

Capital Preventive Maintenance – Micro-Surfacing
County Wide

Letting Date – April 23, 2026, 8:30 am

Contractor: _____

Address: _____

Sign & Print: _____

Date: _____

Phone & Fax: _____

Email: _____

<u>Contract Item (Pay Item)</u>	<u>Quantity</u>	<u>Pay Unit</u>	<u>Unit Price</u>	<u>Total Price</u>
Micro-Surface, Single Course	124,300	Square Yard		

**COMPLETION DATE: Seasonal Limitations per MDOT 2020 Standard Specifications for Construction.
Signed Insurance and Agreement shall be enclosed.**

Bids are to be submitted on the Road Commission forms in a plainly marked, sealed envelope. No faxed or emailed bids accepted. Plans and specifications are available online at www.tuscolaroad.org. Please contact Brent Dankert, Tuscola County Highway Engineer at 989-233-7472 or highwayengineer@tuscolaroad.org with any questions. Any addenda must be noted and initialed.

If you are interested in bidding and have downloaded plans from the website please email highwayengineer@tuscolaroad.org to be added to the plan holders list to make sure you receive addendums.

The Contractor has examined the proposal, permits, plans and the location of work described here in and is fully informed as to the nature of the work and the conditions relating to its performance. Proposals will be received from contractors having a current (Ca) prequalification with the Michigan Department of Transportation. All work shall be done in accordance with Section 504 of the 2020 MDOT Standard Specifications for Construction, and as modified herein and as per attached supplemental specifications and provisions.

General:

This work shall be at various locations throughout Tuscola County or state highways under the maintenance jurisdiction of the Tuscola County Road Commission. The work shall consist of all necessary labor, equipment, and material to perform the surface preparation and application of a single course micro-surfacing at the locations specified and in accordance with the plans and specifications. All local road work is subject to approval by the Township. Quantities shown are estimates and are subject to increase or decrease by the Engineer. Changes in quantities will not change the as bid unit prices.

Projects may be added or deleted as mutually agreed upon by the Road Commission and the Contractor.

Schedule:

Contractor shall provide the Tuscola County Road Commission 14 days advance notice prior to mobilize to allow for advance construction signs to be installed and any prep work to be completed.

Contractor shall coordinate with Chip Seal Contractor for application of Micro-Surfacing treatment on single chip seal and scrub seal applications for a Cape Seal.

Tuscola County Road Commission will provide a list of projects to the contractor as Townships authorize local road projects, with a complete list by May 1st. All work shall be completed by the Seasonal Limitations as specified by the 2020 MDOT Standard Specifications for Construction unless otherwise approved by the Engineer. **Liquidated damages may be assessed at a rate of \$100.00 per day per project.**

Materials:

All materials must meet the requirements under section 504.02 of the 2020 MDOT Standard Specifications for Construction except as modified herein:

1. **Aggregate** – Shall be processed Recycled Asphalt Product (RAP) provided by the Road Commission. Location of RAP stockpile, East Dayton Rd. .10 miles north of Frankford Rd. RAP must be screened at the project site to ensure that RAP being introduced into the micro-surface mixture is not larger than the top size aggregate allowed in the mix design. The RAP must be screened directly into the material transport units or micro-surface machine(s). The aggregate screening unit must be capable of producing adequate tonnage to maintain project production.
2. **Mix Design** – Provide micro-surfacing mixtures consisting of a blend of polymerized asphalt emulsion, RAP fine aggregate, portland cement, water, and other additives. The mixture must be designed by a laboratory that participates in AASHTO resource’s Proficiency Sample Program. Submit the mix design to the Engineer at least 7 days before beginning construction. Provide a JMF meeting the criteria shown in Table 504-1 and limits shown in Table 504-2 of the 2020 MDOT Standard Specifications for Construction to the Engineer at the pre-production meeting.

Projects:

Deckerville Rd.

- M-81 to Kingston 9.08 Miles Micro-Surface, Single Course
 - Deckerville Rd. M-81 to Plain: Paved 2023 - Overband Crack Seal 2025
 - Deckerville Rd. Plain to Kingston: Paved 2025
 - Waterborne Pavement Markings

Cameron Rd.

- M-81 to Deckerville 0.50 Miles Micro-Surface, Single Course
- Anticipated Scrub Seal May of 2026

Willow Wood Dr.

- Deckerville to Maple Wood Dr. 0.07 Miles Micro-Surface, Single Course
- Anticipated Single Chip Seal May of 2026

Construction:

The Contractor shall follow the construction methods as described in Section 504.03 of the 2020 MDOT Standard Specifications for Construction except as modified herein:

1. **Surface Preparation** – Clean existing surface of loose materials, vegetation, dirt, dust, mud, and other deleterious materials. Remove animal remains before placing the mixture. Protect drainage structures, monument boxes, water shut-offs, and other existing structures during mix application.
2. **Quality Control** - Shall follow 504.03.H of the MDOT Standard Specification for Construction. A Quality Control Plan and proposed JMFs shall be submitted prior to construction occurring. A Pre-production meeting will be held prior to start up.
3. **Stockpiling of Aggregates** – The Road Commission will secure and supply the stockpile of RAP located on East Dayton Rd. .10 miles north of Frankford Rd.

Equipment Requirements:

All equipment must meet the requirements under Section 504.03 of the 2020 MDOT Standard Specifications for Construction, except as modified herein:

Traffic Control:

The Road Commission will install "Road Work Ahead" signs and detour route prior to the Micro-Surfacing operations. The contractor shall maintain access to homes through the following method:

1. **Lane Closures:** The contractor shall maintain traffic as per the Tuscola County Road Commission Maintaining Traffic Special Provision attached.

Measurement and Payment:

Contract items shall be invoiced by location. Measurement will be made by the unit specified on page one. Proper material tickets shall be provided with the invoice documenting quantity used of each material.

All invoices **MUST** include the TCRC job number and project location.

Contractors Daily Reports shall also accompany the invoice showing data as specified in section 504.03.H of the MDOT Standard Specifications Book.

The contract unit prices shall be payment in full for all labor, materials, and equipment needed to accomplish the work, including brooming, establishment of yield intervals, maintaining traffic and delayed acceptance inspection.

Warranty:

The Contractor hereby warrants his work and material for one year from date of placement. The Road Commission may choose to hold up to 10% of the project bid cost until the warranty expires.

Field inspection Acceptance:

Upon completion of work, schedule an inspection with the Engineer. The Engineer will note deficiencies, including areas exhibiting adhesion or cohesion failure. Reconstruct work identified by the Engineer as unacceptable. The contractor shall furnish the materials, equipment, and labor to make the identified corrections to the satisfaction of the Road Commission at no additional cost to the Road Commission.

Liability:

The Contractor shall at all times exercise extreme care and shall assume all liability for any damages resulting from his operations and shall hold the Tuscola County Road Commission harmless from any such claims or damages.

The contractor must obtain a Tuscola County Right of Way Permit before any work can begin. The successful bidder must also furnish certificates or policies giving satisfactory evidence of insurance coverage in accordance with *Tuscola County Road Commission Policies and Procedures Manual Section 9.7 Insurance Requirements*, to ensure adequate payment for any damage caused by his operations.

The contractor shall, prior to the start of work, file with the Tuscola County Road Commission a certificate of Workmen's Compensation Insurance. The attached certificate of insurance is required for the successful bidder or bidders.

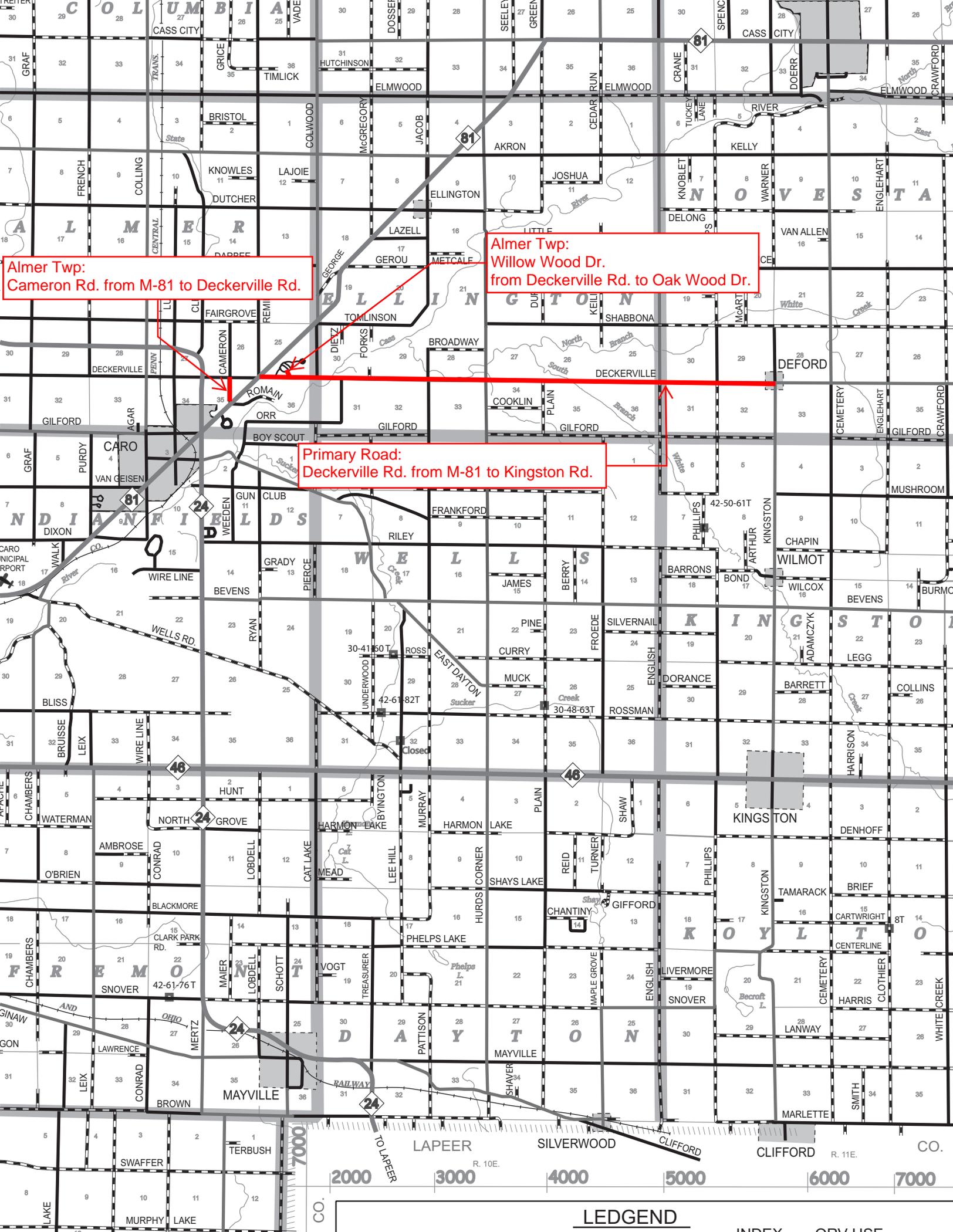
Non-Compliance with Project Specifications Provisions:

Any variation from the specifications of the project herein without written approval from the Tuscola County Road Commission and/or its authorized representative may result in, at the discretion of the Road Commission, the voiding and/or canceling of the acceptance of any bid and/or contract, resulting from this project.

The Board reserves the right to accept or reject any or all proposals and to re-advertise or to accept the proposal, which in their opinion, is in the best interest of Tuscola County.

Attachments:

1. Project Location Map
2. Title IV and VI Compliance
3. Agreement
4. Tuscola County Right of Way Permit
5. Traffic Control Policy
6. Insurance Policy



Almer Twp:
Cameron Rd. from M-81 to Deckerville Rd.

Almer Twp:
Willow Wood Dr.
from Deckerville Rd. to Oak Wood Dr.

Primary Road:
Deckerville Rd. from M-81 to Kingston Rd.



LEDGEND

TUSCOLA COUNTY ROAD COMMISSION

TITLE IV COMPLIANCE

APPENDIX A

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. Compliance with Regulations: The contractor shall comply with the Regulations relative to non-discrimination in Federally-assisted programs of the Department of Transportation, Title 49, code of Federal Regulations, Part 21 as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.
2. Non-discrimination: The contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment.
3. The contractor shall not participate either directly or indirectly in the discrimination prohibited by section 21.5 of the Regulation, including employment practices when the contractor covers a program set forth in Appendix B of the Regulations.
4. Solicitations for Subcontracts, Including Procurements of Materials and Equipment: In all solicitations either by competitive bidding or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Regulations relative to non-discrimination on the grounds of race, color, or national origin.
5. Information and Reports: The contractor shall provide all information and reports required by the Regulations, or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Tuscola County Road Commission to be pertinent to ascertain compliance with such Regulations or directives. Where any information required of a contractor is in the exclusive possession of another who fails or refuses this information, the contractor shall so certify to the State highway department, or the Federal Highway Administration as appropriate, and shall set forth what efforts it has made to obtain the information.
6. Sanctions for Non-compliance: In the event of the contractor's non-compliance with the non-discrimination provisions of this contract, the Tuscola County Road Commission Shall Impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to:
 - a) Withholding of payments to the contractor under the contract until the contractor complies, and/or
 - b) Cancellation, termination, or suspension of the contract, in whole or in part.
7. Incorporation of Provisions: The contractor shall Include the provisions of paragraphs (1) through (6) in every subcontract, including procurement of materials and leases of equipment, unless exempt by the Regulations, or directives Issues pursuant thereto. The contractor shall take such action with respect to any subcontract or procurement as the Tuscola County Road Commission may direct as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that, in the event u contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the contractor may request the Tuscola County Road Commission to enter into such litigation to protect the interests of the County, and, in addition, the contractor may request the State highway department to enter into such litigation to protect the interests of the State and/or the United States to enter into such litigation to protect the interests of the United States.

"The TUSCOLA COUNTY ROAD COMMISSION, in accordance with Title VI of the Civil Rights Act of 1964, 78-252, 42 U.S.C. 2000d-222d-4, the Civil Rights Act of 1987, P.L. 100-259, and Title 49, Code of Federal Regulations, Department of Transportation, subtitle A, Office of the Secretary, Part 21, Non-discrimination in federally assisted programs of the Department of Transportation issued pursuant to such Act, hereby notifies all bidders that it will affirmatively insure that in any contract entered into pursuant to this advertisement, Disadvantaged Business Enterprise firms will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of Race, Color, Sex, Age, National Origin, or Handicap in consideration for an award. For additional compliance information, please see Appendix A."

AGREEMENT

TUSCOLA COUNTY ROAD COMMISSION – 1733 S. MERTZ ROAD, CARO, MI 48723
PAGE 1 OF 1

This agreement made this _____ day of _____, 20_____
by and between the Board of Tuscola County Road Commissioners and _____
_____.

1. _____ hereby agrees to undertake the following work
in the status of an independent contractor performing the following job:

_____.

2. Said contractor, _____, shall at all
times exercise extreme care and shall assume any and all liability for property damage or bodily
injury resulting from the above operation by this employees, agents, assigns, sub-contractors
and anyone else acting under his control or direction; and will indemnify, hold harmless and
defend the Tuscola County Road Commission, its Commissioners or employees from any and all
claims for property damage or bodily injury arising out of this Agreement.

3. Said contractor, _____, while
engaged in said job shall maintain and furnish certificates of insurance, naming the Tuscola
County Road Commission and Commissioners as an additional insured under the policy,
evidence of insurance coverage in accordance with *Tuscola County Road Commission Policies
and Procedures Manual Section 9.7 Insurance Requirements*, and shall furnish the Tuscola
County Road Commission copies of said certificates of insurance prior to commencing any work
on said project.
Additionally, said contractor, _____, shall furnish
prior to start of said job with the Board of Tuscola County Road Commissioners, a policy of
insurance certifying he carries and has in effect worker's compensation insurance on all those
required to be covered under Michigan law.

4. The address of the Board of Tuscola County Road Commissioners is 1733 S, Mertz Rd., Caro, MI
48723.

Witnessed:

Board of Tuscola County Road Commissioners

Contractor

Contractor bid will not be accepted unless the enclosed Agreement is Signed and Returned with your bid.

TUSCOLA COUNTY ROAD COMMISSION

Right - of - Way Permit Worksheet

Permit Fees & Proof of Insurance are required prior to review of the permit application

Date: _____

Applicant/Property Owner:

Name: _____

Address: _____

Phone: _____

Email: _____

Signature: _____

Contractor:

Name: _____

Address: _____

Phone: _____

Email: _____

Signature: _____

Project Locations:

Address: _____

Road: _____

Between: _____

And: _____

Township: _____ Section: _____

Project Description:

Type of Work:

Driveway: *Commercial

Residential/Farm

Special Use: Utility

Yard Enclosure

Road Crossing: Bore

Open Cut

Misc.: _____

Material: *(If Known)*

**Pipe/Culvert Material: _____

Pipe/Culvert Diameter: _____

Pipe/Culvert Length: _____

***Backfill Material: _____

Reviewer's Recommendations:

**Additional Permit Standards & Policies apply, available upon Request*

Reviewer's Signature: _____

***Plastic, Concrete, or CMP (CMP may be purchased thru TCRC if placed in R-O-W)*

Flagged: _____

****A Copy of the Certified Mechanical Analysis & the Density Report are required for material placed under roadway*



8. TRAFFIC CONTROL POLICY

PURPOSE

The Tuscola County Road Commission manages traffic operations throughout the county and local road network to minimize vehicle crashes and maximize mobility.

POLICY

Traffic shall be maintained in accordance with Sections 812 and 922 of the 2020 Michigan Department of Transportation (MDOT) Standard Specifications for Construction, including any Supplemental Specifications, and as herein specified.

LOCATION OF WORK

- A. **Work outside of the shoulder** – occurs when equipment, personnel, and/or material “is confined to an area 5 feet or more from the edge of the traveled way”
- B. **Work on the shoulder**– when equipment, personnel, and/or material is confined to the shoulder without reducing any width of the traveled way. Edge of pavement to 5 feet.
- C. **Work within the traveled way** – work that exceeds the definition of any work previously described in parts A through B.

Location A. signing for work outside of the shoulder shall be according to the MDOT Maintaining Traffic typical [4000-M-SHL-OUT](#). Additional signage maybe required at Engineers discretion depending on number of personal & equipment in the ROW.

Location B. signing for a shoulder closure shall be according to attached MDOT Maintaining Traffic Typical [122-NFW-SHL-\(R\)](#).

Location C. work that exceeds the boundaries set by Parts A and B shall be completed in a single lane closure detailed according to a MDOT typical [110-TR-NFW-2L](#). Any alterations to this typical must be approved by the engineer prior to implementation of the TTC plan.

CONSTRUCTION INFLUENCE AREA

The construction influence area (CIA) shall consist of the width of the project right-of-way from 3,500 feet before the project P.O.B. to 3,500 feet beyond the project P.O.E. and 1,500 feet in all directions along all crossroads.



TRAFFIC CONTROL DEVICES

All traffic control devices and their usage shall conform to the Michigan Manual on Uniform Traffic Control Devices (MMUTCD), 2011 edition as amended, and as herein specified.

Sign covers shall be placed over existing regulatory, warning and construction signs that are not applicable during construction.

Arrow boards are to be placed and used in a manner that allows for the signal board to be “clearly legible at distances from 2500 feet to 200 feet, from all traffic lanes and roadway entrances. Do not place the lighted arrow on a horizontal or vertical curve that might interfere with this legibility requirement” – MDOT typical Sheet [104-GEN-AB](#).

Reflective sheeting must meet or exceed the requirements of ASTM D4956 for Type VIII reflective sheeting on rigid signs. Reflective sheeting must meet or exceed the requirements of ASTM D4956 for Type VI reflective sheeting on flexible, roll-up signs. Orange sheeting must be fluorescent orange reflective sheeting.

FLAGGER/TRAFFIC REGULATORS

Traffic regulators are required to have completed the Michigan Traffic Regulator training within 12 months prior to performing any traffic regulating duties.

Traffic regulators and workers must conform with paragraph 4 of Section 6D.03 (MMUTCD) as quoted below.

Traffic Control for a one-lane, two-way traffic control shall be conducted in accordance with Section 6C.11 of the MMUTCD and as herein modified.

“Traffic should be controlled by a traffic regulator at each end of a constricted section of roadway. One of the traffic regulators should be designated as the coordinator. To provide coordination of the control of the traffic, traffic regulators should be able to communicate with each other orally, electronically, or with manual signs. These manual signals should not be mistaken for traffic regulating signals. Any alternative options must be approved by the engineer.”

Alternatively, traffic control may be conducted via an automated flagger assistance device or pilot car as stated by the MMUTCD, except as modified herein w/ prior approval from the Engineer.



ALL WORKERS IN ROW

“All workers, including emergency responders, within the right-of-way who are exposed either to traffic (vehicles using the highway for purposes of travel) or to work vehicles and construction equipment with the Temporary Traffic Control (TTC) zone shall wear high-visibility safety apparel that meets the Performance Class 2 or 3 requirements of the ANSI/ISEA 107-2004 publication entitled "American National Standard for High-Visibility Safety Apparel and Headwear" (see Section 1A.11), or equivalent revisions, and labeled as meeting the ANSI 107-2004 standard performance for Class 2 or 3 risk exposure, except as provided in Paragraph 5 (MMUTCD). A person designated by the employer to be responsible for worker safety shall make the selection of the appropriate class of garment.”

WORK DURATION

Work duration is a major factor in determining the number and types of devices used in TTC zones. The duration of a TTC zone is defined relative to the length of time a work operation occupies a spot location.

Standard

The four categories of work duration and their time at a location shall be:

- A. Intermediate-term stationary is work that occupies a location more than one daylight period up to 3 days or more.
- B. Short-term stationary is daytime work that occupies a location for more than 1 hour within a single daylight period.
- C. Short duration is work that occupies a location up to 1 hour.
- D. Mobile is work that moves intermittently or continuously.”

In addition, work shall be conducted during daylight hours only. No work shall be conducted on Sundays unless approved by the Engineer. The maximum distance between the traffic regulators shall be no more than 2 miles in length. All sequences of more than 2 miles in length will require written permission from the Engineer before proceeding.

Traffic Control for work conducted on the shoulder shall be in accordance with section 6H.01 of the MMUTCD as modified herein.

- a. **Short duration or mobile operations on the shoulder** – “Stationary warning signs may be omitted if the work vehicle displays high-intensity rotating, flashing, oscillating, or strobe lights. If an arrow board is used, the caution mode shall be used. Vehicle-mounted signs shall be mounted in a manner such that they are not obscured by equipment or supplies. Sign legends on vehicle-mounted signs shall be covered or turned from view when work is not in progress.”
- b. **Short-term or intermediate-term work on the shoulder without encroachment** – “When paved shoulders having a width of 8 feet or more are closed, at least one advance warning sign shall be used. In addition, channelizing devices shall be used to close the shoulder in advance to delineate the beginning of the work space and direct vehicular traffic to remain



- within the traveled way. Alternatively, traffic regulation shall be in accordance with MDOT typical 122-NFW-SHL-(R).”
- c. **Work on the shoulder with encroachment** – “Where the opposite shoulder is suitable for carrying vehicular traffic and of an adequate width, lanes may be shifted by use of closely-spaced channelizing devices, provided that the minimum lane width of 10 feet is maintained. Otherwise, a lane closure shall be employed in accordance with MDOT typical 110-TR-NFW-2L.”
 - d. Work extending beyond the criteria above shall have traffic control in accordance with MDOT typical 110-TR-NFW-2L or result in a full road closure.

ATTACHMENTS

<u>MDOT TYPICAL</u>	<u>Pg.</u>
<u>101-GEN-SPACING-CHARTS</u>	33
<u>102-GEN-NOTES</u>	36
<u>103-GEN-SIGN</u>	38
<u>104-GEN-AB</u>	43
<u>110-TR-NFW-2L</u>	44
<u>122-NFW-SHL-(R)</u>	45
<u>4000-M-SHL-OUT</u>	46

Maintaining Traffic Typical can also be found on MDOT’s website:
<https://mdotboss.state.mi.us/TSSD/tssdHome.htm>.

DISTANCE BETWEEN TRAFFIC SIGNS, "D"

"D" DISTANCES	POSTED SPEED LIMIT, MPH (PRIOR TO WORK AREA)										
	25	30	35	40	45	50	55	60	65	70	75
D (FEET)	250	300	350	400	450	500	550	600	650	700	750

GUIDELINES FOR LENGTH OF LONGITUDINAL BUFFER SPACE, "B"

"B" LENGTHS	SPEED,* MPH (PRIOR TO WORK AREA)											
	20	25	30	35	40	45	50	55	60	65	70	75
B (FEET)	33	50	83	132	181	230	279	329	411	476	542	625

* POSTED SPEED, OFF-PEAK 85TH PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED.

MINIMUM MERGING TAPER LENGTH, "L" (FEET)

OFFSET (FEET)	POSTED SPEED LIMIT, MPH (PRIOR TO WORK AREA)										
	25	30	35	40	45	50	55	60	65	70	75
1	11	15	21	27	45	50	55	60	65	70	75
2	21	30	41	54	90	100	110	120	130	140	150
3	32	45	62	80	135	150	165	180	195	210	225
4	42	60	82	107	180	200	220	240	260	280	300
5	53	75	103	134	225	250	275	300	325	350	375
6	63	90	123	160	270	300	330	360	390	420	450
7	73	105	143	187	315	350	385	420	455	490	525
8	84	120	164	214	360	400	440	480	520	560	600
9	94	135	184	240	405	450	495	540	585	630	675
10	105	150	205	267	450	500	550	600	650	700	750
11	115	165	225	294	495	550	605	660	715	770	825
12	125	180	245	320	540	600	660	720	780	840	900
13	136	195	266	347	585	650	715	780	845	910	975
14	146	210	286	374	630	700	770	840	910	980	1050
15	157	225	307	400	675	750	825	900	975	1050	1125

NOT TO SCALE

 Michigan Department of Transportation	NOT TO SCALE	MAINTAINING TRAFFIC TYPICAL	"B", "D" AND "L" TABLES CHANNELIZING DEVICE SPACING, SIGN BORDER KEY, AND ROLL-AHEAD SPACING	DATE: MAY 2021
		NO. 101-GEN-SPACING-CHARTS		SHEET: 1 OF 3

FILE: 101-GEN-SPACING-CHARTS.dgn

THE FORMULAS FOR THE MINIMUM LENGTH OF A MERGING TAPER IN DERIVING THE "L" VALUES SHOWN IN THE ABOVE TABLES ARE AS FOLLOWS:

$L^* = \frac{W \times S^2}{60}$ WHERE POSTED SPEED PRIOR TO THE WORK AREA IS 40 MPH OR LESS

$L^* = W \times S$ WHERE POSTED SPEED PRIOR TO THE WORK AREA IS 45 MPH OR GREATER

L = MINIMUM LENGTH OF MERGING TAPER
S = POSTED SPEED LIMIT IN MPH PRIOR TO WORK AREA
W = WIDTH OF OFFSET

TYPES OF TAPERS

UPSTREAM TAPERS
MERGING TAPER
SHIFTING TAPER
SHOULDER TAPER
2 TO 1 LANE ROAD TAPER

DOWNSTREAM TAPERS
(USE IS RECOMMENDED)

TAPER LENGTH

L - MINIMUM
1/2 L - MINIMUM
1/3 L - MINIMUM
100' - MAXIMUM

100' (PER LANE)

MAXIMUM SPACING FOR CHANNELIZING DEVICES

WORK ZONE SPEED LIMIT	DRUM AND 42" DEVICE SPACING (FT)		NIGHTTIME 42" DEVICE SPACING (FT)	
	TAPER	TANGENT	TAPER	TANGENT
< 45 MPH	1 x SPEED LIMIT	2 x SPEED LIMIT	25 FEET	50 FEET
≥ 45 MPH	50 FEET	100 FEET	25 FEET	50 FEET

SIGN OUTLINE KEY

DASHED OUTLINES INDICATE A SIGN THAT EXISTS ON SITE, AND NEEDS TO BE COVERED.

SOLID OUTLINES INDICATE A SIGN THAT IS TO BE PLACED ON THE PROJECT

NOT TO SCALE

	NOT TO SCALE	MAINTAINING TRAFFIC TYPICAL	"B", "D" AND "L" TABLES CHANNELIZING DEVICE SPACING SIGN BORDER KEY AND ROLL-AHEAD SPACING	DATE: MAY 2021
		101-GEN-SPACING-CHARTS		SHEET: 2 OF 3

GUIDELINES FOR ROLL-AHEAD DISTANCES FOR TMA VEHICLES - TEST LEVEL 2

WEIGHT OF TMA VEHICLE	PREVAILING SPEED (POSTED SPEED PRIOR TO WORK ZONE)	ROLL-AHEAD DISTANCE* (DISTANCE FROM FRONT OF TMA VEHICLE TO WORK AREA)
5.5 TONS (STATIONARY)	40 MPH OR LESS	25 FT

* ROLL-AHEAD DISTANCES ARE CALCULATED USING A 4,410 POUND IMPACT VEHICLE WEIGHT.

GUIDELINES FOR ROLL-AHEAD DISTANCES FOR TMA VEHICLES - TEST LEVEL 3

WEIGHT OF TMA VEHICLE	PREVAILING SPEED (POSTED SPEED PRIOR TO WORK ZONE)	ROLL-AHEAD DISTANCE* (DISTANCE FROM FRONT OF TMA VEHICLE TO WORK AREA)
5 TONS (MOBILE)	45 MPH	100 FT
	50-55 MPH	150 FT
	60-75 MPH	175 FT
12 TONS (STATIONARY)	45 MPH	25 FT
	50-55 MPH	25 FT
	60-75 MPH	50 FT

* ROLL-AHEAD DISTANCES ARE CALCULATED USING A 10,000 POUND IMPACT VEHICLE WEIGHT.

 NOT TO SCALE	MAINTAINING TRAFFIC TYPICAL	"B", "D" AND "L" TABLES CHANNELIZING DEVICE SPACING SIGN BORDER KEY AND ROLL AHEAD SPACING	DATE: MAY 2021
	NO. 101-GEN-SPACING-CHARTS		SHEET: 3 OF 3

FILE: 101-GEN-SPACING-CHARTS.dgn

THE FOLLOWING NOTES APPLY IF CALLED FOR ON THE TRAFFIC TYPICAL

GENERAL NOTES

- G1: SEE GEN-SPACING-CHARTS FOR COMMON VALUES INCLUDING:
D = DISTANCE BETWEEN TRAFFIC CONTROL DEVICES
L = MINIMUM LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER
ROLL AHEAD DISTANCE
- G2: DISTANCE BETWEEN SIGNS, "D", THE VALUES FOR WHICH ARE SHOWN IN TYPICAL GEN-KEY ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.
- G3: ALL TEMPORARY SIGNS, TYPE III BARRICADES, THEIR SUPPORT SYSTEMS AND LIGHTING MUST MEET NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM REPORT 350 INCHRP 3501 TEST LEVEL 3, OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH TL-3 AS WELL AS THE CURRENT EDITION OF THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS. ONLY DESIGNS AND MATERIALS APPROVED BY MDOT WILL BE ALLOWED.
- G4: DO NOT STORE EQUIPMENT, MATERIALS OR PERFORM WORK IN ESTABLISHED BUFFER AREAS.
- G5: ALL EXISTING PAVEMENT MARKINGS WHICH ARE IN CONFLICT WITH EITHER PROPOSED CHANGES IN TRAFFIC PATTERNS OR PROPOSED TEMPORARY TRAFFIC MARKINGS SHALL BE REMOVED BEFORE ANY CHANGE IS MADE IN THE TRAFFIC PATTERN. EXCEPTION WILL BE MADE FOR TRAFFIC PATTERNS FOR WORK LESS THAN THREE DAYS THAT ARE ADEQUATELY DELINEATED BY OTHER TRAFFIC CONTROL DEVICES.

SIGN NOTES

- S1: ALL NON-APPLICABLE SIGNING WITHIN THE CIA MUST BE MODIFIED TO FIT CONDITIONS, COVERED, OR REMOVED, FOR GUIDANCE SEE THE WORK ZONE SAFETY AND MOBILITY MANUAL, SECTIONS 6.01.09 AND 6.01.10.
- S2: R5-18d SIGNS ARE ONLY REQUIRED ON FREEWAY PROJECTS WITH A DURATION OF 15 DAYS OR LONGER OR NON-FREEWAY PROJECTS WITH A DURATION OF 90 DAYS OR LONGER. TO APPLY THIS TYPICAL WITHOUT R5-18d SIGNS, REMOVE THE SIGNS AND CONSOLIDATE THE SEQUENCE AS APPROPRIATE.
- S3: R5-18c IS ONLY REQUIRED IN THE INITIAL SIGNING SEQUENCE IN THE WORK ZONE. OMIT THIS SIGN IN SUBSEQUENT SEQUENCES IN THE SAME WORK ZONE.
- S4: ADDITIONAL SIGNING AND/OR ELONGATED SIGNING SEQUENCES SHOULD BE USED WHEN TRAFFIC VOLUMES ARE SIGNIFICANT ENOUGH TO CREATE BACKUPS BEYOND THE W20-5 SIGNS.
- S5: PLACE ADDITIONAL SPEED LIMIT SIGNS REFLECTING THE WORK ZONE SPEED AFTER EACH MAJOR CROSSROAD THAT INTERSECTS THE WORK ZONE, OR AFTER EACH ENTRANCE RAMP THAT COMES ONTO THE FREEWAY WHERE THE REDUCED SPEED IS IN EFFECT. PLACE ADDITIONAL SPEED LIMIT SIGNS AT INTERVALS ALONG THE ROADWAY SUCH THAT NO SPEED LIMIT SIGNS ARE MORE THAN 2 MILES APART. WHEN REDUCED SPEED LIMITS ARE UTILIZED IN THE WORK AREA, PLACE ADDITIONAL SPEED LIMIT SIGNS RETURNING TRAFFIC TO ITS NORMAL SPEED BEYOND THE LIMITS OF THE WORK AREA AS INDICATED. IF PERMANENT SIGNS DISPLAYING THE CORRECT SPEED LIMIT ARE POSTED, OMIT ALL W3-5b AND R2-1 SIGNS AND REDUCE SPACING ACCORDINGLY.
- S6: FABRICATE SPECIAL SIGNS IN ACCORDANCE WITH CURRENT SIGNING DESIGN STANDARDS.
- S7: PLACE ADDITIONAL R8-3 SIGNS AT A MAXIMUM 500' SPACING THROUGHOUT THE WORK ZONE.
- S8: WHEN SPEED LIMIT SIGNS CANNOT BE PLACED SIDE BY SIDE AS SHOWN, PLACE THEM "D" DISTANCE APART.
- S9: STOP SIGNS NOT REQUIRED IF SIGNALS ARE ON 4-WAY FLASHING RED. STOP AHEAD SIGNS ARE NOT REQUIRED IF THERE IS ADEQUATE VISIBILITY OF THE STOP SIGN OR IF SIGNALS ARE BEING USED TO CONTROL TRAFFIC.
- S10: PLACE REDUCED SPEED ZONE AHEAD SIGN (W3-5d) HERE WHEN USING A SPEED REDUCTION IN THIS DIRECTION.
- S11: THE NUMBER OF W1-6 SHIFT SIGNS TO PLACE FOR A SHIFT IS AS FOLLOWS:
SHIFTS 4FT OR LESS, PLACE ONE W1-6(R/L)
SHIFTS 5FT TO 12FT, PLACE TWO W1-6(R/L)
SHIFTS MORE THAN 12FT, PLACE THREE OR MORE W1-6(R/L) SIGNS DEPENDING UPON LENGTH OF SHIFT AND AS PER THE ENGINEER.
- S12: PLACE R2-1 SIGNS AS DETAILED IN NOTE S5 WHEN THERE IS A SPEED REDUCTION IN THIS DIRECTION

TRAFFIC REGULATOR NOTES

- TR1: TRAFFIC REGULATORS MUST FOLLOW ALL THE REQUIREMENTS IN THE STANDARD SPECIFICATIONS, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS, THE CURRENT VERSIONS OF THE TRAFFIC REGULATOR'S INSTRUCTION MANUAL AND THE VIDEO "HOW TO SAFELY REGULATE TRAFFIC IN MICHIGAN". THE MAXIMUM DISTANCE BETWEEN THE TRAFFIC REGULATORS IS DETERMINED BY THE ROADWAY ADT, GEOMETRICS, AND AS DIRECTED BY THE ENGINEER.
- TR2: PROVIDE APPROPRIATE BALLOON LIGHTING TO SUFFICIENTLY ILLUMINATE TRAFFIC REGULATOR'S STATIONS WHEN TRAFFIC REGULATING IS ALLOWED DURING THE HOURS OF DARKNESS.
- TR3: PROVIDE EITHER A STOP/SLOW AFAD OR A RED/YELLOW LENS AFAD, MEETING THE REQUIREMENTS OF THE MUTCD

TEMPORARY TRAFFIC CONTROL DEVICE NOTES

- TC01: THE MAXIMUM DISTANCE IN FEET BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD NOT EXCEED 1.0 TIMES THE WORK ZONE SPEED LIMIT IN MPH FOR ROADWAYS WITH A POSTED WORK ZONE SPEED LIMIT LESS THAN 45 MPH AND SHOULD NOT EXCEED 50 FEET ON ROADWAYS WITH A POSTED WORK ZONE SPEED LIMIT OF 45 MPH OR GREATER. THE SPACING FOR 42 INCH CHANNELIZING DEVICE TAPERS ARE NOT TO EXCEED 25 FEET AT NIGHT.
- TC02: THE MAXIMUM DISTANCE IN FEET BETWEEN CHANNELIZING DEVICES IN A TANGENT SHOULD NOT EXCEED TWICE THE WORK ZONE SPEED LIMIT IN MPH FOR ROADWAYS WITH A POSTED WORK ZONE SPEED LIMIT LESS THAN 45 MPH AND SHOULD NOT EXCEED 100 FEET ON ROADWAYS WITH A POSTED WORK ZONE SPEED LIMIT OF 45 MPH OR GREATER. THE SPACING FOR 42 INCH CHANNELIZING DEVICE TANGENTS ARE NOT TO EXCEED 50 FEET AT NIGHT.
- TC03: TYPE III BARRICADES MUST BE LIGHTED FOR OVERNIGHT CLOSURES.
- TC04: WHEN THE HAUL ROAD IS NOT IN USE, PLACE LIGHTED TYPE III BARRICADES WITH "ROAD CLOSED" EXTENDING COMPLETELY ACROSS THE HAUL ROAD.
- TC05: USE OBJECT MARKER SIGNS IN LIEU OF THE TYPE B HIGH INTENSITY LIGHT SHOWN IN THE STANDARD PLAN FOR TEMPORARY CONCRETE BARRIER (R-53 AND R-12d) WHEN USED WITH A TEMPORARY SIGNAL SYSTEM. THE OBJECT MARKERS MUST BE A MINIMUM OF 12 INCHES IN WIDTH AND 36 INCHES IN HEIGHT AND HAVE ORANGE AND WHITE RETROREFLECTIVE SHEETING. THE RETROREFLECTIVE SHEETING MUST HAVE ALTERNATING DIAGONAL ORANGE AND WHITE STRIPES SLOPING DOWNWARD AT AN ANGLE OF 45 DEGREES IN THE DIRECTION VEHICULAR TRAFFIC IS TO PASS.
- TC06: PLACE LIGHTED ARROW PANELS AS CLOSE TO THE BEGINNING OF TAPERS AS PRACTICAL, BUT NOT IN A MANNER THAT WILL OBSCURE OR CONFUSE APPROACHING MOTORISTS WHEN PHYSICAL LIMITATIONS RESTRICT PLACEMENT. IN CURBED SECTIONS, IF ARROW BOARD CANNOT BE PLACED BEHIND CURB, PLACE ARROW BOARD IN THE CLOSED LANE AS CLOSE TO THE BEGINNING OF TAPER AS POSSIBLE.
- TC07: ADDITIONAL TYPE III BARRICADES MAY BE REQUIRED TO COMPLETELY CLOSE OFF ROAD FROM EDGE OF PAVEMENT TO EDGE OF PAVEMENT.
- TC08: WHERE THE SHIFTED SECTION IS SHORTER THAN 600 FEET, A DOUBLE REVERSE CURVE SIGN (W24-1) CAN BE USED INSTEAD OF THE FIRST REVERSE CURVE SIGN AND THE SECOND REVERSE CURVE SIGN CAN BE OMITTED.
- TC09: RUMBLE STRIPS ARE TO BE PLACED AS SPECIFIED IN THE CONTRACT. IF NOT SPECIFIED IN THE CONTRACT, PLACE RUMBLE STRIPS AS SHOWN, AND IN ACCORDANCE WITH THE RUMBLE STRIP MANUFACTURER'S RECOMMENDATIONS. AN ARRAY OF RUMBLE STRIPS CONTAINS THREE RUMBLE STRIPS, PLACE THE RUMBLE STRIPS IN THE ARRAY AT A CONSISTENT DISTANCE BETWEEN 10' AND 20' APART.
- TC010: SEE THE WORK ZONE SAFETY AND MOBILITY MANUAL, PORTABLE CHANGEABLE MESSAGE SIGN GUIDELINES FOR RECOMMENDED AND CORRECT POMS MESSAGING, STAGGER POMS THAT ARE ON OPPOSING SIDES OF THE ROAD 1000 FEET FROM EACH OTHER.

RAMP NOTES

- RMP1: WHEN CONDITIONS ALLOW, E5-1 SIGNS MUST BE REMOVED OR COVERED AND CHANNELIZING DEVICES MUST BE POSITIONED TO ENABLE RAMP TRAFFIC TO DIVERGE IN A FREE MANNER
- RMP2: STOP AND YIELD CONDITIONS SHOULD BE AVOIDED WHENEVER PRACTICAL. WHEN CONDITIONS WARRANT, R1-1 SIGNS MAY BE USED IN PLACE OF R1-2 SIGNS. WHEN R-1 SIGNS ARE USED, W3-1 SIGNS MUST BE USED IN PLACE OF W3-2 SIGNS. CONSIDERATION SHOULD BE GIVEN TO CLOSING THE RAMP TO COMPLETE WORK TO ALLOW AN ADEQUATE YIELD DISTANCE. WORK SHOULD BE EXPEDITED TO AVOID THE STOP AND/OR MERGE CONDITIONS.

	NOT TO SCALE	MAINTAINING TRAFFIC TYPICAL		DATE: MAY 2022	
		NO1	102-GEN-NOTES		TRAFFIC TYPICALS NOTE SHEET
FILE: 102-GEN-NOTES.dgn				SHEET:	1 OF 2



THE FOLLOWING NOTES APPLY IF CALLED FOR ON THE TRAFFIC TYPICAL

SIGNAL NOTES

- SI01: EXISTING SIGNAL MUST BE EITHER 4-WAY FLASHING RED, BAGGED, OR TURNED OFF.
- SI02: SIGNAL IS IN OPERATION.
- SI03: DELINEATE THE WORK ZONE AREA WITH 28 INCH CONES FOR DAYTIME WORK, OR 42 INCH CHANNELIZING DEVICES FOR NIGHTTIME WORK.
- SI04: THE CONTRACTOR MUST HAVE A DESIGNATED SPOTTER IF THE AERIAL BUCKET TRUCK IS LOCATED OVER ACTIVE TRAVEL LANES.
- SI05: THE LOWEST POINT OF THE BUCKET MAY NOT TRAVEL BELOW 14 FOOT VERTICAL CLEARANCE. THE CONTRACTOR MUST UTILIZE AN ALTERNATE SET UP, OR PLACE THE INTERSECTION IN A 4 WAY STOP IF THE 14 FOOT VERTICAL CLEARANCE IS COMPROMIZED, USE TRAFFIC REGULATORS TO CONTROL TRAFFIC THROUGH THE INTERSECTION WHEN TRAFFIC IS PLACED IN A 4 WAY STOP.
- SI06: DELINEATE THE TRUCK WITH CHANNELIZING DEVICES. THE POSITION OF THE TRUCK MAY BE MOVED TO FACILITATE WORK.

MAINTENANCE AND SURVEYING NOTES

- MS1: WHENEVER STOPPING SIGHT DISTANCE EXISTS TO THE REAR, THE SHADOW VEHICLES SHOULD MAINTAIN THE RECOMMENDED DISTANCE FROM THE WORK AREA AND PROCEED AT THE SAME SPEED. THE SHADOW VEHICLE SHOULD SLOW DOWN AND TRAVEL AT A FARTHER DISTANCE TO PROVIDE ADEQUATE SIGHT DISTANCE IN ADVANCE OF VERTICAL OR HORIZONTAL CURVES.
- MS2: WORKERS OUTSIDE OF VEHICLES SHOULD WORK WITHIN 150' OF WORK VEHICLES WITH AN ACTIVATED BEACON, BETWEEN THE "BEGIN WORK CONVOY" SIGN AND THE "END WORK CONVOY" SIGN, OR BETWEEN THE "WORK ZONE BEGINS" AND "END ROAD WORK" SIGN.
- MS3: WORK OR SHADOW VEHICLES WITH OR WITHOUT A TMA MAY BE USED TO SEPARATE THE WORK SPACE FROM TRAFFIC. IF USED, THE VEHICLES SHOULD BE PARKED ACCORDING TO THE ROLL AHEAD DISTANCE TABLES.
- MS4: WORK AND SHADOW VEHICLES SHALL BE APPROPRIATELY EQUIPPED WITH AN ACTIVATED AMBER BEACON.
- MS5: WHEN WORKERS ARE OUTSIDE THEIR VEHICLES IN AN EXISTING LANE WHILE A MOBILE OPERATION IS OCCURRING DURING THE NIGHTTIME HOURS, CHANNELIZING DEVICES TO DELINEATE OPEN OR CLOSED LANES AT 50 FT SPACING MUST BE USED. AN EXAMPLE OF AN OPERATION (BUT NOT LIMITED TO) IS THE LAYOUT OF CONCRETE PATCHES.
- MS6: W21-6 AND W20-1 SIGNS MAY BE SUBSTITUTED AS DETERMINED BY THE TYPE OF WORK TAKING PLACE AS PER THE ENGINEER.

	NOT TO SCALE	MAINTAINING TRAFFIC TYPICAL NO1 102-GEN-NOTES	TRAFFIC TYPICALS NOTE SHEET	DATE: MAY 2022 SHEET: 2 OF 2
FILE: 102-GEN-NOTES.dgn				

SIGN NUMBER KEY

 ES-1F 48" x 48" 60" x 48"	 ES-2 48" x 36"	 ES-2a 48" x 36"	 ES-3 48" x 36"	 E13-1P VAR x 24"	 E13-1aP 36" x 24"	 G20-1 60" x 24"	 G20-2 48" x 24"
 G20-4 34" x 18"	 18" x 18" 24" x 24" 30" x 30"	 M1-1 18" x 18" 24" x 24" 36" x 36" 48" x 48"	 M1-1 22.5" x 18" 30" x 24" 45" x 36" 60" x 48"	 M1-2 18" x 18" 24" x 24" 36" x 36" 48" x 48"	 M1-2 22.5" x 18" 30" x 24" 45" x 36" 60" x 48"	 M1-3 18" x 18" 24" x 24" 36" x 36" 48" x 48"	 M1-3 22.5" x 18" 30" x 24" 45" x 36" 60" x 48"
 M1-4 18" x 18" 24" x 24" 36" x 36" 48" x 48"	 M1-4 22.5" x 18" 30" x 24" 45" x 36" 60" x 48"	 M1-5 18" x 18" 24" x 24" 30" x 30" 36" x 36"	 M1-5a 18" x 18" 24" x 24"	 M1-6 18" x 18" 24" x 24" 36" x 36"	 M1-6 22.5" x 18" 30" x 24" 45" x 36"	 M3-1 12" x 6" 18" x 9" 24" x 12" 30" x 15" 36" x 18"	 M3-2 12" x 6" 18" x 9" 24" x 12" 30" x 15" 36" x 18"
 M3-3 12" x 6" 18" x 9" 24" x 12" 30" x 15" 36" x 18"	 M3-4 12" x 6" 18" x 9" 24" x 12" 30" x 15" 36" x 18"	 M4-1 12" x 6" 18" x 9" 24" x 12" 30" x 15" 36" x 18"	 M4-1a 12" x 6" 18" x 9" 24" x 12" 30" x 15" 36" x 18"	 M4-2 12" x 6" 18" x 9" 24" x 12" 30" x 15" 36" x 18"	 M4-3 12" x 6" 18" x 9" 24" x 12" 30" x 15" 36" x 18"	 M4-4 18" x 9" 24" x 12" 30" x 15" 36" x 18"	 M4-5 12" x 6" 18" x 9" 24" x 12" 30" x 15" 36" x 18"
 M4-6 12" x 6" 18" x 9" 24" x 12" 30" x 15" 36" x 18"	 M4-7 12" x 6" 18" x 9" 24" x 12" 30" x 15" 36" x 18"	 M4-7a 12" x 6" 18" x 9" 24" x 12" 30" x 15" 36" x 18"	 M4-8 12" x 6" 18" x 9" 24" x 12" 30" x 15"	 M4-8a 24" x 18"	 M4-8b 24" x 12"	 M4-9 30" x 24" 48" x 36" 60" x 48"	 M4-9a 30" x 24" 48" x 36" 60" x 48"
 M4-9b 30" x 24" 48" x 36" 60" x 48"	 M4-9cL 30" x 30" 48" x 42" 60" x 54"	 M4-9cR 30" x 30" 48" x 42" 60" x 54"	 M4-9dL 30" x 30" 48" x 42" 60" x 54"	 M4-9dR 30" x 30" 48" x 42" 60" x 54"	 M4-9eL 12" x 18"	 M4-9eR 12" x 18"	 M4-9e 12" x 18"
 M4-9f 12" x 18"	 M4-9gL 12" x 18"	 M4-9gR 12" x 18"	 M4-9h 12" x 24"	 M4-9i 12" x 18"	 M4-10L 48" x 18"	 M4-10R 48" x 18"	 M4-11a 12" x 6" 18" x 9" 24" x 12" 30" x 15" 36" x 18"
 M5-1L 12" x 9" 21" x 15" 30" x 21"	 M5-1R 12" x 9" 21" x 15" 30" x 21"	 M5-2L 12" x 9" 21" x 15" 30" x 21"	 M5-2R 12" x 9" 21" x 15" 30" x 21"	 M5-3 12" x 9" 21" x 15" 30" x 21"	 M6-1L 12" x 9" 18" x 12" 21" x 15" 30" x 21"	 M6-1R 12" x 9" 18" x 12" 21" x 15" 30" x 21"	 M6-2L 12" x 9" 18" x 12" 21" x 15" 30" x 21"
 M6-2R 12" x 9" 18" x 12" 21" x 15" 30" x 21"	 M6-3 12" x 9" 18" x 12" 21" x 15" 30" x 21"	 M6-4 12" x 9" 18" x 12" 21" x 15" 30" x 21"	 M6-5 12" x 9" 18" x 12" 21" x 15" 30" x 21"	 M6-6L 12" x 9" 18" x 12" 21" x 15" 30" x 21"	 M6-6R 12" x 9" 18" x 12" 21" x 15" 30" x 21"	 M6-7L 12" x 9" 18" x 12" 21" x 15" 30" x 21"	 M6-7R 12" x 9" 18" x 12" 21" x 15" 30" x 21"

SEE MOOT SHS 13-WORK ZONE FOR SIGN DETAILS

 MDOT Michigan Department of Transportation FILE: 103-GEN-SIGN.dgn	NOT TO SCALE	MAINTAINING TRAFFIC TYPICAL	TRAFFIC TYPICALS SIGN SHEET	DATE: JUNE 2021
		NO: 103-GEN-SIGN		SHEET: 1 OF 5

SIGN NUMBER KEY

 NB-1GL 36" x 66"	 SB-1GR 36" x 66"	 NB-2D 60" x 48"	 OW-3L 12" x 36" 24" x 48" 36" x 72"	 OW-3R 12" x 36" 24" x 48" 36" x 72"	 R1-1 18" x 18" 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 R1-1a 18" x 18" 24" x 24"	 R1-2 18" 24" 30" 36" 48" 60"
 R1-2a 24" x 18" 36" x 30" 48" x 36"	 R2-1 18" x 24" 24" x 30" 30" x 36" 36" x 48" 48" x 60"	 R2-1a 48" x 60"	 R3-1 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 R3-2 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 R3-3 24" x 24" 36" x 36" 48" x 48"	 R3-4 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 R3-5L 30" x 36" 36" x 48"
 R3-5R 30" x 36" 36" x 48"	 R3-5a 30" x 36" 36" x 48"	 R3-6L 30" x 36" 42" x 48"	 R3-6R 30" x 36" 42" x 48"	 R3-7L 30" x 30" 36" x 36"	 R3-7R 30" x 30" 36" x 36"	 R3-8c 36" x 30"	 R3-8a 36" x 30"
 R4-1 12" x 18" 18" x 24" 24" x 30" 36" x 48" 48" x 60"	 R4-2 12" x 18" 18" x 24" 24" x 30" 36" x 48" 48" x 60"	 R4-7 12" x 18" 18" x 24" 24" x 30" 36" x 48" 48" x 60"	 R4-8 18" x 24" 24" x 30" 36" x 48" 48" x 60"	 R4-9 18" x 24" 24" x 30" 36" x 48" 48" x 60"	 R5-1 30" x 30" 36" x 36" 48" x 48"	 R5-1a 30" x 18" 36" x 24" 42" x 30"	 R5-18b 48" x 60"
 R5-18c 48" x 48"	 R5-18d 78" x 12"	 R5-18e 72" x 12"	 R5-18f 48" x 60"	 R5-18g 30" x 42"	 R5-18h 48" x 60"	 R6-1L 36" x 12" 54" x 18"	
 R6-1R 36" x 12" 54" x 18"	 R6-2L 12" x 16" 18" x 24" 24" x 30" 36" x 48" 48" x 60"	 R6-2R 12" x 16" 18" x 24" 24" x 30" 36" x 48" 48" x 60"	 R8-3 12" x 12" 18" x 18" 24" x 24" 36" x 36" 48" x 48"	 R9-8 36" x 18"	 R9-9 24" x 12" 30" x 18"	 R9-10 24" x 12" 48" x 24"	 R9-11L 24" x 12" 48" x 36"
 R9-11R 24" x 12" 48" x 36"	 R9-11GL 24" x 12" 48" x 24"	 R9-11GR 24" x 12" 48" x 24"	 R10-4b 36" x 54"	 R11-2 48" x 30"	 R11-2a 48" x 30"	 R11-2b 48" x 30"	 R11-2c 60" x 30"
 R11-3a 60" x 30"	 R11-3b 60" x 30"	 R11-4 60" x 30"	SEE MDOT SMS 13-WORK ZONE FOR SIGN DETAILS				

 NOT TO SCALE FILE: 103-GEN-SIGN.dgn	MAINTAINING TRAFFIC TYPICAL NO: 103-GEN-SIGN	TRAFFIC TYPICALS SIGN SHEET	DATE: JUNE 2021 SHEET: 2 OF 5

SIGN NUMBER KEY

 W1-1L 18" x 18" 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 W1-1R 18" x 18" 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 W1-2L 18" x 18" 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 W1-2R 18" x 18" 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 W1-2BL 36" x 36" 48" x 48"	 W1-2BR 36" x 36" 48" x 48"	 W1-3L 18" x 18" 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 W1-3R 18" x 18" 24" x 24" 30" x 30" 36" x 36" 48" x 48"
 W1-4L 18" x 18" 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 W1-4R 18" x 18" 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 W1-4DL 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 W1-4DR 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 W1-4CL 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 W1-4CR 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 W24-1L 30" x 30" 36" x 36" 48" x 48"	 W24-1R 30" x 30" 36" x 36" 48" x 48"
 W24-1cL 30" x 30" 36" x 36" 48" x 48"	 W24-1cR 30" x 30" 36" x 36" 48" x 48"	 W24-1bL 30" x 30" 36" x 36" 48" x 48"	 W24-1bR 30" x 30" 36" x 36" 48" x 48"	 W1-6L 24" x 12" 36" x 18" 48" x 24" 60" x 30" 96" x 48"	 W1-6R 24" x 12" 36" x 18" 48" x 24" 60" x 30" 96" x 48"	 W1-8L 12" x 18" 18" x 24" 24" x 30" 30" x 36" 36" x 48"	 W1-8R 12" x 18" 18" x 24" 24" x 30" 30" x 36" 36" x 48"
 W3-1 18" x 18" 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 W3-2 18" x 18" 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 W3-3 18" x 18" 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 BE PREPARED TO STOP 30" x 30" 36" x 36" 48" x 48" 60" x 60"	 PREPARE TO STOP WITH FLASHERS 30" x 30" 36" x 36" 48" x 48"	 W3-5 36" x 36" 48" x 48"	 34 MPH SPEED LIMIT AHEAD 30" x 30" 36" x 36" 48" x 48" 60" x 60"	 REDUCED SPEED ZONE AHEAD 30" x 30" 36" x 36" 48" x 48"
 W4-1L 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 W4-1R 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 W4-2L 30" x 30" 36" x 36" 48" x 48"	 W4-2R 30" x 30" 36" x 36" 48" x 48"	 W4-3L 30" x 30" 36" x 36" 48" x 48"	 W4-3R 30" x 30" 36" x 36" 48" x 48"	 W4-5L 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 W4-5R 24" x 24" 30" x 30" 36" x 36" 48" x 48"
 NO MERGE AREA 18" x 24" 24" x 30"	 W4-6L 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 W4-6R 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 TRAFFIC MERGE LEFT 30" x 30" 36" x 36" 48" x 48" 60" x 60"	 TRAFFIC MERGE RIGHT 30" x 30" 36" x 36" 48" x 48" 60" x 60"	 ROAD NARROWS 30" x 30" 36" x 36" 48" x 48"	 NARROW BRIDGE 18" x 18" 30" x 30" 36" x 36" 48" x 48"	 ONE LANE BRIDGE 24" x 24" 30" x 30" 36" x 36" 48" x 48"
 RAMP NARROWS 30" x 30" 36" x 36" 48" x 48"	 W6-1 30" x 30" 36" x 36" 48" x 48"	 W6-2 30" x 30" 36" x 36" 48" x 48"	 W6-3 30" x 30" 36" x 36" 48" x 48"	 W6-4 12" x 18"	 W7-1 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 W7-1a 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 BUMP 18" x 18" 24" x 24" 30" x 30" 36" x 36" 48" x 48"

SEE MOOT SHS 13-WORK ZONE FOR SIGN DETAILS



NOT TO SCALE

MAINTAINING TRAFFIC TYPICAL

NO:

103-GEN-SIGN

TRAFFIC TYPICALS
SIGN SHEET

DATE: JUNE 2021

SHEET:

3 OF 5

FILE: 103-GEN-SIGN.dgn



To Our Future
Tuscola County Road Commission

SIGN NUMBER KEY

 WB-2 18" x 18" 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 WB-3 18" x 18" 30" x 30" 36" x 36" 48" x 48"	 WB-4 18" x 18" 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 WB-5 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 WB-5P 24" x 18" 30" x 24" 36" x 30"	 WB-7 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 WB-8 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 WB-9 24" x 24" 30" x 30" 36" x 36" 48" x 48"
 WB-11 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 WB-12 30" x 30" 36" x 36" 48" x 48"	 WB-14 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 WB-15 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 WB-15P 24" x 18" 30" x 24" 36" x 30"	 WB-17L 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 WB-17R 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 WB-17P 24" x 18" 30" x 24" 36" x 30"
 WB-18 24" x 24" 36" x 36" 48" x 48"	 WB-23 24" x 24" 36" x 36" 48" x 48"	 WB-24 30" x 30" 36" x 36" 48" x 48"	 WB-25 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 WB-26 36" x 36" 48" x 48"	 WB-27L 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 WB-27R 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 WB-27L 24" x 24" 30" x 30" 36" x 36" 48" x 48"
 WB-27R 30" x 30" 36" x 36" 48" x 48"	 WB-3C 30" x 30" 36" x 36" 48" x 48" 60" x 60"	 WB-3L 30" x 30" 36" x 36" 48" x 48" 60" x 60"	 WB-3R 30" x 30" 36" x 36" 48" x 48" 60" x 60"	 WB-3a 30" x 30" 36" x 36" 48" x 48" 60" x 60"	 WB-3b 30" x 30" 36" x 36" 48" x 48" 60" x 60"	 WB-11-10 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 WB-11-10a 24" x 24" 30" x 30" 36" x 36" 48" x 48"
 WB-24 36" x 36" 48" x 48"	 WB-12-1 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 WB-12-2 18" x 18" 24" x 24" 36" x 36" 48" x 48"	 WB-13-1P 18" x 18" 24" x 24" 30" x 30"	 WB-13-2 24" x 30" 36" x 48" 48" x 60"	 WB-13-3 24" x 30" 36" x 48" 48" x 60"	 WB-13-4P 24" x 24" 36" x 36"	 WB-13-6 24" x 42" 36" x 60" 48" x 84"
 WB-13-6a 24" x 42" 36" x 60" 48" x 84"	 WB-13-7 24" x 42" 36" x 60" 48" x 84"	 WB-13-7a 24" x 42" 36" x 60" 48" x 84"	 WB-14-3 36" x 24" 40" x 30" 48" x 36" 64" x 48"	 WB-16-2P 18" x 12" 24" x 18" 30" x 24"	 WB-16-40P 18" x 12" 24" x 18" 30" x 24" 36" x 30"	 WB-16-12P 24" x 18"	 WB-16-13P 24" x 18" 30" x 24"
 WB-20-1 24" x 24" 30" x 30" 36" x 36" 48" x 48" 60" x 60"	 WB-20-1a 24" x 24" 30" x 30" 36" x 36" 48" x 48" 60" x 60"	 WB-20-1b 24" x 24" 30" x 30" 36" x 36" 48" x 48" 60" x 60"	 WB-20-1c 24" x 24" 30" x 30" 36" x 36" 48" x 48" 60" x 60"	 WB-20-1d 24" x 24" 30" x 30" 36" x 36" 48" x 48" 60" x 60"	 WB-20-2 30" x 30" 36" x 36" 48" x 48"	 WB-20-3 30" x 30" 36" x 36" 48" x 48"	 WB-20-3a 30" x 30" 36" x 36" 48" x 48"

SEE MOOT SHS 13-WORK ZONE FOR SIGN DETAILS



NOT TO SCALE

MAINTAINING TRAFFIC TYPICAL

NO:
103-GEN-SIGN

TRAFFIC TYPICALS
SIGN SHEET

DATE: JUNE 2021
SHEET:

4 OF 5

FILE: 103-GEN-SIGN.dgn

SIGN NUMBER KEY

 W20-3b 30" x 30" 36" x 36" 48" x 48"	 W20-4 30" x 30" 36" x 36" 48" x 48"	 W20-4c 36" x 36" 48" x 48"	 W20-5C 30" x 30" 36" x 36" 48" x 48"	 W20-5L 30" x 30" 36" x 36" 48" x 48"	 W20-5L1 30" x 30" 36" x 36" 48" x 48"	 W20-5L2 30" x 30" 36" x 36" 48" x 48"	 W20-5R 30" x 30" 36" x 36" 48" x 48"
 W20-5R1 30" x 30" 36" x 36" 48" x 48"	 W20-5R2 30" x 30" 36" x 36" 48" x 48"	 W20-5dL2 30" x 30" 36" x 36" 48" x 48"	 W20-5dL3 30" x 30" 36" x 36" 48" x 48"	 W20-5dR2 30" x 30" 36" x 36" 48" x 48"	 W20-5dR3 30" x 30" 36" x 36" 48" x 48"	 W20-7d 30" x 30" 36" x 36" 48" x 48"	 W20-8 24" x 18"
 W20-9 54" x 48"	 W20-10 48" x 24" 66" x 30"	 W20-11 12" x 18"	 W20-12P VARIABLE x 12"	 W20-13P VARIABLE x 12"	 W20-14L 36" x 36" 48" x 48"	 W20-14R 36" x 36" 48" x 48"	 W20-14cp 36" x 12" 48" x 12"
 W20-14bp 36" x 12" 48" x 12"	 W20-15 36" x 36" 48" x 48"	 W20-15g 36" x 36" 48" x 48"	 W20-15c 48" x 54"	 W20-15d 48" x 54"	 W20-16 36" x 36" 48" x 48"	 W20-17 36" x 36" 48" x 48"	 W21-1 24" x 24" 30" x 30" 36" x 36" 48" x 48"
 W21-2 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 W21-2 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 W21-3 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 W21-4 36" x 18"	 W21-5 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 W21-5dL 30" x 30" 36" x 36" 48" x 48" 60" x 60"	 W21-5dR 30" x 30" 36" x 36" 48" x 48" 60" x 60"	 W21-5dL 30" x 30" 36" x 36" 48" x 48" 60" x 60"
 W21-5dR 30" x 30" 36" x 36" 48" x 48" 60" x 60"	 W21-6 24" x 24" 30" x 30" 36" x 36" 48" x 48"	 W21-7 30" x 30" 36" x 36" 48" x 48"	 W21-8 30" x 30" 36" x 36" 48" x 48"	 W22-1 30" x 30" 36" x 36" 48" x 48"	 W22-2 42" x 36"	 W22-3 36" x 30" 42" x 36"	 W23-1 48" x 24"
 W23-2 36" x 36" 48" x 48"							

SEE MOOT SHS 13-WORK ZONE FOR SIGN DETAILS



NOT TO SCALE

MAINTAINING TRAFFIC TYPICAL

NO:

103-GEN-SIGN

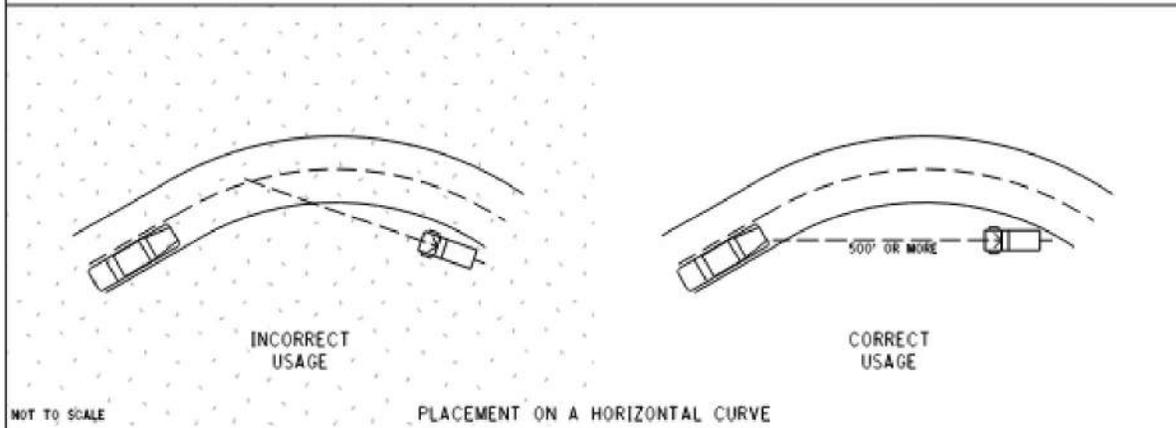
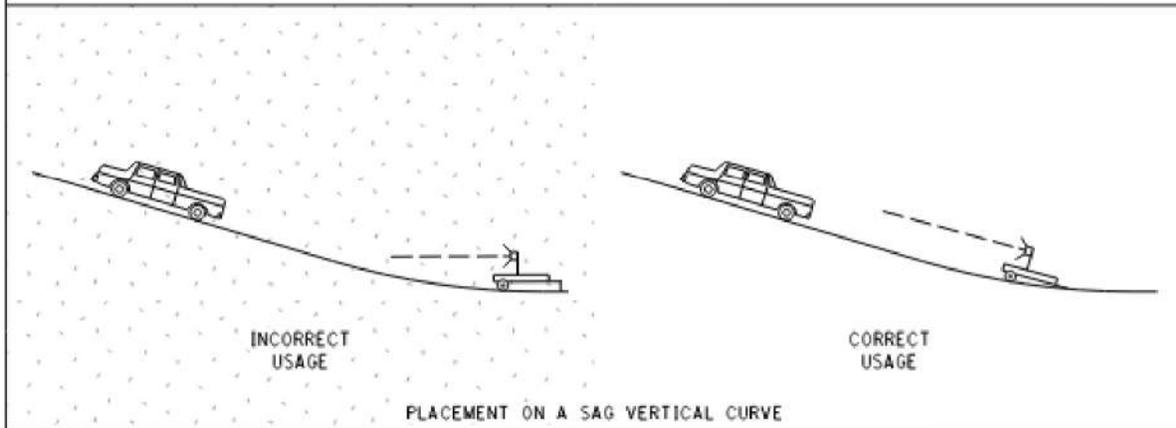
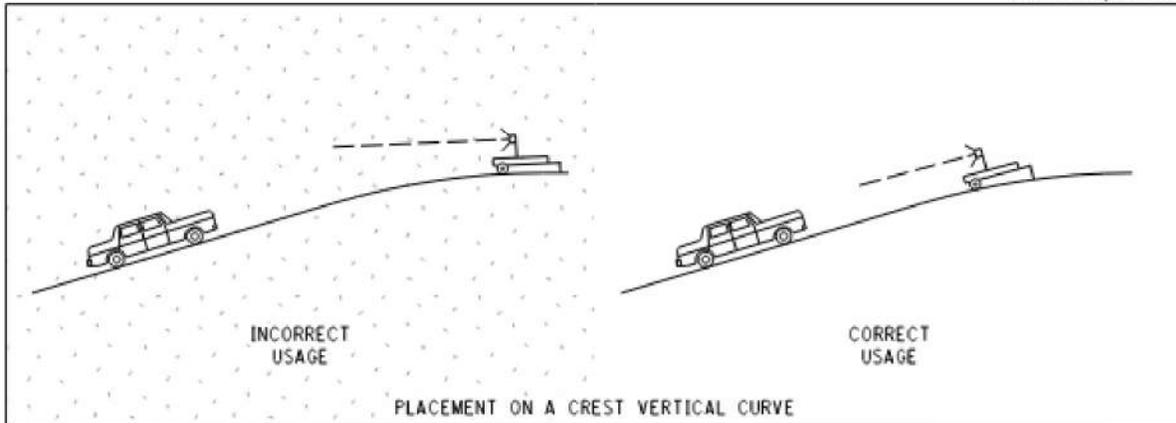
TRAFFIC TYPICALS
SIGN SHEET

DATE: JUNE 2021

SHEET:

5 OF 5

FILE: 103-GEN-SIGN.dgn



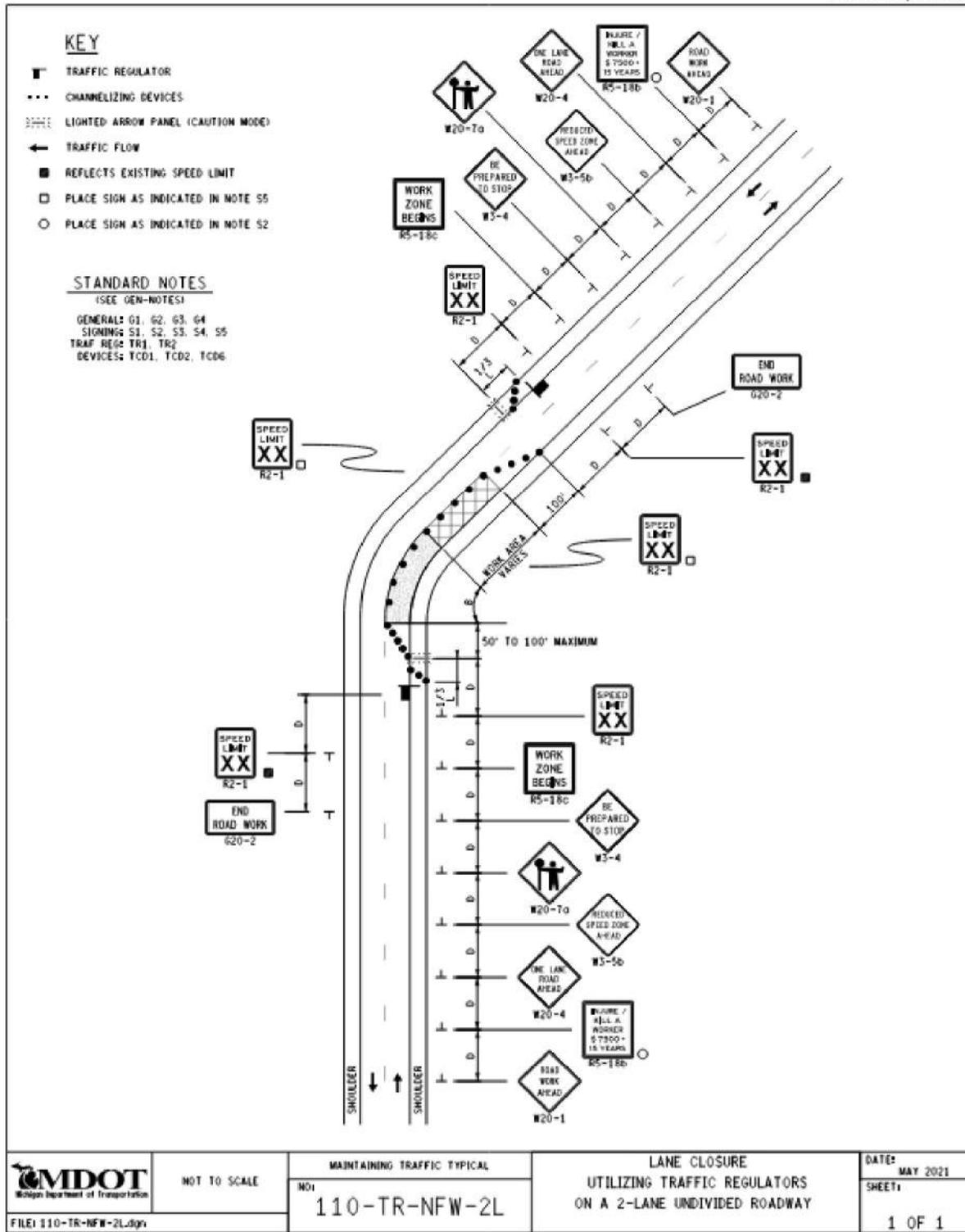
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NOTE:

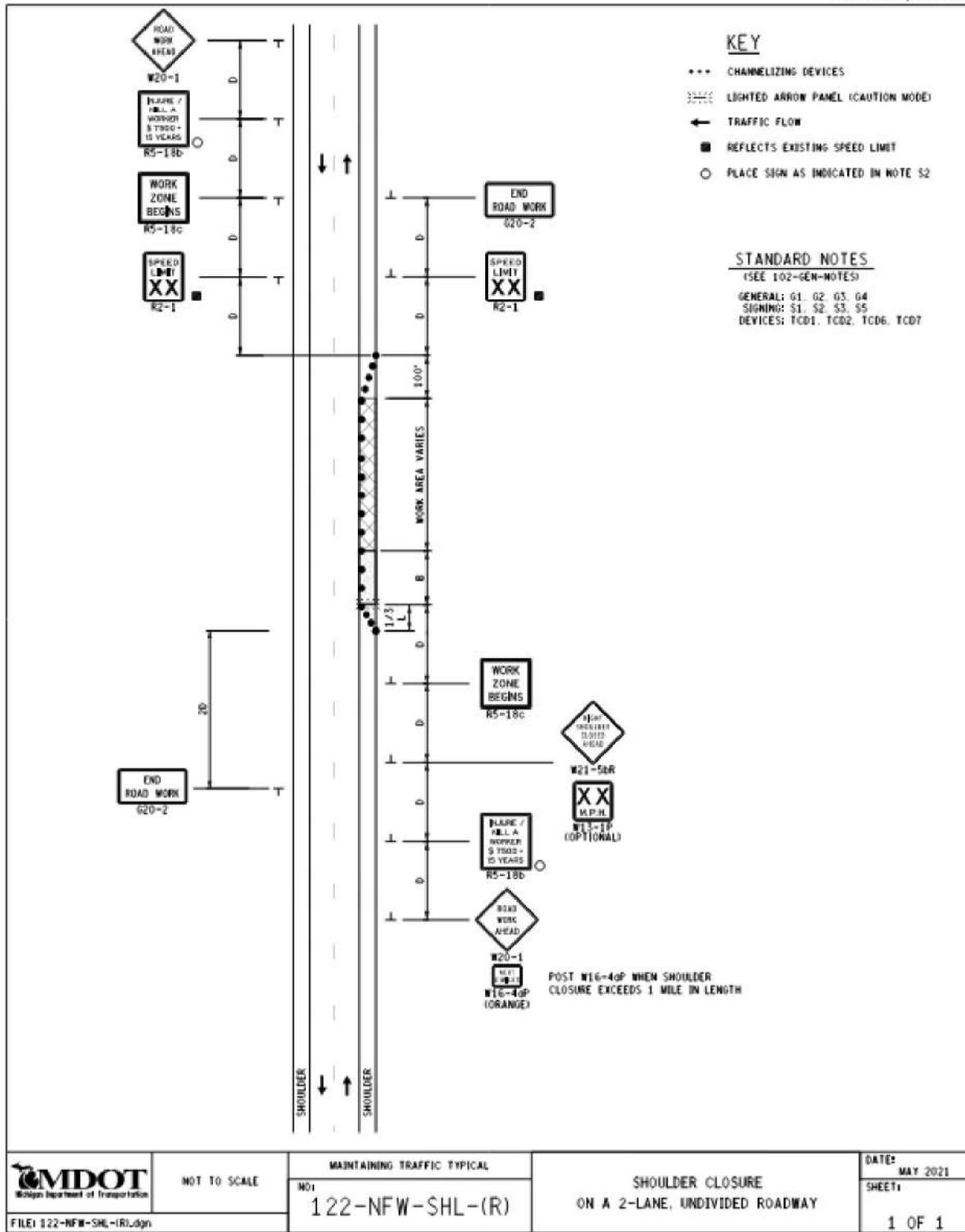
ENSURE THE ARROW REMAINS CLEARLY LEGIBLE AT DISTANCES FROM 2,500 FEET TO 200 FEET, FROM ALL TRAFFIC LANES AND ROADWAY ENTRANCES. DO NOT PLACE THE LIGHTED ARROW ON A HORIZONTAL OR VERTICAL CURVE THAT MIGHT INTERFERE WITH THIS LEGIBILITY REQUIREMENT.

	NOT TO SCALE	MAINTAINING TRAFFIC TYPICAL	USE OF ARROW BOARD ON HILL OR CURVE AND WORK ZONE LAYOUT	DATE: MAY 2021
		NO: 104-GEN-AB		SHEET: 1 OF 1

FILE: 104-GEN-AB.dgn



	NOT TO SCALE	MAINTAINING TRAFFIC TYPICAL	LANE CLOSURE UTILIZING TRAFFIC REGULATORS ON A 2-LANE UNDIVIDED ROADWAY	DATE: MAY 2021
		NO1		FILE: 110-TR-NFW-2L.dgn



	NOT TO SCALE	MAINTAINING TRAFFIC TYPICAL	DATE: MAY 2021 SHEET:
		NO1 122-NFW-SHL-(R)	
FILE: 122-NFW-SHL-IRL.dgn			1 OF 1

NOTES

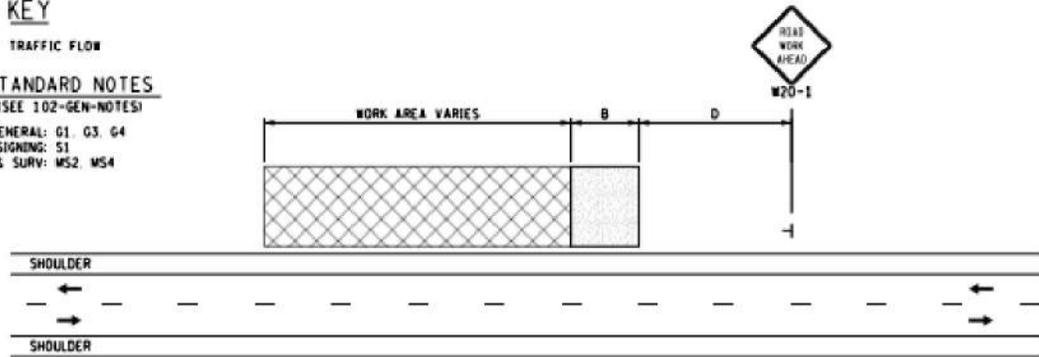
1. FOR SHORT-DURATION OR MOBILE OPERATIONS, NO SIGNS ARE REQUIRED IF APPROPRIATELY EQUIPPED VEHICLES ARE USED.
2. IF THE OPERATION HAS VEHICLE(S) PARKED ON THE SHOULDER OR VEHICLES ACCESSING THE WORK SITE VIA THE HIGHWAY OR CROSSING THE HIGHWAY TO PERFORM OPERATIONS, A "ROAD WORK AHEAD" SIGN OR AN ARROW BOARD IN CAUTION MODE SHALL BE USED.
3. WORK VEHICLES SHOULD BE PARKED AS FAR OFF THE TRAVELED WAY AS PRACTICAL.
4. IF THE WORK SPACE IS IN THE MEDIAN OF A DIVIDED ROADWAY, ADVANCE WARNING SIGNS SHALL BE PLACED IN BOTH DIRECTIONS OF TRAVEL.
5. VEHICLES AND PERSONNEL SHOULD ALL BE LOCATED AND PARKED ON THE SAME SIDE OF THE ROADWAY TO THE EXTENT PRACTICAL.

KEY

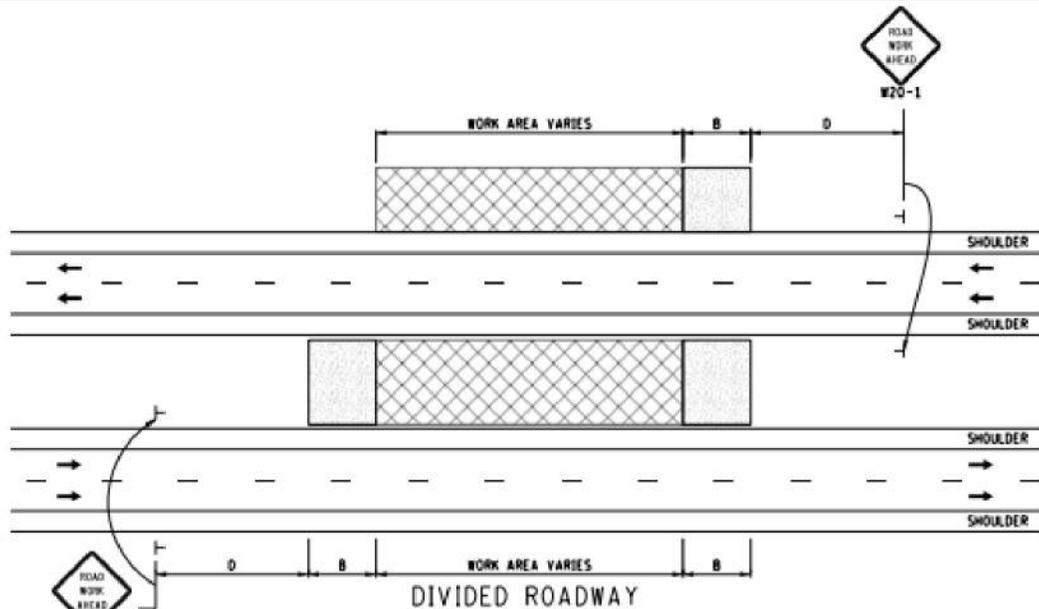
← TRAFFIC FLOW

STANDARD NOTES
(SEE 102-GEN-NOTES)

GENERAL: G1, G3, G4
SIGNING: S1
MAINT & SURV: MS2, MS4



TWO LANE, TWO WAY ROADWAY



DIVIDED ROADWAY

NOT TO SCALE



MAINTENANCE
MAINTAINING TRAFFIC
TYPICAL

DURATION:

ALL

WORK OUTSIDE SHOULDER

DATE: MAY 2021

NO: 4000-M-SHL-OUT

SHEET: 1 OF 1

FILE: 4000-M-SHL-OUT.dgn



9.7. INSURANCE REQUIREMENTS

Agriculture Hauling Permit	
Type of Insurance	Notes
None	As required by Statute per the Attorney General Opinion

Oversize / Overweight Permits						
Type of Insurance	Coverage Limits	Addl. Insured	Waiver of Subrogation	Primary/Non Contributory	Claims Made	Indemnification
Auto Liability	Michigan No Fault Coverage/Property Protection (PPI) \$1M Statutory Limit	No	No	No	No	Yes

Driveway Permit	
Individual Homeowner Permit Holder - Residential Driveway	
Type of Insurance	Notes
None	Advise homeowner they will be responsible for any damage done to the ROW
	Advise homeowner they will be responsible for any injuries as a result of the work in the ROW
	Advise homeowner they will be required to indemnify the RC as outlined in the ROW permit

Contractor Permit Holder - Commercial or Residential Driveway

Type of Insurance	Coverage Limits	Addl. Insured	Waiver of Subrogation	Primary/Non Contributory	Claims Made	Indemnification
Commercial General Liability (CGL)	Each Occurrence	\$2,000,000	No	No	No	Yes
	Products Comp/Op Aggregate	\$3,000,000				
	General Aggregate	\$3,000,000				

Special Event / Parade Permits						
Type of Insurance	Coverage Limits	Addl. Insured	Waiver of Subrogation	Primary/Non Contributory	Claims Made	Indemnification
Commercial General Liability (CGL)	Each Occurrence	\$2,000,000	Yes	Yes	Yes	No
	General Aggregate	\$2,000,000				
Notes		For special events requiring participant waivers - Endeavor to have the RC added to the waiver. If alcohol is being served, host liquor liability is required.				

General Right of Way Permit

Individual Homeowner Permit Holder	
Type of Insurance	Notes
None	Advise homeowner they will be responsible for any damage done to the ROW
	Advise homeowner they will be responsible for any injuries as a result of the work in the ROW
	Advise homeowner they will be required to indemnify the RC as outlined in the ROW permit

Contractor Permit Holder

Type of Insurance	Coverage Limits	Addl. Insured	Waiver of Subrogation	Primary/Non Contributory	Claims Made	Indemnification
Commercial General Liability (CGL)	Each Occurrence	\$2,000,000	Yes	Yes	Yes	No
	Products Comp/Op Aggregate	\$3,000,000				
	General Aggregate	\$3,000,000				
Auto Liability	Michigan No Fault Coverage/Property Protection (PPI) \$1M Statutory Limit	No	No	No	No	Yes
Professional Liability, as required	Each Occurrence & Aggregate	\$2,000,000	N/A	N/A	N/A	Yes

Umbrella may be used to meet limit requirements: Commercial General Liability & Auto Liability
 Retro Date for Professional Liability must be prior to issuing permit date.
 It is recommended the Self Insured Retention (SIR) for CGL be no greater than \$25,000.