Flagging Basics for a Two-lane Road

Presented by The Ohio LTAP Center
Work Zone Circuit Rider - Raymond Brushart
Objectives

Basic understanding of:

- A flagger’s qualifications and responsibilities
- Necessary equipment and clothing
- The importance of proper flagging procedures, signs needed, and flagger stations
Objectives (cont.)

- Uniform flagging procedures and how they are applied depending on the type of operation being performed
- Development of safety habits to maintain safe working conditions for employees and motorists around and through the work areas
PART ONE:
Flagging Overview
Flagging Topics Covered

- Clothing and equipment
- Types of flagger operations
- Hand signals and flagging devices
- Flagging procedures
- Signs needed and recommended sign spacing
- Proper flagging location
Traffic Flagging

- Flaggers are critical to traffic safety
- Consequences of improper flagging may be severe
- Flaggers have important responsibilities

The Ohio Manual of Uniform Traffic Control Devices (OMUTCD)
- Part 6 of the OMUTCD
- Typical Application 10 – Lane Closure on a Two-Lane Road Using Flaggers
Who Depends On The Flagger?

- Workers
- Motorists
- Pedestrians
- Bikes, children
- Infrastructure
- The flagger (him/herself)
Following Standard And Uniform Flagging Procedures

- Increase motorists’ respect
- Promotes uniform response
- Minimizes drivers’ confusion

Flagger ahead?
Qualifications For Flaggers

- Sense of responsibility
- Adequate training in safe temporary traffic control practices
- Good physical condition
- Mental alertness
- Courteous but firm manner
- Neat appearance
Flaggers Must…

- Stay alert at all times
- Face oncoming traffic
- Be highly visible
- Stay on the shoulder
  - Out of the path of vehicles
- Relay information to motorist
- Use common sense
  - Contact your supervisor if you feel changes are needed to workzone signage
Responsibilities of A Flagger

- His/her own safety
- Safety of other workers
- Safety of the driving public
- Flaggers need to know how to do their job right
Drivers

- Are tired or preoccupied
- The flagger must get their attention
  - Guide them through the work zone safely
  - To protect fellow workers
Controlling Drivers Is Difficult

- They want to make their own decisions
- They like to be in control
- They have expectations
- Work zones are more prone to accidents
- Flaggers are in their way
Factors That Affect Drivers’ Ability

- The road itself
- Alcohol and drugs
- Driver’s age
- Driver’s experience
- Weather
- Cell phones

*Never assume a driver sees you!*
Is Flagger Training Needed?

Where should the flagger be?
What About Here?

Is this flagger commanding respect?
When operations are such that signs, signals, and barricades do not provide the necessary protection on or adjacent to a highway or street, flaggers or other appropriate traffic controls shall be provided.

Signaling directions by flaggers shall conform to the “OMUTCD”
PART TWO:
The ABC’s of Flagging
ABC’s of Flagging

- “A” for Awareness
- “B” for Be visible and alert
- “C” for Communication

These are essential aspects of any flagging operation!
A = Advance Warning

- Lets the public know that you are there
- Install *BEFORE* you start the flagging operation
Example of Typical Warning Signs

- “ROAD WORK AHEAD”
  - Get drivers’ attention

- “ONE LANE ROAD AHEAD”
  - Tell them the problem

- “FLAGGER AHEAD”
  - Tell them what to do
Method Used To Draw Attention To The Signs

Placement of cone
Road Work Ahead

- The first Advanced Warning Sign
- On high speed roads, place this sign 1500 ft. before the flagger’s station
- High speed (45mph and above)
## Recommended Advance Warning Sign Minimum Spacing

<table>
<thead>
<tr>
<th>Road Type</th>
<th>Distance Between Signs (in feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td>Urban (low speed) *</td>
<td>100’</td>
</tr>
<tr>
<td>Urban (high speed) *</td>
<td>350’</td>
</tr>
<tr>
<td>Rural</td>
<td>500’</td>
</tr>
<tr>
<td>Expressway/Freeway</td>
<td>1,000’</td>
</tr>
</tbody>
</table>

* Speed Category to be determined by the highway agency.
The second Advanced Warning Sign

On high speed roads, place this sign 1,000 ft. before the flagger’s station
Flagger Ahead

- The third Advanced Warning Sign
- On high speed roads, place this sign 500 ft. before the flagger’s station
Advance Warning Sign Spacing

- Low speeds (45 mph or less)
  - 100 ft. – 350 ft. apart
- Higher speeds/rural
  - (45 mph or more)
  - 500 ft. or more
Spacing Important? Yes
Set Up

- Set up signs furthest from the work area first
  - “With the flow of traffic”
- Beware of:
  - Obstructions
  - Reduced visibility
# Maximum Spacing of Channelizing Devices

<table>
<thead>
<tr>
<th>Road Type</th>
<th>Taper</th>
<th>Buffer/Work Space</th>
<th>Downstream</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two-lane</td>
<td>20’</td>
<td>2 x Speed Limit</td>
<td>20’</td>
</tr>
<tr>
<td>Multi-lane</td>
<td>Speed Limit</td>
<td>2 x Speed Limit</td>
<td>20’</td>
</tr>
</tbody>
</table>

Maximum Spacing of Channelizing Devices (in feet)
### Tapers and Flagger Station Distances

#### Tapers and Flagger Station Distances (in feet)

<table>
<thead>
<tr>
<th>Speed Limit (mph)</th>
<th>Two-Lane</th>
<th>Multi-Lane **</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Max. Two-Way Taper *</td>
<td>Merging Taper 12’ lane</td>
</tr>
<tr>
<td>25</td>
<td>125’</td>
<td>70’</td>
</tr>
<tr>
<td>30</td>
<td>180’</td>
<td>90’</td>
</tr>
<tr>
<td>35</td>
<td>245’</td>
<td>130’</td>
</tr>
<tr>
<td>40</td>
<td>320’</td>
<td>160’</td>
</tr>
<tr>
<td>45</td>
<td>540’</td>
<td>280’</td>
</tr>
<tr>
<td>50</td>
<td>600’</td>
<td>600’</td>
</tr>
<tr>
<td>55</td>
<td>660’</td>
<td>660’</td>
</tr>
<tr>
<td>60</td>
<td>720’</td>
<td>720’</td>
</tr>
<tr>
<td>65</td>
<td>780’</td>
<td>780’</td>
</tr>
<tr>
<td>70</td>
<td>840’</td>
<td>840’</td>
</tr>
</tbody>
</table>

* Refers to a one-lane, two-way traffic taper (see pages 7 and 26).
** Multi-lane layouts use buffer zones instead of flagger stations.
Note: If used, a downstream taper should be 50’ MIN and 100’ MAX.
First, place advance warning signs in the unaffected lane then the closed lane

Second, place channelizing Device with the flow of traffic
Removal

“Against the flow of traffic”

When no longer needed either lay device down or place at a 90 degree angle to the traffic

Even for short periods, including lunch time if all personnel leave the site

Motorists lose respect for signs that are left up when no workers are present and this may influence their behavior in the future
First, remove channelizing device against the flow of traffic

Second, remove warning signs so that the last sign removed was the first sign installed.
B = Be Visible and Alert

- Make sure the public sees you
- Have the proper clothing and equipment
- ODOT requires all employees to wear a lime green safety vest that meets ANSI standard 107-2002 when flagging
Is The Flagger Visible?
Clothing

- Highly visible lime green safety vest with a contrasting color of either orange, yellow, yellow-green, or a fluorescent version of these colors
- Hard hat
  - When required by your district
- Retroreflective for night time flagging
STOP/SLOW Paddle
STOP/SLOW Paddle (cont.)

- White “STOP” legend on red background
- “SLOW” black legend on orange background
- Retroreflectorized for night use
- At least 18”x18”
  - Larger for added visibility
- 5’-7’ high
- Rigid handle
- Good condition
Equipment

- Standard STOP/SLOW paddle
- *Red flags for emergencies only*
- Air horn or other warning device
- Two-way radio
- Pad and pencil
- Personal comfort items
  - Sunglasses, drinking water, rain gear, sun screen
Preferred Flagger Location

- NEVER in the path of moving vehicles
- On the shoulder
- At the beginning of the taper (on lane closures)
Flagger In Proper Location?
Two-way Traffic Taper

- Needed for lane closures on two-lane
- Typically 50 ft.-100 ft. (MAX.) for two-lane flagging operations
- 6 devices (cones) 20 ft. apart
Buffer Space

- Creates empty space between the flagger and the work space
- Length is related to approach speed and road conditions
- *ALWAYS EMPTY*
<table>
<thead>
<tr>
<th>Speed* (mph)</th>
<th>Distance (ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>35</td>
</tr>
<tr>
<td>25</td>
<td>55</td>
</tr>
<tr>
<td>30</td>
<td>85</td>
</tr>
<tr>
<td>35</td>
<td>120</td>
</tr>
<tr>
<td>40</td>
<td>170</td>
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<tr>
<td>45</td>
<td>220</td>
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<tr>
<td>50</td>
<td>280</td>
</tr>
<tr>
<td>55</td>
<td>335</td>
</tr>
<tr>
<td>60</td>
<td>415</td>
</tr>
<tr>
<td>65</td>
<td>485</td>
</tr>
</tbody>
</table>
Buffer Space Benefits

- Separates the flagger from workers
- Allows motorist room to stop before entering the work area
- Gives workers a few extra seconds to react before a vehicle enters the work area
- If there are curves in the road, the flagger’s station should be extended to allow additional stopping time
Flagger
C = Communication

- Remember that a flagger is considered a legal traffic control device
- He/she must be obeyed
Three Basic Flagging Skills

- Stopping traffic
- Releasing traffic
- Slowing traffic
Standard Signals Used by Flaggers

- Stop
- Go
- Slow
Basic Flagging Techniques

- To stop traffic
  - Stand on the shoulder of the road with displayed stop signal in right hand
Basic Flagging Techniques (cont.)

- To release and slow traffic
Stop

- Stand on the shoulder
- Display “STOP” with palm out
- Face traffic
- Make eye contact
Stop (cont.)

- May move towards centerline after a few vehicles
  - When you stand on the shoulder of the road and you have a few or one large vehicle stopped you should move out to the center line of the road because you are blocked from sight for the other approaching vehicles
  - Make sure to return to the shoulder before releasing your traffic

- NEVER stand in front of oncoming, moving traffic
Go

- Remain on shoulder
- “SLOW” faces traffic
- Make eye contact with the drivers
- Use free hand to direct drivers to the proper lane
- Do not wave sign at drivers
Slow

- Traffic may be too fast
- It is not necessary to stop it
  - Display “SLOW”
  - Use free arm to motion traffic to slow down
- NEVER stand in the path of oncoming traffic
PART THREE: Two Flagger Operations
ODOT’s Most Common Flagging Operations Require Two Flaggers

- Communication and teamwork is essential
- Typically one flagger is in charge
- The lead flagger should be in the closed lane
Two Flaggers

- First flagger
  - Releases traffic by displaying “SLOW”

- Second flagger
  - Stops traffic by displaying “STOP”
  - Continues to STOP traffic until the “all clear” signal is received from the first flagger
  - Releases traffic while the first flagger stops traffic
Typical Two Flagger Operation on a Two-Lane Road (Detail)

- No arrow boards are to be used with a two lane road
- Flagger at the beginning of a taper
- Short taper
  - 50 ft. to 100 ft. MAX
- Extended buffer
Communication Between Flaggers

- **Sight method**
  - Both flaggers must have visual contact at all times
  - The lead flagger should establish which signals are to be used by the team prior to the shift
Communication Between Flaggers (cont.)

- Two-way radios
  - Most common
  - Needed when flaggers cannot see each other
  - Needed when there are multiple flaggers
  - Make sure you have fully charged batteries at the beginning of your shift
Flag-carrying Method

- First flagger hands a flag to the LAST car allowed to pass
- That driver hands the flag to the second flagger at the other end
  - “All clear” signal
  - Second flagger releases traffic
- Last resort method
Advanced Flagger

May have to:
- Stop each vehicle
- Advise of the situation ahead
- Give instructions

Always be alert and considerate
Avoid unnecessary conversations
Single Flagger

A few conditions have to be met for single flagger operation:

- Low volume
- Good visibility
- Short work space
- Short duration
- Low speeds
Flagger stands across from the work space and controls both directions of traffic.
Note Location of Flagger, Away From the Traffic
Single Flagging Operations
The Flagger must be visible to traffic coming from both directions
However, two flaggers may be required if there is more than a few vehicles each hour.
The Flagger should never step into traffic
Night Time Flagging

- Procedures are generally the same
- With few equipment changes
  - Flashlight w/ glow cone
  - Retroreflectorized vest
  - Retroreflectorized paddle
  - Auxiliary lighting
PART FOUR: Flagging During Emergencies
Emergency Flagging

- Non-Scheduled Events
  - Accidents
  - Water Main breaks, etc.
- Flags when used, shall be:
  - A minimum of 24” square
  - Red in color
  - Weighted on one end to keep from blowing in high winds
Emergencies Flagging (cont.)

- Use a paddle as soon as it becomes available
- Emergency Vehicles
  - Allow right-of-way as soon as feasible
  - STOP if it is not safe to allow passage
  - Plan ahead
Handling Emergency Situations

- Anticipate the unexpected
- Be prepared to respond
- Protect yourself
Handling Emergency Situations (cont.)

- Warn other flaggers and workers
- Try to prevent other vehicles from entering the work zone
- Record description, license plate, etc. of vehicle
- Notify your supervisor

In that order
Types of Emergencies

- Drivers disobeying your command
- Crashes and accidents
Handling Crashes and Accidents

- Notify your supervisor; call for help
- Continue to control traffic
- Stay in contact with other flaggers
Handling Hostile Drivers

- Be in command
- Do not abandon your post
- Be polite but brief
- Keep a safe distance
- Be courteous but firm
Remember

- Flagging is an important job
- Stay alert
- Face oncoming traffic
- Be visible
- Stand alone
Remember (cont.)

- Stay on shoulder
- Be courteous
- Use common sense
- Remember the ABC’s
  - Awareness
  - Be visible and alert
  - Communication
Questions?

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