Welcome!!

Temporary Traffic Control During Maintenance and Short Duration Activities

Training Course

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About This Course

- This material is based upon work supported by the Federal Highway Administration (FHWA) under grant agreement No. DTFH61-06-G-00004

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Course Objectives

- After completing this course you should be able to:
  - **Apply** workable concepts, techniques and practices in the installation and maintenance of traffic control devices during maintenance and short duration activities
  - Make these operations **safer** for workers, motorists and pedestrians

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Course Materials

- Course notebook
- *Manual on Uniform Traffic Control Devices*
- Flagging Handbook
- *Quality Guidelines*
- Pencil
- Tent name sign

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Exam

- **25 True/False questions @ 4 points each = 100 pts**
- Open book, open notes
- 30 minute time limit
- Passing score: **80%**

EXAM

TTC During Short Duration Activities

Introduction
Standards
Components
Devices
Applications
Workshop

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Module Objectives

- Define Temporary Traffic Control (TTC)
- Define "maintenance and short duration" activities
- Quantify the traffic safety problem in the USA

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Why is Temporary Traffic Control Important?

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Maintenance and Short Duration Activities (MSDA)

- Work that occupies a location (within a roadway's right-of-way) for up to 1 hour
- Can impact traffic safety and mobility

Same TTC standards apply!!

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Typical MSDA

- Maintenance
- Tree care
- Utility work
- Mowing and cleaning
- Surveying
- **ANY OTHER WORK WITHIN THE R-O-W**

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MSDA Requiring TTC May Occur..

- On the roadway
- On the shoulder
- Beyond the shoulder
  - Right-of-way (ROW)

Maintenance and short duration activities are subject to the same temporary traffic control standards as any other work zone

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We Can Reduce the Number of Crashes in Work Zones!!!

Through Effective Temporary Traffic Control!

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MSDA That Affect Traffic Can Occur on the:

- Roadway
- Shoulder
- Within the right-of-way

The location of the work is a major factor in determining the appropriate traffic control!

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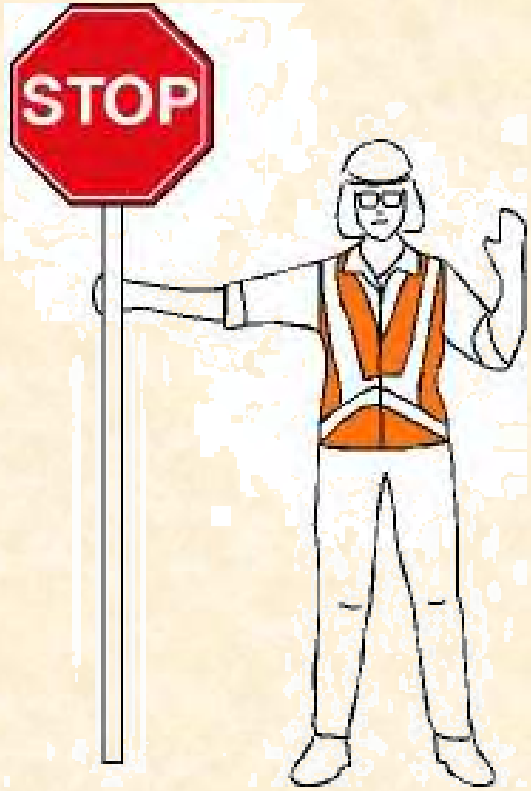
How Do We Make MSDA Safer?



- **Use standard devices and procedures**
- **Improve communication with road users to:**
  - Eliminate uncertainty
  - Allow more time for decision-making

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Safety should not be compromised!!

- By using fewer devices
- Because the operation will frequently change its location
- Because of its short duration
- Because of lack of enforcement or inspectors

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During MSDA..

- It may take longer to setup the temporary traffic control than to perform the work
- Workers face the same hazards
- The setup may increase motorists' delay

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Considering Those Factors..

- ***Simplified control procedures*** may be warranted for MSDA
- A reduction in the number of devices ***may*** be offset by using more dominant devices such as
  - Rotating lights
  - Strobe lights on work vehicles

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Fundamentals of MSDA Traffic Control

- The ABCs:
  - Provide advance warning
  - Be visible and alert
  - Be in control

Apply them before the work begins!

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Module Recap

- Approximately, how many people die work zones in the USA every year?
- How do we make work zones safer?
- What does effective traffic control do for the motorists?
- Traffic safety is important for:?

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Components
Devices
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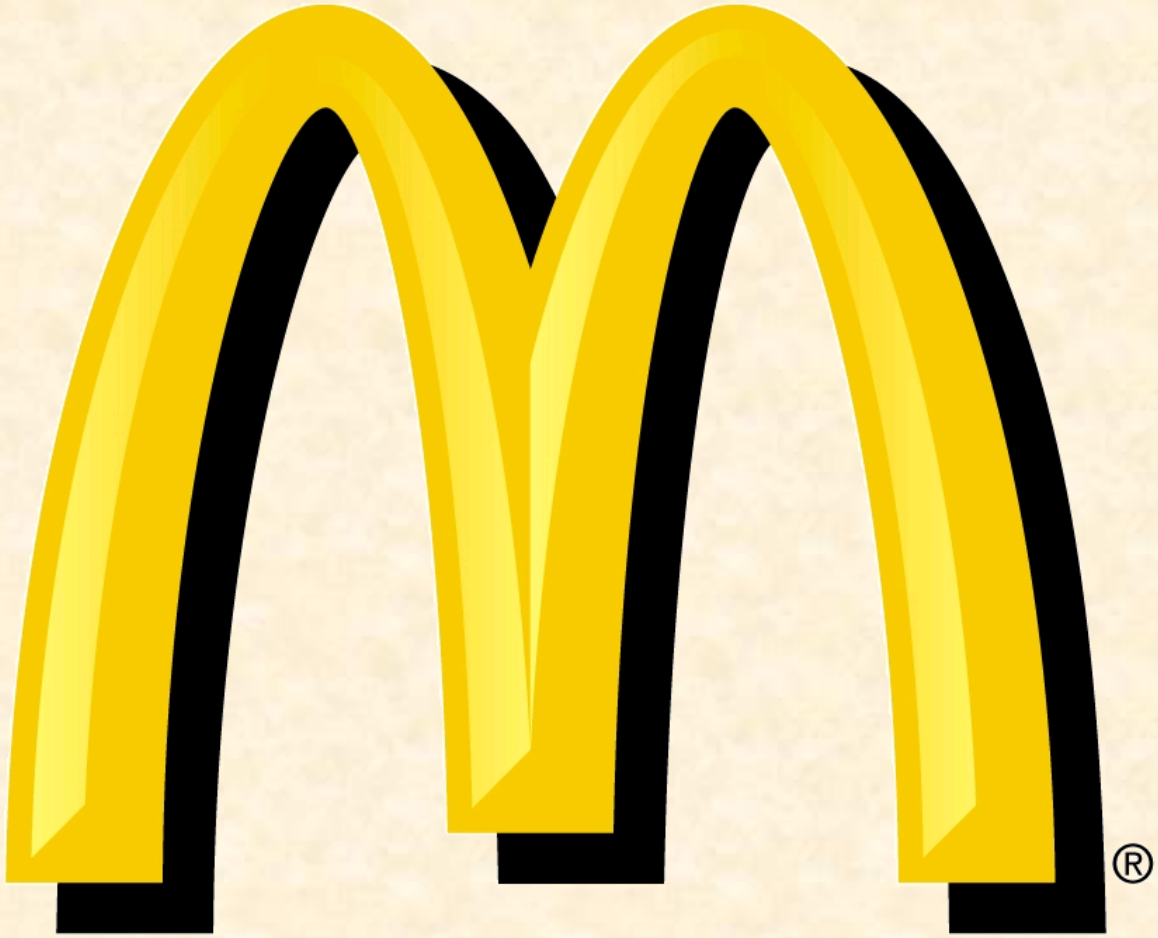
Module Objectives

- Explain the importance of standards
- Discuss Federal and State standards and their relationship
- Define levels of compliance

Recognize this Standard Symbol?



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Uniformity through standards promotes:

- Recognition and understanding
- Consistent interpretation
- More rapid driver response
- Motorist respect
- Reduced traffic control cost

Uniform treatment leads to uniform response!

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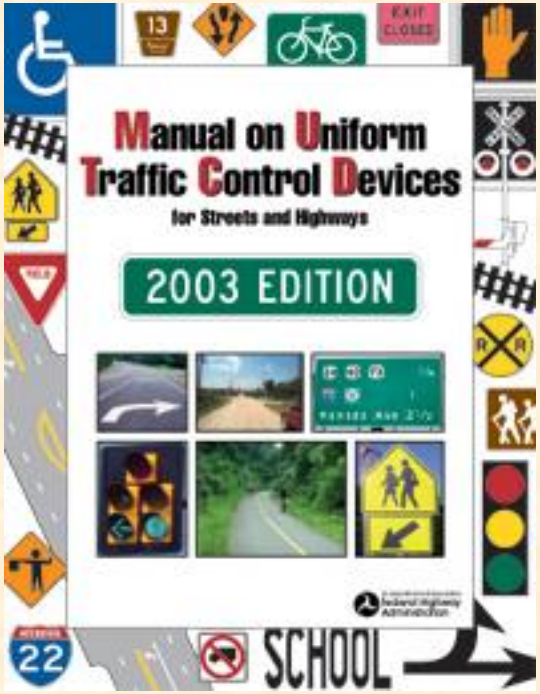
Where are Federal TTC Standards & Guidelines Found?

Manual on
Uniform
Traffic
Control
Devices

FOR STREETS & HIGHWAYS



"The Manual"
"The MUTCD"

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The MUTCD Applies to MSDA!

"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 TTC zone ***shall*** *be an essential part of highway construction,* ***utility work, maintenance operations****, and the management of traffic incidents."*

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The MUTCD Applies to MSDA!

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

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Module Recap

- Why is uniformity important?
- Where do we find Federal TTC standards and guidelines?
- Can States have their own standards?
- Do these standards apply to MSDA?
- Which one governs?

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Introduction
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Applications
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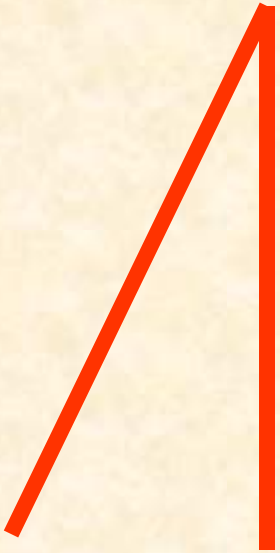
Module Objectives

- Define temporary traffic control zone
- Describe its four component parts
- Discuss the requirements of each

What is a Taper?

- A series of channelizing devices (and sometimes pavement markings) placed on an angle to move traffic out of its normal path



"A gradual increase or decrease"
"A gradual transition"

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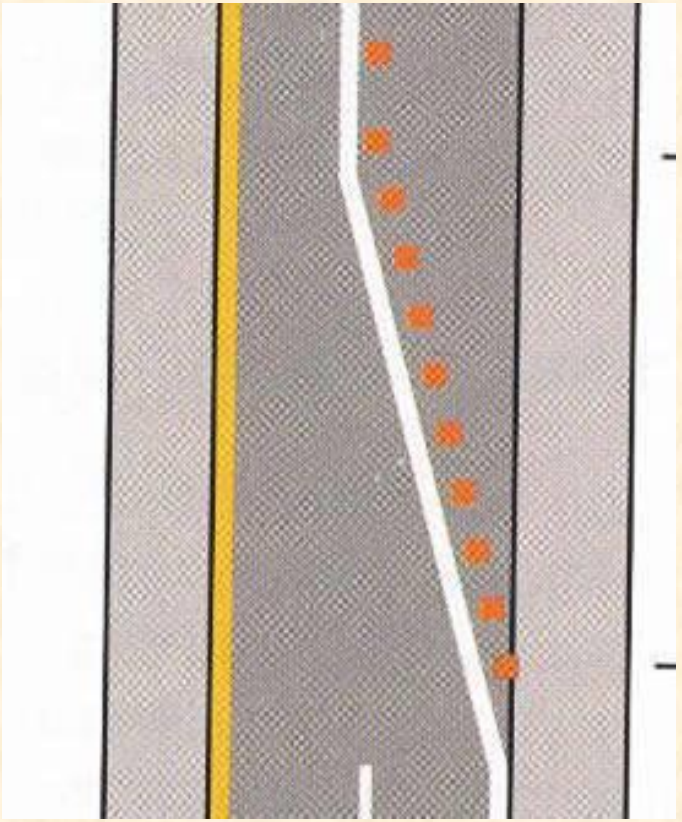
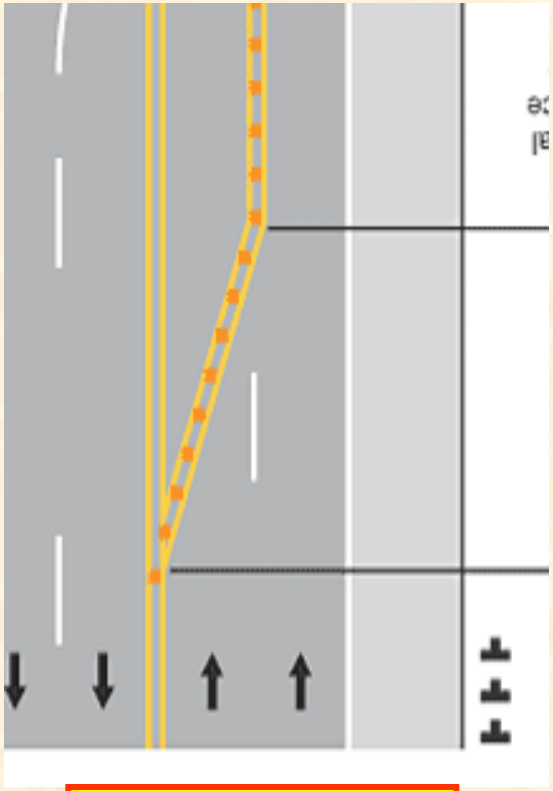
Tapers in TTCZ

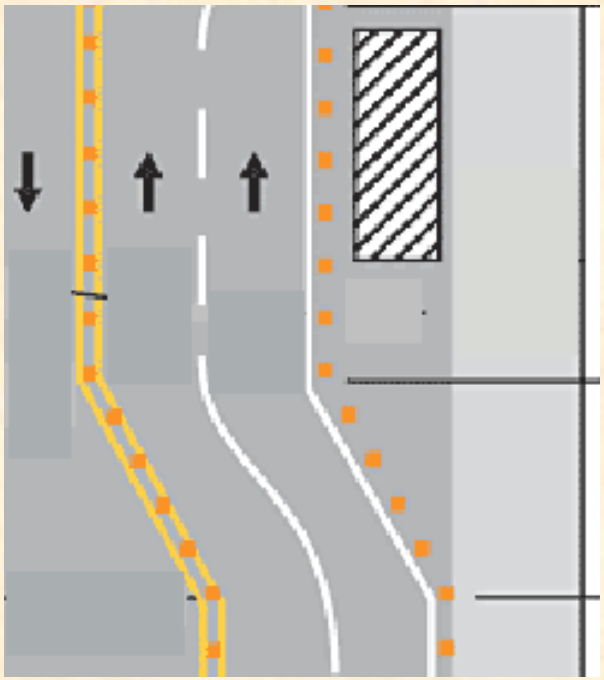
- A line of channelizing devices
- Move traffic from its normal path
- May be used both in the transition and termination areas



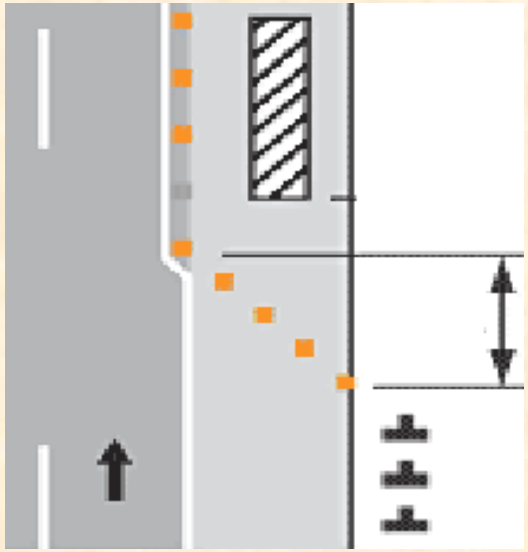
Types of Tapers



Merging



Shifting



Shoulder

Min. Length (L) of a MERGING Taper

L = WS (45 mph or more)

L = (WS²)/60 (40 mph or less)

Where:

L = length of the MERGING taper in ft;

W = width lateral displacement in ft;

S = Speed in mph

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Other Taper Lengths

- Shifting Taper = 1/2 L
- Shoulder Taper = 1/3 L
- One-Lane, Two-Way Taper = 100 feet MAXIMUM
- Downstream taper = 100 feet MINIMUM (per lane reopened)

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Longitudinal Buffer Space

- Recovery area for errant vehicles
- Protects **BOTH** workers & motorists
- **COMPLETELY** empty
  - No vehicles, equipment or materials
- Provide a buffer space unless you have a documented reason not to

Based on stopping sight distances

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Termination Area

- Resume normal driving
- May contain (optional):
  - **END ROAD WORK**
  - Downstream taper
    - Min. 100 ft. per lane reopened

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Module Recap

- What is the definition of a TTC zone?
- Name the four component parts of a TTC zone
- Which devices are used in the advance warning area?
- What do you need to know to determine the length of the buffer space?

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TTC During Maintenance and Short Duration Activities

Introduction
Standards
Components
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Module Objectives

- Define traffic control devices and their requirements
- Discuss signs, channelizing devices, and their requirements

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Devices Applicable to MSDA

- Signs
- Channelizing devices
  - Cones
  - Tubular markers
- Truck-mounted attenuator (TMA)
- Others?

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Categories of Signs

- Regulatory (R)
- Warning (W)
- Guide (G)

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Guide Signs

- Design standards
  - Rectangular
  - Color depends on use
    - White on green
    - Black on orange
    - White on brown
    - White on blue

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Height of Signs on Portable Supports

1 ft. min. to the elevation of the adjacent traveled way

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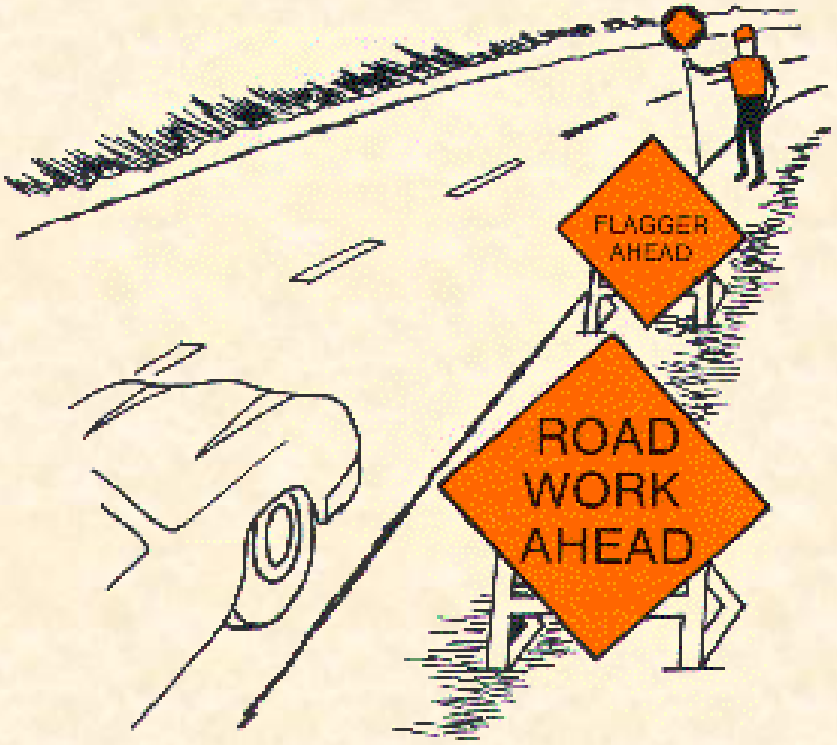
Sign Spacing

- Increases with speed
- Depends on the type of road
  - Urban
  - Rural
  - Expressways and freeways



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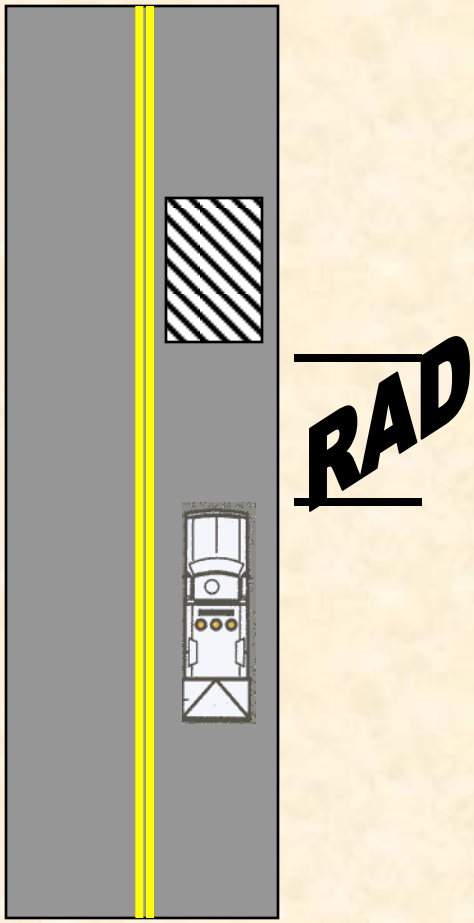
Cones

- Predominantly orange
- Limited to short duration projects
- Meant to be attended

"Roll-Ahead Distance"

- The distance a TMA will displace when impacted
- It depends on
  - Weight of TMA
  - Speed of impact
  - Weight of impacting vehicle



Check with the manufacturer!

Module Recap

- What are the requirements of TCDs?
- What is retroreflectivity?
- Can signs be left up when not applicable?
- Can cones be used at night?
- How do you determine the maximum spacing between cones?

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Standards
Components
Devices
Applications
Workshop

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Module Objectives

- Discuss the implementation of TTC standards and guidelines in the field
- Discuss typical applications applicable to MSDA

Before Designing Your Traffic Control Plan

- Plan in advance
- Know the site conditions before you go out to the job
- Use the **PLAN** method

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Follow the PLAN Method

P *REVIEW*

L *AYOUT*

A *NALYZE*

N *AVIGATE*

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1. Preview

- Determine the exact location of the work site
- Make careful observations about the work site
- Look for potential problem areas
- Might need more control than originally planned

2. Layout

- Start from a typical application from the MUTCD or State/local TA's, standards and guidelines
  - Will cover these later
- Adjust to field conditions

Typical Applications Common to MSDA

- Some from Part 6 of the MUTCD
- Use as a starting point
- Also look at local standards and requirements
  - Particularly permits
- Adjust to field conditions
- Common practices are included

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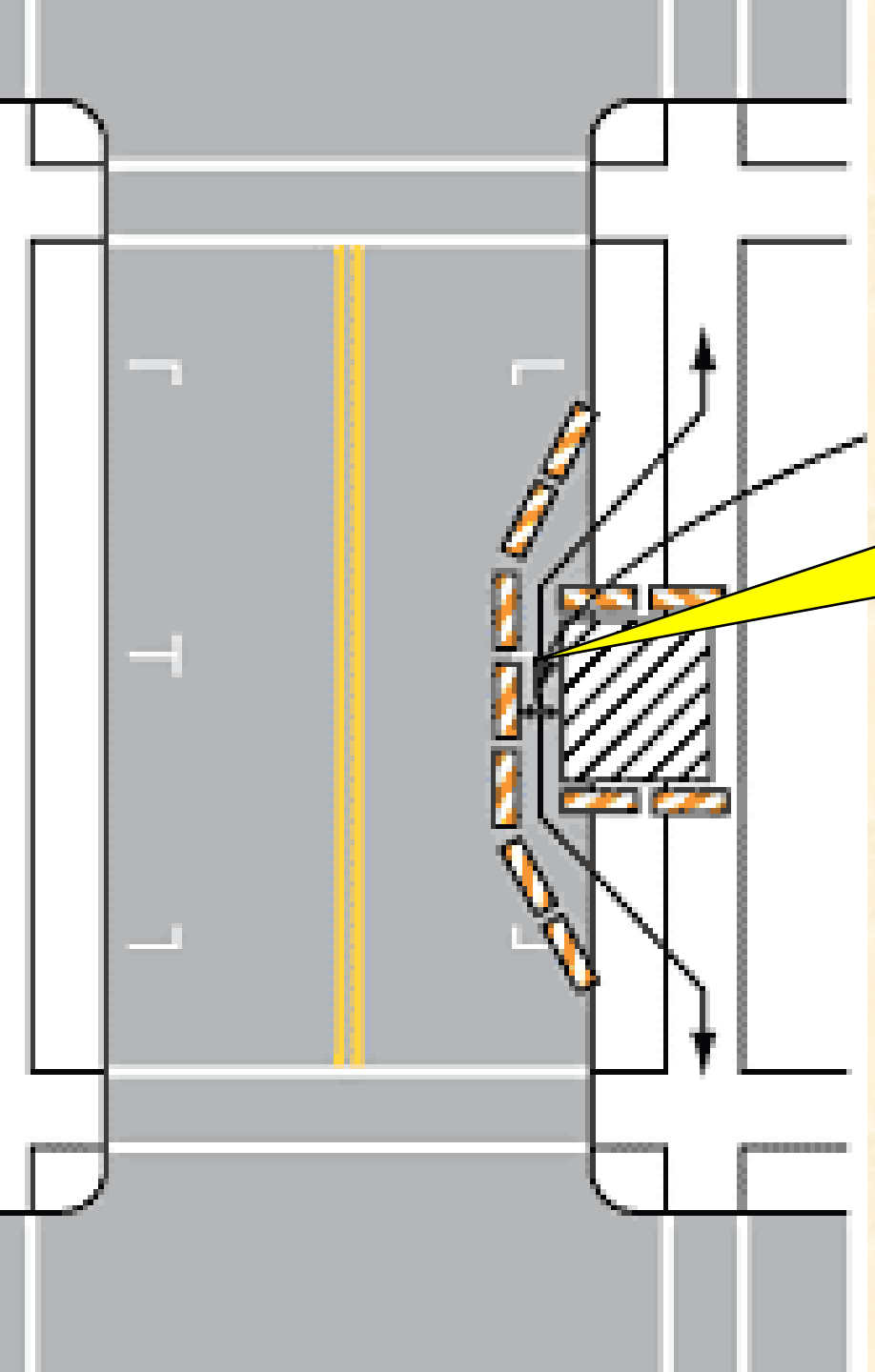
Typical Applications Common to MSDA

1. Single flagger operations
2. Lane closure on a two-lane, two-way road
3. Work beyond the shoulder
4. Work on shoulders
5. Work within an intersection
6. Work vehicles parked in roadways

ADA-Compliant



48″
MIN.

New in 2003 MUTCD

Americans with Disabilities Act

Sidewalk Maintenance Can Affect Pedestrian Access By..

- Failing to provide a continuous path
- Not providing adequate warning
- Placing potentially dangerous equipment close to them
- Failing to ensure that visually impaired people can detect and avoid hazards

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Sidewalk Work Can Affect Pedestrian Access By..

- Not providing a safe and accessible alternative route around the work area
- Blocking access

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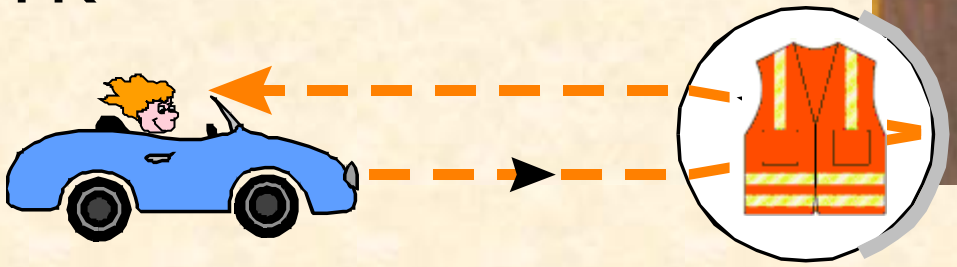
High-Visibility Safety Apparel

- ANSI 107 Class 2 required for **ALL** workers within the right-of-way
- MUTCD recommends Class 3 for nighttime work



3. Analyze

- Look at all your options
- Channelizing devices may be needed to meet the "visibility" requirement

P REVIEW

L AYOUT

A NALYZE

N AVIGATE

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4. Navigate

- From the driver's point of view
- Walk or drive-through yourself
- Make adjustments if needed and authorized
- Document changes

Use common sense to make adjustments & ask your supervisor!!

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Remember

- **Safety** is an important element of maintenance and short duration activities
  - Even where to park a work vehicle is important!
- Use good traffic control to warn and guide motorists
- Follow the **PLAN** method

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Module Recap

- What is the PLAN method?
- Where should a flagger be in a single flagger situation?
- What's the clear zone? Dropoff?
- What is advance notification of sidewalk closures?

Course Schedule

Introduction
Standards
Components
Devices
Applications
Workshop

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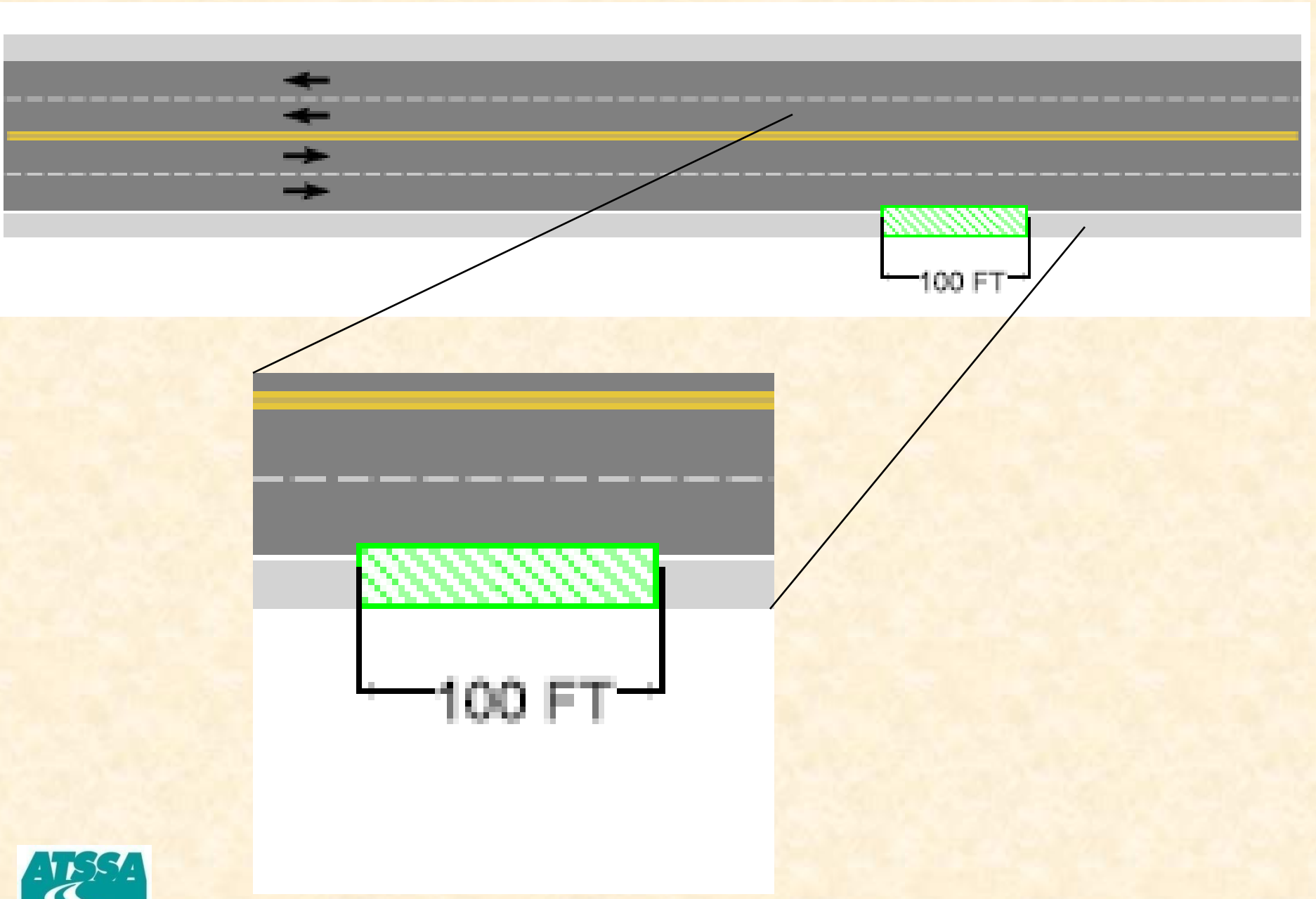
Module Objectives

- Apply the concepts learned to a real-world scenario

WORKSHOP

- Refer to the workshop drawing and the scenario provided
- Let’s read it together!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END OF COURSE

Introduction
Standards
Components
Devices
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Module Objectives

- Discuss the "Bottom Line"
- Review the "Parking Lot"
- Review course objectives
- Complete course evaluation form
- Take exam
- Adjourn!

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The Bottom Line

- Are your maintenance and short duration activities as safe as they can be for workers, motorists and pedestrians?
- **If not, YOU CAN MAKE A DIFFERENCE!!**

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Course Objectives

- You should **NOW** be able to:
  - **Apply** workable concepts, techniques and practices in the installation and maintenance of traffic control devices during maintenance and short duration activities
  - Make MSDA **safer** for workers, motorists and pedestrians

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Exam

- 25 True/False questions @ 4 points each
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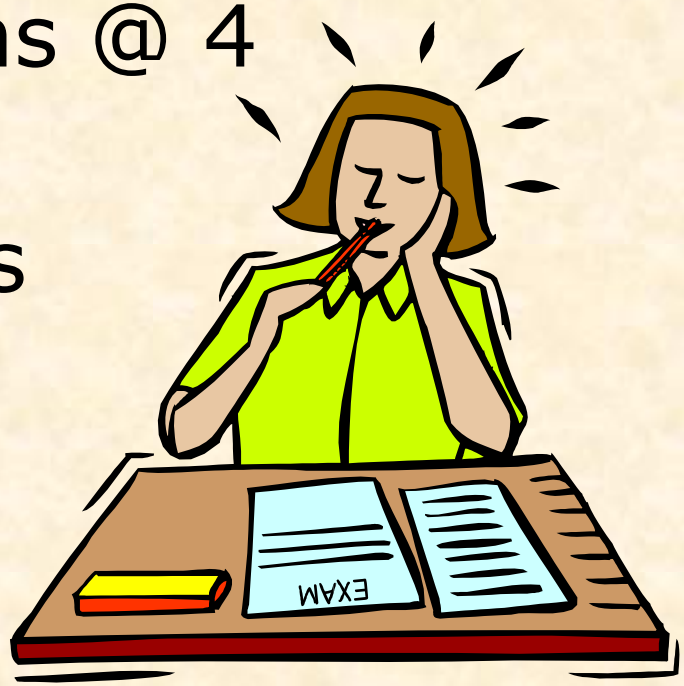

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After The Exam

- Return both the exam and answer sheet
- Return evaluation form

Good Luck!

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