MIOSHA

Michigan Occupational Safety and Health Administration (MIOSHA)
Department of Labor and Economic Opportunity (LEO)

AGENCY INSTRUCTION

DOCUMENT IDENTIFIER:	DATE:
MIOSHA-COM-13-2R2	December 1, 2022

SUBJECT: Roadway Work Zones - Inspection and Citation Guidance for Construction and Maintenance

I. Purpose. Purpose. This instruction provides guidance for the safe inspection of work sites where workers engaged in construction or maintenance work on and near roadways or highways are exposed to struck-by hazards from vehicular traffic or moving equipment and issuing related citations.

II. Scope. This instruction applies to the Construction Safety and Health Division (CSHD), General Industry Safety and Health Division (GISHD), and the Consultation Education and Training Division (CETD).

III. References.

A. Agency Instruction MIOSHA-ADM-15-1, Heads-up Notification to MIOSHA Administration and Case File Review, as amended.

B. Agency Instruction MIOSHA-ADM-15-7, Inspections of the State of Michigan, as amended.

C. Agency Instruction MIOSHA-SHMS-11-1, Hearing Conservation Program (HCP) for MIOSHA Personnel, as amended.

D. Agency Instruction MIOSHA-SHMS-12-1, MIOSHA Safety and Health Management System, as amended.

E. American National Standards Institute, Inc., ANSI/ISEA 107 – 2004, American National Standard for High Visibility Safety Apparel and Headwear, September 15, 2004.

F. Construction Safety and Health Standard Part 6. /R408.40601 et seq., Personal Protective Equipment.

G. Construction Safety and Health Standard Part 22. /R408.42201 et seq., Signals, Signs, Tags, and Barricades.

H. Division Instruction, CET-ADM-09-1 Onsite Consultation Program Policies and Procedures Manual, as amended.

I. Division Instruction, CET-ADM-13-1 CET Division Operations Manual, as amended.

J. Division Instruction CSHD-COM-16-1, Inspection and Citation Policy for Accident Prevention Programs and First Aid Training, as amended.

K. General Industry Safety and Health Standards Part 33. /R408.13301 et seq., Personal Protective Equipment.

L. Michigan Manual on Uniform Traffic Control Devices, Part 6, 2011.

M. Michigan Occupational Safety and Health Act, MCL 408.1001 et. seq., P.A. 154 of 1974, as amended

N. MIOSHA Field Operations Manual (FOM), as amended.

O. OSHA Instruction, CPL 02-01-054, October 16, 2012, Inspection and Citation Guidelines for Roadway and Highway Construction Work Zones.

IV. Distribution. MIOSHA Staff; Federal OSHA; S-drive Accessible; MIOSHA Messenger; and Internet Accessible.

V. Cancellations. All previous versions of this Agency Instruction.

VI. Next Review Date. To be reviewed in 3 years from date of issuance

VII. History. History of previous versions include:

MIOSHA-COM-13-2R1, September 21, 2017
MIOSHA-COM-13-2, June 17, 2013

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X. Background. Each year nationally, more than 100 construction employees are killed and over 20,000 are injured in roadway work zones. According to the Bureau of Labor Statistics (BLS), from 2011 – 2020, 1042 fatal occupational injuries occurred in highway, street, and bridge construction. Moving vehicles that strike workers on foot cause the majority of work zone deaths.

The Michigan Manual on Uniform Traffic Control Devices (MMUTCD) includes instruction on the design and use of safe temporary traffic control based on adequate warning and channelization of traffic in order to decrease injury and fatality rates of workers in work zones. A fundamental principle of the MMUTCD is that drivers reduce their speeds only if they clearly perceive a need to do so. Michigan Department of Transportation (MDOT) has revised the MMUTCD a number of times. In 2013, MIOSHA updated Construction Safety and Health Standard Part 22 Signals, Signs, Tags, and Barricades to incorporate by reference Part 6 of the 2011 edition of the MMUTCD.

Federal OSHA published CPL 02-01-054, Inspection and Citation Guidelines for Roadway and Highway Construction Work Zones, on October 16, 2012.

XI. Significant Changes.

A. Added references to the instruction.

B. Updated the Background Section with current statistics.

C. Added requirement for a 360-degree visibility reflective band to the hard hat.

D. Added requirement for safety officer/industrial hygienist (SO/IH) to drive through work zone before parking their vehicle.

E. Added a prohibition of SO/IH taking photos or videos while driving their vehicle.

F. Section XIX. B. to reflect changes to standard updates and direction to field staff when traffic regulator violations are encountered.

G. Added information about Optional Code use.

H. Added information to include consultative activities.

XII. Definitions. A glossary of definitions is located in Appendix A.

XIII. Staff Training. The training requirements for staff that inspects, or supervises the inspection of, construction and maintenance work zones are as follows:

A. Before conducting an inspection within a work zone, staff must successfully complete a combined eight (8) hours of training on Part 22, Part 6 of the MMUTCD, MIOSHA Safety and Health Management System, as amended, and this instruction.

B. Training should enable staff to complete safe interactions on or near roadways or highways and instruct on how to observe and identify four typical components of a roadway work zone during initial observation. The four typical components are:

1. The advance warning area;

2. The transition area;

3. The activity area (including buffer spaces); and

4. The termination area.

XIV. High-Visibility Safety Apparel and Personal Protective Equipment (PPE). When inspecting work zones, the SO/IH shall wear high-visibility apparel and protective equipment as follows:

A. High-Visibility Safety Apparel.

1. During daylight hours, the SO/IH shall wear, at a minimum, a Class 2 high-visibility safety vest.

2. During nighttime hours, the SO/IH shall wear, at a minimum, a Class 3 high-visibility vest and pants (Class E).

B. Head Protection. The SO/IH shall wear a hard hat with a removable retroreflective band that provides 360-degree visibility.

C. Footwear. The SO/IH shall wear safety-toe footwear.

D. Eye Protection. The SO/IH shall wear safety glasses at all times.

E. Hearing Protection. The SO/IH shall have ready access to hearing protection and wear, where appropriate, adequate hearing protection as prescribed in Agency Instruction MIOSHA-SHMS-11-1, Hearing Conservation Program (HCP) for MIOSHA Personnel, as amended.

F. Respiratory Protection. The SO/IH shall wear respiratory protection where appropriate.

XV. Other Equipment.

A. Camera. Using a flash can distract or blind motorists, equipment operators and other workers in the work zone. The SO/IH should avoid taking pictures with the flash when directing the camera towards oncoming drivers. The SO/IH may take short video clips from a safe location.

B. Flashlight. The SO/IH shall carry a flashlight during night inspections.

C. Vehicle and Amber Beacon Light. The SO/IH shall use a rotating amber beacon light (or equivalent) on top of their vehicle when entering a work zone. (See XVI. A. 10. below for further guidance.)

D. Tape Measure. In addition to a standard tape measure, a large 100 foot tape or electronic range finder is useful for longer distances in highway work zones.

XVI. Arrival, Inspection, and Departure Safety Procedures.

A. Arrival at the Work Zone. Before beginning an inspection, the SO/IH will take the following steps for personal safety:

1. The SO/IH shall initially drive through the entire work zone, preferably in both directions, to observe the work zone and determine where to safely pull off and park.

2. The SO/IH should observe the surrounding areas and driving conditions along the work zone, including the general layout of the work zone and location of temporary traffic controls.

3. Picture(s) and/or video(s) of the worksite shall not be taken while the SO/IH is driving.

4. The SO/IH should focus attention on driving and locating an area to park. Hazards and potential violations should be identified only when the opportunity exists for the SO/IH to look around and drive safely.

5. The SO/IH should look to see if the traffic controls are adequate.

a) Advance warning signs are in place.

b) Transition area tapers are at a safe distance.

c) Buffer spaces exist (an optional work zone component).

d) Cones are spaced correctly.

e) The control devices indicate a clear path of travel.

6. Appendix B illustrates four component areas in a typical lane closing. Section 6C-1 of the MMUTCD provides further details. The SO/IH should be mindful that work zones vary; some have no transition area, such as when work takes place on the shoulders or behind barriers. SO's/IH's should be aware and identify potential hazards on/in/around the work zone, such as:

a) The SO/IH should pay particular attention to dangerous conditions that would require abrupt driving maneuvers.

b) Identify the posted speed limit and actual speeds of passing traffic.

c) Look for the presence of skid marks, as potential evidence of unclear or confusing traffic controls.

7. The SO/IH should identify a safe area to pull off and park in order to don any necessary PPE, as required by Part 33, whether at the work zone or at another location.

a) The SO/IH should consider parking by the general contractor's trailer, as it is often located in a more protected area of the work site.

b) The SO/IH should look for an employee parking area or the material staging/storage area.

c) If these are unavailable, the SO/IH should consider a parking area that is beyond the worksite, and away from public traffic lanes and construction traffic.

d) If no other safe parking is available, then the SO/IH may park within the work zone.

8. If parking is within the work zone, the SO/IH shall take the following precautions:

a) Do not park in the advance warning area, the transition or taper area, or in an area that requires crossing lanes open to public traffic.

b) Stay clear of buffer spaces, if any. The buffer space is for the separation of traffic flow from the work activity or a potentially hazardous area.

c) Do not park in front of shadow trucks or other impact attenuator vehicles (i.e., between the attenuator or shadow vehicle and approaching traffic, or in front of the front bumper of the attenuator or shadow vehicle).

d) Park the vehicle behind barriers whenever possible. If no barrier exists, park at a safe distance from the public traffic lane or construction traffic.

9. The SO/IH must don the appropriate PPE prior to entering a work zone to conduct an inspection or survey.

10. Amber Beacon Light. The SO/IH shall place a rotating amber beacon light (or equivalent) on top of the vehicle if taking the vehicle into a work zone, however the SO/IH shall not turn on the beacon light until ready to enter the work zone.

11. Parking for the Inspection. At the opening conference, the SO/IH should verify with the employer whether the vehicle is parked in a safe place.

12. Approaching the Activity Area. To ensure personal safety while walking to the work zone activity area, the SO/IH shall:

    a) Face traffic as much as possible.

    b) Stay as far away from the any live lane(s) of traffic as possible.

    c) Stay away from work activity.

    d) Stay out of construction equipment "blind spots."

    e) Stay out of the swing radius of construction equipment.

    f) Only approach equipment after the operator acknowledges the SO/IH's presence (eye contact), stops the equipment, and indicates it is safe to approach.

    g) Do not stand in the backup (reverse) zone of any vehicles or construction equipment.

    h) Follow internal traffic controls, including instructions from spotters, signalers, traffic regulator, or observers.

B. Inspection. While performing the inspection, the SO/IH shall take the following precautions:

1. Be alert to traffic at all times.

2. Have an escape plan in case errant vehicles enter the work zone.

3. Never step outside of the work zone into the traveled way.

4. Perform onsite or offsite interviews in a safe or protected area (i.e., in a car well off the roadway.)

5. Do not approach workers performing traffic regulating operations. Prior to interviewing a traffic regulator, ensure that a replacement traffic regulator is available and arrange with site personnel for a time and safe place to interview the traffic regulator away from the traffic regulating station.

C. Departure from the Work Zone. Before pulling out of a parking spot within the work zone, the SO/IH should turn on the rotating amber beacon light. Once outside of the work zone, the beacon light should be turned off, although the light may remain on top of the vehicle.

XVII. Coordination with Other Governmental Entities.

A. When State of Michigan entities are to be inspected the SO/IHs are to follow Agency Instruction MIOSHA-ADM-15-7 Inspections of the State of Michigan, as amended.

B. On the day an inspection is opened with any other non-State of Michigan governmental entity, the SO/IH will follow the guidelines in MIOSHA-ADM-15-1, Heads-up Notification to MIOSHA Administration and Case File Review, as amended.

XVIII. General Inspection Procedures. Inspections of roadway and highway construction and maintenance work zones have two aspects: inspections of the work activities and inspections of the temporary traffic controls.

A. Construction vs. Maintenance (General Industry).

1. "Construction Operations" is defined in R408.1004 as "work activity" designated in major groups 15, 16, and 17 of the standard industrial classification manual, United States Bureau of the Budget, 1972 edition. In contrast, "maintenance" can be defined as making or keeping a structure, fixture, or foundation (substrates) in proper condition in a routine, scheduled, or anticipated fashion. The distinction between construction and maintenance will be made on a case-by-case basis, taking into account all information available at the work zone.

2. Many road work activities (e.g., crack sealing, overlaying, surface treatments) are considered construction and not maintenance. Construction work is not limited to new construction, but can include the repair of existing roads or the replacement of structures and their components (OSHA letters of interpretation: Stanley, 1994; Ellis, 1999; Tindell, 1999; Knobbs, 2003). Factors to consider include: (1) whether the task improves the original condition or preserves it (improvement indicates construction, preservation indicates maintenance), (2) whether the task is scheduled at regular intervals (indicating maintenance), (3) the scale and complexity of the task (large scale tasks and objects indicate construction), and (4) the system-wide impact of the task (major disruptions indicate construction).

B. Inspecting the Temporary Traffic Controls.

1. Highway construction work zones require the use of temporary traffic control signs, devices, and procedures. When inspecting these work zones, the SO/IH should refer to the specific provisions in Part 6 of the MMUTCD for guidance.

2. The SO/IH shall request a copy of the traffic control plan (TCP) for the work zone during the opening conference. An employer's TCP describes which temporary traffic control measures it uses for facilitating road use through a work zone. The degree of detail in a TCP depends entirely on the complexity of the situation. TCPs are not required for every work zone, but the general contractors of most major roadway construction projects should have detailed TCPs in place. Smaller short duration jobs may call for a typical MMUTCD application. The SO/IH should refer to

the TCP to assist in establishing employer recognition of hazards and the feasibility of abating those hazards before alleging a violation.

C. Inspections performed on roadways where MDOT or other employers are working on a public right-of-way project with MDOT funding are to be documented with the S-516 Optional Code in OIS. If an SO/IH is unsure of funding status it should be asked during the course of the inspection.

D. MDOT is responsible for administering their adopted standards and can provide MIOSHA with assistance by answering questions and providing information about local application of the MMUTCD.

XIX. Standards and Citation Policy for Construction Activities.

A. Traffic Control. Rule 2223(1) requires traffic control devices be installed and maintained as prescribed in Part 6 of the 2011 MMUTCD, which is adopted by reference in R408.42201.

1. Violations will be alleged under Rule 2223(1) for non-compliance of mandatory ("shall" or "must") MMUTCD provisions pertaining to traffic control used for protection of construction workers. The specific MMUTCD mandatory provision must be documented on the violation worksheet.

2. The SO/IH should use other provisions of the MMUTCD, including non-mandatory provisions, to identify points of hazard in construction areas that the employer, the industry, or where the SO/IHs judgment recognizes a dangerous condition. Violations may be alleged for non-mandatory provisions via the general duty clause if the conditions are met as listed in the MIOSHA FOM.

B. Traffic Regulators. MIOSHA Part 22. and Rule 2223(1), referencing the provisions of Part 6 of the 2011 MMUTCD, both have requirements for traffic regulators.

1. Use Rule 2223(1) or Section 6E.02 of Part 6 of the 2011 MMUTCD for violations pertaining to reflective clothing for traffic regulators. Speak with your supervisor about which standard addresses the condition(s) encountered.

2. Use Rule 2223(5) for violations pertaining to head, eye, and foot protection for traffic regulators.

3. Use Rule 2223(1) for violations of Part 6 of the 2011 MMUTCD related to traffic regulator operations.

C. Traffic Control Plan (TCP). If a TCP has been established for the project and the SO/IH discovers that the TCP that has been set up is not as prescribed in their Temporary Traffic Control (TTC) plan, it is not necessarily a violation. The SO/IH must document how the TTC that was set up is creating a hazard. The MMUTCD allows "sufficient flexibility" in the application of TCPs.

D. Training Violations. The SO/IH should interview employees and the employer to determine if employees have received adequate training in traffic regulating and work zone safety. Division Instruction Inspection and Citation Policy for Accident Prevention Programs and First Aid Training shall be used when alleging a citation related to training under Rule 114.

E. Citation Policy. All case files containing violations of traffic control will include a completed copy of the Traffic Control Worksheet (Appendix C). Where appropriate, follow the procedures for combining and grouping violations as set out in Chapter VI, Section II of the FOM.

F. Clarification of Standards. This section provides guidance for issuing violations for mandatory ("shall" or "must") provisions under Rules 2223(1) and 2223(2).

1. Pedestrian/Worker Safety. The MMUTCD includes several standards that provide for the safety of roadway construction workers who must move around or within the work zone "afoot." A violation of Rule 2223(1) may be alleged when signs and devices to protect pedestrians and workers do not conform to the mandatory ("shall" or "must") provisions of the MMUTCD and the relevant Section 6D. 03.

2. Advance Warning Area. The advance warning area is the section of highway used to inform road users about what to expect next. Rule 2223(1) requires that all signs and devices used to protect construction workers conform to the MMUTCD. (Section 6C.04 and Figure 6C-1)

a) Check the TTC plan to determine if it stipulates advance warning signs. Advance warning signs are not always required unless it is part of their TTC plan. Verify the MMUTCD and the TTC plan.

b) The following are examples of when the standard requires advance warning:

(1) Closed Shoulder. When no advance warning signs are used or their use does not conform to the mandatory ("shall" or "must") provisions of the MMUTCD at points of hazard to indicate a closed shoulder, use Rule 2223 (1) and reference Section 6G-07(2).

(2) Work on the Traveled Way. When no advance warning signs are used or their use does not conform to the mandatory ("shall" or "must") provisions of the MMUTCD, use Rule 2223 (1) and reference the Section 6G-10 through 18 that applies to the type of roadway being inspected.

(3) Closed Lanes. When no advance warning signs are used or their use does not conform to the mandatory ("shall" or "must") provisions of the MMUTCD to indicate work on

closed lane(s), use Rule 2223 (1) and reference Section 6F.21 through 23.

3. Transition Area including Mobile Operations. The transition area moves with the work space during mobile operations.

a) When no signs, channelization devices, or other appropriate warning devices are used at points of hazard to indicate a transition area during a mobile operation, use Rule 2223(1) and reference Section 6C. 05.

b) When devices, signs used for tapers or taper lengths do not conform to the mandatory provisions of the MMUTCD, use Rule 2223 (1) and reference Section 6C. 05.

c) When Traffic Regulators do not conform to the mandatory provisions of the MMUTCD including the TTC plan, use Rule 2223 (1) and reference the relevant sections of the MMUTCD:

(1) Is the location of the Traffic Regulator Station appropriate? (Reference 6E. 08)

(2) Is the location of the Traffic Regulator appropriate? (Reference 6E. 07)

(3) Are there stopping sight distance requirements? (Reference Table 6E-1.

(4) Is the PPE appropriate? (Reference 6E.02)

(5) Did the Traffic Regulator receive appropriate training? (Rule 114(2)(c))

XX. Standards and Citation Policy for Maintenance.

A. TTC plans related to maintenance work will be cited under the general duty clause referencing Part 6 of the 2011 MMUTCD.

B. All other violations will cite applicable general industry rules.

XXI. General Duty Clause Citations.

A. A General Duty violation may be alleged when employees are exposed to the hazard of being struck by public traffic or construction vehicles and moving equipment when crossing live lanes of high-speed traffic. Reference MMUTCD Section 6D.03.

B. A General Duty violation may be alleged when workers (other than traffic regulators) are not wearing Class II or III reflective vests when exposed to serious hazards of being struck by public or construction traffic and/or moving equipment within a work zone or adjacent to roadway. Reference ANSI/ISEA 107 – High Visibility Safety Apparel and Headwear, 2004 edition, Section 1A.11.

XXII. Consultative Procedures. MIOSHA's consultants will conduct hazard surveys relative to Roadway Work Zones in accordance with the Onsite Consultation Program Policies and Procedures Manual or the CET Division Operations Manual and this instruction.

XXIII. See Appendix D for additional guidance in selecting high visibility apparel.

APPENDIX A
Definitions

These definitions are from the 2011 Michigan Manual on Uniform Traffic Control Devices.

Activity Area: The section of the highway 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 where road users are informed about the upcoming work zone or incident area.

Channelizing Devices: The function of channelizing devices is to warn road users of conditions created by work activities in or near the roadway and to guide road users. Channelizing devices include cones, tubular markers, vertical panels, drums, barricades, and longitudinal channelizing devices.

Highway: A general term for denoting a public way for purposes of vehicular travel, including the entire area within the right-of-way.

Pedestrian: A person afoot, in a wheelchair, on skates, or on a skateboard.

Retroreflectivity: A property of a surface that allows a large portion of the light coming from a point of source to be returned directly back to a point near its origin.

Roadway: The portion of a highway improved, designed, or ordinarily used for vehicular travel and parking lanes, but exclusive of the sidewalk, berm, or shoulder even though such sidewalk, berm, or shoulder is used by persons riding bicycles or other human-powered vehicles. In the event a highway includes two or more separate roadways, the term roadway as used herein shall refer to any such roadway separately, but not to all such roadways collectively.

Rural Highway: A type of roadway normally characterized by lower volumes, higher speeds, few turning conflicts, and less conflict with pedestrians.

Temporary Traffic Control (TTC) Zone: An area of a highway where road user conditions are changed because of a work zone, an incident zone, or planned event through the use of TTC devices, uniformed law enforcement officers, or other authorized personnel.

Termination Area: The section of the highway where road users are returned to their normal driving path.

Traffic: Pedestrians, bicyclists, ridden or herded animals, vehicles, streetcars, and other conveyances singularly or together while using, for purposes of travel, any highway or private road open to the public.

Traffic Control Device: A sign, signal, marking, or other device used to regulate, warn, or guide traffic, placed on, over, or adjacent to a street, highway, private road open to public travel, pedestrian facility, or shared-use path by authority of a public agency having jurisdiction, or, in the case of a private road open to public travel, by authority of the private owner or private official having jurisdiction.

Traffic Regulator: A person who actively controls the flow of vehicular traffic into and/or through a temporary traffic control zone using hand-signaling devices or an Automated Flagger Assistance Device.

Transition Area: Section of highway where road users are redirected out of their normal path.

Traveled Way: The portion of the roadway for the movement of vehicles, exclusive of the shoulders, berms, sidewalks, and parking lanes.

Urban Street: A type of street normally characterized by relatively low speeds, wide ranges of traffic volumes, narrower lanes, frequent intersections and driveways, significant pedestrian traffic, and more businesses and houses.

Warning Sign: A sign that gives notice to road users of a situation that might not be readily apparent.

Work Zone: An area of a highway with construction, maintenance, or utility work activities. A work zone is typically marked by signs, channelizing devices, barriers, pavement markings, and/or work vehicles. Means a portion of a street or highway that meets any of the following:

a) Is between a “work zone begins” sign and an “end road work” sign.

b) Work activities conducted by a work crew and more than one moving vehicle, is a “begin work convoy” sign and an “end work convoy” sign.

c) Work activities conducted by a work crew and one moving or stationary vehicle exhibiting a rotating beacon or strobe light is between the following points:

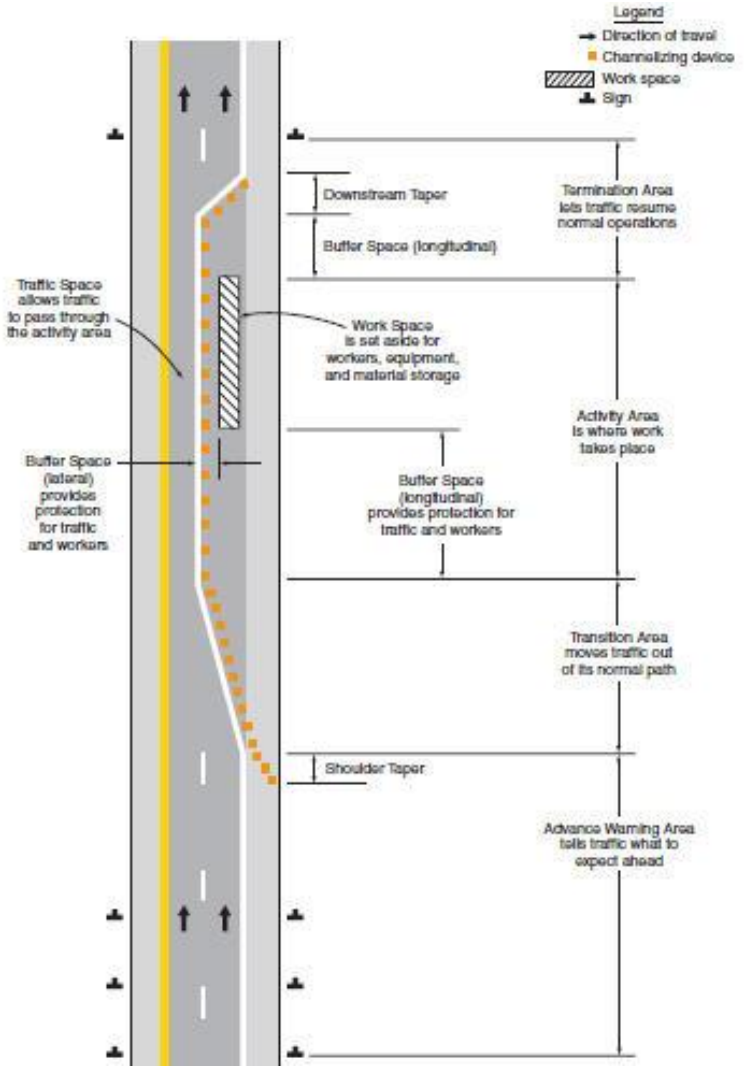
(1) A point that is 150 feet behind the rear of the vehicle or that is the point from which the beacon or strobe light is first visible on the street or highway behind the vehicle, whichever is closer to the vehicle.

(2) A point that is 150 feet in front of the front of the vehicle or that is the point from which the beacon or strobe light is first visible on the street or highway in front of the vehicle, whichever is closer to the vehicle.

APPENDIX B

Components of a Temporary Traffic Control Zone (Lane Closing)

Figure 6C – 1



Michigan Manual on Uniform Traffic Control Devices, Part 6

APPENDIX C

Traffic Control Worksheet

SO/IH

Establishment:	Inspection #:	CSHO:
EVALUATION	**COMMENTS**	**2011 MMUTCD REFERENCE**
WORK DURATION Long Term - more than 3 days Intermediate - +3 daytimes or +1hr. night Short Term - + 1 hour in a single day Short duration – up to 1 hour Mobile – intermittently or continuously		Section 6G.02
WORK LOCATION Outside the shoulder On the shoulder/ no encroachments On the shoulder/ minor encroachment Within the median Within the traveled way		Section 6G.03
TYPE OF ROAD Urban – low speed – 40 mph and below Urban – high speed – above 40 mph Rural – either high or low speed Expressway – 70 mph		Section 6H-3
WRITTEN DOCUMENTATION		
Is there a written TCP for the site?		Rule 2223(1) Sections 6A, 6B, 6C, & 6D
Who is responsible for the TCP for this project?		Rule 2223(1) Sections 6A, 6B, 6C, & 6D
Was TCP reviewed for effectiveness after it was established?		Rule 114(2)(b)
Employee Training? Documented?		Rule 114(2)(c)
ADVANCE WARNING AREA		Rule 2223(1) Section 6C.04
Correct signs and sequencing?		Section 6G
Correct sign spacing?		Section 6F.16 Table 6C-1

Correct bottom height of signs?		Section 6F Figure 6F-1 and 6F-2
Sign crashworthy - Maintenance		Section 6F.03-04
TRANSITION AREA		Rule 2223 (1) Section 6C.05
Proper signage in place?		Section 6F.03
Is taper length spacing appropriate?		Section 6C.08 Table 6C-3 and 6C-4
Is type of taper & the spacing adequate?		Table 6H-4 Section 6F.63-73
Traffic Regulator Station adequate? Traffic Regulator Ahead sign?		Section 6E.08 Table 6E-1
Traffic Regulator PPE – Vest, hard hat, safety glasses, work boots		Rule 2223(5) & (6) Section 6E.02
Stopping sight distance required?		Table 6C-2
WORK ZONE		Rule 2223(1) Section 6C.06
Are signs/barriers appropriate?		Section 6F
Employees & work operation within the work zone?		Section 6D.03
Is the Traffic Control plan appropriate for the work operation?		Sections 6A, 6B, 6C, and 6D
Location of restrooms and break areas?		
What is the speed limit in the work zone? Posted?		
Weather & site conditions		
Employee PPE adequate?		ACT 154 - vests Section 6D.03
TERMINATING AREA		Rule 2223(1) Section 6C.07
Is “End Road Work” sign at end of work zone?		Section 6F.57
Are signs covered or removed when not in use?		Section 6B.01
EMPLOYEE INTERVIEWS		
Did the traffic regulators receive training specific to regulating traffic?		Rule 114(1) Section 6E.01

Did other workers receive training on TTC? When? What? Who?		Rule 114(1) Section 6D.03
How were employees told to set up TTC? By whom?		
Was a vehicle used to place cones and other devices?		Rule 2225
When was the TTC set up? Weather/Site conditions?		
Any near misses or accidents?		
ADDITIONAL COMMENTS		

Appendix D

Guidance for Selecting High Visibility Apparel

On November 24, 2006, the Federal Highway Administration (FHWA) issued 23 CRF Part 634 Worker Visibility which requires all workers within the right-of-way (ROW) of a federal-aid highway who are exposed either to traffic (vehicles using the highway for purposes of travel) or to construction equipment within the work area shall wear high-visibility safety apparel. High-visibility apparel allows motorists and equipment operators to see workers distinctly, reducing the risk of worker injury or fatality.

High-visibility safety apparel is defined as personal protective safety clothing that is intended to provide conspicuity during both daytime and nighttime usage, and that meets the Performance **Class 2 or 3** requirements of the ANSI/ISEA 107-2004.

- **Performance Class 1** is not acceptable for use when working within a ROW or exposed to traffic or equipment.
- **Performance Class 2** has contrasting colors and specific requirements for the amount of retro-reflective material to provide higher visibility. A Class 2 vest is acceptable as the minimum requirement for workers within a ROW or exposed to traffic or equipment.
- **Performance Class 3** offers the greatest visibility in background and full range of body movements. Class 3 clothing has more retro-reflective material than Class 2 clothing; specifically in the form of material down the arms of a short sleeve vest, jacket, or coat; or a combination of a Class 2 vest with high-visibility Class E pants.

A key to selecting the right apparel is to consider which will offer optimum visibility with comfort in daytime, low-light, and nighttime conditions in a variety of work environments. The apparel color should contrast with the work environment so that the worker can be easily seen. The proper selection helps identify the wearer as a person and allows the worker to stand out within the work zone. See table below for selection guidance.

Typical Factors and Activities to Consider when selecting High-Visibility Apparel	
Class 1	Not acceptable when working within a ROW or exposed to traffic or equipment.
Class 2	Daytime activities, working off the roadway, physical barrier is in place between worker and traffic (at any speed), and lower speed roadways (under 50 mph).
Class 3	Night time activities, low light areas, daytime activities where visibility is reduced due to weather conditions, highly congested areas, working in close proximity to traffic, complex lane shifts, complex work zones, urban areas, and higher speed roadways (over 50 mph).
Class E	When high-visibility pants are worn without other high-visibility garments, they are considered Class E. When pants are added to Class 2 or 3 garments, the ensemble is considered Class 3.

Class 2 High Visibility Vest

Class 3 Short-Sleeve Vest

Class E High Visibility Pants

+ = Class 3

A Class 2 Vest paired with Class E Pants is considered Class 3