

MINNESOTA FLAGGING HANDBOOK



This Flagging Handbook has been developed following the guidelines of the 2011 edition of the Minnesota Manual on Uniform Traffic Control Devices, including its latest update.

According to Minnesota Statute 169.06, Subd. 4(e), a flagger is permitted to stop and hold traffic as necessary to ensure the safety of highway workers and the motoring public.



The Flagging Handbook as well as the Field Manual and other documents are available on the MnDOT Traffic Engineering website:

www.dot.state.mn.us/trafficeng

INTRODUCTION

To You, the Flagger:

REMEMBER - *Your job is the most important one on the crew. The lives of all individuals in and traveling through the work space depend on YOU!*

Every flagger should be trained in flagging operations. Check with the road authority for training requirements. This Handbook will give you basic guidelines regarding flagging operations. Familiarize yourself with these procedures. If you have any questions or concerns, don't hesitate to ask your supervisor.

For your personal safety as a flagger NEVER fully turn your back to or stand in the path of moving traffic.

EQUIPMENT

Clothing

Flaggers shall wear high-visibility clothing meeting ANSI/ISEA 107-2004 (or ANSI/ISEA 107-2010) Performance Class 3 requirements. ANSI/ISEA 107-2015 Type R, Performance Class 3 is also acceptable. The Class 3 requirements shall be met by wearing a Class 2 or Class 3 vest, shirt, or jacket; as well as Class E pants. Clothing shall have an attached original label indicating the Performance Class.

- Clothing background color shall be fluorescent orange-red, fluorescent yellow-green, or a combination of the two.
- Retroreflective material on the clothing shall be orange, yellow, white, silver, yellow-green, or a fluorescent version of these colors. The material shall be visible at a minimum distance of 1000 feet.
- The vest, shirt, or jacket shall be worn such that 360 degree visibility in a horizontal plane of the clothing is maintained.
- A retroreflective hat in the above colors should be worn.
- A retroreflective wrist band in the above colors may be used. The wrist band helps differentiate the flagger from work zone devices.

- A neat appearance and clean clothing shall be maintained in order to help command respect of the drivers.

Tools

- Standard STOP/SLOW (W21-X7) paddle shall be used unless it is not available in an emergency situation or as otherwise specified in this Handbook.
 - 18 x 18 inch minimum octagon with legible letters at least 6 inches high.
 - 5 foot minimum staff (to the bottom of the sign), 7 foot is recommended.
 - Fully retroreflectorized in standard colors with minimal abrasions or fading.
- Two-way communication devices should be used for multiple flagger situations.
- A 24 x 24 inch fluorescent red/orange flag or retroreflective red flag to be used only in an emergency or at an intersection.
- Flashlight with red glow cone may be used:
 - to supplement the STOP/SLOW paddle at night,
 - at intersections, and/or
 - for emergency situations.



Flagger stations shall be illuminated at night except in emergency situations.

FLAGGING POSITION

- Be alert, remain standing at all times.
- Face traffic approaching the work zone. NEVER fully turn your back to traffic or stand in the path of any moving vehicle (see Figure 1).
- A flagger's normal station is on the shoulder of the road.
- Always have an escape route.
- Park your vehicle off the road and away from your station in order to maintain an escape route and to not be obscured by your vehicle. Stand alone, do not mingle with the work crew or the public.
- Make sure you are visible to oncoming approaching traffic. Consider not standing where the sun is impeding visibility or in a shadow.
- Stand in a location that allows approaching traffic adequate time to respond. Use the Decision Sight Distance (**D**) in the following chart to determine a location with good visibility. The driver must be able to recognize you as a flagger for at least the Decision Sight Distance (**D**).
- Make sure YOU can see approaching traffic for the length of the Decision Sight Distance (**D**).

Decision Sight Distance (D)	
Posted Speed (mph)	Decision Sight Distance (feet)
0 - 30	550
35 - 40	700
45 - 50	900
55	1200
60 - 65	1400
70 - 75	1600

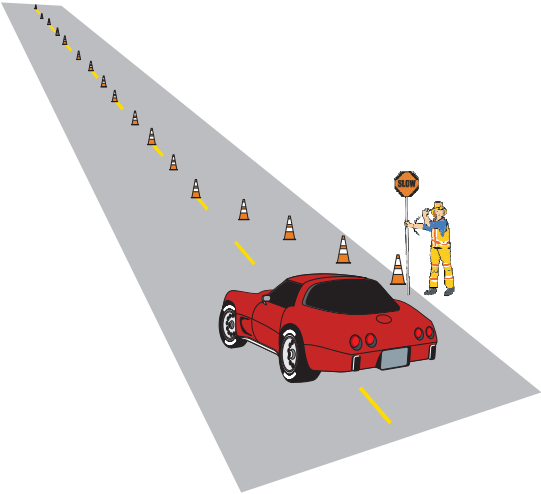


Figure 1: Preferred Flagging Position

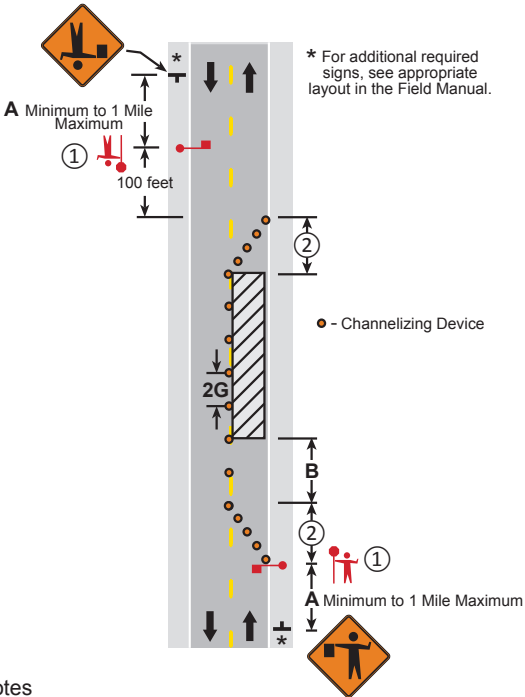
FLAGGING APPLICATIONS

Prior to the start of flagging operations, all signing shall be in place. A good visibility location is one where the sight distance is sufficient and the flagger is clearly visible to approaching motorists.

When the temporary traffic control zone covers a long segment of highway, additional flagger signs may be needed. **In high speed areas, the maximum distance from the last sign to the flagger shall not exceed 1 mile.** In low speed areas consider reducing the spacing between the flagger and flagger ahead sign to $\frac{1}{2}$ mile or less.

When more than one flagger is being used, all communication procedures should be clear before any flagging begins. If there is a roadway intersection within the flagged area, an additional flagger(s) may be needed to control traffic entering the temporary traffic control zone from the roadway intersection.

Posted Speed Limit Prior to Work Starting (mph)	Advance Warning Sign Spacing (feet) (A)	Channelizing Device Spacing (feet) (G)	Buffer Space (feet) (B)	Decision Sight Distance (feet) (D)
0 - 30	100	25	200	550
35 - 40	325	25	305	700
45 - 50	600	50	425	900
55	750	50	500	1200
60 - 65	1000	50	650	1400
70 - 75	1200	50	820	1600



Notes

- ① The approach sight distance to the flagger shall be at least the Decision Sight Distance (D) .
- ② The two-way taper should be 50 feet using 5 equally spaced channelizing devices.

Figure 2: Flagger Location for a Lane Closure

Traffic queuing over long distances due to flagging operations may cause potentially dangerous situations. These situations may include traffic backed up through an intersection, up an exit ramp onto a freeway, or stopped prior to the first warning signs. When the flagger observes any of these occurring, they should immediately notify their supervisor. The flagger may be given instructions on how to help maintain a shorter backup of vehicles.

Single Flagger

There are three different applications of the single flagger situation.

1) Temporarily stopping and directing traffic across the center line.

On an intermediate volume road (**less than 1500 ADT**) with good visibility, a single flagger may be used to control one direction of traffic while the other direction flows free. In this situation, the flagger is positioned in the closed lane at the beginning of the taper. The flagger stops the traffic approaching in the closed lane. When the open lane is clear, the flagger allows traffic to proceed. If the Decision Sight Distance (**D**) is not available beyond the work space for the flagger to detect oncoming traffic, two flaggers shall be used. Two flaggers may also be required during high peak traffic periods or if there is a major intersection near the activity area.

2) Temporarily stopping and releasing traffic in the same lane.

A single flagger may also be used to stop traffic in a lane while that lane is temporarily closed. An example would be a truck depositing material off the edge of the roadway. In this situation, the flagger would stop traffic in the lane being blocked by the truck while the other lane flows free. When the lane is no longer blocked, the flagger would allow traffic to proceed. After stopped traffic is allowed to proceed, the flagger should turn the flagger paddle parallel to traffic so that no message is displayed to either direction of traffic.

3) Intersections.

For flagging intersections see the “Intersection Flagging” section in this Handbook.

Two Flaggers

When two flaggers are required, lines of communication must be established prior to the start of flagging operations. The two flaggers must be able to see each other or have two-way communication devices designated for proper communication. One flagger **SHALL** be the lead flagger and coordinate all activities.



Figure 3: Two Flagger Operation

An effective method to ensure that traffic from the opposite direction is not released prematurely is the **flag transfer**. A flagger gives the driver of the last vehicle proceeding into the one lane section a flag (or other token object) and instructs the driver to deliver it to the flagger at the other end. The opposite flagger then knows that it is safe to allow traffic to move in the other direction. The flag (or token object) being carried should always be clean and dry.

Flagging with a Pilot Car

Two (or more) flaggers may also be used in conjunction with a Pilot Car, which is a specially marked vehicle that leads motorists through a work zone. In this application, the flagger stops traffic until the Pilot Car has pulled into position to lead traffic through or around the activity area. The flagger then releases traffic to follow the Pilot Car. When a large gap in traffic or a predetermined length of time occurs (as instructed by the supervisor) traffic is stopped. During Pilot Car operations, traffic should follow the Pilot Car and remain in a tight group to prevent traffic from separating along the route. A Pilot Car is an effective method of regulating the speed of traffic through the work zone. To help keep the traffic group tight, flaggers should not allow additional vehicles to follow the group if the last vehicle in the group has proceeded more than 300 feet from the flagging location. The flagger shall then stop and hold all traffic until the Pilot Car has returned for the next trip.

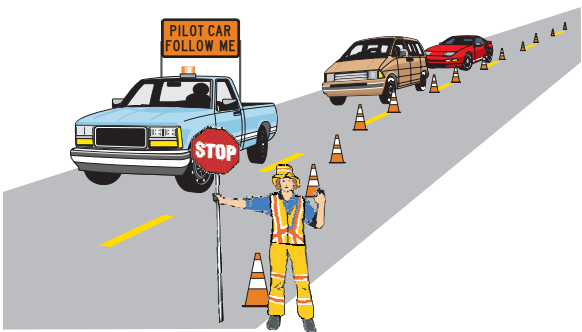


Figure 4: Use of a Pilot Vehicle

Advance Flagger

Consider using an advance flagger where there is limited sight distance to the activity area or where long lines of traffic form. In a situation such as limited sight distance, the advance flagger should stop each vehicle and inform the driver of the situation ahead. Where there are long lines of stopped traffic waiting to proceed, the advance flagger should move down the line and inform each driver of the reason for the delay and the approximate length of the delay.

Intersection Flagging

Only a licensed uniformed law enforcement officer has the authority to override a fully operating traffic control signal system (operating through the green, yellow, red cycle). When traffic signals are set to flash red for all approaches, or turned off and temporary STOP signs are installed, the intersection may be treated as a non-signalized intersection. A flagging operation within a non-signalized intersection may override STOP and YIELD signs in the intersection. Approval from the road authority shall be acquired prior to placing signals into red flash mode or turning signals off.

When flagging within an intersection, consider the following:

- High-volume intersections, large intersections, roundabouts, or complicated situations may require additional flaggers. When multiple flaggers are used, a lead flagger shall be designated to coordinate flagging operations.
- The flagger(s) should use hand signals with a flag or flashlight with red glow cone to control traffic movements rather than the typical STOP/SLOW paddle.
- The flagger(s) may direct vehicles to proceed through a STOP sign controlled condition while holding traffic on other approaches. Although the flagger may urge motorists to continue through the STOP sign, the flagger has no authority to prevent traffic from stopping and must allow for stopping within the operation.
- The flagger(s) should be aware of traffic conditions at adjacent intersections and coordinate operations to minimize traffic backups and conflicts.

Automated Flagger Assistance Devices (AFADs)

When using AFADs, see MN MUTCD (mndot.gov/mnmutcd) Sections 6E.4 through 6E.6.

Automated Flagger Assistance Devices (AFADs) enable the operator to be positioned out of the lane of traffic and are used to control road users through temporary, one-lane, two-way traffic control zones.

They can be remotely operated by one operator at a central location or by separate operators near each device location. When using a single operator, the AFADs shall be located so the operator can see both devices.

FLAGGING PROCEDURES

To Stop Traffic

Stand on the shoulder of the road, away from moving traffic. Face traffic and extend the STOP paddle in a stationary position with your arm extended horizontally away from your body. Your free arm should be raised with the palm of your hand toward approaching traffic. Look directly at the approaching driver. Make sure that you make direct eye contact with this driver!

Remain on the shoulder of the road after the first vehicle has stopped. Always make certain that the flagger and the paddle are visible to the drivers of all stopped vehicles. The flagger should never stand in the traffic lane unless, in the flagger's opinion, the drivers of the stopped vehicles are unaware of the flagger's presence. If it is necessary for the flagger to stand in the traffic lane, the flagger may only stand near the centerline and never cross it. When the flagger is satisfied that the drivers of all stopped vehicles are aware of his/her presence, the flagger should return to the shoulder of the road.

NOTE: Anytime the flagger is required to take a position near the centerline of the traffic lane, the flagger should remain aware of the traffic traveling in the opposite direction.

To Direct Stopped Traffic to Proceed

Remain at the flagger station on the shoulder. If the flagger is in the stopped traffic lane, return to the shoulder. Face traffic and turn the SLOW paddle to face traffic. Hold the SLOW paddle in a stationary position with the arm extended horizontally away from the body. The flagger may motion with the free hand for traffic to proceed. Do not wave the paddle.

To Alert or Slow Traffic

Stand on the shoulder of the road and face traffic with the SLOW sign paddle held in a stationary position with the arm extended horizontally away from the body. The flagger may motion up and down with the free hand, palm down, indicating that the vehicle should slow down. Never stand in the path of oncoming traffic. The STOP side of the panel shall not be displayed to traffic unless traffic is required to stop.

Proper Conduct

- Do not abandon your post for any reason until the work is finished or a replacement flagger arrives.
- Do not put yourself in danger.
- Do not engage in extended conversations with motorists or lean on vehicles. Be polite, but brief.
- Do not argue with a motorist. Be courteous.
- If a driver refuses to obey instructions, record a description of the car, driver, license plate, and the circumstances. Report this information to your supervisor as soon as possible.
- Remove, turn, or cover all signs indicating the presence of a flagger when a flagger is not actually flagging. This includes lunch and breaks. This also includes situations in which flagging is intermittent, such as allowing trucks entering and exiting construction sites.
- Be alert for emergency vehicles. They have priority rights. Allow them to pass as quickly as possible.

Nighttime Flagging

Flagger stations shall be well illuminated with auxiliary lighting such as floodlights or balloon lighting except in emergency situations. If the emergency is expected to last an extended period of time, an attempt to illuminate the flagger station should be made. Auxiliary lighting shall not produce a disabling glare condition for approaching road users, flaggers, or workers. A flashlight with a red glow cone may be used to supplement the STOP/SLOW paddle. Retroreflective channelizing devices shall be used.

To stop traffic, the flagger shall hold the flashlight with red glow cone in the left hand with arm extended and pointed down toward the ground. To direct traffic to proceed, the flagger shall point the flashlight with red glow cone at the first vehicle's bumper then slowly aim the flashlight toward the open lane, holding the flashlight in that position. To alert or slow traffic, the flagger shall point the flashlight with red glow cone toward oncoming traffic and quickly wave the flashlight in a figure eight motion.

Emergency Situations

In emergency situations a minimum size 24 x 24 inch fluorescent orange/red flag or retroreflective red flag may be used in lieu of a paddle until a paddle is available. However, as soon as a STOP/SLOW paddle is available it shall be used.

To stop traffic, the flagger shall face traffic and extend the flag staff horizontally across the road user's lane in a stationary position so that the full area of the flag is visibly hanging below the staff. The free arm shall be held with the palm of the hand above shoulder level toward approaching traffic. To direct traffic to proceed, the flagger shall face traffic with the flag and arm lowered to the flagger's side, and shall motion with the free hand for traffic to proceed. Flags shall not be used to signal traffic to proceed. To alert or slow traffic, the flagger shall face traffic and slowly wave the flag in a sweeping motion of the extended arm from shoulder level to straight down without raising the arm above a horizontal position. The flagger shall keep the free hand down at their side.

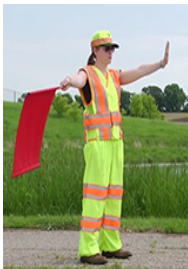
Notes to the Supervisor

- All flaggers should be properly instructed prior to the start of work. Training should be based on the requirements of individual road authorities.
- Appoint a lead flagger.
- Flagger(s) should know their specific duties in relation to the operation.
- The importance of the job should be impressed upon the flagger. They are responsible for the safety of all workers and motorists.
- Arrange for the flagger to have rest breaks.
- Drive through the temporary traffic control zone after all signs, devices, and flagger(s) are in place. Check the visibility of the signs, flagger(s), and the activity area. Monitor behavior of traffic; make and document field modifications as necessary.
- Remove, turn, or cover all flagging related devices when flagging operations are suspended.

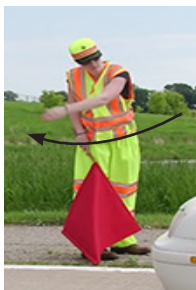
Refer to Sections 6C and 6E of the Minnesota Manual on Uniform Traffic Control Devices (MN MUTCD) at mndot.gov/mnmutcd for further information on flaggers and flagging procedures.

The Use of Hand Signaling Devices by a Flagger

To Stop Traffic



To Release Traffic



To Alert and Slow Traffic



Preferred
Flagging Method
Using a Paddle.

Preferred
Flagging Method
Using a Flag.

Nighttime
Flagging with
Red Glow Cone.

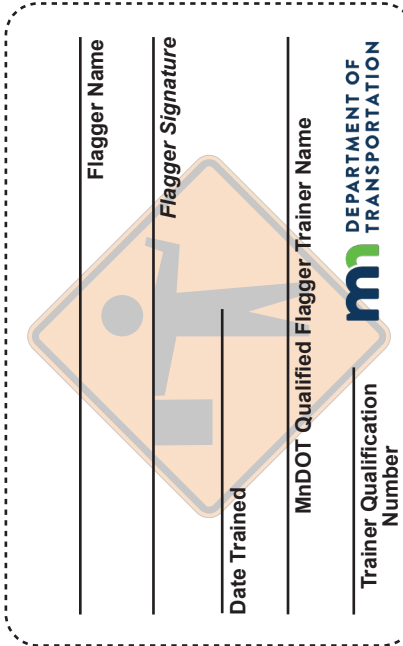
CHECKLIST FOR FLAGGER TRAINING

- Remember your job is the most important one on the crew. The lives of all individuals in and traveling through the work space depend on YOU!
- For your personal safety as a flagger NEVER fully turn your back on or stand in the path of moving traffic.
- Clothing**
 - Flaggers shall wear appropriate high-visibility apparel.
- Tools**
 - Standard STOP/SLOW paddle shall be used unless it is not available in an emergency situation or as otherwise specified in this Handbook.
 - Two-way communication devices should be used for multiple flagger situations.
 - A 24 x 24 inch fluorescent red/orange flag or retroreflective red flag to be used only in an emergency or at an intersection.
 - Flashlight with red glow cone may be used:
 - to supplement the STOP/SLOW paddle at night,
 - at intersections, and/or
 - for emergency situations.
 - Flagger stations shall be illuminated at night except in emergency situations.
- Flagging position on the road way:**
 - Be alert, remain **STANDING** at all times.
 - Face oncoming traffic. NEVER fully turn your back to oncoming traffic or stand in the path of moving traffic.
 - A flagger's normal station is on the shoulder of the road.

- **Plan your escape route.** Park your vehicle off the road, away from your station. A flagger is difficult to see when next to a vehicle. Never sit in or on your vehicle while flagging.
- Know proper hand and flag signals as shown in the Minnesota Flagging Handbook.
- Stand alone, do not mingle with the work crew or motorists.
- Make sure you are visible to approaching traffic. Consider not standing where the sun is impeding visibility or in a shadow.
- Review the Decision Sight Distance (**D**) Chart in the Minnesota Flagging Handbook. Drivers should be able to recognize you as a flagger for at least the Decision Sight Distance (**D**). This means YOU should be able to see vehicles at the Decision Sight Distance (**D**). Avoid blind spots past curves in the roadway or just over hills.
- Emergency vehicles have priority rights. Allow them to pass as safely and quickly as possible.

Flagger Qualification Card

Below is the Flagger Qualification Card to be used as proof of training received from a qualified MnDOT Flagger Trainer. This training is required to fulfill the MnDOT flagger training specification contained in the traffic control special provision of selected jobs.



The form is enclosed in a dashed-line border. In the background, there is a large diamond-shaped sign with an orange background and a grey silhouette of a person in a flagger's stance. To the right of the sign is the MnDOT logo, consisting of a stylized 'm' in blue and green, followed by the text 'DEPARTMENT OF TRANSPORTATION' in blue. The form contains five horizontal lines for text entry, each with a label above it:

- Line 1: **Flagger Name**
- Line 2: **Flagger Signature**
- Line 3: **Date Trained**
- Line 4: **MnDOT Qualified Flagger Trainer Name**
- Line 5: **Trainer Qualification Number**

The bearer of this card has reviewed the Minnesota Flagging Handbook checklist, viewed the “MnDOT Flagging Operations and Procedures” video and has received instruction from the MnDOT qualified flagger trainer listed on the front of the card.

A yearly review of flagging operations and procedures is recommended.

mndot.gov/flagging

NOTES



TOWARD ZERO DEATHS



Minnesota Manual on Uniform
Traffic Control Devices (MN MUTCD)
mndot.gov/mnmutcd



HANG UP!

Lives At Stake. Orange Cones. No Phones.



TOWARD
ZERO
DEATHS

This document as well as the Field Manual and other documents are available on the MnDOT Traffic Engineering website at: www.dot.state.mn.us/trafficeng