
T**

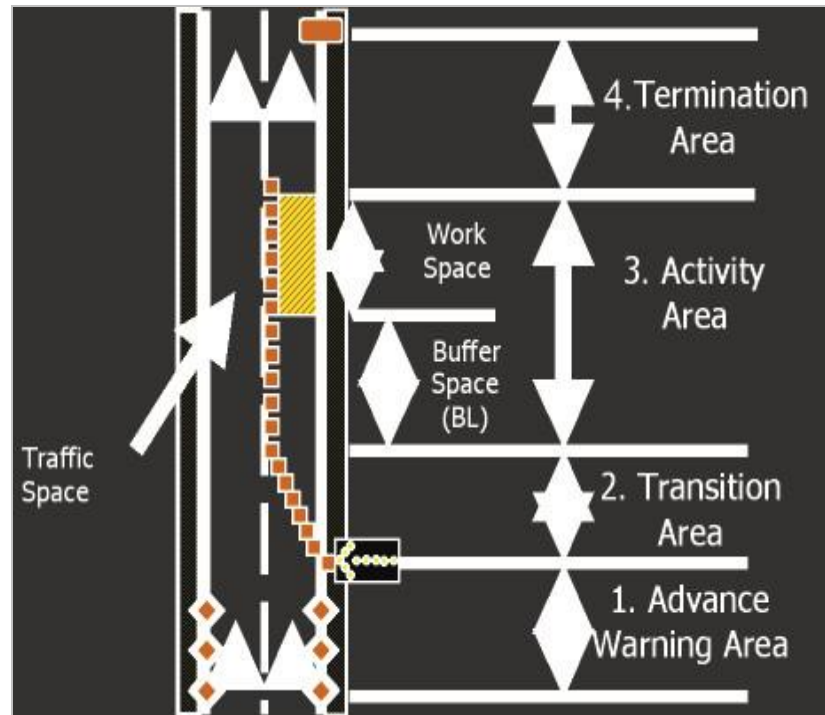


- Advance warning area
  - Transition area
  - Buffer space
  - Activity (work) area
  - Termination area
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# Work Zone Elements

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1. Advance warning area
2. Transition area
3. Buffer space
4. Activity area
5. Termination area





# Work Zone Elements

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- Advance warning area
  - Advises drivers about what to expect in the upcoming work zone area or areas



# Work Zone Elements

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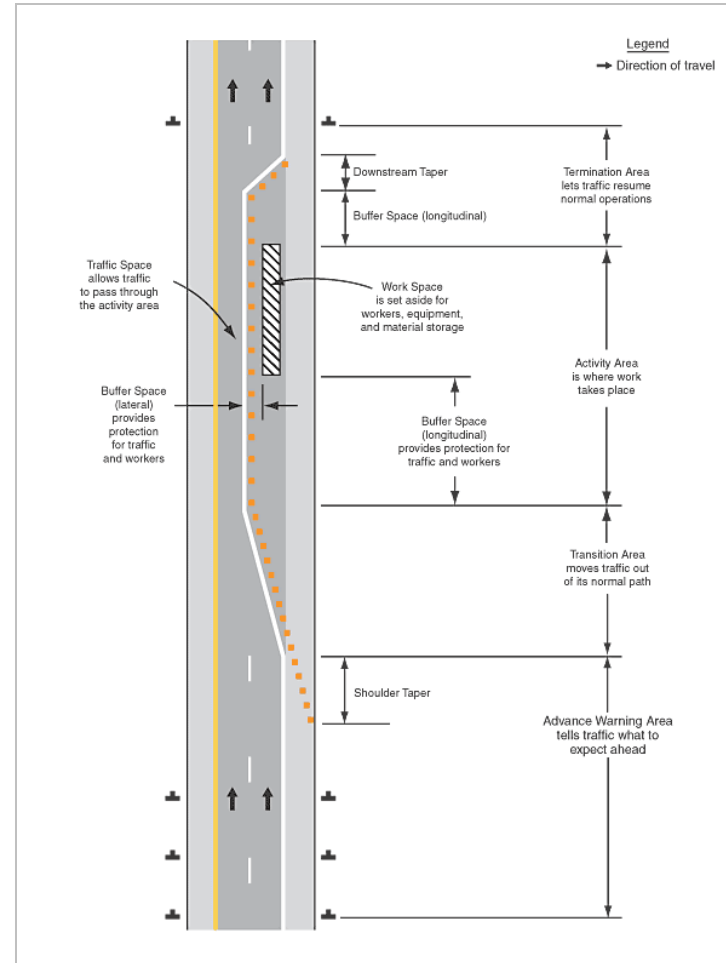
- Transition area
  - Redirect traffic from a normal traffic flow to a new flow



Jerome Atwood, Hatch Mott MacDonald

# Work Zone Elements

- Buffer space
  - Provides protection for traffic and workers



# Work Zone Elements

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- Activity area
  - The area where work takes place which may also include a “lateral” buffer space.



# Work Zone Elements

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- Termination area
  - Shall be used to return road users to their normal path
  - Shall extend from the downstream end of the work area to the last TTC device



# Signs, Signals & Barricades

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1926.200(a)

- Signs and symbols required by this subpart shall be visible at all times when work is being performed ...

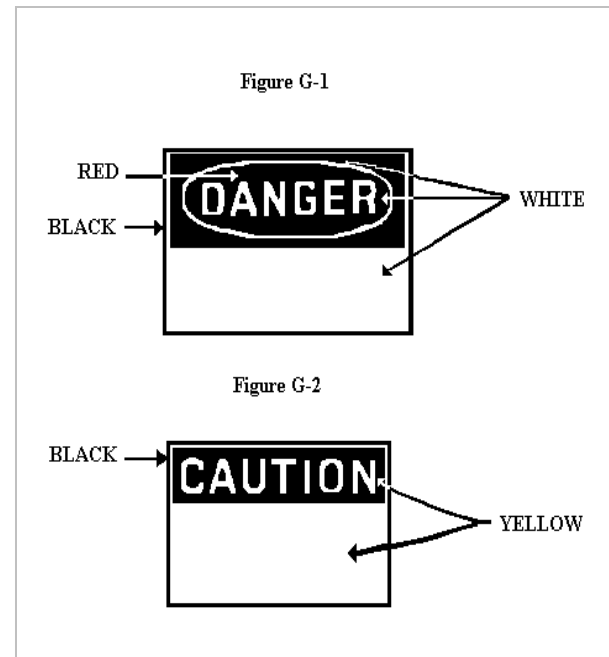


- **Barricade**

- Means an obstruction to deter the passage of persons or vehicles.

- **Signs**

- Are the warnings of hazard affixed or placed at locations where hazards exist?



- **Signals**

- Are moving signs to warn of possible or existing hazards?

- **Tags**

- Are temporary signs to warn of existing or immediate hazards?

Table G-1

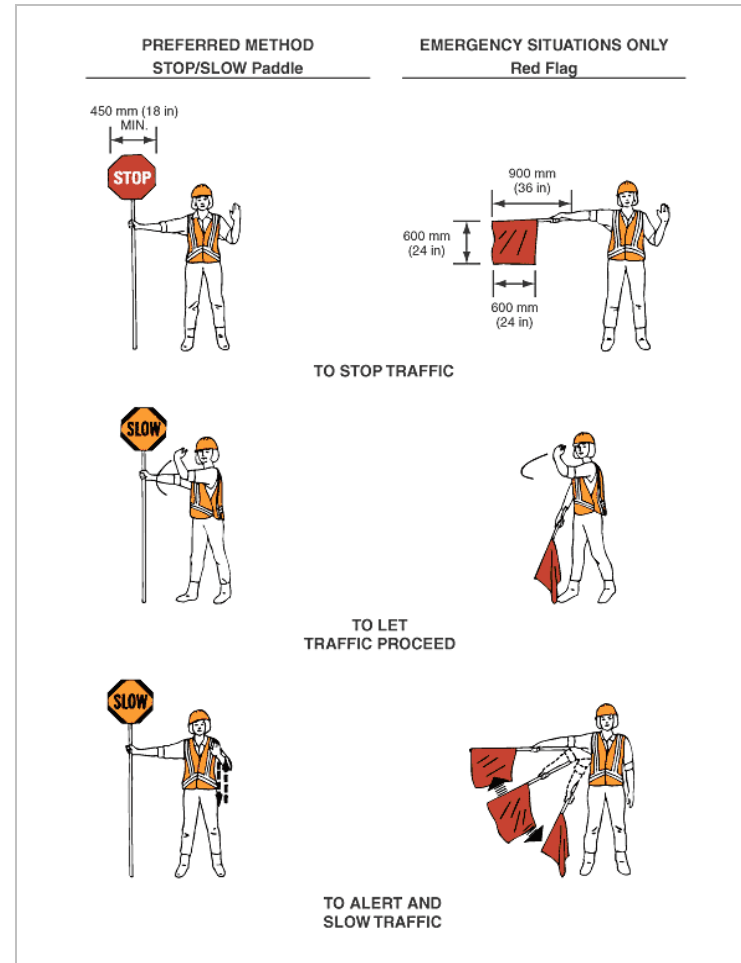
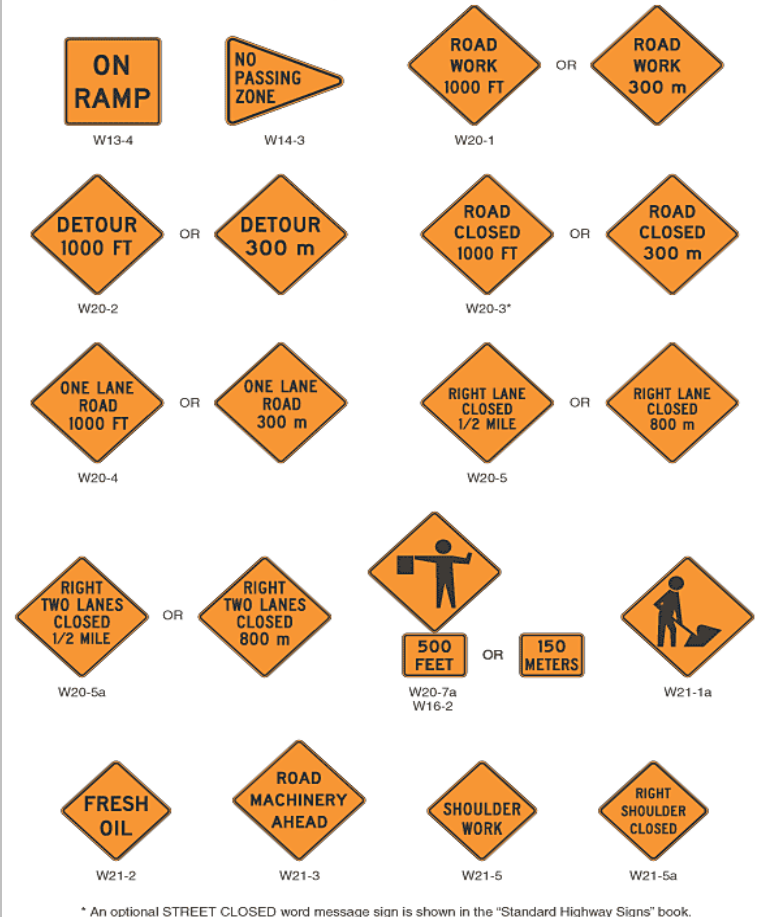
Basic Stock (Background)	Safety Colors (Ink)	Copy Specification (Letters)
White	Red	Do Not Operate
White	Black and Red	Danger
Yellow	Black	Caution
White	Black	Out of Order Do Not Use



# Signs and Signals

1926.201 and MUTCD Part VI

Figure 6F-4. Warning Signs in Temporary Traffic Control Zones  
(Sheet 3 of 4)



# Sign Maintenance

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MUTCD Section 6F.04



# Sign Placement

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MUTCD Section 6F.21 and.15



# Barricades

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1926.202



# New Visibility Requirements

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- This Standards Notice became effective on November 25, 2008.

North Carolina Department of Labor  
Division of Occupational Safety and Health

Raleigh, North Carolina

Field Information System

Standards Notice 73

*Subject.* Requirements for High-visibility Apparel and enforcement of the Federal Highway Administration (FHWA) regulation, 23 CFR 634.

A. **Discussion.**

OSHNC has received inquiries with regards to enforcement of the new Federal Highway Administration (FHWA) regulation, 23 CFR 634, which was effective on November 24, 2008. This standard requires that "all workers within the right of way of a federal-aid highway who are exposed either to traffic (vehicles using the highway for purposes of travel) or to construction equipment within the work area shall wear high-visibility safety apparel" which meets the Class 2 or Class 3 requirements of ANSI/ISEA 107- 2004.

Enforcement authority for this regulation rests with the U. S. Department of Transportation. OSHNC does not enforce 23 CFR 634. However, OSHNC does feel that exceptions for high visibility garments for law enforcement officers, fire fighters and other emergency responders make sense and will address these exceptions in this notice.

OSHNC has adopted by reference Part VI of the Manual on Universal Traffic Control Devices (1988 edition, Revision 3, or Millennium edition) as a part of 29 CFR 1926 Subpart G, *Signs, Signals and Barricades*. In relation to this standards notice, this only applies to construction activities where flaggers are signaling traffic.

OSHNC has not adopted any version of ANSI/ISEA 107 on high visibility garments; however, we recommend that employers use the most current version when determining what high visibility garments are appropriate for their employees.

Additionally, OSHNC has received inquiries about the use of high visibility garments designed and labeled under an older version of the ANSI/ISEA 107 standard when a newer version of the ANSI/ISEA 107 standard changed the labeling requirement. Employers are concerned about replacing garments which still meet the visibility requirements for the class their employees need, but retain a different class label from the older version of the standard. As an example: In ANSI/ISEA 107 – 1999, a sleeveless garment, such as a vest, could be labeled Class 3. In the 2004 version of the standard, this vest by itself can only be used as a Class 3 garment if paired with pants or shorts. Additionally, it can only be labeled as a Class 2 garment.

B. **Interpretation.**

While OSHNC has not adopted ANSI/ISEA 107, OSHNC will use this standard or any other appropriate consensus standard as references when determining what high visibility garments are appropriate.

For high visibility garments labeled under older versions of the ANSI/ISEA 107 standard, OSHNC will not require employers to replace garments simply because the label which

# Flagger PPE

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1926.201(a)

- Signaling by flaggers and the use of flaggers, including warning garments worn by flaggers shall conform to Part VI of the MUTCD.



**Flaggers**

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- **High-visibility 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” or equivalent revisions, and labeled as ANSI 107-1999 standard performance for Class 1, 2, or 3 risk exposure.



# Flagger PPE

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ISEA

- High-visibility safety apparel



**Class 3**



**Class 2**

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# Flagger Safety

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- **Flaggers should:**

- Stay alert
- Stand alone in clear view
- Plan escape route for emergencies
- Stay in communication with other flaggers
- Treat motorists with respect
- Be sure the motorists understand the flow of traffic



# Flagger Safety

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What's wrong in this picture?



# Flagger Safety

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- **Flaggers should not:**

- Turn your back on traffic
- Step in front of any vehicle
- Assume a vehicle is going to stop
- Stand where you can be crushed by equipment
- Stand over the crests of a hill
- Stand around sharp curves
- Stand where not visible to motorist or other equipment operators



# Flagger Safety

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What's wrong in these pictures?



# Employer's Responsibility

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- **On the worksite:**
  - Always keep other workers in mind
  - Set up a means of communication with workers around you
  - Never allow unauthorized workers to ride on equipment



# Employer's Responsibility

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- **Know the JOB!**

- Know the internal traffic control plan
- Know the work zone and your position in it
- Use designated equipment routes and areas
- Identify rollover hazards such as unlevelled areas, embankments, and unstable soil



# Employee's Responsibility

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- Put into practice ALL training provided by the employer
- ALWAYS wear high visibility clothing and other PPE as required

