

Michigan

Traffic Regulator's Instruction Manual



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INTRODUCTION

To you, the Traffic Regulator:

This handbook has been prepared to assist you in understanding how to properly control traffic through construction, maintenance, and utility work areas. As a Traffic Regulator, your duties are to protect project personnel and provide safe, courteous, and authoritative directions to motorists seeking passage through the work zone.

All Traffic Regulators must review the training requirements described in the current edition of the Michigan Manual on Uniform Traffic Control Devices Part 6, Chapter 6E, prior to performing work.

The role of a Traffic Regulator is crucial to the success of a well-run traffic operation. Study this handbook so that your conduct as a Traffic Regulator is professional and second nature.

Traffic regulating is a full-time job. Careless use of the sign or distraction from duty could cause serious injury to your self, other workers, or the motoring public. By performing your duty diligently, you can do your part to prevent traffic incidents in your work area.

RULES OF CONDUCT

All Traffic Regulators shall be properly trained, equipped, attired, and able to satisfactorily demonstrate the following abilities:

- Receive and communicate specific instructions clearly, firmly, and courteously.
- Move quickly to avoid danger from errant vehicles.
- Control signaling devices (such as paddles and flags) in order to provide clear and positive guidance to drivers approaching the work zone in frequently changing situations.
- Understand and apply safe traffic control practices, sometimes in stressful and emergency situations.
- Recognize dangerous traffic situations and warn workers and other regulators in sufficient time to avoid injury.
- Do not mingle with the work crew, traveling public or other people.
- Determine an escape path that is free of obstructions.
- Be constantly alert of your surroundings, particularly for vehicles approaching from each direction.



- Never turn your back to approaching traffic.

- Always coordinate breaks with the primary Traffic Regulator or supervisor.
- Do not abandon your Traffic Regulator station until a replacement arrives and is ready to regulate traffic.
- Ensure periodic breaks or rest periods are scheduled and coordinated throughout a work shift.
- Sitting on an approved stool is **prohibited** if traffic is visibly approaching or moving by the Traffic Regulator station.
- Shall not use cell phones, headphones, TVs, portable DVD players, MP3 players, or other devices that distract attention or hinder the ability to maintain clear communication with others.



- Always maintain communication with other Traffic Regulators through two-way radios, or visual signals if spaced close enough to each other.
- Be constantly aware of your surroundings so as to properly handle traffic emergencies, along with changes in the work zone.
- Prepare and apply appropriate preventive measures for regulating long durations and/or in adverse weather conditions, such as extreme heat and cold.
- Stay with the arrow board and sign sequence until you are instructed to move.

- If a motorist disregards your directions:
 - Alert the crew.
 - Record the vehicle description and license.
 - Do not leave your station.

- ✓ **Be alert.**
- ✓ **Be professional.**
- ✓ **Be courteous.**
- ✓ **Be confident.**
- ✓ **Remain calm.**
- ✓ **Pay attention to your job.**
- ✓ **Limit discussions with motorists.**

EQUIPMENT AND CLOTHING

Paddle Requirements: (*Stop/Slow and Stop/Stop*)

- 18 in. x 18 in. minimum width; octagonal shape.
- Light semi-rigid material mounted to rigid staff so legend and sign face are not obscured.
- **STOP** face must be red with white letters and border with sign sheeting meeting the requirements of the owner agency or contract documents.
- **SLOW** face must be orange with black letters and borders with sign sheeting meeting the requirements of the owner agency or contract documents.
- Letters must be at least six inches high.
- Staff must be a minimum of six feet in length to the bottom of the sign, and if the staff extends into the sign face, be the **same** color as the sign face.
- Flashing lights may be used on the face in accordance with the MMUTCD.



Two-Way Radio System Requirements:

- Sufficient power to send and receive clear signals over the length of the intended traffic regulating operations.
- Able to send and receive messages that can be heard by all Traffic Regulators, primary and intermediate, at the same time.
- Have a backup communication system readily available.

STOP/SLOW Paddle Stand:

- NCHRP 350 or Mash-08 crash worthy approved.
- Must be approved for use by the Engineer prior to use on MDOT projects.
- Must be able to quickly remove paddle from stand.
- Stand may not have other devices attached to it.
- Use of a cone or barrel to stand paddle is prohibited.

Personal Protective Equipment:

- For daytime and nighttime activity, Traffic Regulators shall wear clean safety apparel meeting the requirements of ISEA “American National Standard for High-Visibility Apparel” and labeled as meeting the ANSI 107-2004 standard performance for Class 2 risk exposure.
- The apparel background (outer) material color shall be either fluorescent orange-red or fluorescent yellow-green as defined in the standard.
- The retro-reflective material shall be orange, yellow, white, silver, yellow-green, or a fluorescent version of these colors, and shall be visible at a minimum distance of 1,000 ft.
- The retro-reflective safety apparel shall be designed to clearly identify the wearer as a person.
- For nighttime activity, safety apparel meeting the requirements of ISEA “American National Standard for High-Visibility Apparel” and labeled as meeting the ANSI 107-2004 standard performance for Class 3 risk exposure should be considered for Traffic Regulator wear (instead of the Class 2 safety apparel as described above).



- Wear head, eye, and foot protection as prescribed in MIOSHA Construction Safety Standards Part 6, Personal Protective Equipment, R 408.40601 et seq and Part 22, Signals, Signs, Tags, and Barricades, R 408.42201 et seq.
- To improve visibility of hand movements, wear bright orange gloves. If worn at night, they should have retro-reflectivity for night visibility.

Flashlight:

- In addition to usual regulating equipment, a flashlight with a required red glow cone can be used **only** during hours of darkness to help get the attention of motorists from a distance.



Clothing:

- Full-length pants and shirt
- Abbreviated or suggestive clothing such as tank tops, shorts, skirts, halter tops, etc., are not appropriate.

Step:

- To help reduce fatigue when standing, a short step may be used to evaluate one foot (i.e., a 3 to 6 inch-high block of wood or other material).

Stool:

- May not be used in any portion of the open or closed traffic lane.
- 30 inches minimum height
- No arm or back supports
- Communication equipment may be attached.
- Do not attach **STOP/SLOW** or **STOP/STOP** paddle to the stool.

Miscellaneous Warning Devices:

You may be issued the following:

- Shrill whistle
- Marine air-horn

Lighting During Hours of Darkness:

- Traffic Regulator stations are required to be illuminated for night work with a minimum of ten (10) foot candelas. The light source shall not glare into traffic from either direction.

Red Flags are allowed for Emergency Purposes Only:

- Minimum 24 inch square.
- Securely fastened to a staff that is a minimum of 3 feet in length.
- Free edge shall be weighted so that flag hangs vertically even in heavy winds.
- Required to be retro-reflective for all operations and times of day.
- Orange flags are prohibited from use during any traffic regulating operation.



TRAFFIC CONTROL LAYOUT

- Maximum recommended distance(s) between channelizing devices in the tangent section should be equal in feet to twice the lowest posted construction speed limit in miles per hour.
- Temporary signing is to be in accordance with contract requirements or the current edition of the MMUTCD.
- Place temporary signs and longitudinal buffer spaces according to the current edition of the MMUTCD, Part 6, or as required in contract documents.
- Adjustments to temporary sign spacing and longitudinal buffer space may be permitted or required by the Engineer to improve visibility and stopping sight distances that may be reduced by existing conditions.
- The maximum distance between Traffic Regulators shall be no more than 2 miles or as directed by the Engineer or contract documents.
- Distances more than 2 miles or as described in the contract documents require written approval from the Engineer prior to proceeding.

STATION AND POSITION

Traffic Regulator Station:

- The station should be located 100 to 200 feet in advance of the workers.
- The station should include an audible warning device such as horn or whistle, to warn the workers of approaching danger by errant vehicles.
- It is located so an errant vehicle has additional space to stop without entering the work area.

Traffic Regulator Position:

- Stand on the shoulder adjacent to the travel lane that is being controlled and out of the path of approaching traffic.
- Stand a minimum of 10 feet in advance of the lighted arrow panel for best visibility to approaching traffic.
- After stopping the first vehicle, the Traffic Regulator may need to stand in the controlled lane in front of the stopped vehicle in order to keep the **STOP** sign visible to approaching traffic.
- **Do not cross into the open lane of traffic.**

PRIMARY TRAFFIC REGULATORS

- Primary Traffic Regulators are stationed at each end of the closure with the responsibility of controlling the movement of traffic into and out of the work zone or incident area.
- One of the primary Traffic Regulators should be designated as the lead Traffic Regulator.
- The lead Traffic Regulator may be responsible for leading the coordination of Traffic Regulator assignments, breaks, replacements and setup.
- The lead Traffic Regulator is typically the Traffic Regulator who is in control of the lane that has the location of the construction work.

CONTROL OF TRAFFIC

To Stop Traffic

Standing stationary on the shoulder adjacent to the travel lane that is being controlled, face traffic and aim the **STOP** paddle face toward approaching traffic in the arm closest to traffic extended horizontally away from the body. The free arm shall be held with palm of the hand open above shoulder level facing approaching traffic:

- Try to make direct eye contact with the driver of the first stopped vehicle in order to maintain their attention.
- Communicate to other Traffic Regulators once the first vehicle is stopped in a controlled position.
- If approaching vehicle doesn't appear to be stopping, point at the motorist to get their attention, then provide the hand signal to stop along with the **STOP** face of the paddle.
- If the **STOP/SLOW** paddle is equipped with flashing lights:
 - Use the flash sparingly to attract the attention of motorists while they still are a distance away from your station.
- Make clear and precise signals that can be easily understood.
- **Do not wave the paddle.**

To Release Stopped Traffic:

- Visually determine that all traffic and work operations are clear in the travel lane.
- Confirm with the other Traffic Regulator(s) that their traffic is stopped.
- Standing stationary on the shoulder adjacent to the travel lane that is being controlled, face the traffic to be released, aim the **SLOW** paddle face at the released traffic in the right arm extended horizontally away from the body. Motion left to right with the free arm for traffic to proceed.



To Alert or Slow Traffic:

- Standing stationary on the shoulder adjacent to the travel lane, face approaching traffic and aim the **SLOW** paddle face toward approaching traffic in the arm adjacent to traffic extended horizontally away from the body. Motion with the free arm up and down with palm down.
- The use of slow paddles to control the speed of traffic in non-traffic regulating operations (i.e. multilane/freeway paving) is prohibited.



SUMMARY

- ✓ **Be visible.**
- ✓ **Wear all required safety equipment.**
- ✓ **Stay with the signs.**
- ✓ **Stand alone.**
- ✓ **Remain alert.**
- ✓ **Have an escape route.**
- ✓ **Record vehicle description and license plate number of any driver who disobeys your instructions and threatens safety of the work.**
- ✓ **Be brief and courteous.**
- ✓ **Remain in your position until relieved.**
- ✓ **Be professional.**

FOR THE SUPERVISOR

INTRODUCTION

- Ensure the Traffic Regulator has been issued necessary instructions and training prior to starting work.
- Ensure the Traffic Regulator is provided with the required clothing and equipment.
- Update the Traffic Regulators on any emergencies that may occur within the zone.
- Instruct the Traffic Regulator to stay with the signing sequence and arrow panel.
- Make certain that the required signs, channelizing devices, Traffic Regulators, and equipment are in place before operations begin.
- Ensure precautionary measures to safeguard the public and employees are in place.
- Ensure that all traffic control is properly maintained during the progress of work.
- Ensure that the Traffic Regulator station is properly positioned for driver visibility.
- Properly remove or cover all traffic control when it is no longer in use.
- Drive through the project to determine the effectiveness of the work zone traffic control.
- Immediately correct any hazardous situations.
- If the operation is complex, seek the advice of a qualified person.
- Discipline or replace a Traffic Regulator who is not in compliance.
- Relieve or rotate the Traffic Regulator at predetermined intervals.

- When two or more Traffic Regulators are required, designate one of them as lead Traffic Regulator.
- Report serious violations to the local police department.
- Document your actions.

TRAFFIC CONTROL LAYOUT

- Taper lengths shall be 50 feet minimum to 100 feet maximum. 100 feet maximum is the recommended length, with shorter lengths allowed if there are space restrictions.
- Maximum recommended distance(s) between channelizing devices in the taper area(s) should not exceed 15 feet.
- Park vehicles as far off the roadway as possible inside the work zone or a minimum of 50 feet beyond the lighted arrow panel into the taper area. Do not park vehicles or equipment at the Traffic Regulator station, on sidewalks, or other pedestrian pathways.
- Stay with the arrow board and sign sequence.
- The arrow panel and sign sequence are required to move with the Traffic Regulator for identification purposes.

1. D (distance) per MDOT Typicals.
2. The signing sequence is the same for both directions.

Key:



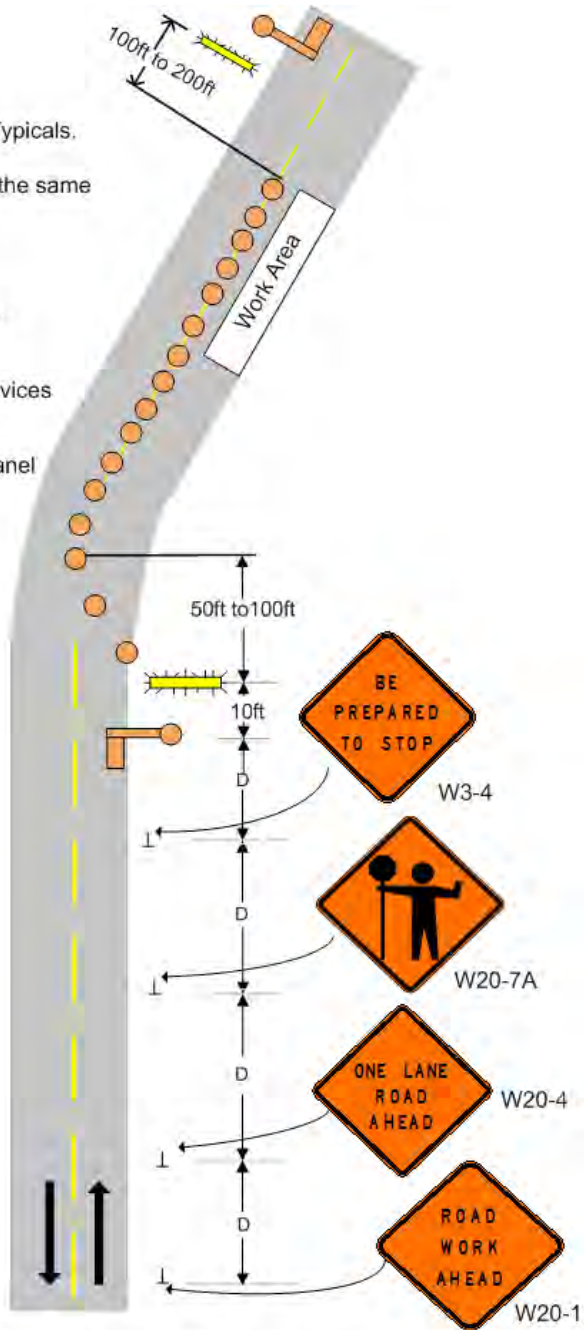
Traffic Regulator



Channelizing Devices



Lighted Arrow Panel
(Caution Mode)



Suggested applications of traffic control devices on a 2-lane highway where one lane is closed utilizing a Traffic Regulator.

STATION AND POSITION

Traffic Regulators Station:

- Can be clearly seen by approaching traffic as recommended by the stopping sight distance **Table 6E-1** in the current MMUTCD.

Stopping Sight Distance

Posted Speed (mph)	Distance (feet)
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730

- Increase the distance for downgrades or other conditions that affect stopping distance.
- Obtaining sufficient sight distance may require extending the beginning or end of a lane closure in advance or beyond existing features such as hills and curves, in advance of the Traffic Regulator station.
- Stand a minimum of 10 feet in advance of the lighted arrow panel for best visibility to approaching traffic.
- Provides a sufficient escape path and is free of obstructions.
- For projects requiring a lighted arrow panel in CAUTION mode, it should be positioned at the beginning of the taper for the full lane closure.

SINGLE TRAFFIC REGULATORS

Spot Locations - Single Traffic Regulator:

A single Traffic Regulator can only be used if all of the following points are met.

1. The work area is short (i.e., guardrail ending work, minor shoulder repair).
2. The work area is on a straight section of road with good visibility from both approaches.
3. Traffic volumes are less than 400 vehicles per day
4. Traffic speeds are low (less than 45 mph).

Single Traffic Regulator:

- Is positioned on the shoulder directly opposite from the work area and a pre-determined escape path.
- Uses channelizing devices for increased visibility and motorist awareness. Place one at each intended stopping point.
- An oversized **STOP/SLOW** paddle is recommended.
- May need to move a short distance towards the end of the work zone while stopping approaching vehicles.
- If traffic fails to understand the single Traffic Regulator, a standard Traffic Regulator operation shall be used.

INTERMEDIATE TRAFFIC REGULATORS

Intermediate Traffic Regulators are stationed at intersecting roads and/or significant traffic generators (shopping centers, mobile home parks, etc.) with the responsibility of controlling the movement of traffic entering from these points within the work zone or incident area.

Intermediate Traffic Regulators:

To control cross road traffic:

- Are required to use a **STOP/STOP** paddle.
- Are required to be in radio or visual contact with the other Intermediate Traffic Regulators to coordinate the safe entry of intermediate traffic within the work zone.
- Are not allowed to stop the mainline flow of traffic.
- Release traffic in either direction after mainline flow of traffic passes the intermediate station.
- After releasing traffic, clearly describe the last vehicle added to the traffic flow in each direction to other Traffic Regulators.
- Should be positioned at a location near the intersection where traffic in all directions can be observed and approaching traffic can be stopped safely at the intended stopping point.

INGRESS / EGRESS OPERATIONS

(Applicable to MDOT projects)

When no other contractor access is available and short stoppages for ingress/egress of contractor operations are required to be performed through active traffic, the following must be satisfied to permit use:

1. Non-freeway **only**.
2. Maximum duration of two minutes.
3. Posted speed is less than 45 mph.
4. Must be approved by the Engineer prior to use.

Ingress / Egress Traffic Regulator Operations

- No more than three stoppages per hour unless approved by the Engineer. Additional stoppages per hour without prior approval will require a full traffic regulating signing sequence.
- For ingress / egress of construction equipment and materials only.
- Provide one regulator for every two lanes required to stop. If controlling two lanes of traffic, wait for first vehicle to stop in the first lane and then proceed into the controlled lane to stop the second lane.
- Provide one **ROAD WORK AHEAD** sign for each approaching traffic direction.

HAUL ROAD CROSSINGS

If a truck is crossing the highway or making a left turn onto the highway:

- Traffic is stopped in both directions by two Traffic Regulators.
- A **STOP/STOP** paddle is required for use by both Traffic Regulators.
- To release traffic, Traffic Regulators should turn the **STOP/STOP** paddle a quarter-turn away from traffic and use the appropriate hand signals.

If the truck is making a right turn onto the highway:

- Traffic stopped in one direction by one Traffic Regulator.
- **STOP/STOP** paddle used by Traffic Regulator.
- To release traffic, Traffic Regulators should turn the **STOP/STOP** paddle a quarter-turn away from traffic and use the appropriate hand signals.
- In both instances, the **BE PREPARED TO STOP** sign replaces **ONE LANE ROAD AHEAD** sign for each direction being controlled.

The Traffic Regulators are required to be:

- Positioned on the road shoulder out of the path of on coming traffic at each side of the crossing.
- Clearly visible to each other.
- Have a pre-determined escape path free of obstructions.

NIGHT WORK

Operations during Hours of Darkness:

- Traffic Regulator stations and work area are required to be illuminated with appropriate lighting. Lighting should not create a glare for the Traffic Regulators or motorists.
- Required levels of lighting are a minimum of ten (10) foot candelas (MIOSHA Construction Safety Standard, Part 1, General Rules, Rule 133 (1)).
- Safety apparel meeting current ANSI standards for Class 3 risk exposure is recommended.
- **STOP/SLOW** paddle required to have retro-reflective sheeting, which shall meet the sign sheeting requirements in the agency or contract documents.
- A flashlight with a red glow cone may be used to get the attention of motorists. The proper method is to slowly wave the light back and forth slowly across the front of the legs with free hand.

PILOT VEHICLES

- Pilot vehicles are used in conjunction with Traffic Regulators to help control traffic passing through the work zone.
- The goal of using pilot vehicles is to provide information to the motorists on where and what speed to drive through the work zone.
- Must be coordinated with Traffic Regulator operations or other controls being used at the end of the one lane section.
- The pilot vehicle is required to have an operating amber beacon or strobe light and the name of the contractor or contracting agency prominently displayed.

- Per Part 6 of MMUTCD, the **PILOT CAR FOLLOW ME** sign shall be mounted in a conspicuous position on the rear of the pilot vehicle.



Procedures for Pilot Vehicles:

- The Traffic Regulator holds traffic in a stopped position. The driver of the pilot vehicle positions the vehicle on the shoulder opposite the Traffic Regulator or, if the shoulder width is limited, at the beginning of the stopped queue of vehicles.
- The Traffic Regulator checks with other regulators to make sure all traffic has been cleared.
- Once the Traffic Regulator confirms from other regulators that traffic has been cleared, Traffic Regulator releases the pilot vehicle, turns the **STOP/SLOW** paddle to **SLOW** and directs remaining traffic in the queue to follow.
- Clearly communicate with other regulators when the last vehicle has been released.

Keys for the Pilot Vehicle Operator:

- Must be aware of the size and composition of the vehicle queue that will follow the vehicle through the work zone. Semi-trucks, or vehicles with trailers, will likely have different acceleration/deceleration speeds and widths than the pilot vehicle.
- Driving a consistent speed. This is the key component in helping to keep the queue of vehicles safely spaced together and avoiding undesirable speed increases from motorists trying to catch up to the vehicle queue or falling behind and not understanding the expectations of where and how fast to drive through the work zone.

EMERGENCY VEHICLE PROCEDURES

- Always be alert for emergency vehicles and crews.
- Immediately contact other Traffic Regulators and work crews and coordinate stoppage of all traffic entering and traveling through the work zone.
- Allow emergency vehicle(s) to proceed through the work zone.
- Continue to keep traffic out of the work zone until the needs of the emergency vehicle(s) has cleared the work zone.
- All other Traffic Regulators should immediately stop all traffic movements to allow the emergency vehicle(s) to pass through the work zone.

SPECIAL TRAFFIC REGULATING SITUATIONS

Signalized Intersections – Altering signal operations are separately arranged or included in the contract documents.

For operations that impact an intersection for greater than 20 minutes:

- Prior to starting work:
 - Place traffic control devices per appropriate maintaining traffic typical.
 - Provide Traffic Regulators at all intersection legs.
 - Turn signal off and bag the entire signal.

For operations that impact intersection for 20 minutes or less (short duration) where the signal will be operated in manual mode:

- Prior to starting work, the agency designated representative adjusts the signal to the appropriate mode.
- Do not start regulating traffic until signal has been modified to avoid conflicting signs.
- Continue regulating traffic until signal is returned to normal operation.
- A Traffic Regulator is required for each direction of traffic being controlled.

For operations that impact an intersection for 20 minute for less (short duration) where the signal can be placed into flash mode:

- Prior to starting work, the agency designated representative will place the signal into flash mode.
 - Place traffic control devices per appropriate maintaining traffic typical.
 - Provide Traffic Regulators at all intersection approach legs.
 - Place the traffic signal in flash mode
- If an agency designated representative is not available:
 - Place traffic control devices per appropriate maintaining traffic typical.
 - Provide Traffic Regulators on all approach legs.
 - Conduct Traffic Regulator operations while the signal is in stop and go operations. **Do not attempt to stop traffic under a green indication until the intersection is under control.**

Non-Signalized Intersections:

- A Traffic Regulator is required for each side road approach of traffic being controlled.
- **Stop** and **Yield** signs are not required to be covered.

DEFINITION OF TERMS

Traffic Regulator Definitions

Activity Area: The section of highway or street where the work activity takes place. It is comprised of the work space, the traffic space, and the buffer space.

Advance Warning Area: The section of highway or street where motorists are informed about the upcoming work zone or incident area.

ANSI: American National Standards Institute (www.ansi.org)

Channelizing Device: A plastic drum, cone, tubular marker, or vertical panel that is used to guide and warn motorists of conditions created by work activities in or near the roadway.

D Distance: Distance between temporary advance signing and beginning of remaining temporary signing sequence based on posted speed prior to the work area.

Escape Path: A pre-determined route free of obstructions that enables the Traffic Regulator to maneuver away from the errant vehicles or equipment.

Haul Road Crossing: A specific location within a work zone that is used to move equipment into and/or out of the work area.

Highway or Street: The entire width between the boundary lines of every way publicly maintained when any part thereof is open to the use of the public for purposes of vehicular travel (per the Michigan Vehicle Code).

Hours of Darkness: The time from sunset to sunrise upon a straight, level, unlighted highway under normal atmospheric conditions and at any other time when there is not sufficient light to render clearly discernible persons and vehicles on the highway at the appropriate stopping sight distance, where light levels fall below ten (10) foot candelas. The required levels of lighting during hours of darkness are a minimum of ten (10) foot candelas.

Intermediate Traffic Regulator: The Traffic Regulator who is responsible for controlling traffic at intersecting roads or significant traffic generators.

ISEA: International Safety Equipment Association (<http://www.safetyequipment.org/>)

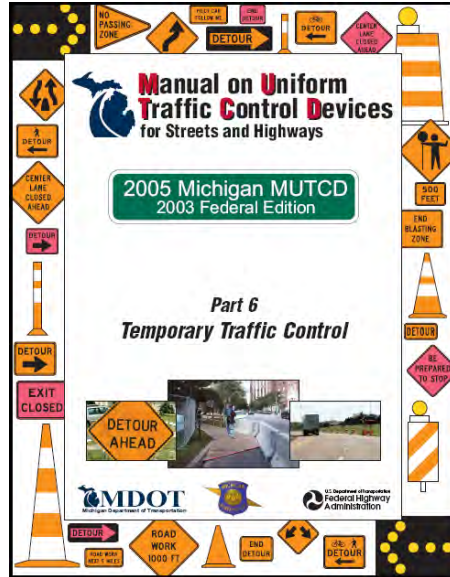
Lead Traffic Regulator: The Traffic Regulator who is responsible for the control of all Traffic Regulators who control traffic traveling through the work zone. The Lead Traffic Regulator is stationed at the traffic lane that is closed for work where traffic is required to be stopped and shifted to the opposing lane for travel through the work zone.

Lighted Arrow Panel: A traffic control device that 1) helps to advise motorists approaching a work zone and 2) highlights the location of the Traffic Regulator at the earliest opportunity.

Longitudinal Buffer Space (B Distance*): Distance between the start of the full lane closure and work area. * See MMUTCD for tables.

MASH-08: American Association of State Highway and Transportation Officials (AASHTO) Manual for Assessing Safety Hardware (MASH). This document is an update of the NCHRP Report 350 crash testing and evaluation criteria.

Michigan Manual on Uniform Traffic Control Devices (MMUTCD): The prescribed standards of design, construction, and application of traffic control devices for use upon highways within Michigan.



Michigan Vehicle Code: Act 300 of 1949, An Act to provide for the registration, titling, sale, transfer, and regulation of certain vehicles operated upon the public highways of this state or any other place open to the general public or generally accessible to motor vehicles and distressed vehicles.

NCHRP 350: National Cooperative Highway Research Program, Report 350, *Recommended Procedures for the Safety Performance Evaluation of Highway Features*. This report is recommended to highway design engineers, bridge engineers, safety engineers, maintenance engineers, researchers, hardware developers, and others concerned with safety features used in the highway environment. It contains recommended procedures for evaluating the safety performance of various highway safety features.

Obstruction: Anything that blocks the movement of a Traffic Regulator along an escape path.

Personal Protective Equipment (PPE): High-visibility safety apparel that clearly identifies the wearer and provides added protection to certain parts of the body. PPE includes vests as well as proper head, eye, and foot protection.

Pilot Vehicle: A designated vehicle used in coordination with Traffic Regulators to help control traffic through a construction zone.

Red Flag: A hand signaling device permitted for emergency situations only.

Stop/Slow Paddle: The primary hand signaling device used by a Traffic Regulator to control the flow of traffic.

Stop/Stop Paddle: The primary hand signaling device used by a Traffic Regulator to control the flow of traffic only at a haul road crossing when regulating two directions of travel.

Termination Area: The section of highway or street from the downstream end of the work area to the last traffic control device where motorists are returned to their normal path.

Traffic Regulator: An individual who is properly trained, equipped, and attired to protect the project personnel by providing safe, courteous, and authoritative directions to motorists seeking passage through a work zone.

Traffic Regulator Station: An area located off the traveled portion of the roadway that is clear of obstructions and provides sufficient clear distance for approaching traffic to see the Traffic Regulator and stop at an intended stopping point.

Transition Area: The section of highway or street where motorists are directed out of their normal travel path.

Stopping Sight Distance: The distance suggested in Table 6E-1 of Part 6 of the MMUTCD so sufficient visibility is provided for a motorist to stop at an intended stopping point.

Taper: A series of channelizing devices that are used to move traffic out of or into the normal path at the transitions.

Work Duration: The length of time a work operation occupies a spot location. There are five categories which include:

- **Long-term stationary:** Three days or more.
- **Intermediate-term Stationary:** More than one daylight period up to three days, or work during hours of darkness lasting more than one hour.
- **Short-term Stationary:** Daytime work for more than one hour with a single daylight period.
- **Short Duration:** Up to one hour.
- **Mobile:** Moves intermittently or continuously.

Work Zone: A portion of a street or highway that meets any of the following:

- Between a “**WORK ZONE BEGINS**” sign and an “**END ROAD WORK**” sign.
- Between a “**BEGIN WORK CONVOY**” sign and an “**END WORK CONVOY**” sign.

Within 150 feet of a vehicle with an operating strobe