Temporary Traffic Control for Short Term Work

How to Stay Safe When Your Are Only Going To Be There for a Few Minutes

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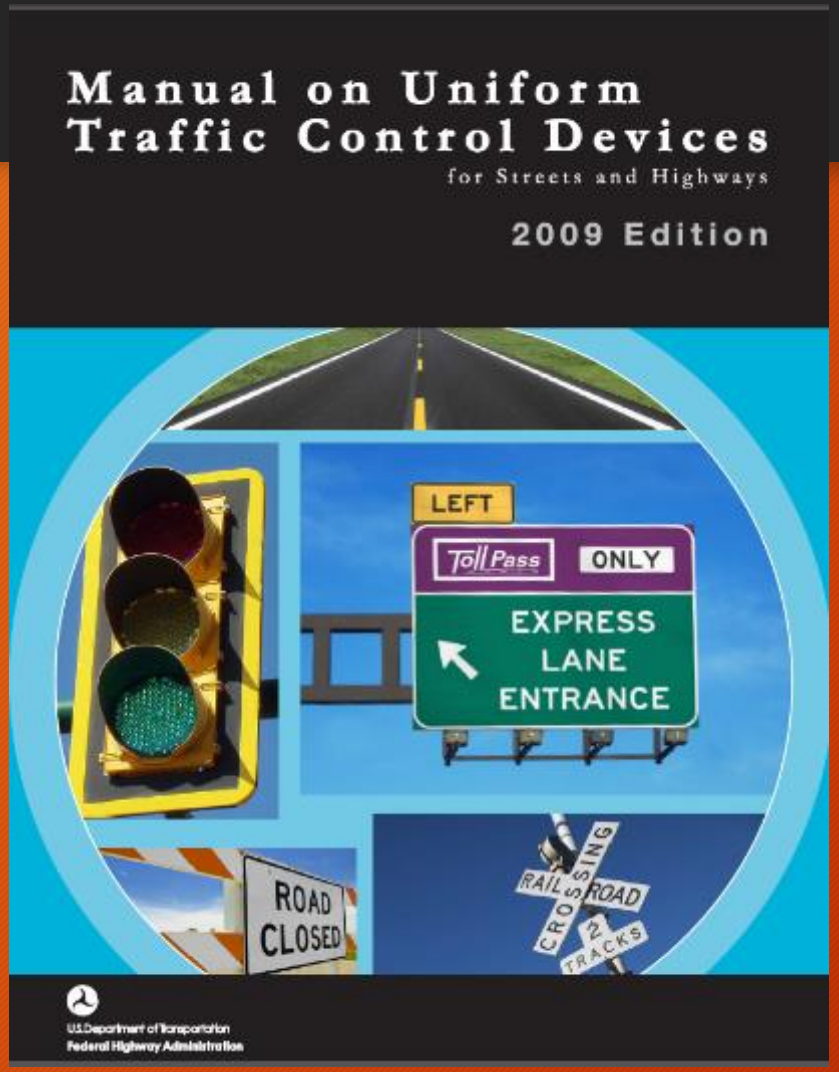
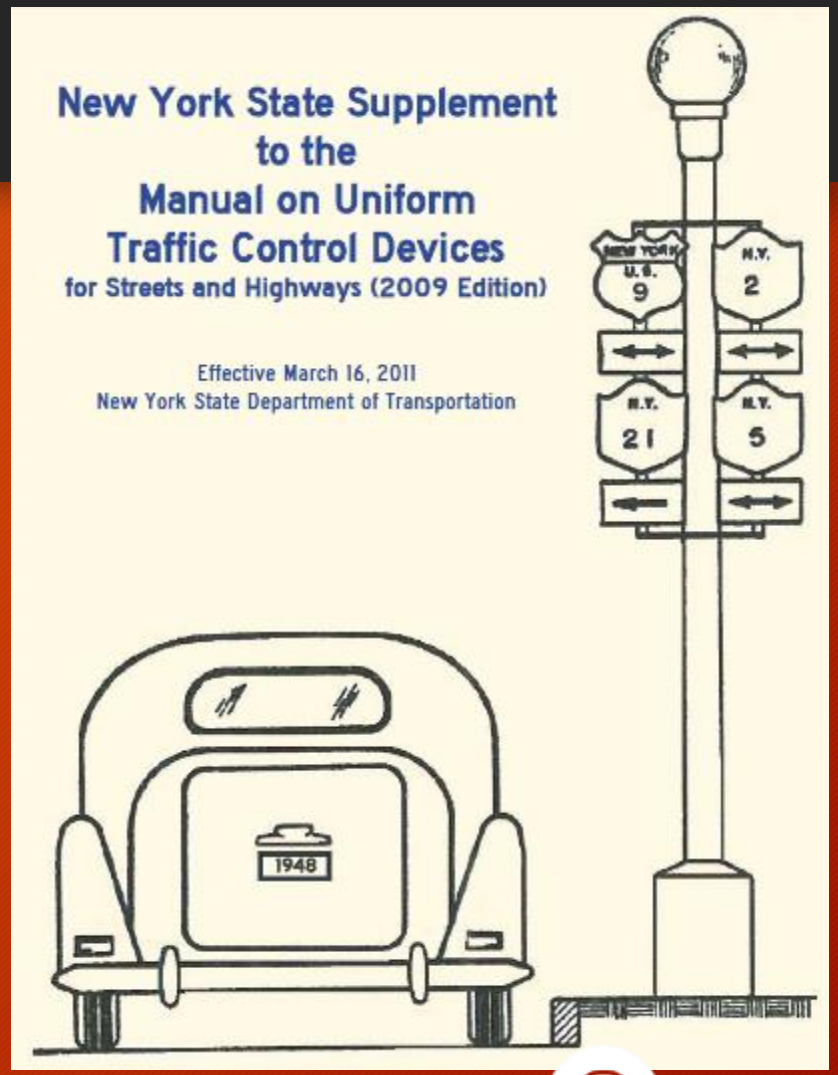
MUTCD





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Maintenance and Protection of Traffic

- Regulatory Signs

R1-1

R1-2

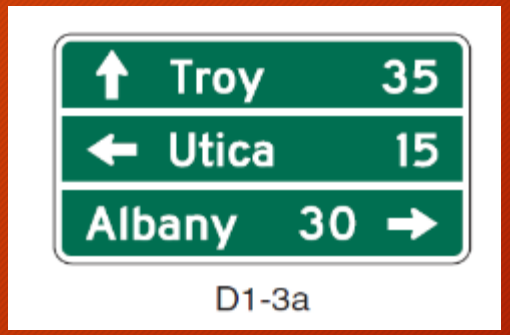
R2-1

- Warning Signs

W3-1

W1-2

D3-1



D1-3a

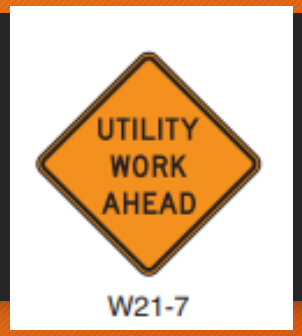
- Guide Signs
- Informational Signs

Interstate Route Sign
M1-1

U.S. Route Sign
M1-4

County Route Sign

Temporary Traffic Control Signs



Temporary Traffic Control Plan

- Give advance notice
  - Allow for driver error / inattention
    - Move traffic away from hazards
      - Move traffic away from workers

Temporary Traffic Control
(AKA Work Zone Traffic Control)

- Why is it important?

SAFETY!!!

- Everyone wants to go home at the end of the day!

Goals of Temporary Traffic Control

- Avoid Surprises to Traffic
- Minimize Traffic Movement Deviation
- Guide Traffic in a Clear & Positive Manner
- Reduce Traffic Speeds
- Be Well Delineated to Accommodate Traffic Speeds

What is a Typical TTC Zone?

- Consists of 5 Main Parts

Advance Warning

- Gives Advance Notice

Table 6C-1. Recommended Advance Warning Sign Minimum Spacing

Road Type	Distance Between Signs**		
	A	B	C
Urban (low speed)*	100 feet	100 feet	100 feet
Urban (high speed)*	350 feet	350 feet	350 feet
Rural	500 feet	500 feet	500 feet
Expressway / Freeway	1,000 feet	1,500 feet	2,640 feet

Signs should be turned or Covered when not in use!

Buffer Space

- Placed in advance of work area
- Provide a recovery area
- May be longitudinal or lateral
- Depends of stopping distances based on Speed

Table 6C-2. Stopping Sight Distance as a Function of Speed

Speed*	Distance
20 mph	115 feet
25 mph	155 feet
30 mph	200 feet
35 mph	250 feet
40 mph	305 feet
45 mph	360 feet
50 mph	425 feet
55 mph	495 feet
60 mph	570 feet
65 mph	645 feet
70 mph	730 feet
75 mph	820 feet

* Posted speed, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed

Short Term Work

- Marking Work
- Marking Utilities
- Surveying
- Inspections
- ???

- Always Assume Work Will Take Longer Than You Think

Short Term Work Safety

- Paint Wand

Short Term Work Safety

- Well Lit Vehicle Lights

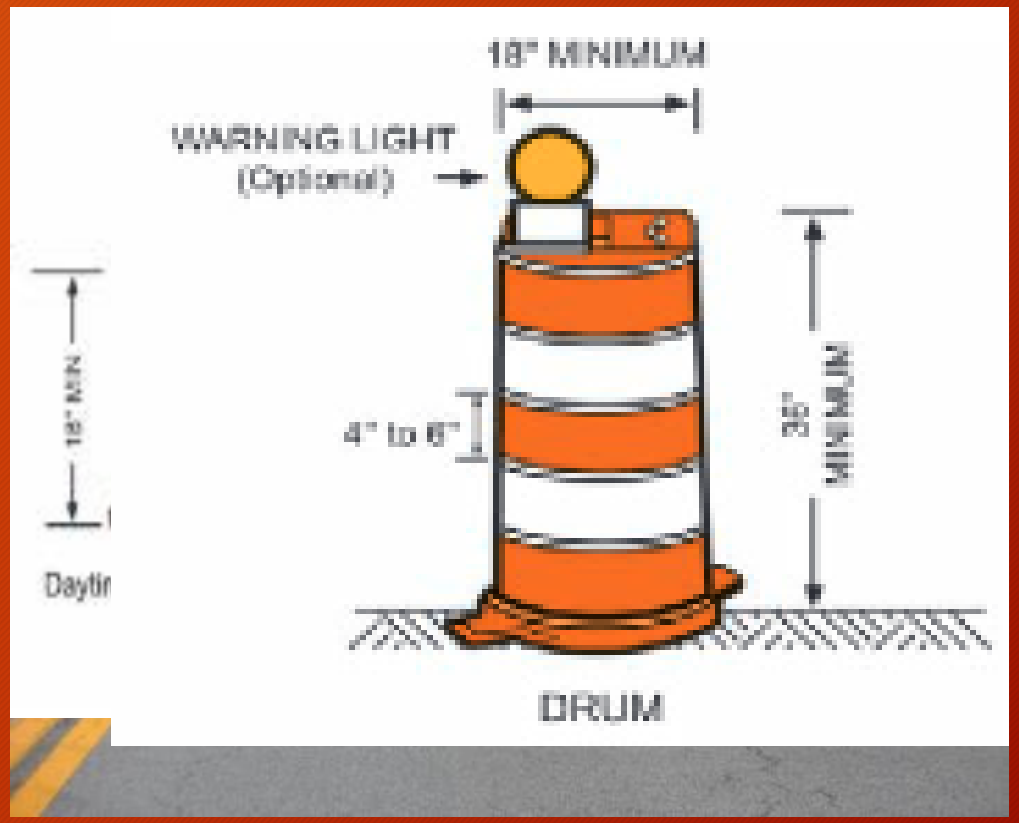
Short Term Work Safety

- Proper Personal Protective Equipment
  - Vest: Class 2 or 3

Sho

Short Term Work Safety

- Channeling Devices
  - Cones:
    - Min. 18”- Max: 28
    - Clean
    - Sufficient Number
    - Retroreflectorized for Night Use
  - Barrels:
    - 36” Tall Min.
    - 18” Wide Min.
    - 4” – 6” Stripes



Short Term Work Safety

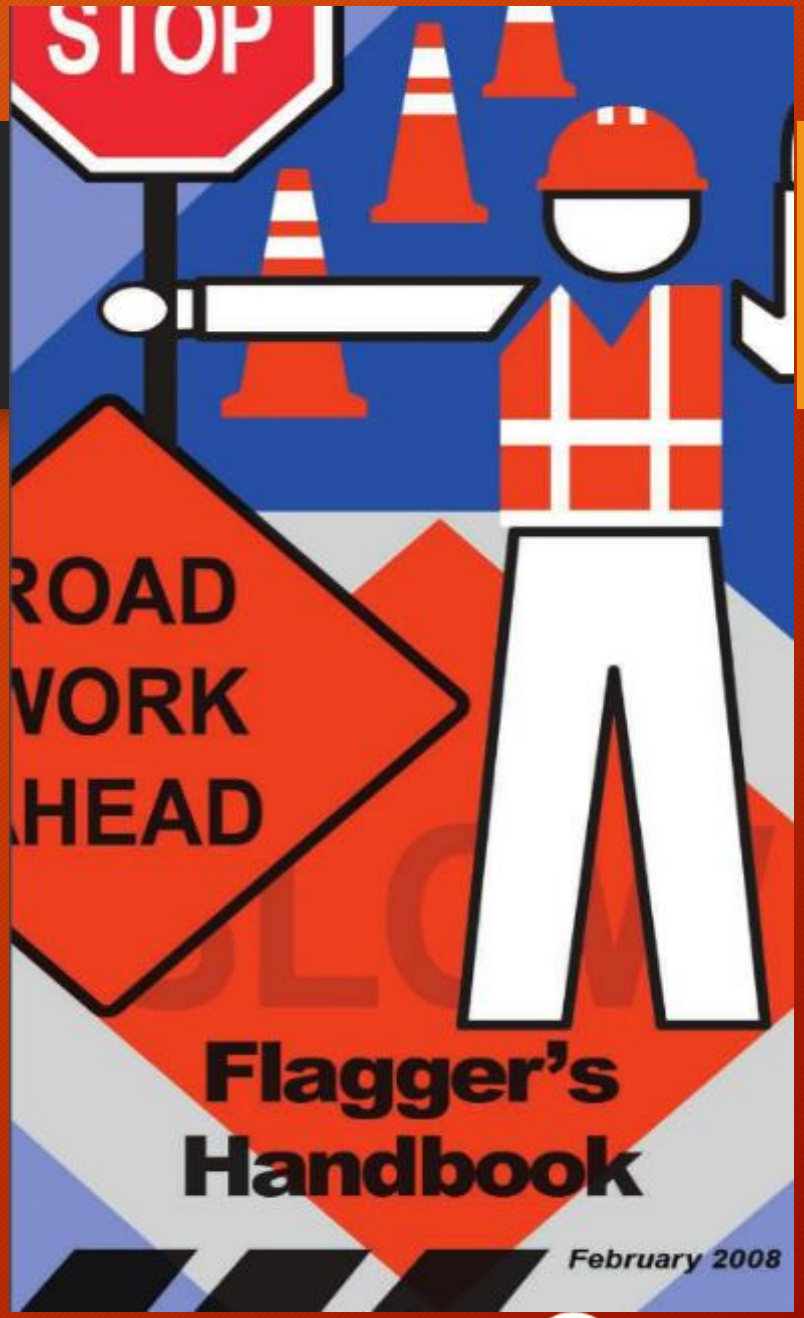
- Channeling Devices
  - Taper:
    - Min. 6 Cones
    - Spacing: Equal in feet to Speed Limit
  - Buffer/Work Areas
    - Spacing: Max. 2x's the Speed Limit
    - Urban: Equal in feet to Speed Limit

Number of Channelizing Devices Needed

Length (ft)	35 MPH		45 MPH		55 MPH	
	Taper	Buffer/ Work	Taper	Buffer/ Work	Taper	Buffer/ Work
100	6	2 - 3	6	2 - 3	6	2 - 3
150	6	3 - 5	6	2 - 4	6	2 - 3
200	7	3 - 6	6	3 - 5	6	2 - 4
250	9	4 - 8	7	3 - 6	6	3 - 5
300	10	5 - 9	8	4 - 7	7	3 - 6
350	11	5 - 10	9	4 - 8	8	4 - 7
400	13	6 - 12	10	5 - 9	9	4 - 8
450	14	7 - 13	11	5 - 10	10	5 - 9
500	16	8 - 15	13	6 - 12	11	5 - 10
550	17	8 - 16	14	7 - 13	11	5 - 10
600	19	9 - 18	15	7 - 14	12	6 - 11
650	20	10 - 19	16	8 - 15	13	6 - 12

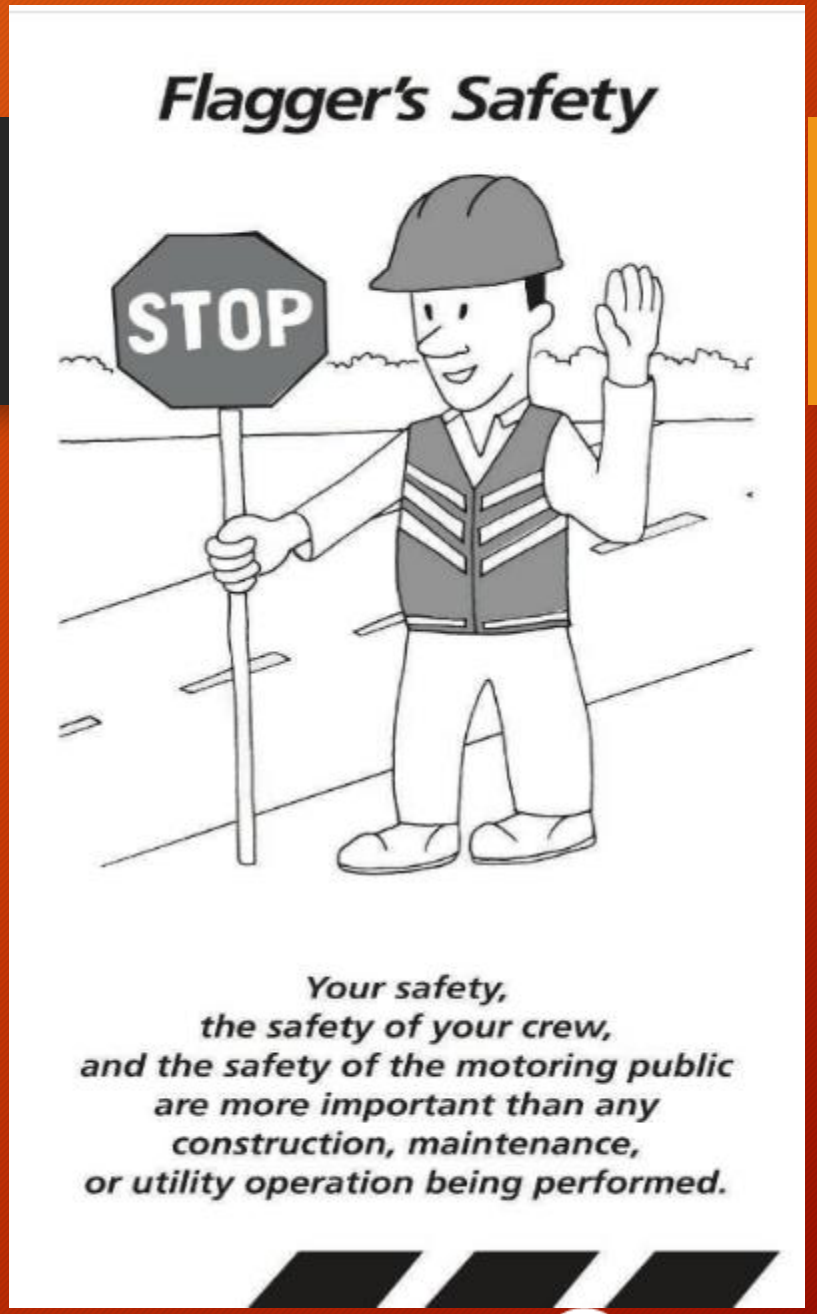
Short Term Work Safety: Flagging

- Basic Functions
- Equipment
- Appearance
- Advanced Warning Signs
- Where to Stand
- Single vs Double Flaggers
- Do’s and Don’ts
- Flagging Procedures



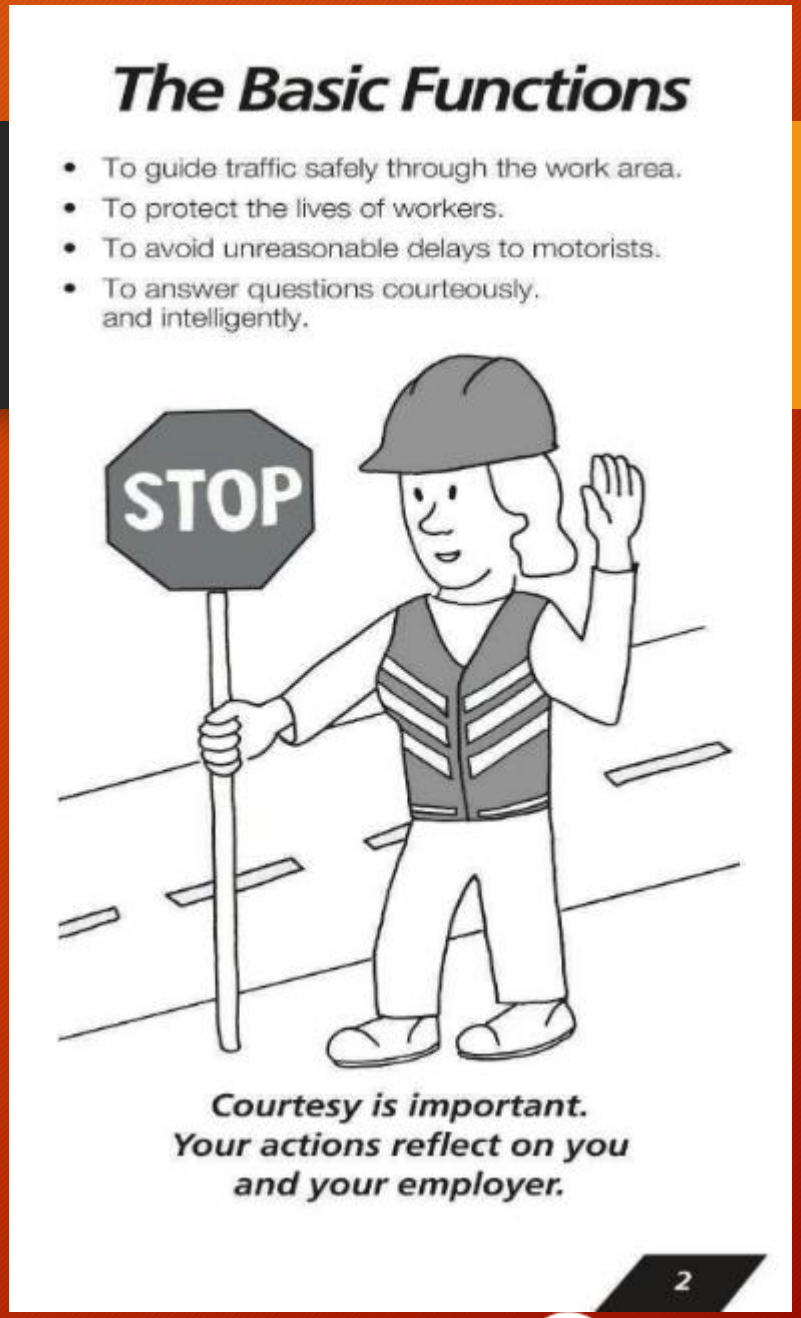
Short Term Work Safety: Flagging

Your safety, the safety of your crew, and the safety of the motoring public are more important than any construction, maintenance, or utility operation being performed.



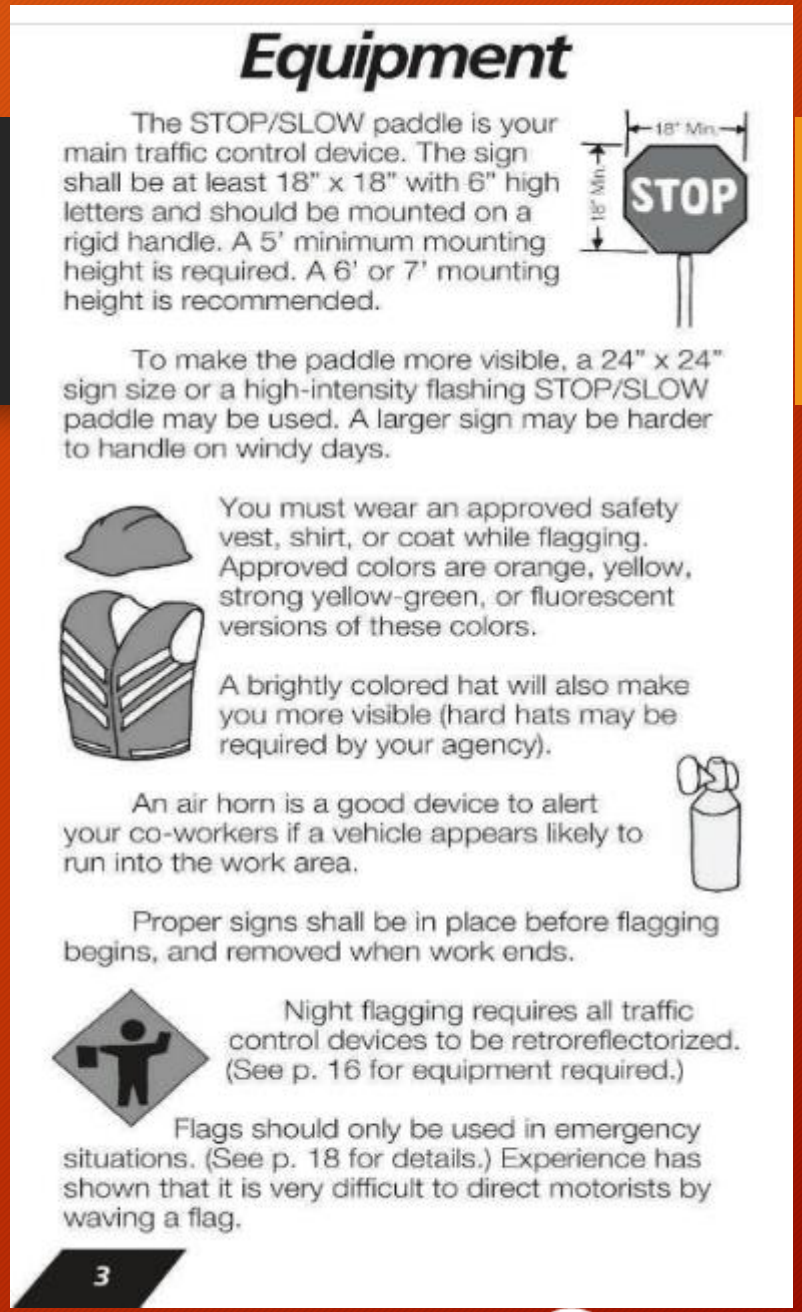
Short Term Work Safety: Flagging

- Guide Traffic Safety
- Protect Workers
- Avoid Unreasonable Detours
- Answer Questions



Short Term Work Safety: Flagging

- STOP/SLOW Paddle
- Safety Vest
- Air Horn/Whistle
- Signs
- Flags



Equipment

The STOP/SLOW paddle is your main traffic control device. The sign shall be at least 18" x 18" with 6" high letters and should be mounted on a rigid handle. A 5' minimum mounting height is required. A 6' or 7' mounting height is recommended.

To make the paddle more visible, a 24" x 24" sign size or a high-intensity flashing STOP/SLOW paddle may be used. A larger sign may be harder to handle on windy days.

You must wear an approved safety vest, shirt, or coat while flagging. Approved colors are orange, yellow, strong yellow-green, or fluorescent versions of these colors.

A brightly colored hat will also make you more visible (hard hats may be required by your agency).

An air horn is a good device to alert your co-workers if a vehicle appears likely to run into the work area.

Proper signs shall be in place before flagging begins, and removed when work ends.

Night flagging requires all traffic control devices to be retroreflectorized. (See p. 16 for equipment required.)

Flags should only be used in emergency situations. (See p. 18 for details.) Experience has shown that it is very difficult to direct motorists by waving a flag.

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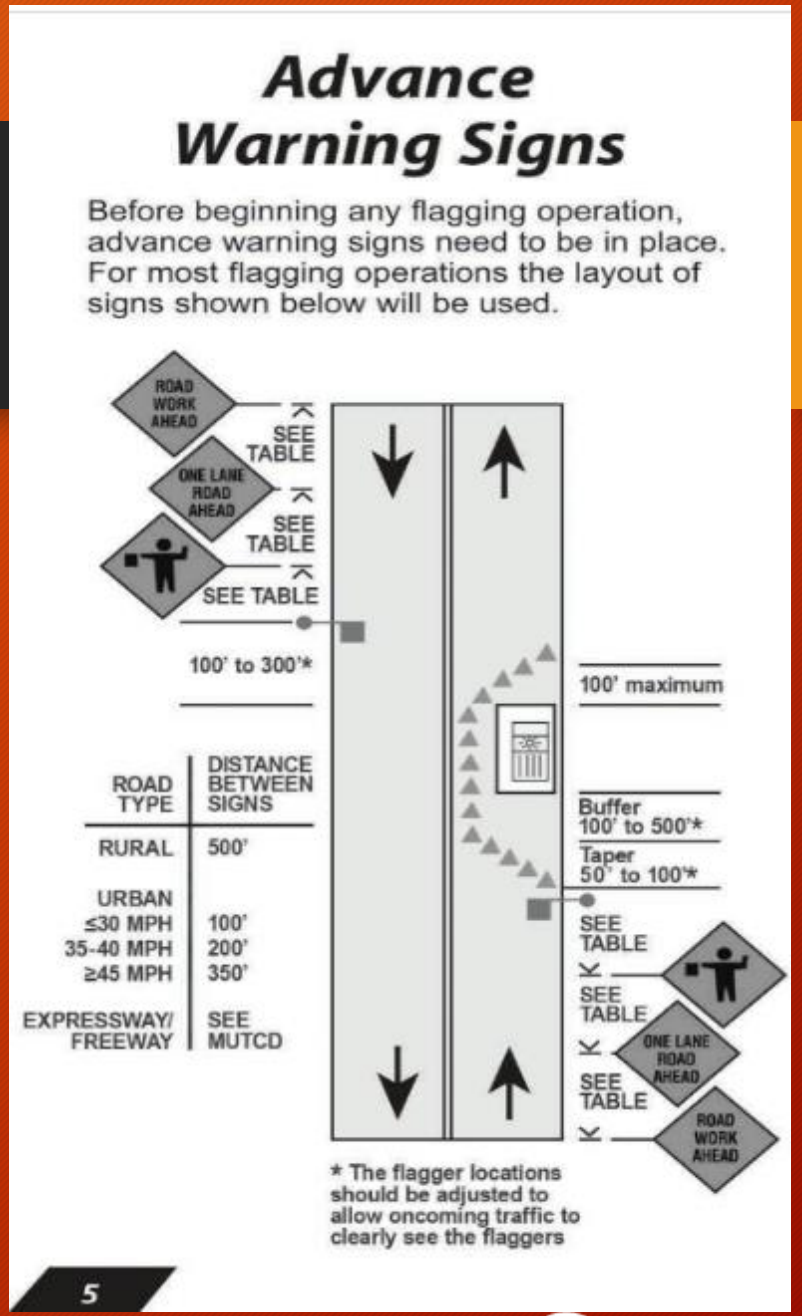
Short Term Work Safety: Flagging

- Clean & Neat
- Not Distracting
- Entertainment
- Good shoes

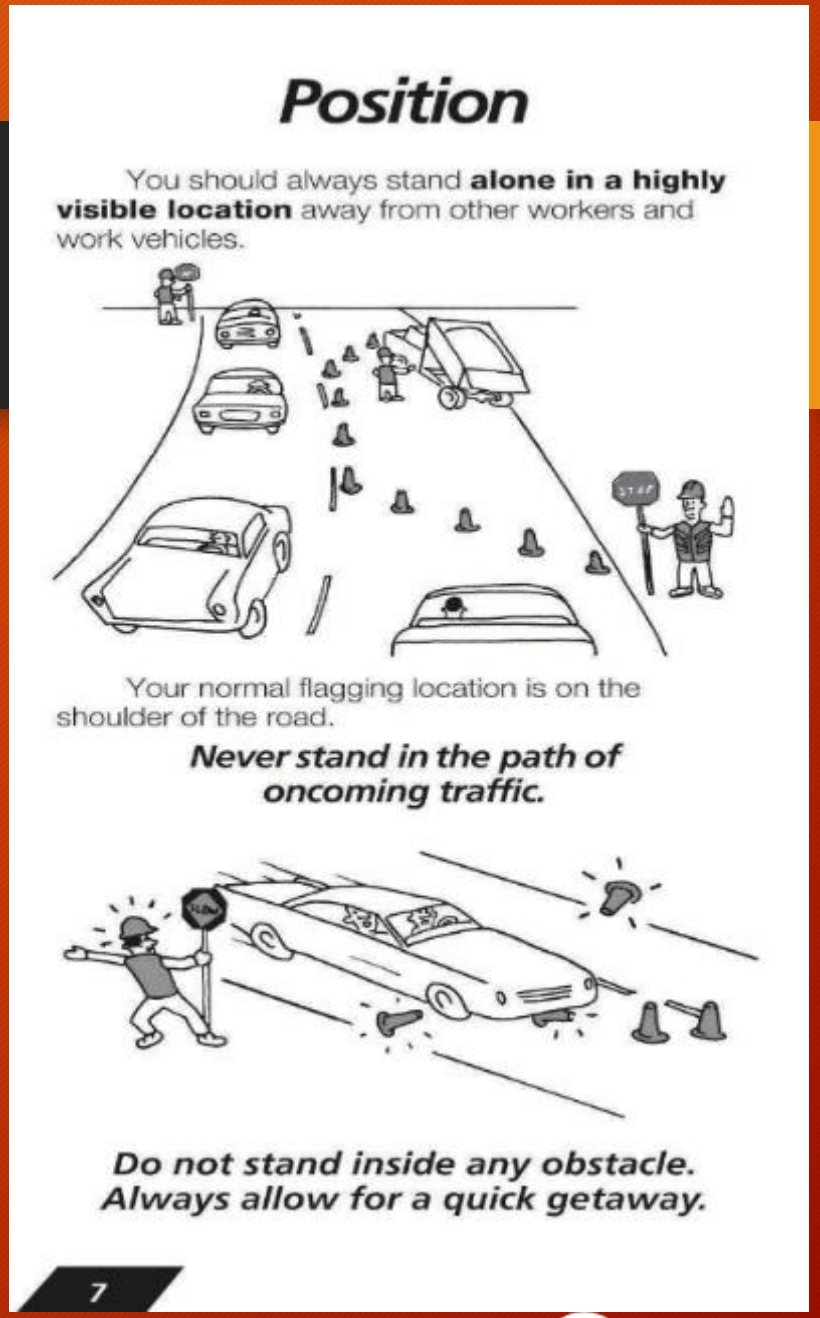
Short Term Work Safety: Flagging

- Advanced Signage



Short Term Work Safety: Flagging

- Flagger Position:
  - Highly Visible Location
  - On Shoulder
  - Never Stand in Vehicle Path
  - Allow Escape Route

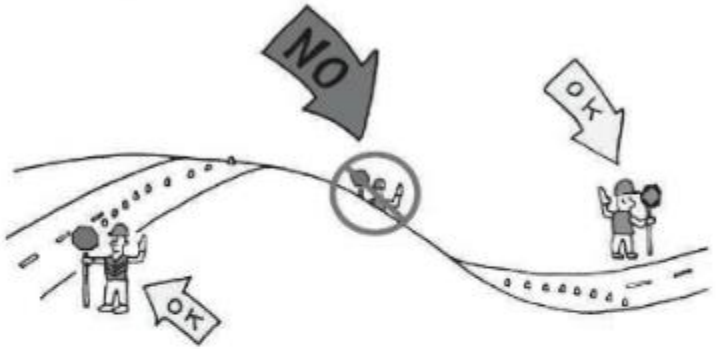


Short Term Work Safety: Flagging

- Flagger Position
  - Hills
  - Curves
  - Communication

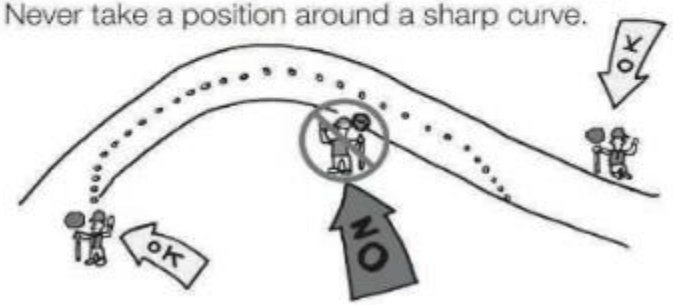
Hills

When flagging near a hill, you should take a position in advance of the hill. Make sure you are visible to approaching traffic. Never take a position over the crest of a hill.



Curves

When flagging near curves, always make sure you are visible to approaching traffic. Your flagging station should be well in advance of the curve. Never take a position around a sharp curve.



Communication between flaggers is critical under these conditions. The best way to maintain communications is two-way radios, but relay flaggers, a pilot car, or the flag-carrying method could also be used.

Short Term Work Safety: Flagging

- Flagger motions:
  - Hand Up to Stop
  - Swing Arm to move Traffic Forward

Flagging Procedures:

- STOP/SLOW Paddle

STOP

PROCEED

SLOW

Courtesy of North Dakota LTAP

Flagging Procedures:

- Flags
  - Used Only in Emergency Situations
  - Minimum Size: 24” x 24”
  - Red Color
  - Mounted on 3 foot Staff

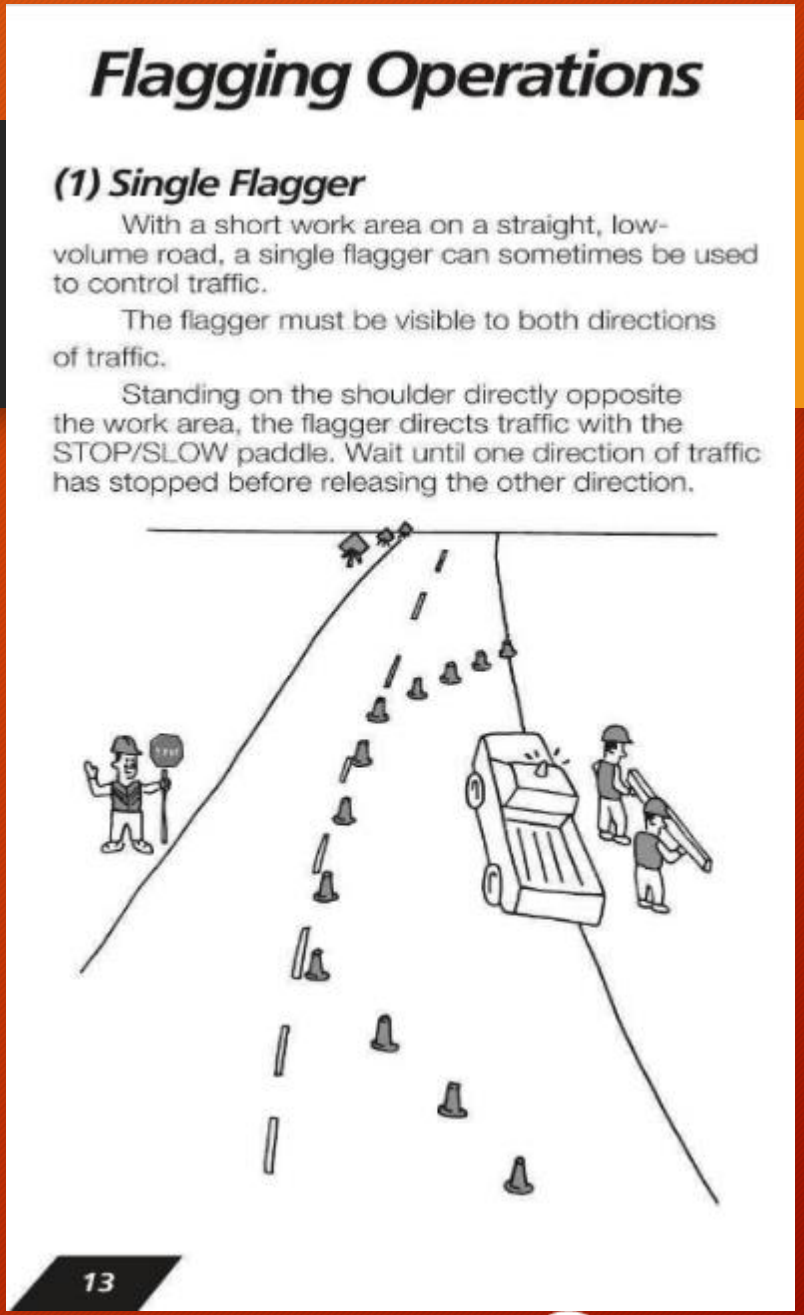
Courtesy of North Dakota LTAP

Short Term Work Safety: Flagging

- Communication
- Position Change

Short Term Work Safety: Flagging

- Single Flagger
  - Only for Straight Low Volume Road
  - Visible in Both Directions
  - Stand Opposite of Work



Flagging Operations

(1) Single Flagger

With a short work area on a straight, low-volume road, a single flagger can sometimes be used to control traffic.

The flagger must be visible to both directions of traffic.

Standing on the shoulder directly opposite the work area, the flagger directs traffic with the STOP/SLOW paddle. Wait until one direction of traffic has stopped before releasing the other direction.

Short Term Work Safety: Flagging

- Two-Flagger
  - Most Common Method
  - Communication
    - Visible
    - Two-Way Radio
    - Flag Carry

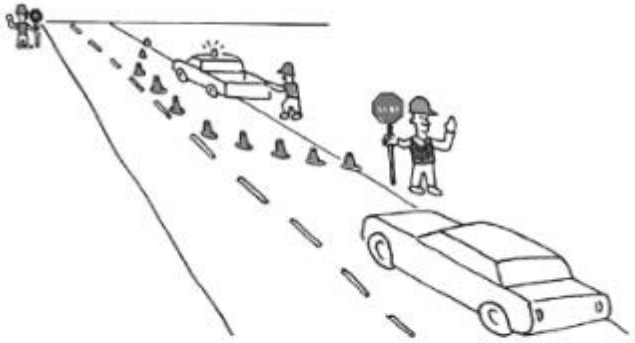
(2) Two-Flaggers

This operation uses a flagger on each end of the work zone to control traffic flow. This is the most common flagging operation. One flagger should be designated as the lead flagger for coordinating the operation.

To be effective, flaggers must always be able to communicate with one another.

Communication can be maintained by:

- ***Visual Contact*** - effective when flaggers are close enough so that they can read each other's STOP/SLOW paddles and see each other's "all clear" signals.
- ***Two-Way Radio*** - the best means of communication, even when there is visual contact.
- ***Flag Carrying*** - the driver of the last vehicle passes a flag/token from one flagger to the other.



Only after the "all clear" signal comes from the other flagger should you release traffic. If in doubt, stop all traffic!

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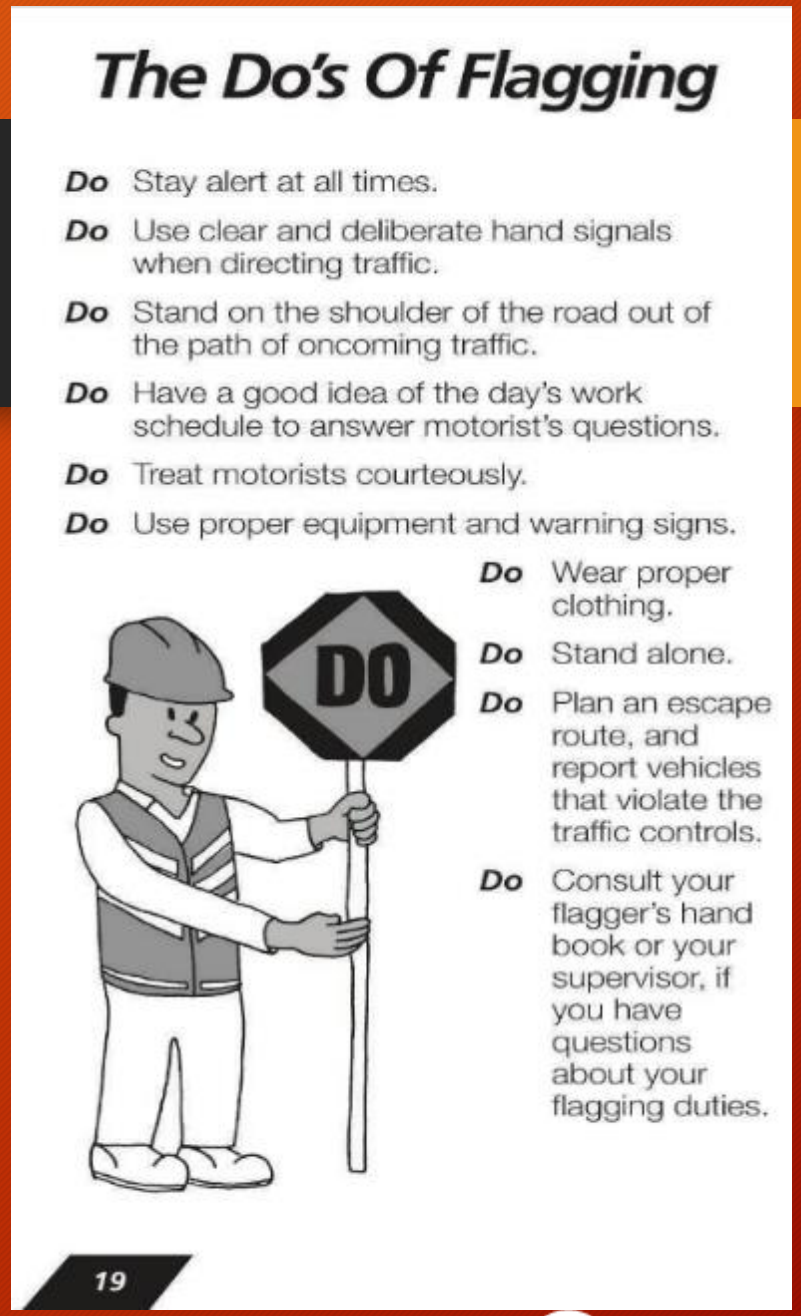
Short Term Work Safety: Flagging

- Do's of Flagging:
  - Stay Alert
  - Clear Hand Signals
  - Stand on Shoulder
  - Familiar with project
  - Be Courteous
  - Use Proper Equipment
  - Proper Clothing
  - Stand Alone
  - Plan Escape Route
  - Know Your Duties



The Do's Of Flagging

Do Stay alert at all times.

Do Use clear and deliberate hand signals when directing traffic.

Do Stand on the shoulder of the road out of the path of oncoming traffic.

Do Have a good idea of the day's work schedule to answer motorist's questions.

Do Treat motorists courteously.

Do Use proper equipment and warning signs.

Do Wear proper clothing.

Do Stand alone.

Do Plan an escape route, and report vehicles that violate the traffic controls.

Do Consult your flagger's hand book or your supervisor, if you have questions about your flagging duties.

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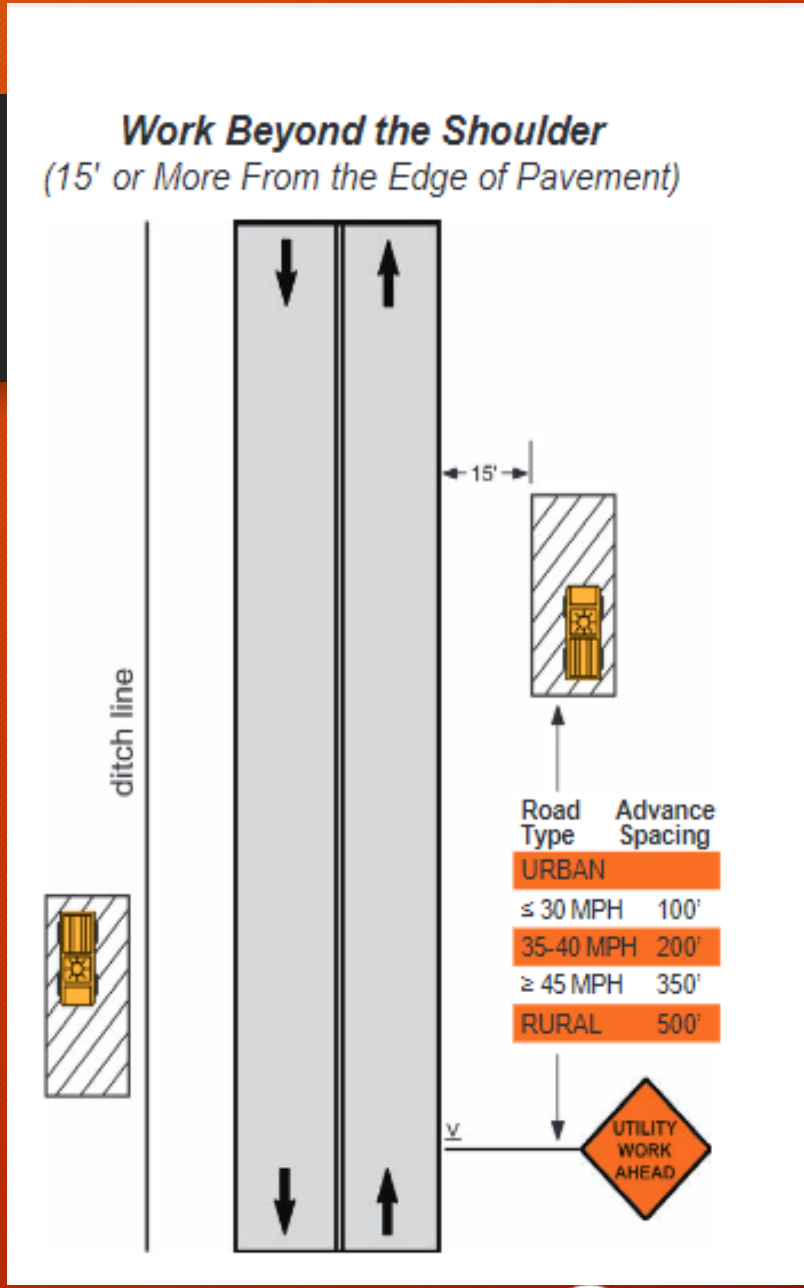
Short Term Work Safety: Flagging

- Dont's of Flagging:
  - Stand in Lane
  - Socialize
  - Ignore Traffic Signals
  - Stand in Shade, Behind Hills or Around Curves
  - Leave Station
  - Leave signs up when not in use
  - Stand near Equipment
  - Stand in Group
  - Daydream
  - Read
  - Bring entertainment

SLOW

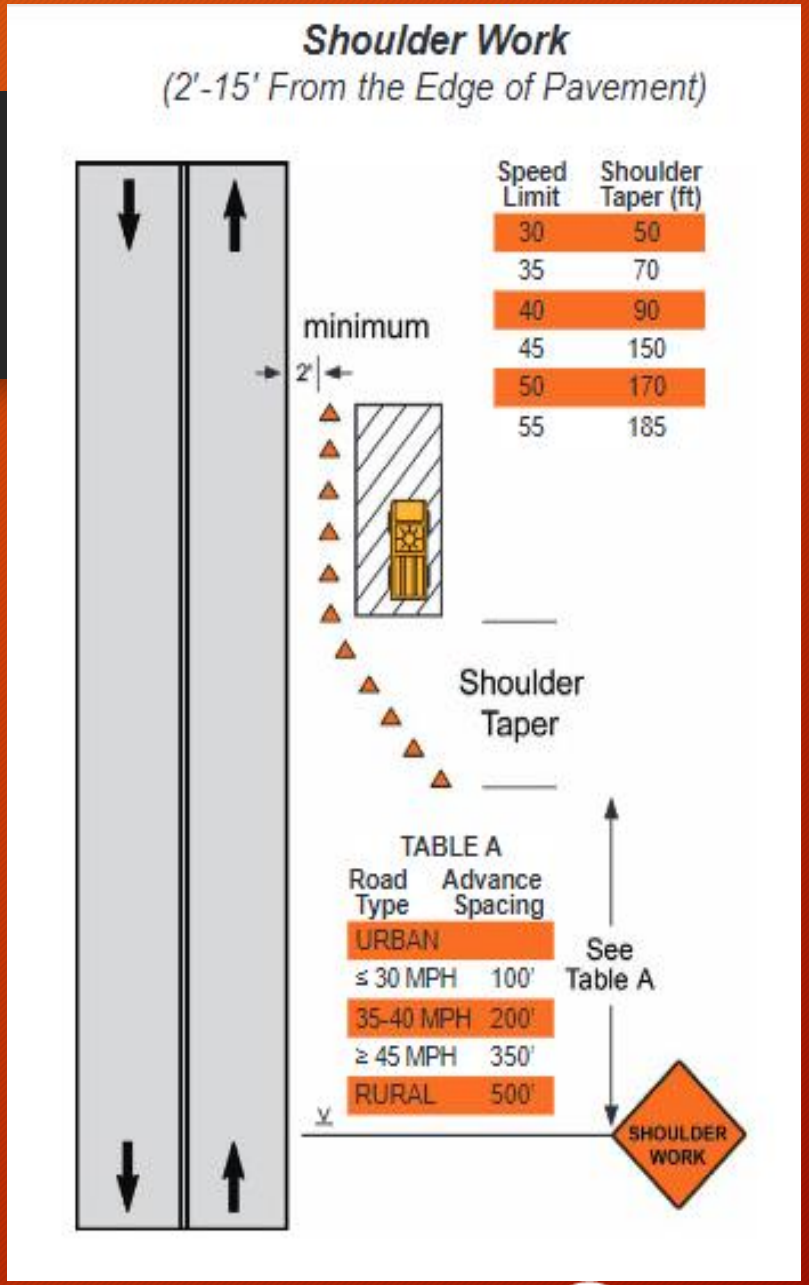
Short Term Work Safety

- Work Beyond Shoulder:
  - 15’+ from edge of Pavement
  - Situations:
    - Past Ditch line
    - Adjacent to Shoulder



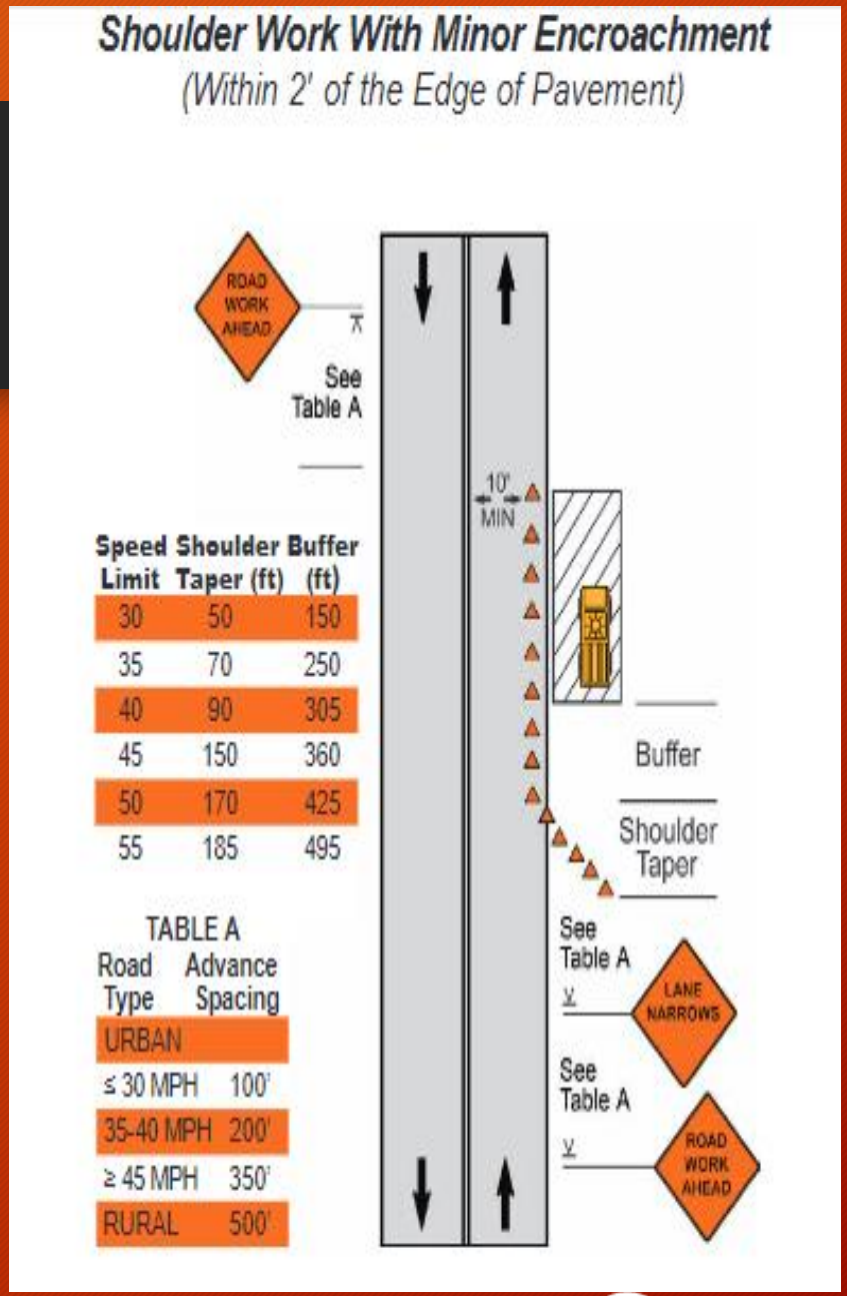
Short Term Work Safety

- Shoulder Work:
  - Within 2’-15’ of Shoulder
  - One sign
  - Two workers min.



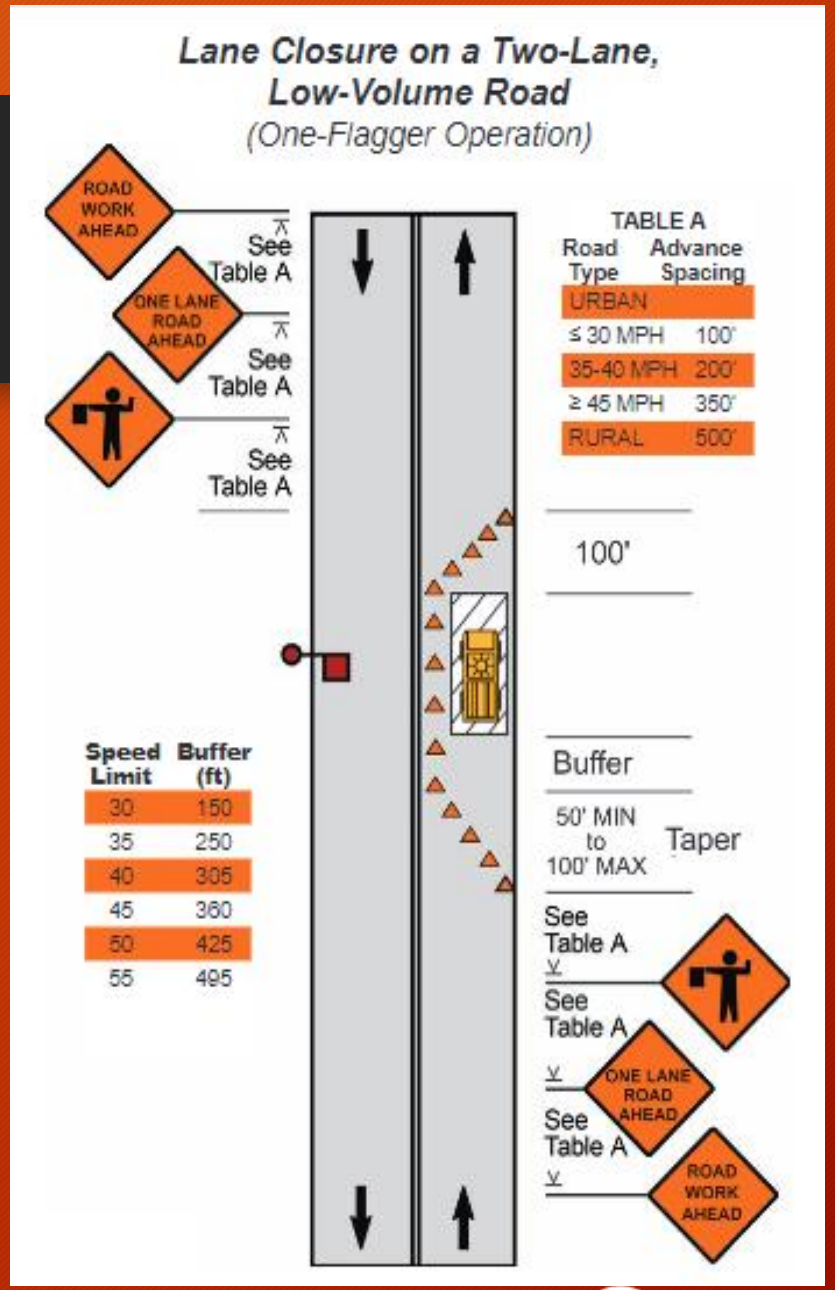
Short Term Work Safety

- Minor Encroachment
  - Two Signs
  - Cone Delineators
  - Taper & Buffer



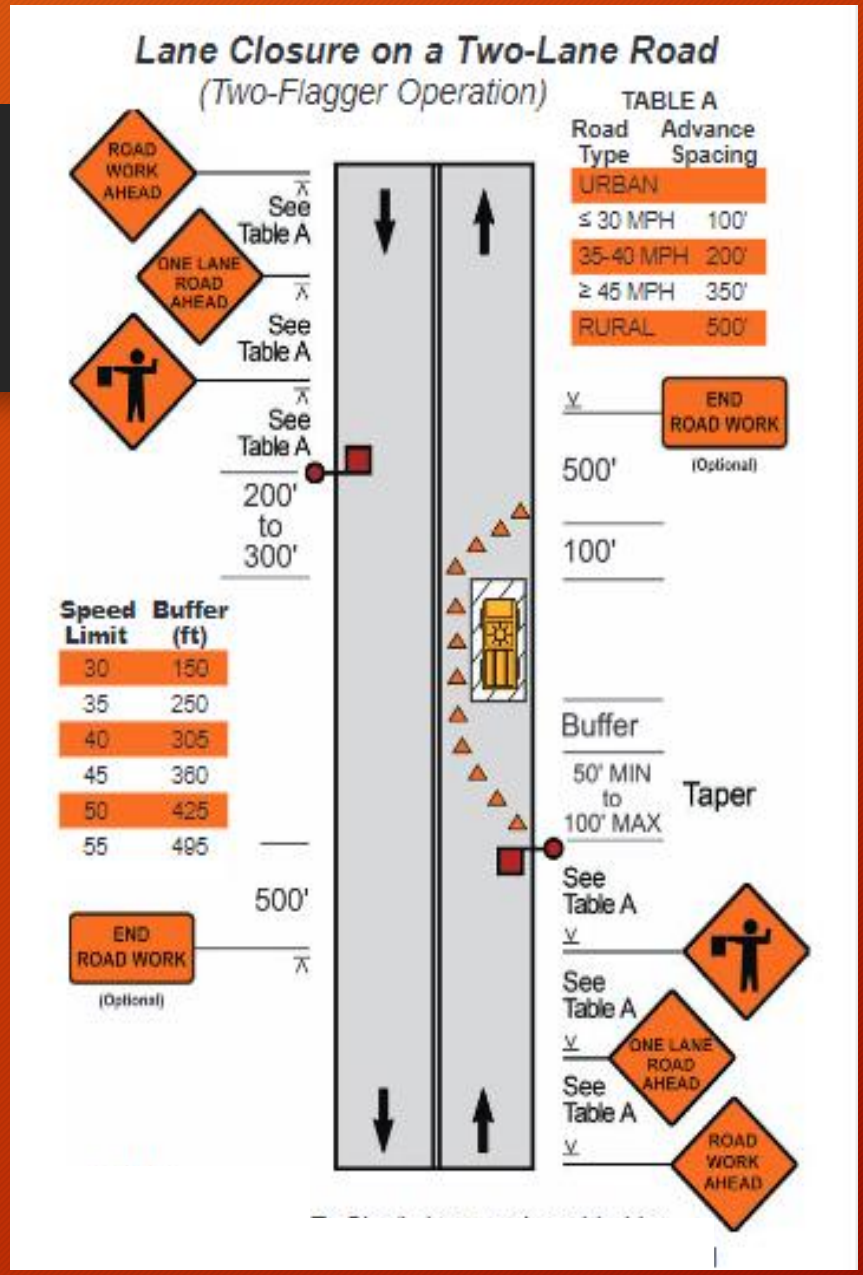
Short Term Work Safety

- Low Volume Road
  - One Flagger
  - Three Signs
  - Cone Delineators
  - All 5 Parts Needed



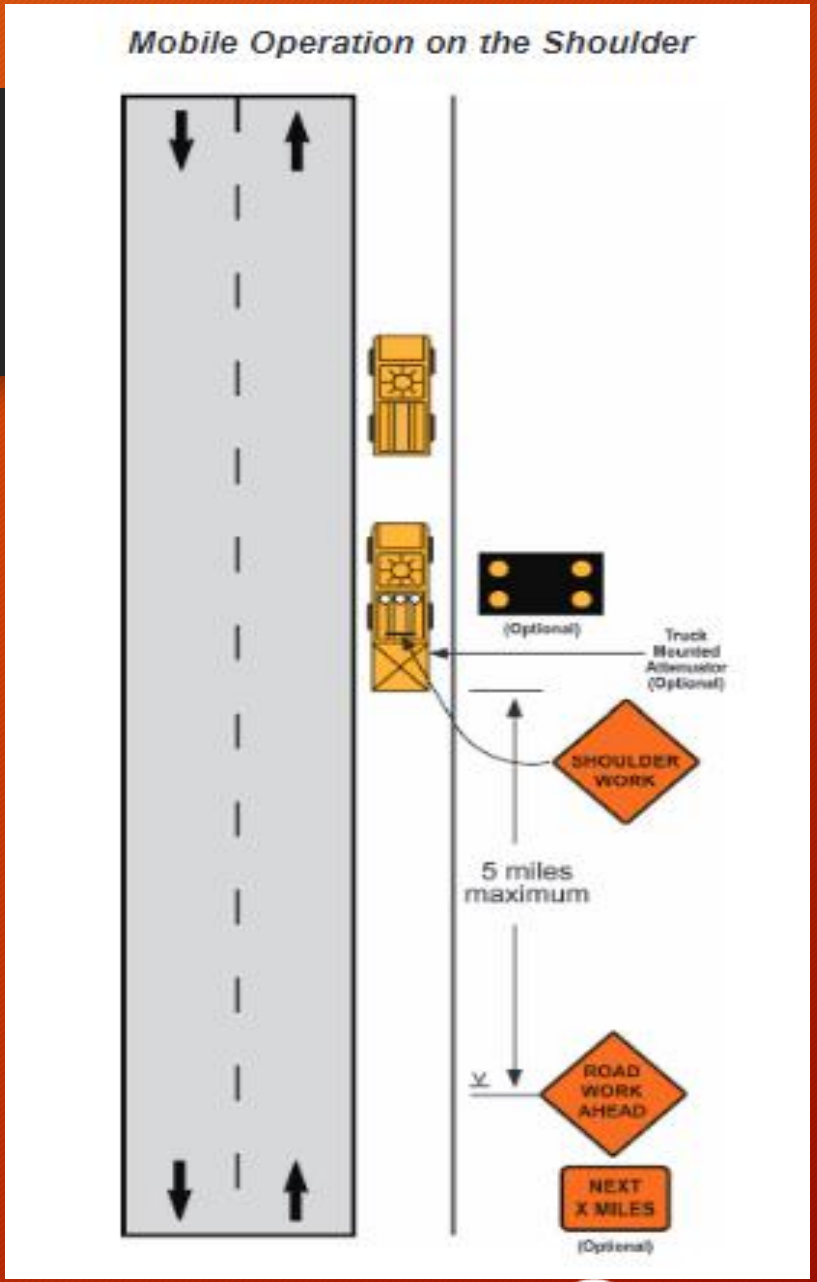
Short Term Work With Full TTC Zone

- Trimming Trees
- Patching Potholes
- Fixing a Downed Line
- Attaching a wire cable



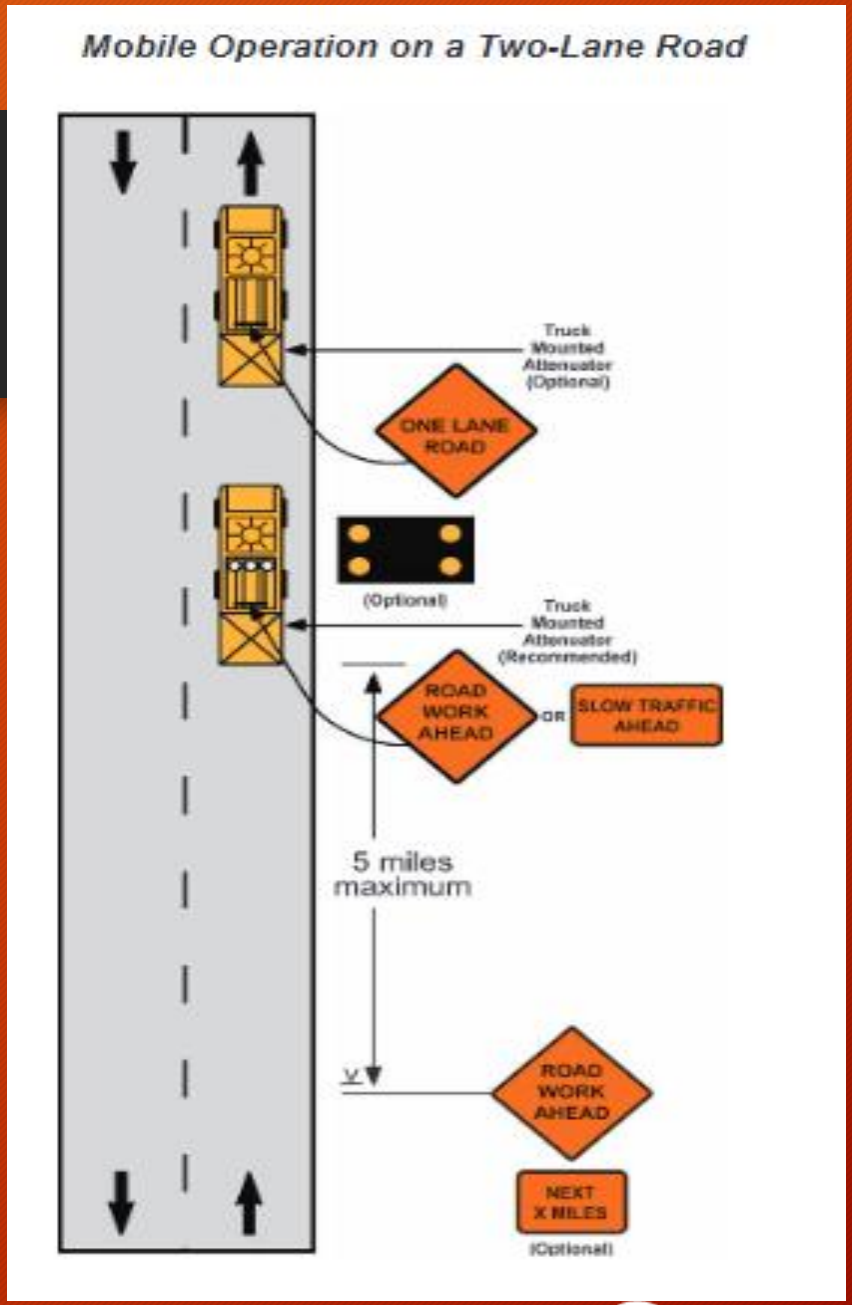
Short Term Work With Full TTC Zone

- Mobile Operations on Shoulder
  - No roadway encroachment



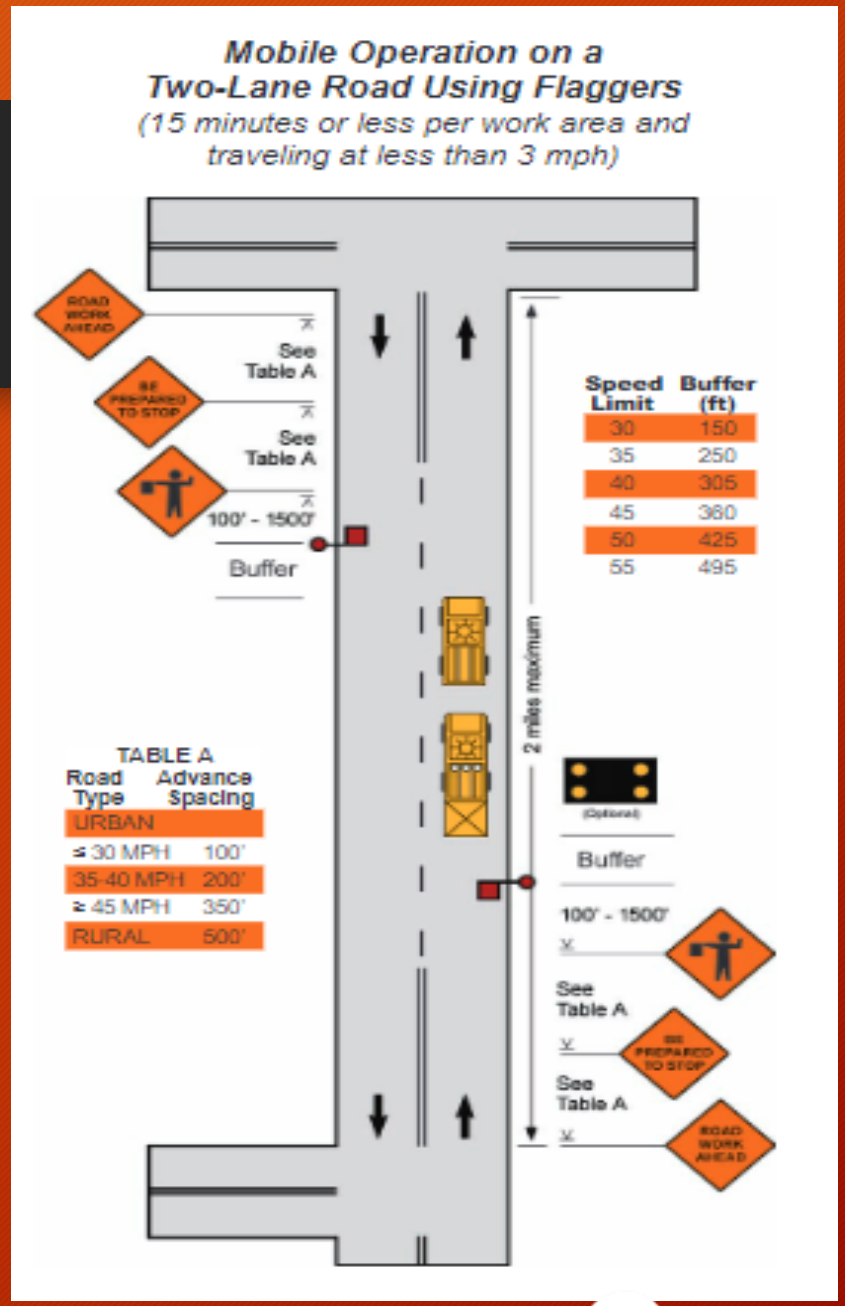
Short Term Work With Full TTC Zone

- Mobile Operations on Two-Lane Road
  - Do Not Pass Signs
  - Shadow Vehicles



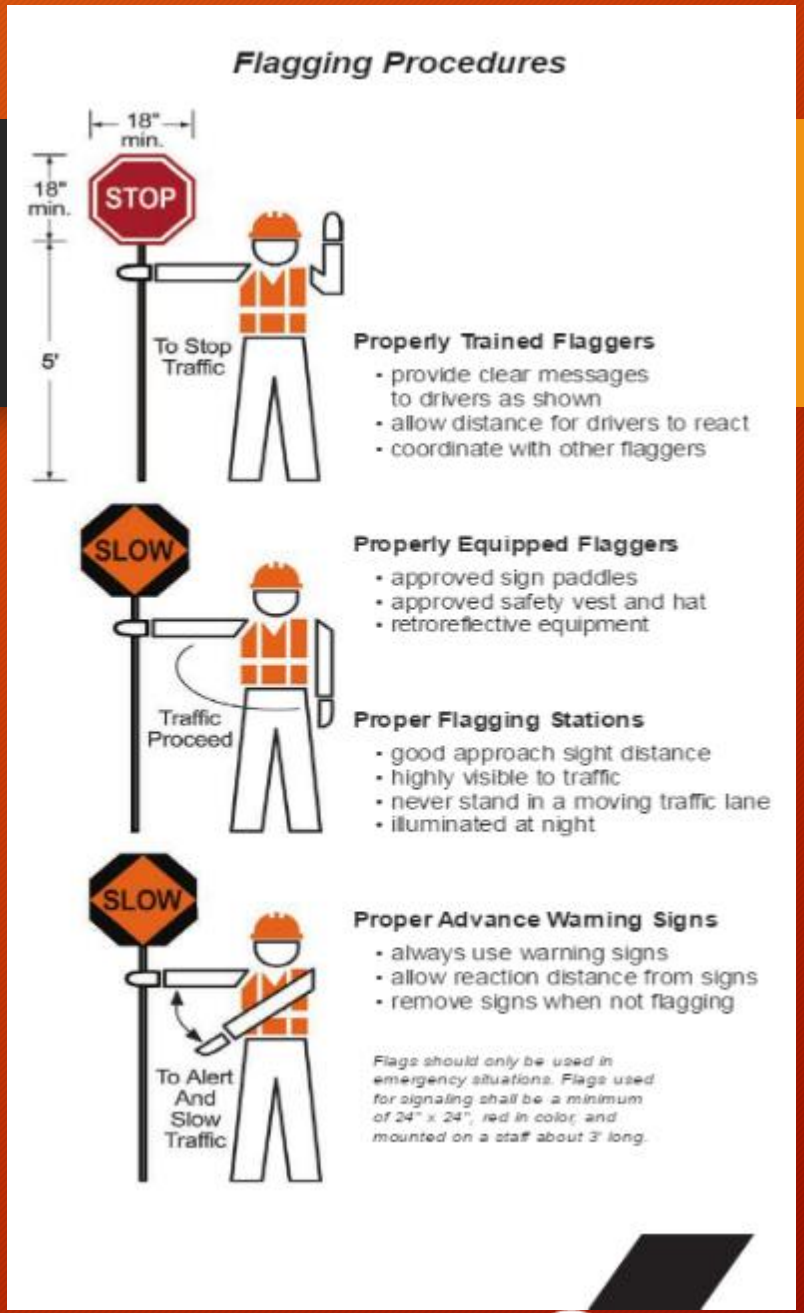
Short Term Work With Full TTC Zone

- Mobile Operations Two-Lane Road with Flaggers
  - 15 minutes or less per work area
  - Traveling >3 mph



Short Term Work Safety: Flagging

- Procedures:
  - Properly Trained
  - Proper Equipment
  - Proper Stations
  - Advance Warning



Flagging Procedures:

- Trained Flaggers:
  - Provide Clear Message
  - Stand Alone
  - Plan an Escape Route
  - Be Familiar with Project
  - Communicate With Public
  - Don’t Stand in Roadway

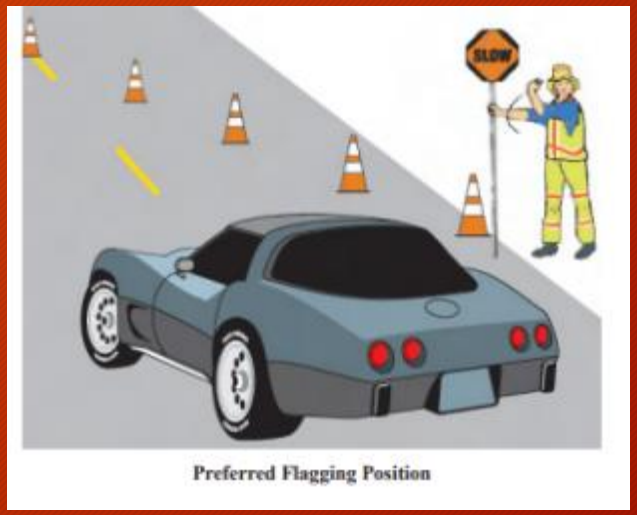
Courtesy of North Dakota LTAP

Flagging Procedures:

- Proper Equipment:
  - Use Approved STOP/SLOW Paddles
  - Use Approved Vests and Hard Hat
  - Use Retroreflective Equipment

Flagging Procedures:

- Flagging Stations:
  - Good Approach Sight
  - Highly Visible to Traffic
  - Never Stand in the Moving Traffic Lane
  - Illuminate at Night



Preferred Flagging Position

Courtesy of North Dakota LTAP

Flagging Procedures:

- Proper Advance Warning
  - Always Use Warning Signs
  - Allow Reaction Distance from Signs
  - Remove Signs When Not Flagging

Courtesy NYSDOT

Steps to Minimize Liability

- Prepare and Maintain A Traffic Control Plan
- Follow the MUTCD
- Minimize Traffic Disruptions
- Promptly Remove Devices
- Train All Personnel
- Inspect Work Zone site Regularly for Conformance

Good Inspection Plan Elements:

- Routine Schedule
- Report Form
- Hazard Identification
- Adequate Personnel and Equipment
- Repair Verification
- Formal Documentation

Minimum Documentation

- Date With Start and Ending Times of Work
- Location of Work
- Type, Condition, and Position of Traffic Control Devices
- Names of Personnel
- Type of Equipment Used
- Any Change in Temporary or Permanent Regulatory Devices
- Additional Information in Event of a Crash

What's Wrong Here?

What's Wrong Here?

What's Wrong Here?

What's Wrong Here?

What's Wrong Here?

What's Wrong Here?

What's Wrong Here?

What's Wrong Here?

What's Wrong Here?

What's Wrong Here?

Thank You!

Questions?

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