

APPENDIX G-5

Residential Access and Traffic Mitigation Plan



ROVER PIPELINE

An ENERGY TRANSFER Company

ROVER PIPELINE LLC

Rover Pipeline Project

Residential Access and Traffic Management Plan

February 2015

1.0 INTRODUCTION

The Rover Pipeline Project (Project) is a new natural gas pipeline system that will be constructed by Rover Pipeline LLC (Rover) and will consist of Supply Lateral and Mainline pipelines, compressor stations, and associated meter stations and other aboveground facilities that will be located in parts of West Virginia, Pennsylvania, Ohio, and Michigan. The Project pipelines will cross public roads that range from maintained gravel municipal roads to state highways and interstate highways. Construction of the Project will result in minor, short term impacts on the transportation system in the Project area. Potential temporary effects associated with roadway crossings include disruption of traffic flows, disturbance of existing underground utilities, such as water and sewer lines, and hindrance of emergency vehicle access. In addition, construction employees will utilize approved access roads to maneuver crews and equipment to and from the proposed right-of-way. The Residential Access and Traffic Management Plan details the process Rover will enact to minimize impacts to traffic, emergency services, and landowner access to residences while maintaining the safety of the public and Rover employees. Rover will comply with all requirements of the West Virginia, Pennsylvania, Ohio, and Michigan Departments of Transportation during construction of the Project.

2.0 CONSTRUCTION OF PIPELINES ACROSS ROADWAYS

2.1.1 Crossing Methods

The decision to install the pipeline under public and private roadways, using either conventional open cut or road bore or horizontal directional drill (HDD) methods, will be based on site conditions, traffic flow, and road opening permit requirements. Generally, all paved roads will be bored. An open cut will be used where a conventional bore or HDD is not constructible and the open cut is approved, and for crossings of private roads. Table 1A-8 in Volume IIA, Resource Report 1, lists the methods by which all roads and railroads will be crossed by the Project. The pipelines will be installed at a depth of at least 5 feet below a road surface and will be designed to withstand anticipated external loadings.

Construction noise during the bored or open cut road crossings will be similar to construction along any part of the pipeline. Noise at an HDD road crossing will be evaluated by Rover to ensure that no impacts will occur to noise sensitive areas near the work area.

2.2 Bore or HDD Crossing Methods

Traffic on major roads will be unimpeded during installation of the pipe by use of horizontal bore or HDD construction methods. Details about general construction access and utilization of public roadways are described in Section 3.0 below.

To complete a conventional bore of a roadway, two pits will be excavated, one on each side of the road to be bored. A boring machine will be lowered into one pit, and a horizontal hole is bored to a diameter approximately two inches larger than the diameter of the pipe (or casing, if required) at the depth of the pipeline installation. The pipeline section and/or casing will be pushed through the bore to the opposite

pit. If additional pipeline sections are required to span the length of the bore, they will be welded to the first section of the pipeline in the bore pit before being pushed through the bore.

An HDD crossing involves drilling a pilot hole along a prescribed path and then enlarging that hole using reaming tools to achieve a hole large enough to accommodate the pipe. The reaming tools are attached to the drill string at the exit point of the pilot hole and then rotated and drawn back to the drilling rig, thus progressively enlarging the pilot hole with each pass. During this process, drilling fluid consisting of bentonite clay and water is maintained in drilling pits within the construction work area and will be continuously pumped into the hole to remove cuttings and maintain the integrity of the hole between the HDD entry and exit points. Once the hole has been sufficiently enlarged, a prefabricated segment of pipe will be attached behind the reaming tool on the exit side of the crossing and pulled back through the drill hole to the drill rig, completing the crossing.

2.3 Open Cut Crossing

2.3.1 Prior to an Open Cut Crossing

Where an open cut is required, two weeks advance notice will be given to area residences and local authorities prior to the cutting of the specific roadway. To minimize traffic delays at open-cut road crossings, Rover will establish detours before initiating an open cut of a road. Appropriate traffic management and signage will be set up and necessary safety measures will be developed in compliance with applicable permits for work in public roadways. Arrangements will be made with local officials to have traffic safety personnel on hand during periods of construction. Provisions will be made for detours or otherwise to permit traffic flow. State-specific requirements for traffic management, including signage, flagging, barrels, etc. are detailed on the attached typical figures. Rover will comply with all applicable state, county, and municipal requirements during construction of the Project.

The “One Call” system of each state will be contacted to allow state and local utility operators to verify and mark all underground utilities (e.g., cables, conduits, and pipelines) located within the construction work areas. If any utilities are inadvertently disrupted during construction, Rover will ensure that they are restored as quickly as possible.

Rover is not anticipating any open cut crossings of major roadways. Construction work in roadways will be scheduled so as to avoid commuter traffic and schedules for school buses to the greatest extent practicable, and to minimize landowner inconvenience if the road leads to a residence. In addition, steel plates will be maintained on-site to cover the open trench quickly should emergency vehicles need to travel through the work area.

2.3.2 Construction of an Open Cut Crossing

Road crossings that will be open cut involve the excavation of a trench across the roadway and will result in a temporary road closure for 4 - 6 hours during the excavation of the roadway. After the pipe is installed, steel plates will be placed on one side of the open excavation to allow the traffic flow to resume



through one lane. This will allow the other side of the excavation to be filled with select flowable fill material (i.e. sand and cement mix). Flowable fill is utilized to fill the trench completely and quickly, and it supports the weight-bearing requirements of a roadway and minimizes the chances of voids remaining, which could cause potholes or facilitate road damage in the future.

Once the excavation is filled, the steel plates will be moved to the alternate side of the filled roadway and the remaining side will then be filled. The steel plates will remain in place overnight to allow the flowable fill material to harden. After a minimum of 12 hours, the steel plates can be removed and road base material will be placed over the excavated area and a normal traffic pattern can resume.

As a contingency, Rover intends to keep excess materials and pumps onsite to ensure the trench can be backfilled immediately after the pipe is installed to minimize the impacts to area traffic.

3.0 Utilization of Roadways during Construction

In addition to the traffic impacts caused by the open-cut road crossings, the movement of construction equipment and materials, and the daily commuting of workers to and from the construction work areas, may increase traffic volumes in localized areas throughout the Project area. Project-related construction traffic will typically occur during the early morning hours and evening hours when construction workers commute to the construction work areas.

Construction workers will be deployed in various locations along the pipeline such that no single area will experience significant traffic impacts. Access roads utilized during construction are preapproved by FERC, landowners, and the appropriate permitting agencies, and Rover is responsible for ensuring the construction employees utilize only preapproved access roads. Pipeline construction is typically scheduled to take advantage of daylight hours, usually starting in the early morning and ending in the evening (six days a week). Therefore, construction activities will begin before peak commuting hours in the morning and end after peak evening commuting hours. Because construction will move sequentially along the pipeline route, traffic flow impacts that do arise will be temporary on any given section of roadway. Accordingly, Rover does not anticipate significant traffic impacts during construction.

To maintain safe conditions, Rover will require its construction contractors to ensure enforcement of local weight restrictions and limitations by its vehicles. Specifically, Rover will require its contractors to obtain road and highway permits and bonding, as required, for the use of public roads to transport construction equipment and materials, especially for any overweight or oversized equipment. Damage to public and private roadways due to construction will be repaired by Rover's contractors.

At points of access to the right-of-way from hard-surfaced roads, a stone pad will be installed as a construction entrance to control dirt tracking onto the highway. Flagging and signage will be utilized as appropriate and in accordance with all applicable regulations if any temporary impacts to traffic are necessary to move equipment across a roadway along the proposed right-of-way.



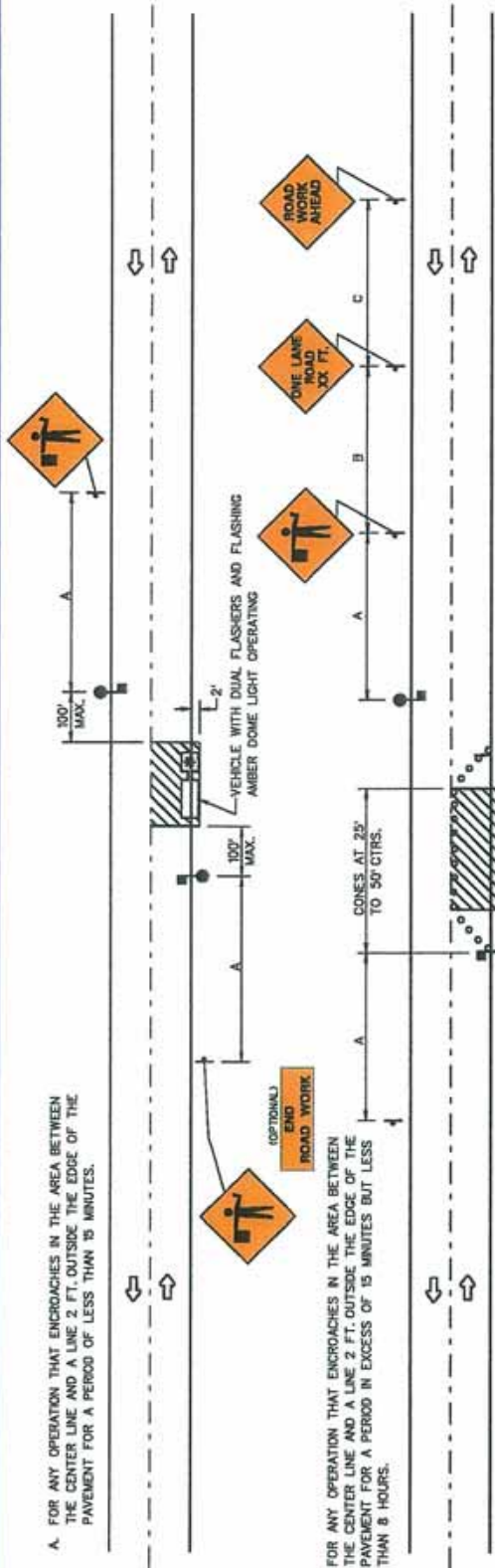
4.0 Post-Construction

Rover is responsible for any roads that are open cut during construction of the Pipeline. Rover will obtain all applicable state, county, and local permits for utilization of and construction across roadways. Rover will enter into Road Use and Management Agreements with all state, county, and municipal regulatory entities to ensure that the roadways utilized during construction of the Project are returned to an as good as or better condition than they were prior to construction.

Rover is currently and will continue to communicate with the appropriate agencies and individuals at the state, county, municipal, community, and private levels regarding road construction and post-construction restoration for public and private road crossings.



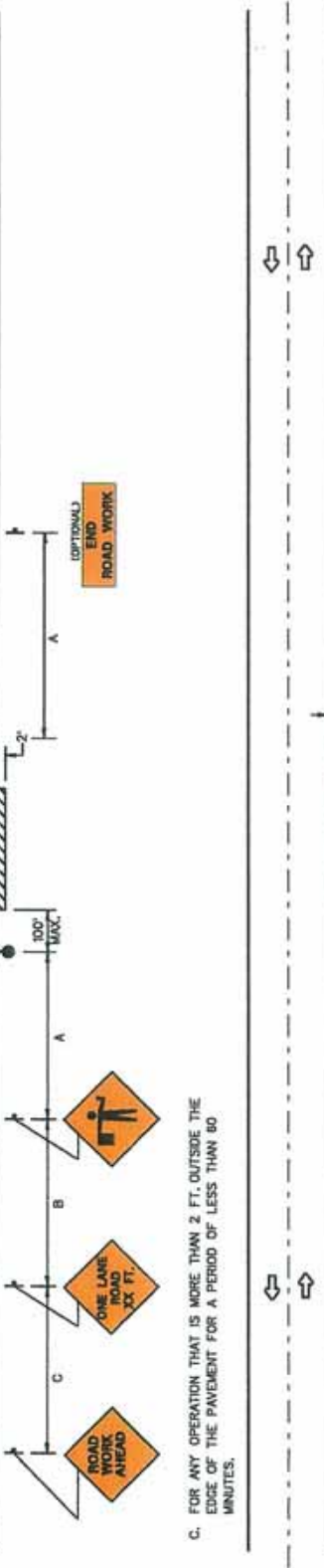
Traffic Management Plan Typical Drawings
West Virginia



A. FOR ANY OPERATION THAT ENCROACHES IN THE AREA BETWEEN THE CENTER LINE AND A LINE 2 FT. OUTSIDE THE EDGE OF THE PAVEMENT FOR A PERIOD OF LESS THAN 15 MINUTES.

B. FOR ANY OPERATION THAT ENCROACHES IN THE AREA BETWEEN THE CENTER LINE AND A LINE 2 FT. OUTSIDE THE EDGE OF THE PAVEMENT FOR A PERIOD IN EXCESS OF 15 MINUTES BUT LESS THAN 8 HOURS.

C. FOR ANY OPERATION THAT IS MORE THAN 2 FT. OUTSIDE THE EDGE OF THE PAVEMENT FOR A PERIOD OF LESS THAN 90 MINUTES.



SYMBOLS

- WORK AREA
- SIGN
- SIGN ON PORTABLE OR PERMANENT SUPPORT.
- FLAGGER WITH PADOLE.
- CONES

TYPICAL APPLICATIONS

- PATCHING PAVEMENT.
- FIELD SURVEY.
- CLEANING UP DEBRIS ON PAVEMENT.
- CROSSWALK PAINTING.

GENERAL NOTES

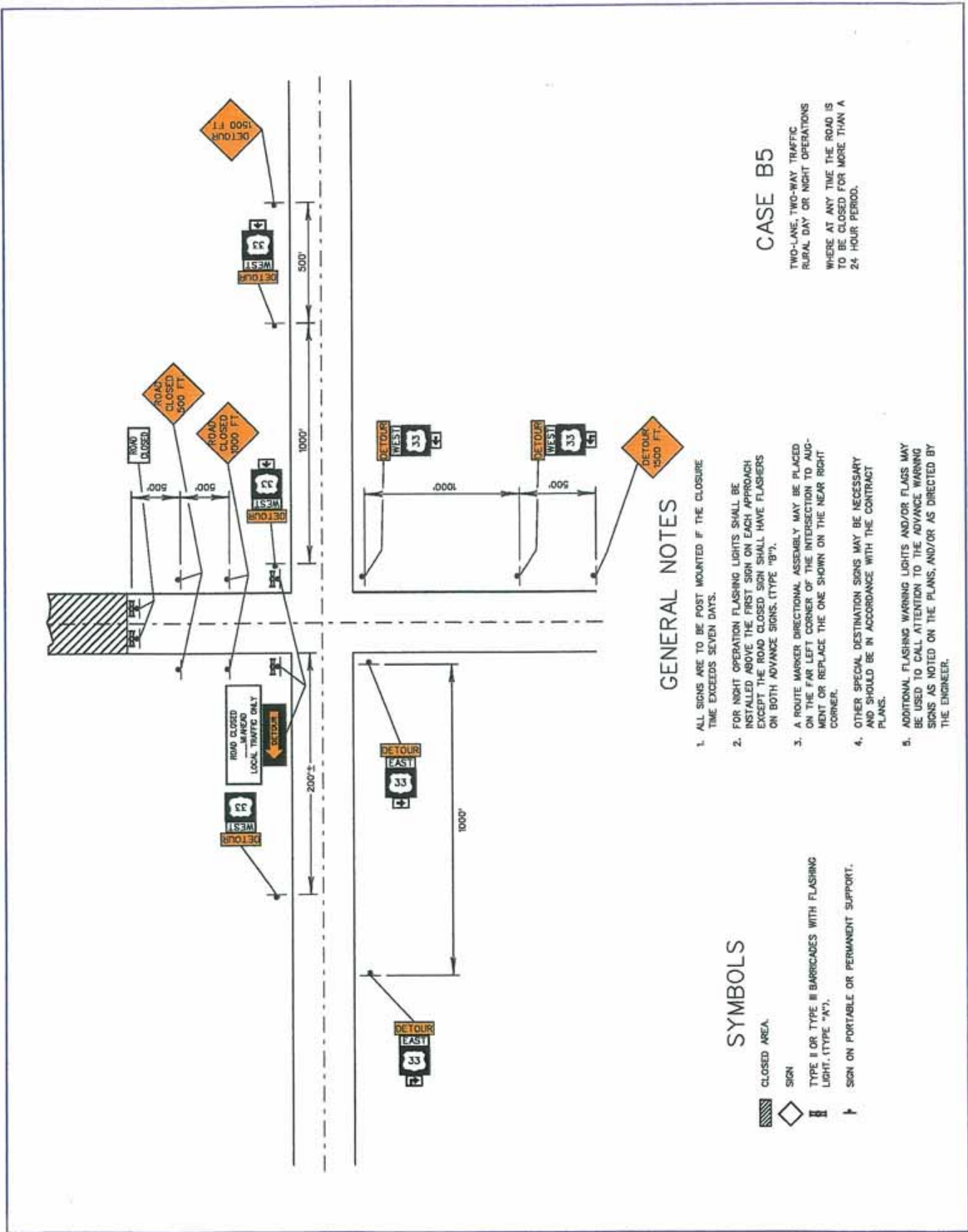
1. CONSTRUCTION OPERATIONS SHALL BE CONFINED TO ONE TRAFFIC LANE, LEAVING THE OPPOSITE LANE OPEN TO TRAFFIC. AT LEAST 500 FT. OF BOTH TRAFFIC LANES SHALL BE AVAILABLE FOR TRAFFIC MOVEMENT AT INTERVALS NOT GREATER THAN 1,000 FT. A COMPLETE TRAFFIC CONTROL PLAN MUST BE APPROVED FOR ANY PROJECT EXPECTING TO EXCEED 1,000 FT. IN LENGTH INCLUDING BOTH TAPER AND WORK AREAS.
2. FOR LOW-VOLUME SITUATIONS WITH SHORT WORK ZONES ON STRAIGHT ROADWAYS WHERE THE FLAGGER IS VISIBLE TO ROAD USERS APPROACHING FROM BOTH DIRECTIONS, A SINGLE FLAGGER, POSITIONED TO BE VISIBLE TO ROAD USERS APPROACHING FROM BOTH DIRECTIONS, MAY BE USED.
3. FLASHING WARNING LIGHTS AND/OR FLAGS MAY BE USED TO CALL ATTENTION TO THE ADVANCE WARNING SIGNS.
4. THE FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES.
5. ALL SIGNS ARE TO BE REMOVED AT COMPLETION OF THE DAY'S OPERATIONS.
6. FOR MULTILANE DIVIDED ROADWAYS THE ADVANCE WARNING SIGNS FOR TRAFFIC APPROACHING FROM THE OPPOSITE DIRECTION MAY BE OMITTED IF APPROVED BY THE ENGINEER.

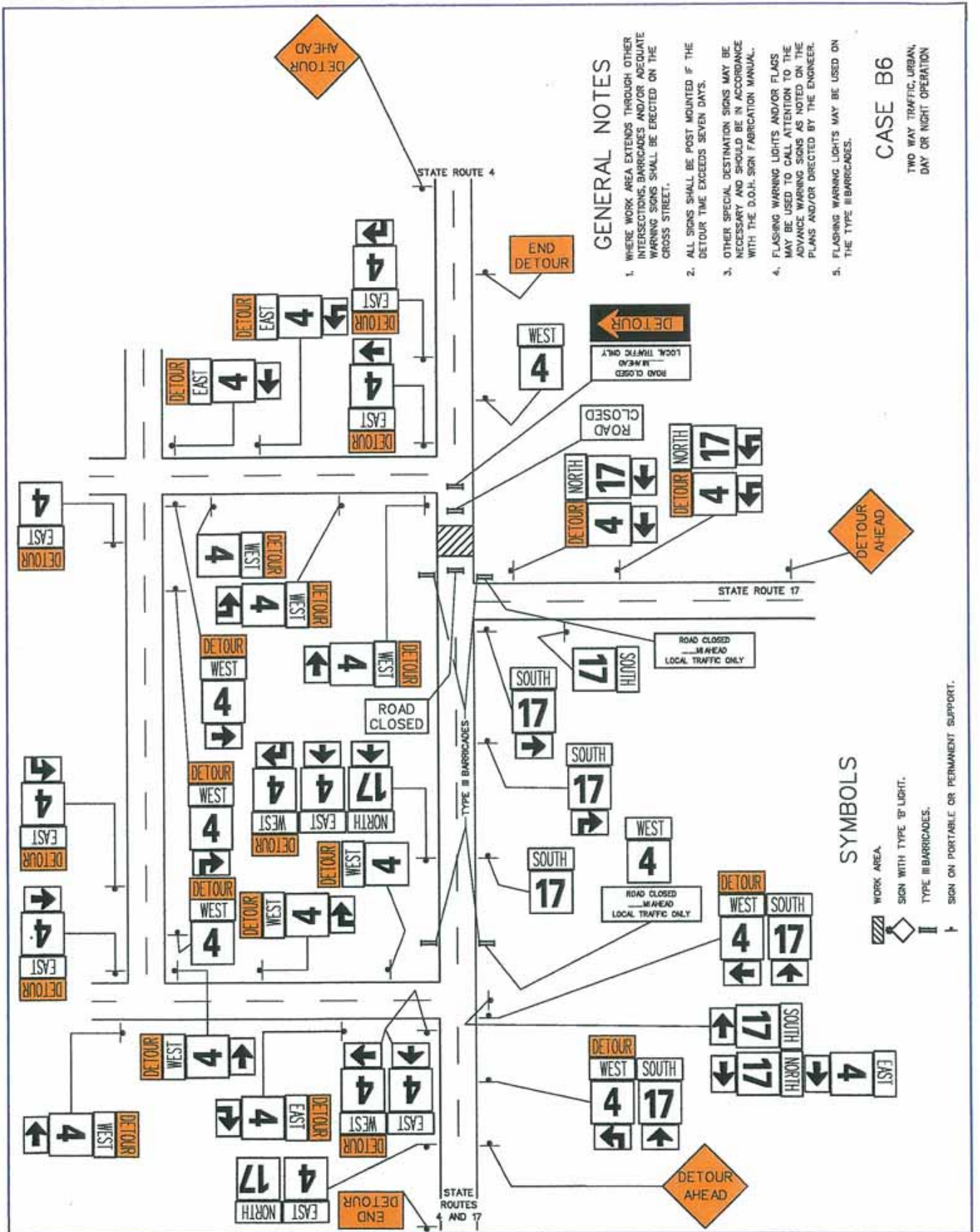
SUGGESTED ADVANCE WARNING SIGN SPACING

ROAD TYPE	DISTANCE BETWEEN SIGNS (IN FT.)		
	A	B	C
URBAN (LOW SPEED)*	300	100	100
URBAN (HIGH SPEED)*	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1,000	1,500	2,640

CASE A6

TWO-LANE, TWO-WAY TRAFFIC
SHORT-TERM OPERATIONS
DAYTIME ONLY





GENERAL NOTES

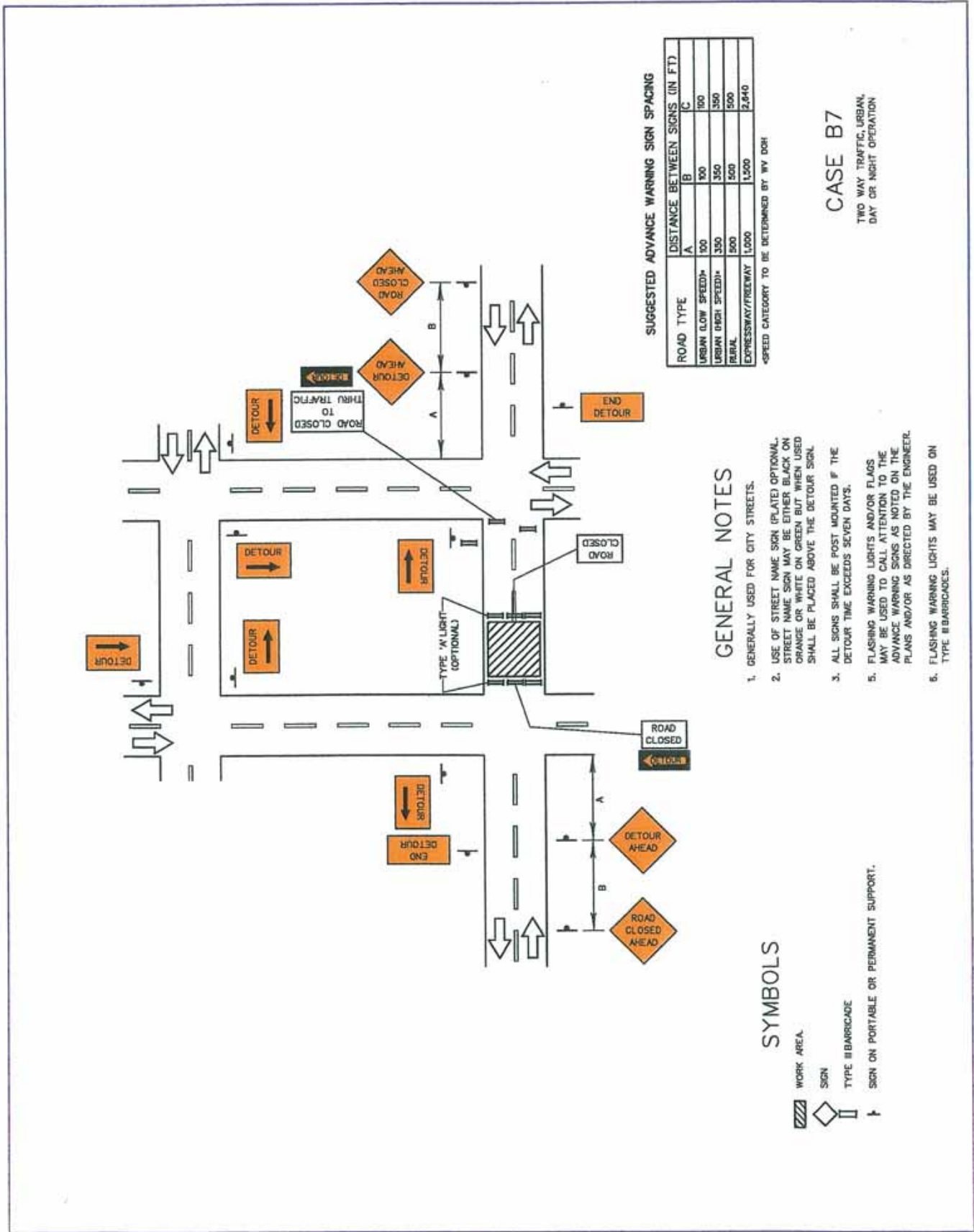
1. WHERE WORK AREA EXTENDS THROUGH OTHER INTERSECTIONS, BARRICADES AND/OR ADEQUATE WARNING SIGNS SHALL BE ERRECTED ON THE CROSS STREET.
2. ALL SIGNS SHALL BE POST MOUNTED IF THE DETOUR TIME EXCEEDS SEVEN DAYS.
3. OTHER SPECIAL DESTINATION SIGNS MAY BE NECESSARY AND SHOULD BE IN ACCORDANCE WITH THE D.O.H. SIGN FABRICATION MANUAL.
4. FLASHING WARNING LIGHTS AND/OR FLAGS MAY BE USED TO CALL ATTENTION TO THE ADVANCE WARNING SIGNS AS NOTED ON THE PLANS AND/OR DIRECTED BY THE ENGINEER.
5. FLASHING WARNING LIGHTS MAY BE USED ON THE TYPE B BARRICADES.

CASE B6

TWO WAY TRAFFIC, URBAN,
DAY OR NIGHT OPERATION

SYMBOLS

- WORK AREA
- SIGN WITH TYPE 'B' LIGHT.
- TYPE B BARRICADES.
- SIGN ON PORTABLE OR PERMANENT SUPPORT.



SUGGESTED ADVANCE WARNING SIGN SPACING

ROAD TYPE	DISTANCE BETWEEN SIGNS (IN FT.)		
	A	B	C
URBAN LOW SPEED*	100	100	100
URBAN HIGH SPEED*	300	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1,000	1,500	2,440

*SPEED CATEGORY TO BE DETERMINED BY WV DOH

GENERAL NOTES

1. GENERALLY USED FOR CITY STREETS.
2. USE OF STREET NAME SIGN (PLATE) OPTIONAL. STREET NAME SIGN MAY BE EITHER BLACK ON ORANGE OR WHITE ON GREEN BUT WHEN USED SHALL BE PLACED ABOVE THE DETOUR SIGN.
3. ALL SIGNS SHALL BE POST MOUNTED IF THE DETOUR TIME EXCEEDS SEVEN DAYS.
5. FLASHING WARNING LIGHTS AND/OR FLAGS MAY BE USED TO CALL ATTENTION TO THE ADVANCE WARNING SIGNS AS NOTED ON THE PLANS AND/OR AS DIRECTED BY THE ENGINEER.
5. FLASHING WARNING LIGHTS MAY BE USED ON TYPE B BARRICADES.

SYMBOLS

- WORK AREA
- SIGN
- TYPE B BARRICADE
- SIGN ON PORTABLE OR PERMANENT SUPPORT.

CASE B7

TWO WAY TRAFFIC, URBAN,
DAY OR NIGHT OPERATION



Traffic Management Plan Typical Drawings
Pennsylvania

PATA 107 (Old PATA 10a) - Notes

1. Each flagger shall be clearly visible to traffic for a minimum distance of E and shall be in constant communication with all other flaggers.
2. For operations of 15 minutes or less:
 - a. The Road Work (W20-1), One Lane Road (W20-4), and Flagger Symbol (W20-7) signs are not required.
 - b. All channelizing devices may be eliminated if a shadow vehicle is present.
3. The buffer space shall be extended so that the two-way traffic taper is placed before a horizontal (or crest vertical) curve to provide adequate sight distance for the flagger and a queue of stopped vehicles.
4. When a shadow vehicle is not used, distance E is measured from end of taper to beginning of work space.

Signs



Sign Spacing Chart

Condition	Distance			
	A Feet	B Feet	C Feet	F Feet
Urban 35 MPH or less	100	100	100	100
Urban Greater than 35 MPH	350	350	350	350
Rural	500	500	500	500

When multiple distance plaques are used on advance warning signs, they shall all be of the same series type.
Example: either all "AHEAD" or XXX FEET.

Taper Length Formulas

S	L
40 MPH or less	$L = \frac{WS^2}{60}$
45 MPH or more	$L = WS$

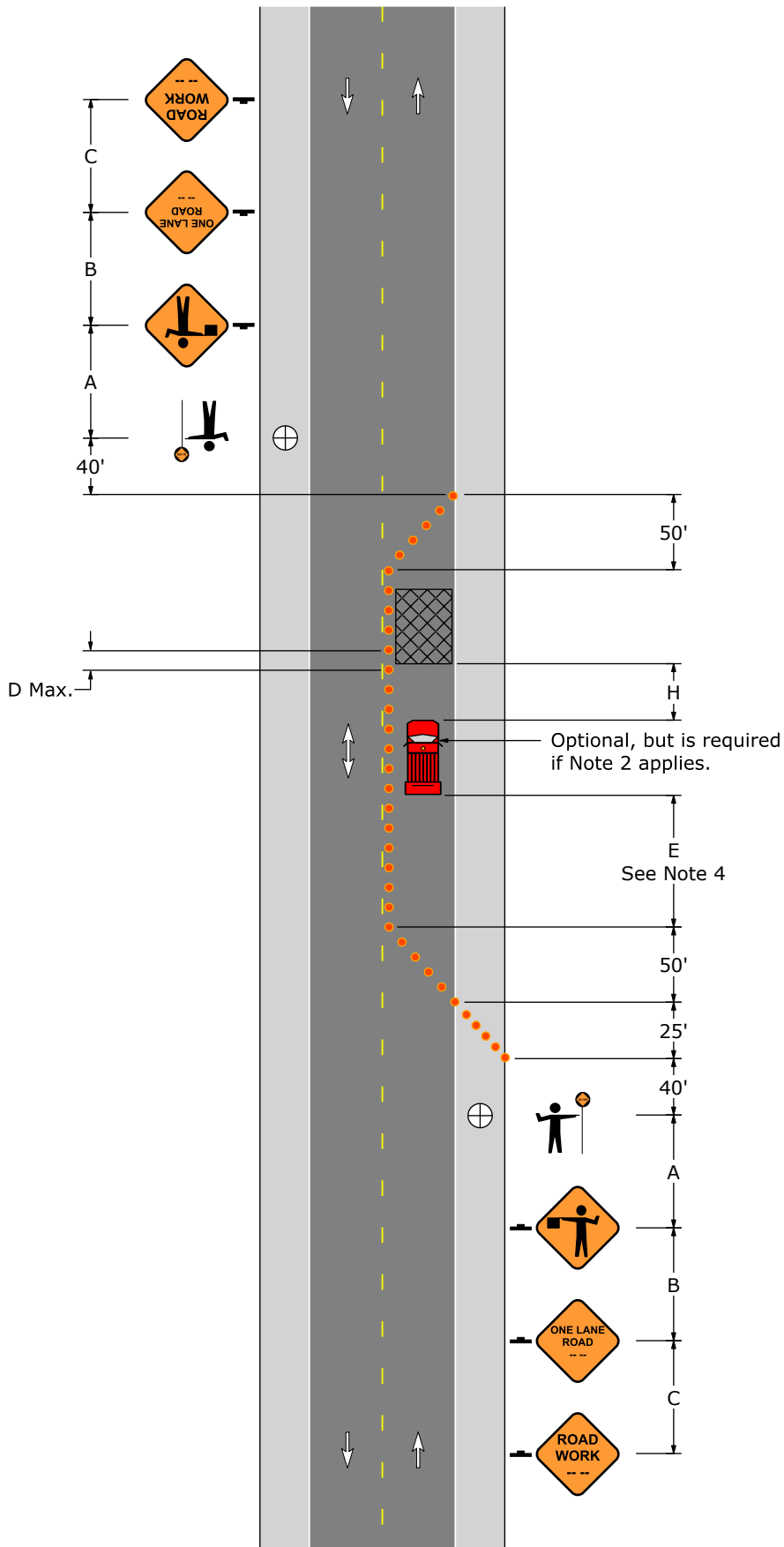
S = Regulatory Speed Limit
W = Width of Offset
L = Length

Distance and Spacing Quick Reference Chart

Speed MPH	W Feet	L Feet	1/2L Feet	1/3L Feet	Min. Channelizing Devices Per Taper Type (Length)				D Feet	E Feet	H Feet
					L	1/2L	1/3L	50'			
25	10	105	55	35	6	6	6	6	50	155	150
	11	115	60	40							
	12	125	65	45							
30	10	150	75	50	6	6	6	6	60	200	150
	11	165	85	55							
	12	180	90	60							
35	10	205	105	70	6	6	6	6	70	250	150
	11	225	115	75							
	12	245	125	85							
40	10	270	135	90	6	6	6	6	80	305	150
	11	295	150	100							
	12	320	160	110							
45	10	450	225	150	6	6	6	6	90	360	150
	11	495	250	165							
	12	540	270	180							
50	10	500	250	170	6	6	6	6	100	425	250
	11	550	275	185							
	12	600	300	200							
55	10	550	275	185	6	6	6	6	110	495	250
	11	605	305	205							
	12	660	330	220							

Note: Channelizing devices used in taper shall be equally spaced at 1/2 D Max.

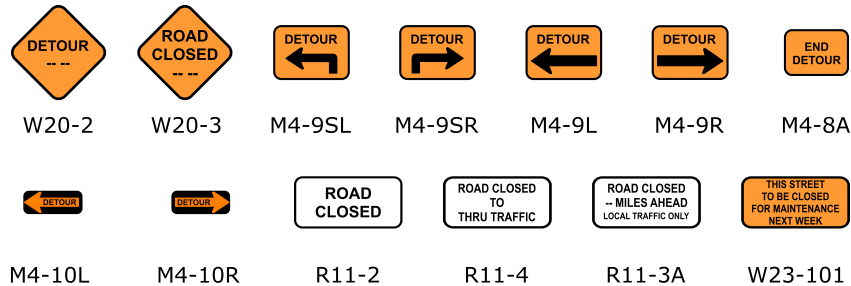
**PATA 107 (Old PATA 10a)
Work In One Lane; Two Flaggers**



PATA 115 (Old PATA 11e) - Notes

1. This figure applies for stationary operations where it is not feasible to maintain alternate one direction traffic flow.
2. This setup is to be used during daylight hours only and only on roadways with an ADT of 1500 or less. The PATA may be approved by the District Traffic Engineer for use on other roads.
3. Hours of work should not interfere with rush hour (6:00-9:00 AM and 3:00-6:00 PM) or school bus schedules and the work site must be capable of accommodating emergency vehicles with as little delay as possible.
4. At locations where there are overlapping detours or several detours within the same area, street names may be added to the M4-9 series signs, or signs with different colored arrows may be used to designate different detour routes. The design and application of signs displaying colored arrows shall comply with PennDOT Publication 236.
5. The Road Closed-Local Traffic Only (R11-3A) sign may be used in place of the Road Closed To Thru Traffic (R11-4) sign.
6. This Street To Be Closed For Maintenance Next Week (W23-101) signs should be installed for scheduled work. Install the signs at most appropriate locations.

Signs



Sign Spacing Chart

Condition	Distance			
	A	B	C	F
	Feet	Feet	Feet	Feet
Urban 35 MPH or less	100	100	100	100
Urban Greater than 35 MPH	350	350	350	350
Rural	500	500	500	500

When multiple distance plaques are used on advance warning signs, they shall all be of the same series type.
 Example: either all "AHEAD" or XXX FEET.

Taper Length Formulas

S	L
40 MPH or less	$L = \frac{WS^2}{60}$
45 MPH or more	$L = WS$

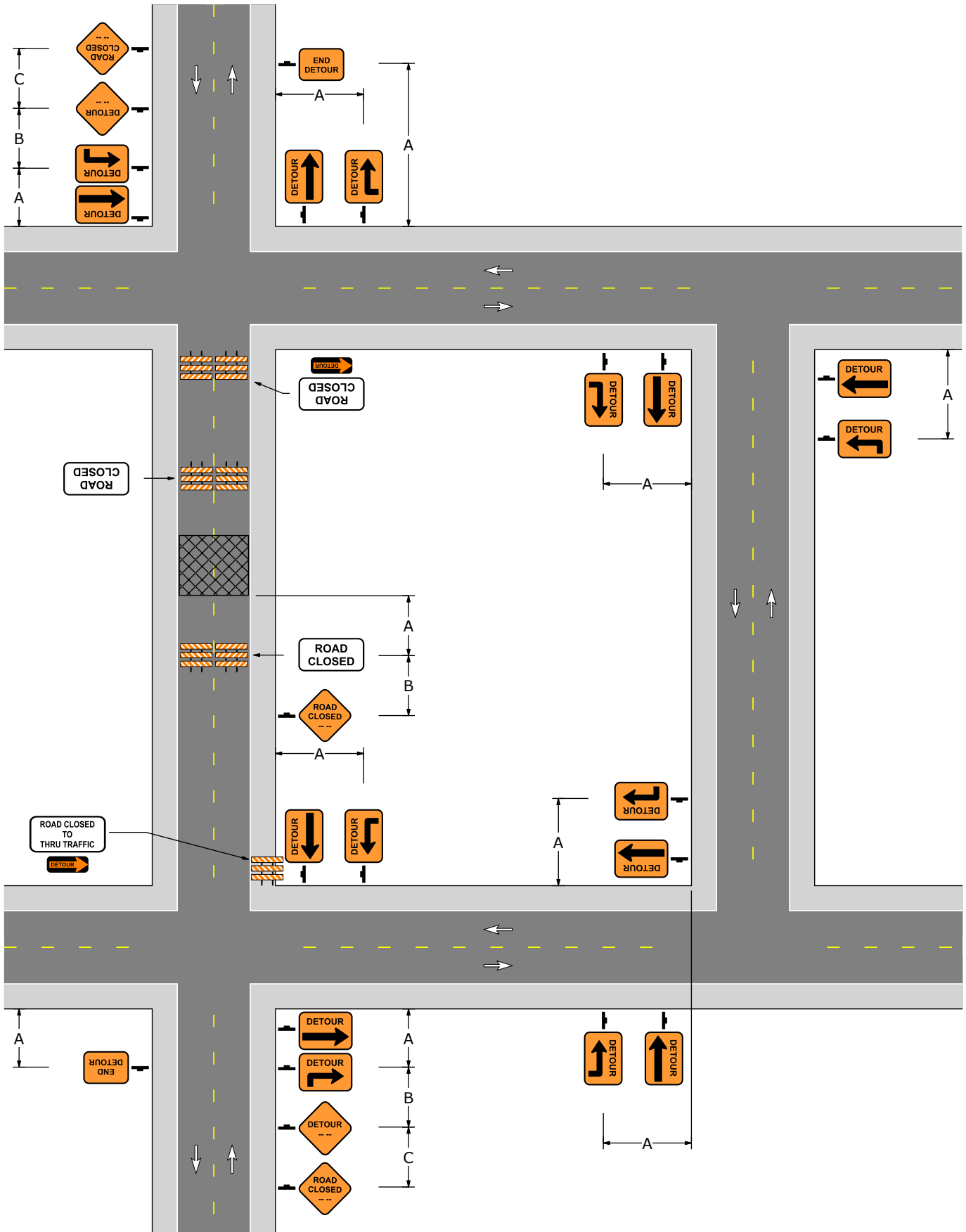
S = Regulatory Speed Limit
 W = Width of Offset
 L = Length

Distance and Spacing Quick Reference Chart

Speed	W	L	1/2L	1/3L	Min. Channelizing Devices Per Taper Type (Length)				D	E	H
					L	1/2L	1/3L	50'			
					Feet	Feet	Feet	Feet			
25	10	105	55	35	6	6	6	6	50	155	150
	11	115	60	40							
	12	125	65	45							
30	10	150	75	50	6	6	6	6	60	200	150
	11	165	85	55							
	12	180	90	60							
35	10	205	105	70	6	6	6	6	70	250	150
	11	225	115	75							
	12	245	125	85							
40	10	270	135	90	6	6	6	6	80	305	150
	11	295	150	100							
	12	320	160	110							
45	10	450	225	150	6	6	6	6	90	360	150
	11	495	250	165							
	12	540	270	180							
50	10	500	250	170	6	6	6	6	100	425	250
	11	550	275	185							
	12	600	300	200							
55	10	550	275	185	6	6	6	6	110	495	250
	11	605	305	205							
	12	660	330	220							

Note: Channelizing devices used in taper shall be equally spaced at 1/2 D Max.

PATA 115 (Old PATA 11e) Road Closure With Detour





Traffic Management Plan Typical Drawings
Ohio

Notes for Figure 6H-8—Typical Application 8

Road Closure with Off-Site Detour

Guidance:

1. Regulatory traffic control devices should be modified as needed for the duration of the detour.
2. If the road is opened for some distance beyond the intersection and/or there are significant origin/destination points beyond the intersection, the ROAD CLOSED and DETOUR signs on Type III Barricades should be located at the edge of the traveled way.

Option:

3. If the road is closed a short distance beyond the intersection and there are few origin/destination points beyond (for example, a few residences), the Type III Barricade shown in the figure may be moved to the center of the traveled lanes.

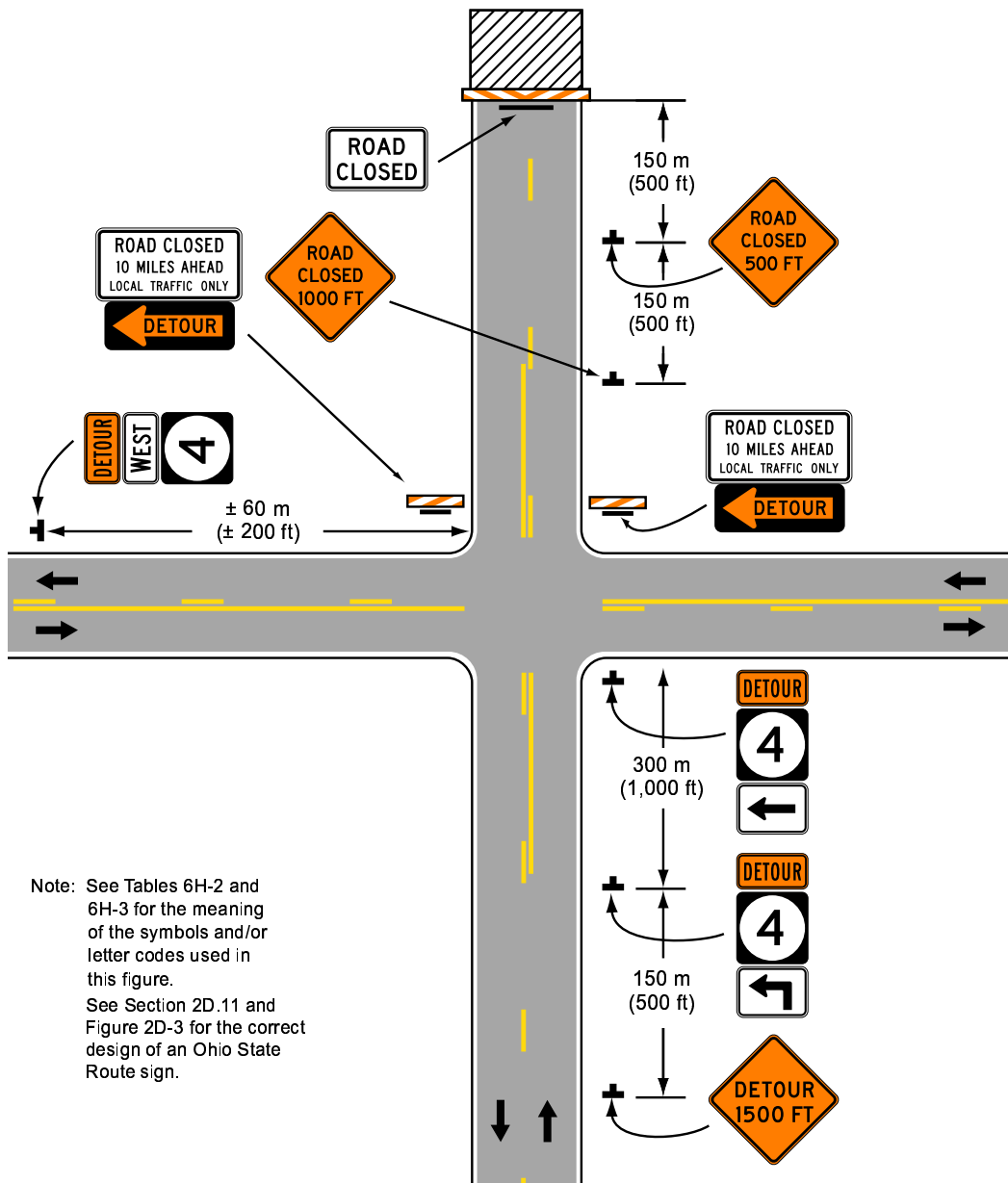
Standard:

4. **If the barricades are located as in Item 3 above, the ROAD CLOSED and DETOUR signs shall be placed only on the barricade centered in the lane of travel of traffic approaching the closure. The barricade centered in the lane of travel of departing traffic shall not be signed. The barricades in adjacent lanes shall be offset longitudinally from each other an adequate distance in order to permit traffic to travel around the barricades (the barricade in the road user's lane located in advance of the barricade located left of the center line).**

Option:

5. A Route Sign Directional assembly may be placed on the far left corner of the intersection to augment or replace the one shown on the near right corner.
6. Flashing warning lights and/or flags may be used to call attention to the advance warning signs.
7. Cardinal direction plaques may be used with route signs.

Figure 6H-8. Road Closure with Off-Site Detour (TA-8)



Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.
 See Section 2D.11 and Figure 2D-3 for the correct design of an Ohio State Route sign.

Typical Application 8

Notes for Figure 6H-10—Typical Application 10

Lane Closure on Two-Lane Road Using Flaggers

Option:

1. For low-volume situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger, positioned to be visible to road users approaching from both directions, may be used (see Chapter 6E).
2. The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short-duration operations.
3. Flashing warning lights and/or flags may be used to call attention to the advance warning signs. A BE PREPARED TO STOP sign may be added to the sign series.

Guidance:

4. The buffer space should be extended so that the two-way traffic taper is placed before a horizontal (or crest vertical) curve to provide adequate sight distance for the flagger and a queue of stopped vehicles.

Standard:

- 5. At night, flagger stations shall be illuminated, except in emergencies.**

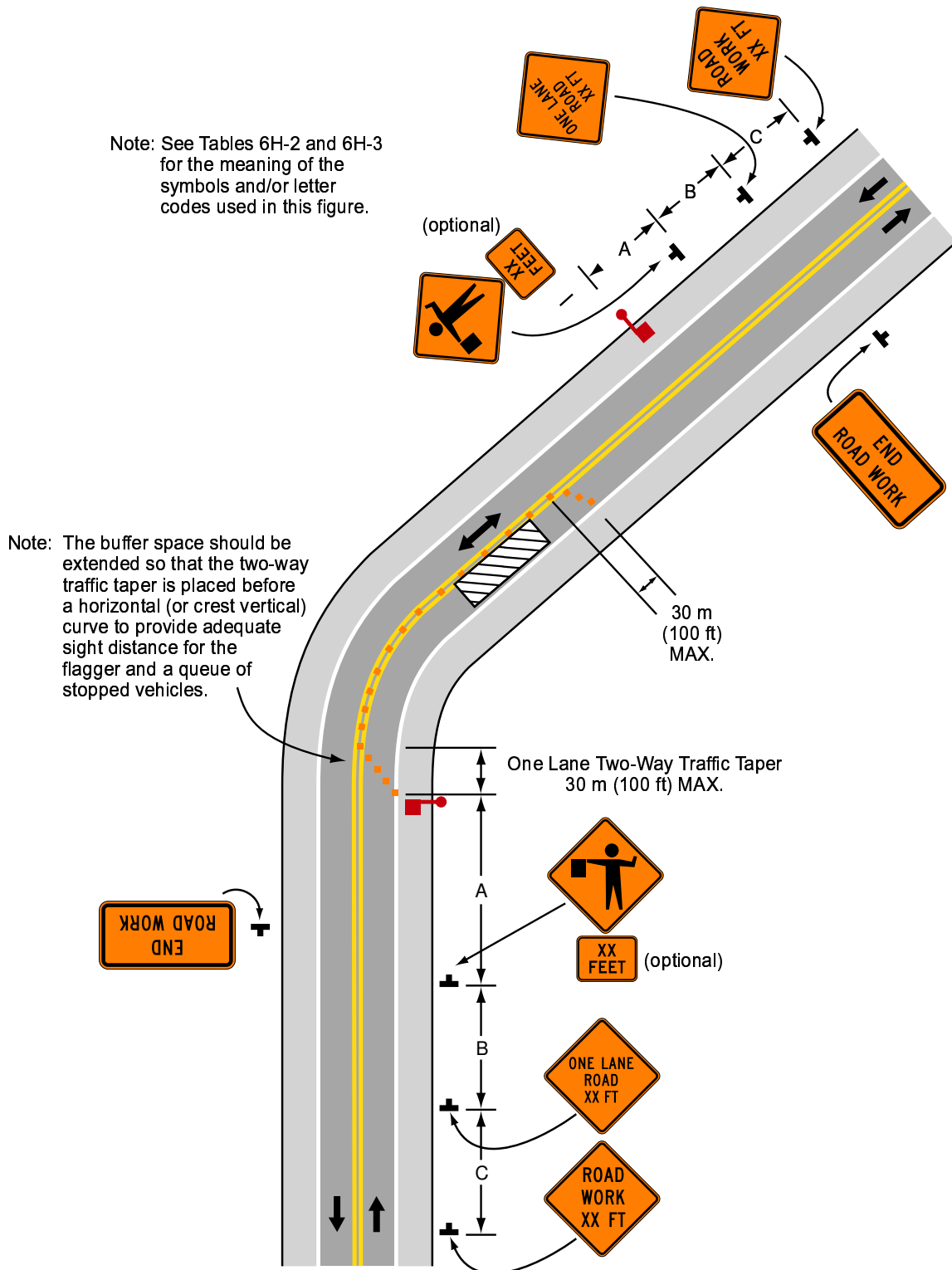
Guidance:

6. When used, the BE PREPARED TO STOP sign should be located between the Flagger sign and the ONE LANE ROAD sign.
7. When a highway-rail grade crossing exists within or upstream of the transition area and it is anticipated that queues resulting from the lane closure might extend through the highway-rail grade crossing, the TTC zone should be extended so that the transition area precedes the highway-rail grade crossing.
8. When a highway-rail grade crossing equipped with active warning devices exists within the activity area, provisions should be made for keeping flaggers informed as to the activation status of these warning devices.
9. When a highway-rail grade crossing exists within the activity area, drivers operating on the left side of the normal centerline should be provided with comparable warning devices as for drivers operating on the right side of the normal centerline.
10. Early coordination with the railroad company should occur before work starts.

Option:

11. A flagger or a uniformed law enforcement officer may be used at the highway-rail grade crossing to minimize the probability that vehicles are stopped within 4.6 m (15 ft) of the highway-rail grade crossing, measured from both sides of the outside rails.

Figure 6H-10. Lane Closure on Two-Lane Road Using Flaggers (TA-10)



Typical Application 10

OMUTCD - English units are preferred.

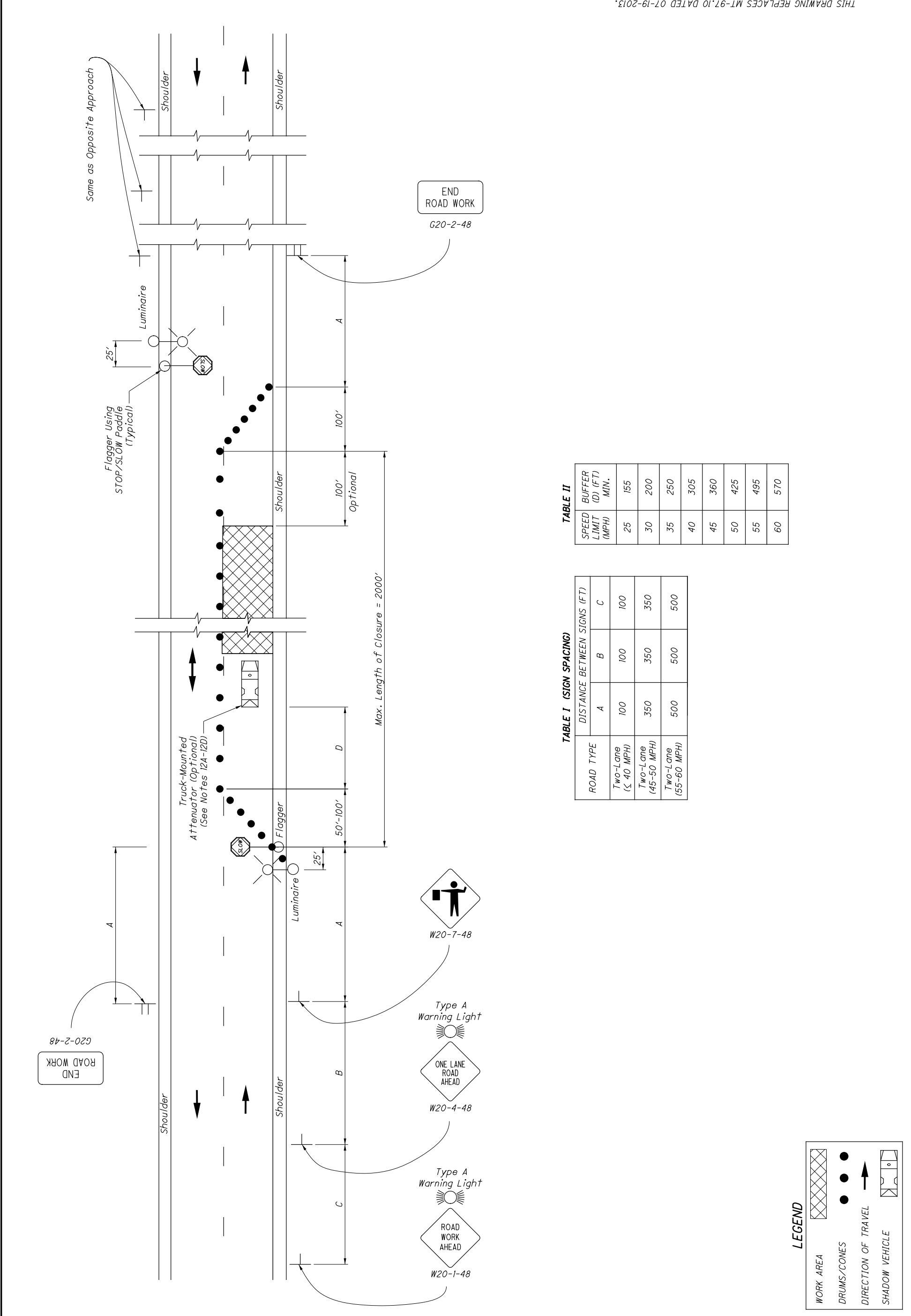


TABLE II

SPEED LIMIT (MPH)	BUFFER (D) (FT) MIN.
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570

TABLE I (SIGN SPACING)

ROAD TYPE	DISTANCE BETWEEN SIGNS (FT)		
	A	B	C
Two-Lane (< 40 MPH)	100	100	100
Two-Lane (45-50 MPH)	350	350	350
Two-Lane (55-60 MPH)	500	500	500

LEGEND

- WORK AREA (hatched box)
- DRUMS/CONES (solid circles)
- DIRECTION OF TRAVEL (arrow)
- SHADOW VEHICLE (vehicle icon)

THIS DRAWING REPLACES MT-97.10 DATED 07-19-2013.

NOTES:

FLAGGERS

1. Flaggers, one for each direction, shall be used to control traffic continuously for as long as a one lane operation is in effect. The flaggers shall be able to communicate with each other at all times.

LENGTH OF CLOSURE

2. Several small work areas close together should be combined into one work zone. However, the closure shall not be more than 2000' long unless approved by the Engineer. The minimum length between closures shall be 2000'. Only one side of the road shall be closed in any one work zone.

SIGN LOCATION AND SPACING

- 3A. The minimum spacing between work zone signs is shown in Table I. Maximum spacing should not be greater than 1.5 times the distances shown in Table I.

- 3B. Sign spacing should be adjusted to avoid conflict with existing signs. Minimum spacing to existing signs shall be 200' for speeds of 45 mph or less and a minimum of 400' for speeds of 50 mph or greater.

- 3C. The location of the advance warning signs should be adjusted to provide for adequate sight distance for the existing vertical and horizontal roadway alignment.

ADJUSTMENTS FOR SIGHT DISTANCE

4. The location of the flagger station and the advance warning signs should be adjusted to provide for adequate sight distance for the existing vertical and horizontal roadway alignment.

BASIC SIGNING

- 5A. ROAD WORK AHEAD (W20-1) signs shall be provided on entrance ramps or roadways entering the work limits.

- 5B. END ROAD WORK (G20-2) signs are only required for lane closures of more than 1 day. It is intended that these signs be placed on the mainline, on all exit ramps, and on roadways exiting the work limits.

- 5C. Overlapping of signing for adjacent projects should be avoided where the messages could be confusing. Any ROAD WORK AHEAD (W20-1) or END ROAD WORK (G20-2) sign which falls within the limits of another traffic control zone shall be omitted or covered during the period when both projects are active.

SIGNING DETAILS

- 6A. The Advisory Speed (W13-1P) plaque shall be used when specified in the plan.

- 6B. 36" warning signs may be used when the approach speed limit is 40 mph or less.

FLASHING WARNING LIGHTS

7. Type A flashing warning lights shown on the ROAD WORK AHEAD (W20-1) signs and on the LANE CLOSED AHEAD (W20-5) signs are required whenever a night lane closure is necessary.

DRUMS / CONES

- 8A. Drum spacing shall be as follows:

- a) Spacing along the closure shall be 40' center-to-center.
- b) Spacing along the approach taper shall be 10' center-to-center.

- 8B. Cones may be substituted for drums as follows:

- a) Cones used for daytime traffic control shall have a minimum height of 28".
- b) Cones used for nighttime traffic control shall have a minimum height of 42".
- c) Use of cones at night shall be prohibited along tapers.

- 8C. Provisions shall be made to stabilize the cones and drums to prevent them from blowing over.

- 8D. A minimum of two drums shall be used to close the paved shoulder.

(RESERVED FOR FUTURE USE)

- 9A. (intentionally blank)

AREA ILLUMINATION

- 10A. Adequate area illumination of each flagger station shall be provided at night. Use of portable flood lighting is acceptable. Luminaires shall be located adjacent to each flagger station.

- 10B. To ensure the adequacy of floodlight placement and the elimination of glare, the Contractor and the Engineer shall drive through the worksite each night when the lighting is in place. Light placement and shielding shall be adjusted to the satisfaction of the Engineer.

INTERSECTION / DRIVEWAY ACCESS

- i. Within the length of closure, provision shall be made to control traffic entering from intersecting streets and major drives as necessary to prevent wrong-way movements and to keep vehicles off of new pavement not ready for traffic. The Contractor shall:
 - a) Place across the closed lane, either three drums (cones) or barricades, and/or
 - b) Provide an additional flagger at every public street intersection and major driveway.

Drums (cones) placed across the closed lane shall be located 25' beyond the projected pavement edges of the driveway or cross highway, as shown in Standard Construction Drawings (SCDs MT-97.11 or MT-97.12. For barricades, see SCD MT-101.60.

Existing STOP signs shall be relocated as necessary to assure proper location for the traffic conditions.

The method of control shall be subject to the approval of the Engineer.

SHADOW VEHICLE

- 12A. The shadow vehicle shall be in place and unoccupied whenever workers are in the work area. This vehicle shall be removed from the pavement whenever workers are not in the work area.

- 12B. The shadow vehicle shall be equipped with a high-intensity yellow rotating, flashing, oscillating, or strobe light(s).

- 12C. The vehicle shall be equipped with a truck-mounted attenuator when called for in the plans.

- 12D. Other protective devices may be used in lieu of the shadow vehicle shown when approved by the Engineer.

CHIP SEAL OPERATIONS

13. For chip seal operations, additional signing shall be incorporated in the advanced warning area.

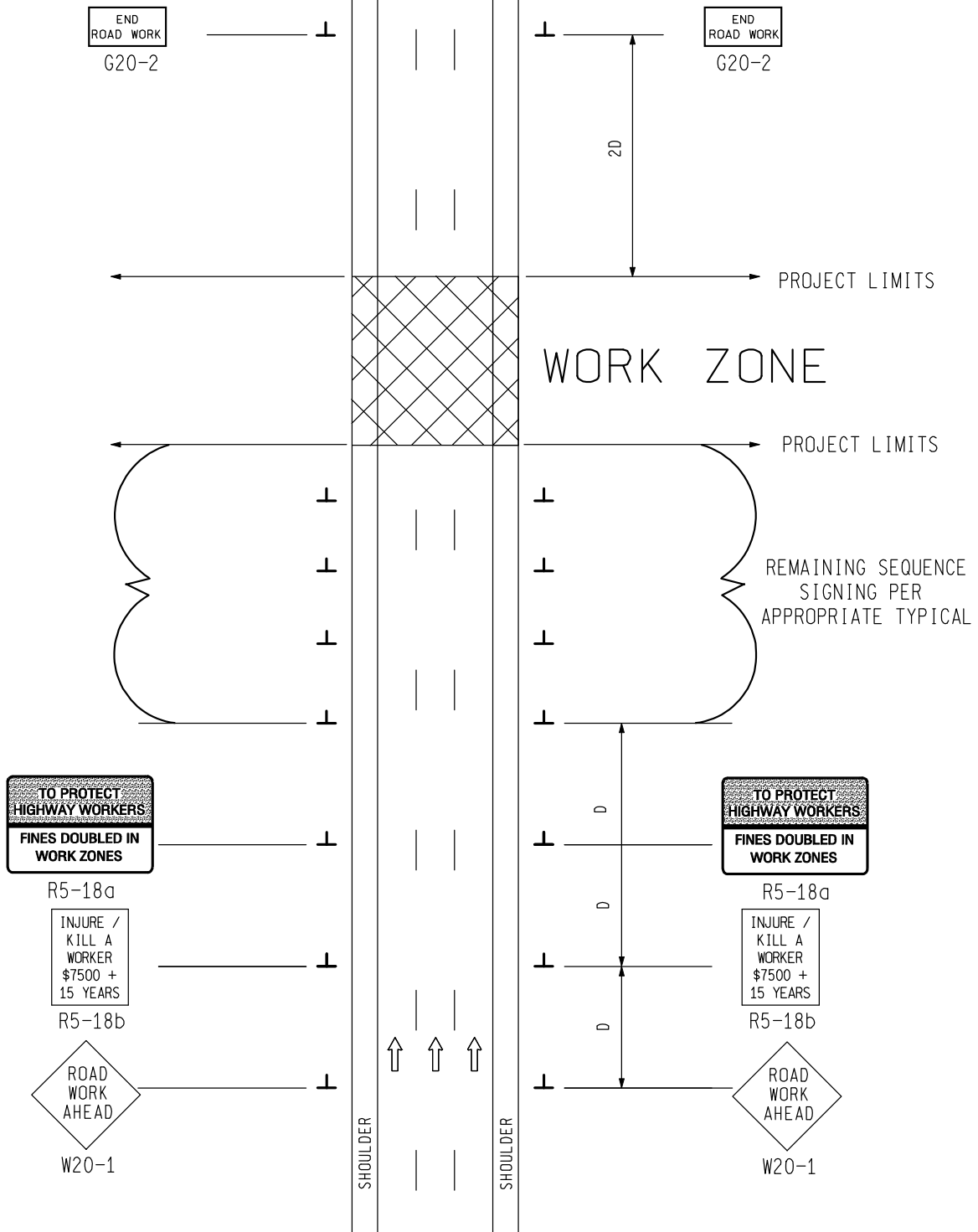
- a) The LOOSE GRAVEL (W8-7) and FRESH TAR (W21-2) signs shall both be used in advance of the chip seal operation.
- b) Repeat the LOOSE GRAVEL sign with a 35 mph Advisory Speed (W13-1) plaque every half mile per CMS 422.09.
- c) The FRESH TAR and the LOOSE GRAVEL signs shall both be used for signing of side roads intersecting the work area.

THIS DRAWING REPLACES MT-97.10 DATED 07-19-2013.



Traffic Management Plan Typical Drawings
Michigan

SIGN PLACEMENT
IS THE SAME FOR
BOTH DIRECTIONS



SIGN = 136 ft±2 - TYPE B
FOR ONE DIRECTION OF TRAFFIC
W20-1 QUANTITY INCLUDED WITH
APPROPRIATE TYPICAL FOR
SEQUENCE SIGNING

MDOT
Michigan Department of Transportation
TRAFFIC AND SAFETY
MAINTAINING TRAFFIC
TYPICAL

TYPICAL ADVANCE SIGNING TREATMENT FOR
LONG, INTERMEDIATE AND SHORT TERM
STATIONARY WORK ZONE OPERATIONS
OF LESS THAN TWO MILES IN LENGTH WHERE
TRAFFIC CONTROL DEVICES MAY REMAIN AT
END OF WORK DAY ON A DIVIDED ROADWAY.

DRAWN BY: CON:AE:djf
CHECKED BY: BMM

JUNE 2006
PLAN DATE:

M0070a

SHEET
1 OF 2

NOT TO SCALE


FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0070a.dgn REV. 08/15/2007

NOTES

30. THE APPROPRIATE ADVANCE SIGNING SEQUENCE(S), (M0030a THROUGH M0080a) SHALL BE USED ON ALL PROJECTS.
32. THESE SIGNS SHALL BE LEFT IN PLACE AT THEIR PRESCRIBED LOCATIONS FOR THE DURATION OF THE PROJECT AND UNTIL ALL TEMPORARY TRAFFIC CONTROL HAS BEEN REMOVED.
35. THESE SIGNS ARE INTENDED TO BE USED WITHIN THE LIMITS OF THE TEMPORARY SEQUENCE SIGNING AS IS SHOWN ON 1 OF 2. THESE SIGNS ARE NOT TO BE INTERMINGLED WITH ANY OTHER TEMPORARY SEQUENCE SIGNING EXCEPT AS SHOWN.

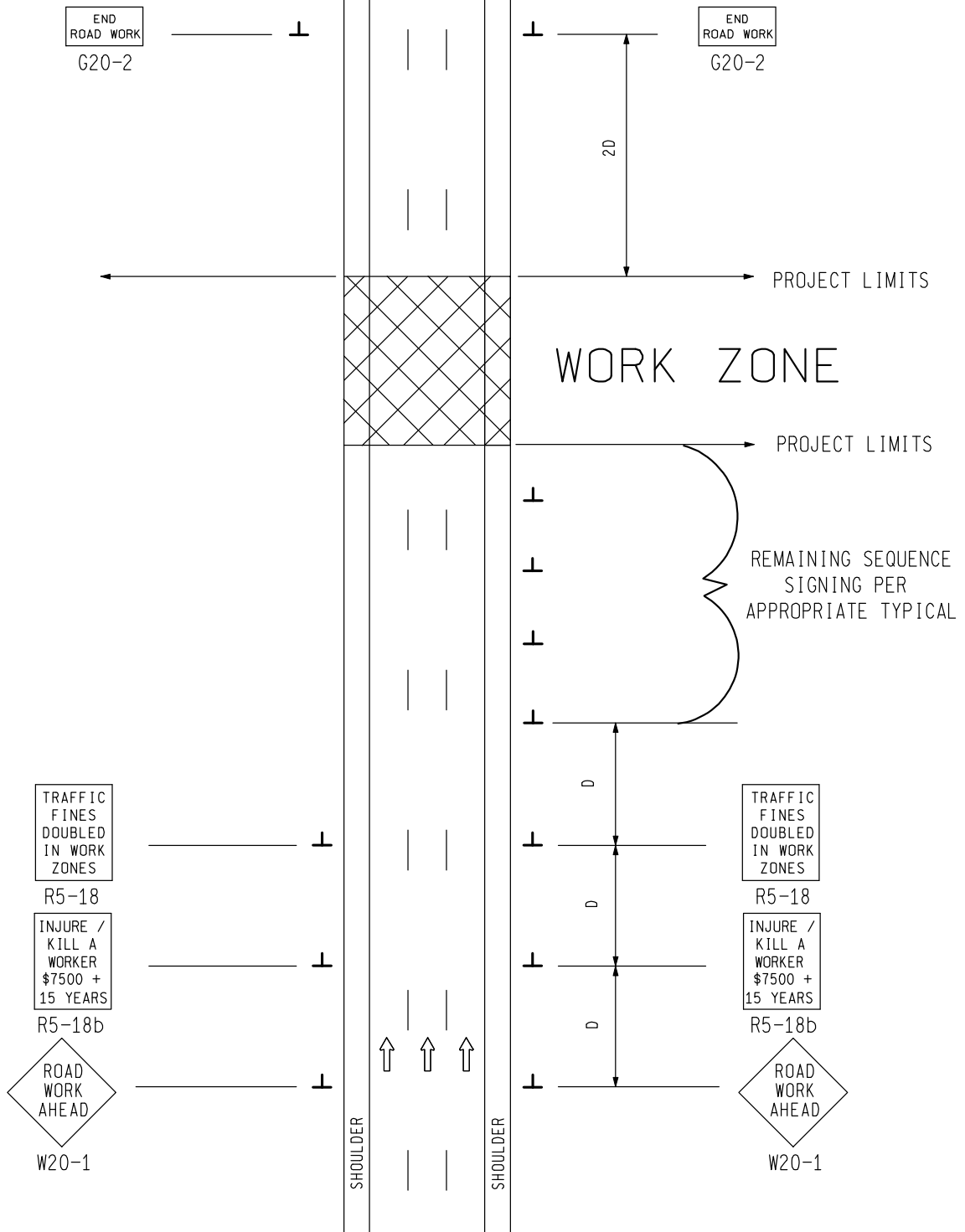
SIGN SIZES

G20-2	-	48" x 24"
R5-18a	-	96" x 60"
R5-18b	-	48" x 60"
W20-1	-	48" x 48"

 TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL	TYPICAL ADVANCE SIGNING TREATMENT FOR LONG, INTERMEDIATE AND SHORT TERM STATIONARY WORK ZONE OPERATIONS OF LESS THAN TWO MILES IN LENGTH WHERE TRAFFIC CONTROL DEVICES MAY REMAIN AT END OF WORK DAY ON A DIVIDED ROADWAY.		
	DRAWN BY: CON:AE:djf	JUNE 2006	SHEET
CHECKED BY: BMM	PLAN DATE:	M0070a	2 OF 2
FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0070a.dgn REV. 08/15/2007			

NOT TO SCALE

SIGN PLACEMENT
IS THE SAME FOR
BOTH DIRECTIONS



SIGN = 96 f+2 - TYPE B
FOR ONE DIRECTION OF TRAFFIC
W20-1 QUANTITY INCLUDED WITH
APPROPRIATE TYPICAL FOR
SEQUENCE SIGNING

MDOT
Michigan Department of Transportation
TRAFFIC AND SAFETY
MAINTAINING TRAFFIC
TYPICAL

TYPICAL ADVANCE SIGNING TREATMENT FOR
INTERMEDIATE AND SHORT TERM
STATIONARY WORK ZONE OPERATIONS WHERE
ALL TRAFFIC CONTROL DEVICES ARE
REMOVED AT END OF EACH WORK DAY ON
A DIVIDED ROADWAY

DRAWN BY: CON:AE:djf
CHECKED BY: BMM

JUNE 2006
PLAN DATE:

M0080a

SHEET
1 OF 2

NOT TO SCALE


FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0080a.dgn REV. 08/15/2007

NOTES

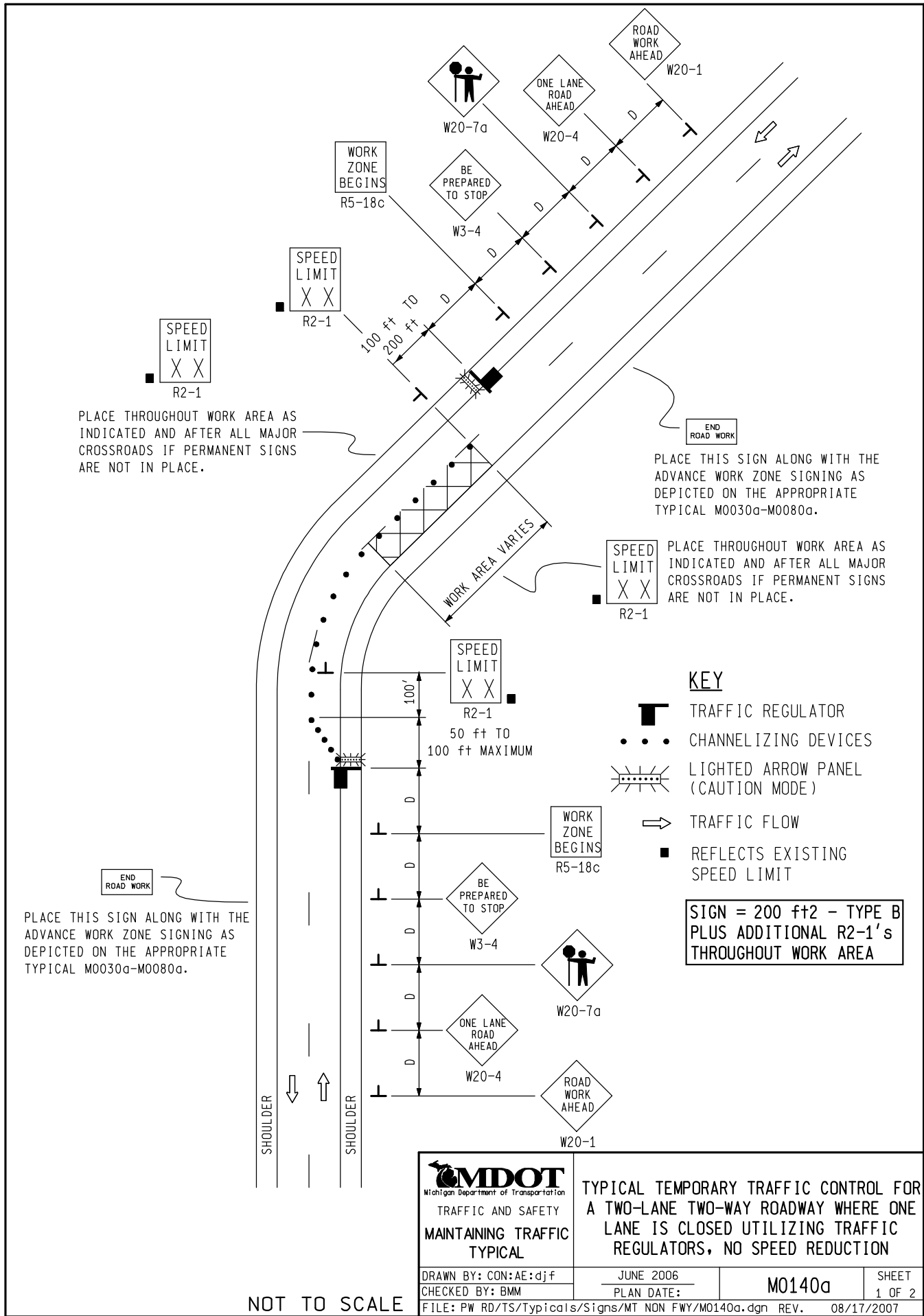
30. THE APPROPRIATE ADVANCE SIGNING SEQUENCE(S), (M0030a THROUGH M0080a) SHALL BE USED ON ALL PROJECTS.
35. THESE SIGNS ARE INTENDED TO BE USED WITHIN THE LIMITS OF THE TEMPORARY SEQUENCE SIGNING AS IS SHOWN ON 1 OF 2. THESE SIGNS ARE NOT TO BE INTERMINGLED WITH ANY OTHER TEMPORARY SEQUENCE SIGNING EXCEPT AS SHOWN.

SIGN SIZES

G20-2	-	48" x 24"
R5-18	-	48" x 60"
R5-18b	-	48" x 60"
W20-1	-	48" x 48"

 TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL	TYPICAL ADVANCE SIGNING TREATMENT FOR INTERMEDIATE AND SHORT TERM STATIONARY WORK ZONE OPERATIONS WHERE ALL TRAFFIC CONTROL DEVICES ARE REMOVED AT END OF EACH WORK DAY ON A DIVIDED ROADWAY		
	DRAWN BY: CON:AE:djf	JUNE 2006	SHEET
CHECKED BY: BMM	PLAN DATE:	M0080a	2 OF 2
FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0080a.dgn REV. 08/15/2007			

NOT TO SCALE




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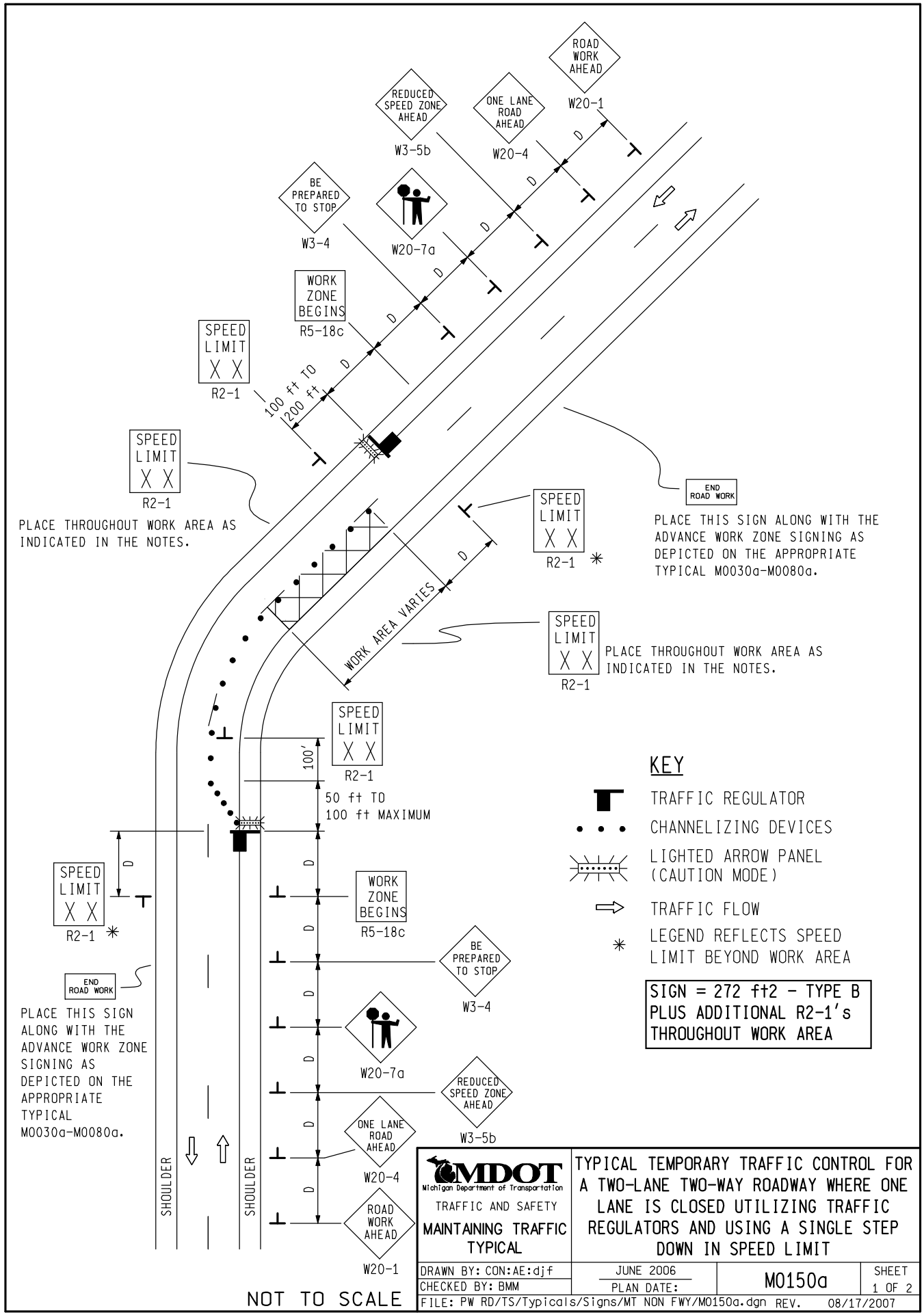
- 1H. D = DISTANCE BETWEEN TRAFFIC CONTROL DEVICES AND LENGTH OF LONGITUDINAL BUFFERS
SEE **M0020a** FOR "D" VALUES.
2. ALL NON-APPLICABLE SIGNING WITHIN THE CIA SHALL BE MODIFIED TO FIT CONDITIONS, COVERED OR REMOVED.
3. DISTANCES BETWEEN SIGNS, THE VALUES FOR WHICH ARE SHOWN IN TABLE D, ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.
- 3A. THE "WORK ZONE BEGINS" (R5-18c) SIGN SHALL BE USED ONLY IN THE INITIAL SIGNING SEQUENCE IN THE WORK ZONE. SUBSEQUENT SEQUENCES IN THE SAME WORK ZONE SHALL OMIT THIS SIGN AND THE QUANTITIES SHALL BE ADJUSTED APPROPRIATELY.
- 4A. THE MAXIMUM RECOMMENDED DISTANCE(S) BETWEEN CHANNELIZING DEVICES IN THE TAPER AREA(S) SHOULD BE 15 FEET AND SHOULD BE EQUAL IN FEET TO TWICE THE POSTED SPEED IN MILES PER HOUR IN THE PARALLEL AREA(S).
5. FOR OVERNIGHT CLOSURES, CHANNELIZING DEVICES SHALL BE LIGHTED PLASTIC DRUMS.
6. WHEN CALLED FOR IN THE FHWA ACCEPTANCE LETTER FOR THE SIGN SYSTEM SELECTED, THE TYPE A WARNING FLASHER, SHOWN ON THE WARNING SIGNS, SHALL BE POSITIONED ON THE SIDE OF THE SIGN NEAREST THE ROADWAY.
7. ALL TEMPORARY SIGNS, TYPE III BARRICADES, THEIR SUPPORT SYSTEMS AND LIGHTING REQUIREMENTS SHALL MEET NCHRP 350 CRASHWORTHY REQUIREMENTS STIPULATED IN THE 2005 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.
9. ALL TRAFFIC REGULATORS SHALL BE PROPERLY TRAINED AND SUPERVISED.
- 9A. IN ANY OPERATION INVOLVING MORE THAN ONE TRAFFIC REGULATOR, ONE PERSON SHOULD BE DESIGNATED AS HEAD TRAFFIC REGULATOR.
10. ALL TRAFFIC REGULATORS' CONDUCT, THEIR EQUIPMENT, AND TRAFFIC REGULATING PROCEDURES SHALL CONFORM TO THE CURRENT EDITION OF THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD) AND THE CURRENT EDITION OF THE MDOT HANDBOOK ENTITLED "TRAFFIC REGULATORS INSTRUCTION MANUAL."
11. WHEN TRAFFIC REGULATING IS ALLOWED DURING THE HOURS OF DARKNESS, APPROPRIATE LIGHTING SHALL BE PROVIDED TO SUFFICIENTLY ILLUMINATE THE TRAFFIC REGULATOR'S STATIONS.
- 12E. THE MAXIMUM DISTANCE BETWEEN THE TRAFFIC REGULATORS SHALL BE NO MORE THAN 2 MILES IN LENGTH UNLESS RESTRICTED FURTHER IN THE SPECIAL PROVISIONS FOR MAINTAINING TRAFFIC. ALL SEQUENCES OF MORE THAN 2 MILES IN LENGTH WILL REQUIRE WRITTEN PERMISSION FROM THE ENGINEER BEFORE PROCEEDING.
13. WHEN INTERSECTING ROADS OR SIGNIFICANT TRAFFIC GENERATORS (SHOPPING CENTERS, MOBILE HOME PARKS, ETC.) OCCUR WITHIN THE ONE-LANE TWO-WAY OPERATION, INTERMEDIATE TRAFFIC REGULATORS AND APPROPRIATE SIGNING SHALL BE PLACED AT THESE LOCATIONS.
14. ADDITIONAL SIGNING AND/OR ELONGATED SIGNING SEQUENCES SHOULD BE USED WHEN TRAFFIC VOLUMES ARE SIGNIFICANT ENOUGH TO CREATE BACKUPS BEYOND THE W3-4 SIGNS.
15. THE HAND HELD (PADDLE) SIGNS REQUIRED BY THE MMUTCD TO CONTROL TRAFFIC WILL BE PAID FOR AS PART OF FLAG CONTROL.
- 28E. THE TRAFFIC REGULATORS SHOULD BE POSITIONED AT OR NEAR THE SIDE OF THE ROAD SO THAT THEY ARE SEEN CLEARLY AT A MINIMUM DISTANCE OF 500 FEET. THIS MAY REQUIRE EXTENDING THE BEGINNING OF THE LANE CLOSURE TO OVERCOME VIEWING PROBLEMS CAUSED BY HILLS AND CURVES.

SIGN SIZES

DIAMOND WARNING - 48" x 48"
 R2-1 REGULATORY - 48" x 60"
 R5-18c REGULATORY - 48" x 48"

NOT TO SCALE

 TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL	TYPICAL TEMPORARY TRAFFIC CONTROL FOR A TWO-LANE TWO-WAY ROADWAY WHERE ONE LANE IS CLOSED UTILIZING TRAFFIC REGULATORS, NO SPEED REDUCTION		
	DRAWN BY: CON:AE:djf	JUNE 2006	SHEET
CHECKED BY: BMM	PLAN DATE:	M0140a	2 OF 2
FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0140a.dgn			REV. 08/17/2007



PLACE THROUGHOUT WORK AREA AS INDICATED IN THE NOTES.

PLACE THIS SIGN ALONG WITH THE ADVANCE WORK ZONE SIGNING AS DEPICTED ON THE APPROPRIATE TYPICAL M0030a-M0080a.

PLACE THROUGHOUT WORK AREA AS INDICATED IN THE NOTES.

- KEY**
- TRAFFIC REGULATOR
 - CHANNELIZING DEVICES
 - LIGHTED ARROW PANEL (CAUTION MODE)
 - TRAFFIC FLOW
 - LEGEND REFLECTS SPEED LIMIT BEYOND WORK AREA

SIGN = 272 ft ± 2 - TYPE B PLUS ADDITIONAL R2-1's THROUGHOUT WORK AREA

PLACE THIS SIGN ALONG WITH THE ADVANCE WORK ZONE SIGNING AS DEPICTED ON THE APPROPRIATE TYPICAL M0030a-M0080a.

<p>MDOT Michigan Department of Transportation</p> <p>TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL</p>	<p>TYPICAL TEMPORARY TRAFFIC CONTROL FOR A TWO-LANE TWO-WAY ROADWAY WHERE ONE LANE IS CLOSED UTILIZING TRAFFIC REGULATORS AND USING A SINGLE STEP DOWN IN SPEED LIMIT</p>	
	<p>DRAWN BY: CON:AE:djf CHECKED BY: BMM</p>	<p>JUNE 2006 PLAN DATE:</p>
<p>FILE: PW RD/TS/Typicals/Signs/MT NON Fwy/M0150a.dgn REV. 08/17/2007</p>		

NOT TO SCALE


NOTES

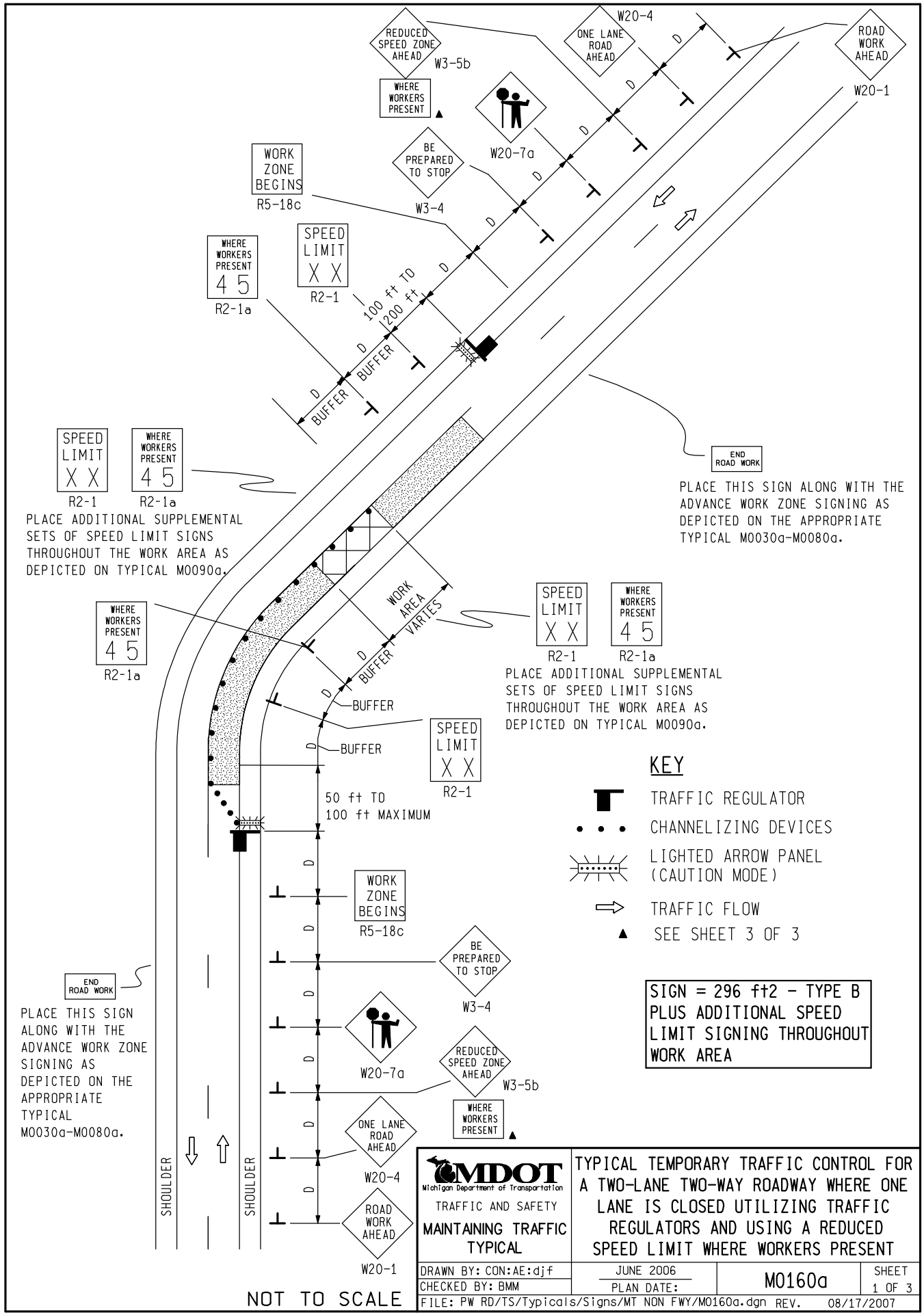
- 1H. D = DISTANCE BETWEEN TRAFFIC CONTROL DEVICES AND LENGTH OF LONGITUDINAL BUFFERS
SEE **M0020a** FOR "D" VALUES.
2. ALL NON-APPLICABLE SIGNING WITHIN THE CIA SHALL BE MODIFIED TO FIT CONDITIONS, COVERED OR REMOVED.
3. DISTANCES BETWEEN SIGNS, THE VALUES FOR WHICH ARE SHOWN IN TABLE D, ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.
- 3A. THE "WORK ZONE BEGINS" (R5-18c) SIGN SHALL BE USED ONLY IN THE INITIAL SIGNING SEQUENCE IN THE WORK ZONE. SUBSEQUENT SEQUENCES IN THE SAME WORK ZONE SHALL OMIT THIS SIGN AND THE QUANTITIES SHALL BE ADJUSTED APPROPRIATELY.
- 4A. THE MAXIMUM RECOMMENDED DISTANCE(S) BETWEEN CHANNELIZING DEVICES IN THE TAPER AREA(S) SHOULD BE 15 FEET AND SHOULD BE EQUAL IN FEET TO TWICE THE POSTED SPEED IN MILES PER HOUR IN THE PARALLEL AREA(S).
5. FOR OVERNIGHT CLOSURES, CHANNELIZING DEVICES SHALL BE LIGHTED PLASTIC DRUMS.
6. WHEN CALLED FOR IN THE FHWA ACCEPTANCE LETTER FOR THE SIGN SYSTEM SELECTED, THE TYPE A WARNING FLASHER, SHOWN ON THE WARNING SIGNS, SHALL BE POSITIONED ON THE SIDE OF THE SIGN NEAREST THE ROADWAY.
7. ALL TEMPORARY SIGNS, TYPE III BARRICADES, THEIR SUPPORT SYSTEMS AND LIGHTING REQUIREMENTS SHALL MEET NCHRP 350 CRASHWORTHY REQUIREMENTS STIPULATED IN THE 2005 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.
9. ALL TRAFFIC REGULATORS SHALL BE PROPERLY TRAINED AND SUPERVISED.
- 9A. IN ANY OPERATION INVOLVING MORE THAN ONE TRAFFIC REGULATOR, ONE PERSON SHOULD BE DESIGNATED AS HEAD TRAFFIC REGULATOR.
10. ALL TRAFFIC REGULATORS' CONDUCT, THEIR EQUIPMENT, AND TRAFFIC REGULATING PROCEDURES SHALL CONFORM TO THE CURRENT EDITION OF THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD) AND THE CURRENT EDITION OF THE MDOT HANDBOOK ENTITLED "TRAFFIC REGULATORS INSTRUCTION MANUAL."
11. WHEN TRAFFIC REGULATING IS ALLOWED DURING THE HOURS OF DARKNESS, APPROPRIATE LIGHTING SHALL BE PROVIDED TO SUFFICIENTLY ILLUMINATE THE TRAFFIC REGULATOR'S STATIONS.
- 12E. THE MAXIMUM DISTANCE BETWEEN THE TRAFFIC REGULATORS SHALL BE NO MORE THAN 2 MILES IN LENGTH UNLESS RESTRICTED FURTHER IN THE SPECIAL PROVISIONS FOR MAINTAINING TRAFFIC. ALL SEQUENCES OF MORE THAN 2 MILES IN LENGTH WILL REQUIRE WRITTEN PERMISSION FROM THE ENGINEER BEFORE PROCEEDING.
13. WHEN INTERSECTING ROADS OR SIGNIFICANT TRAFFIC GENERATORS (SHOPPING CENTERS, MOBILE HOME PARKS, ETC.) OCCUR WITHIN THE ONE-LANE TWO-WAY OPERATION, INTERMEDIATE TRAFFIC REGULATORS AND APPROPRIATE SIGNING SHALL BE PLACED AT THESE LOCATIONS.
14. ADDITIONAL SIGNING AND/OR ELONGATED SIGNING SEQUENCES SHOULD BE USED WHEN TRAFFIC VOLUMES ARE SIGNIFICANT ENOUGH TO CREATE BACKUPS BEYOND THE W3-4 SIGNS.
15. THE HAND HELD (PADDLE) SIGNS REQUIRED BY THE MMUTCD TO CONTROL TRAFFIC WILL BE PAID FOR AS PART OF FLAG CONTROL.
- 16A. ADDITIONAL SPEED LIMIT SIGNS REFLECTING THE REDUCED SPEED SHALL BE PLACED AFTER EACH MAJOR CROSSROAD THAT INTERSECTS THE WORK AREA WHERE THE REDUCED SPEED IS IN EFFECT, AND AT INTERVALS ALONG THE ROADWAY SUCH THAT NO SPEED LIMIT SIGNS REFLECTING THE REDUCED SPEED ARE MORE THAN TWO MILES APART.
- 16B. WHEN REDUCED SPEED LIMITS ARE UTILIZED IN THE WORK AREA, ADDITIONAL SPEED LIMIT SIGNS RETURNING TRAFFIC TO ITS NORMAL SPEED SHALL BE PLACED BEYOND THE LIMITS OF THE REDUCED SPEED AS INDICATED.
- 16E. WHEN EXISTING SPEED LIMITS ARE REDUCED MORE THAN 10 MPH, THE SPEED LIMIT SHALL BE STEPPED DOWN IN NO MORE THAN 10 MPH INCREMENTS.
- 28E. THE TRAFFIC REGULATORS SHOULD BE POSITIONED AT OR NEAR THE SIDE OF THE ROAD SO THAT THEY ARE SEEN CLEARLY AT A MINIMUM DISTANCE OF 500 FEET. THIS MAY REQUIRE EXTENDING THE BEGINNING OF THE LANE CLOSURE TO OVERCOME VIEWING PROBLEMS CAUSED BY HILLS AND CURVES.

SIGN SIZES

- DIAMOND WARNING - 48" x 48"
- RECTANGULAR REGULATORY - 48" x 60"
- R5-18c REGULATORY - 48" x 48"

NOT TO SCALE

 TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL	TYPICAL TEMPORARY TRAFFIC CONTROL FOR A TWO-LANE TWO-WAY ROADWAY WHERE ONE LANE IS CLOSED UTILIZING TRAFFIC REGULATORS AND USING A SINGLE STEP DOWN IN SPEED LIMIT	
	DRAWN BY: CON:AE:djf CHECKED BY: BMM	JUNE 2006 PLAN DATE:
FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0150a.dgn REV. 08/17/2007		



PLACE ADDITIONAL SUPPLEMENTAL SETS OF SPEED LIMIT SIGNS THROUGHOUT THE WORK AREA AS DEPICTED ON TYPICAL M0090a.

PLACE THIS SIGN ALONG WITH THE ADVANCE WORK ZONE SIGNING AS DEPICTED ON THE APPROPRIATE TYPICAL M0030a-M0080a.

PLACE ADDITIONAL SUPPLEMENTAL SETS OF SPEED LIMIT SIGNS THROUGHOUT THE WORK AREA AS DEPICTED ON TYPICAL M0090a.

KEY

- TRAFFIC REGULATOR
- CHANNELIZING DEVICES
- LIGHTED ARROW PANEL (CAUTION MODE)
- TRAFFIC FLOW
- SEE SHEET 3 OF 3

SIGN = 296 ft±2 - TYPE B PLUS ADDITIONAL SPEED LIMIT SIGNING THROUGHOUT WORK AREA


PLACE THIS SIGN ALONG WITH THE ADVANCE WORK ZONE SIGNING AS DEPICTED ON THE APPROPRIATE TYPICAL M0030a-M0080a.

NOT TO SCALE

<p>MDOT Michigan Department of Transportation</p> <p>TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL</p>			<p>TYPICAL TEMPORARY TRAFFIC CONTROL FOR A TWO-LANE TWO-WAY ROADWAY WHERE ONE LANE IS CLOSED UTILIZING TRAFFIC REGULATORS AND USING A REDUCED SPEED LIMIT WHERE WORKERS PRESENT</p>		
DRAWN BY: CON:AE:djf		JUNE 2006		SHEET 1 OF 3	
CHECKED BY: BMM		PLAN DATE:		M0160a	
FILE: PW RD/TS/Typicals/Signs/MT NON Fwy/M0160a.dgn REV. 08/17/2007					

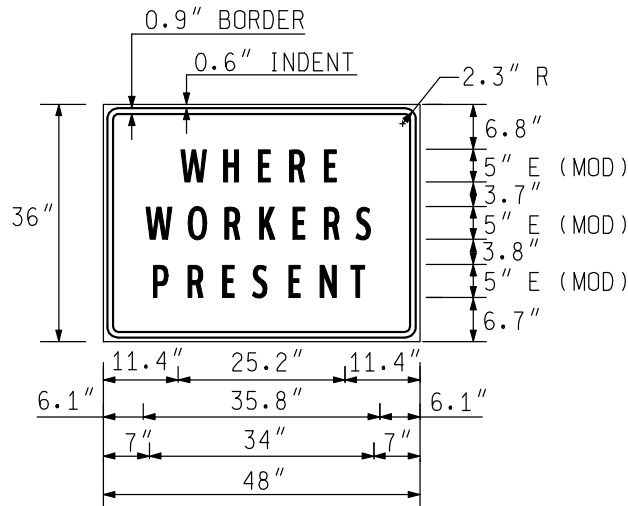
NOTES

- 1H. D = DISTANCE BETWEEN TRAFFIC CONTROL DEVICES AND LENGTH OF LONGITUDINAL BUFFERS
SEE **M0020a** FOR "D" VALUES.
2. ALL NON-APPLICABLE SIGNING WITHIN THE CIA SHALL BE MODIFIED TO FIT CONDITIONS, COVERED OR REMOVED.
3. DISTANCES BETWEEN SIGNS, THE VALUES FOR WHICH ARE SHOWN IN TABLE D, ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.
- 3A. THE "WORK ZONE BEGINS" (R5-18c) SIGN SHALL BE USED ONLY IN THE INITIAL SIGNING SEQUENCE IN THE WORK ZONE. SUBSEQUENT SEQUENCES IN THE SAME WORK ZONE SHALL OMIT THIS SIGN AND THE QUANTITIES SHALL BE ADJUSTED APPROPRIATELY.
- 4E. THE SPACING OF CHANNELIZING DEVICES SHOULD NOT EXCEED 15 FEET WHEN USED FOR TAPER CHANNELIZATION, AND SHOULD NOT EXCEED 90 FEET WHEN USED FOR TANGENT CHANNELIZATION.
5. FOR OVERNIGHT CLOSURES, CHANNELIZING DEVICES SHALL BE LIGHTED PLASTIC DRUMS.
6. WHEN CALLED FOR IN THE FHWA ACCEPTANCE LETTER FOR THE SIGN SYSTEM SELECTED, THE TYPE A WARNING FLASHER, SHOWN ON THE WARNING SIGNS, SHALL BE POSITIONED ON THE SIDE OF THE SIGN NEAREST THE ROADWAY.
7. ALL TEMPORARY SIGNS, TYPE III BARRICADES, THEIR SUPPORT SYSTEMS AND LIGHTING REQUIREMENTS SHALL MEET NCHRP 350 CRASHWORTHY REQUIREMENTS STIPULATED IN THE 2005 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.
9. ALL TRAFFIC REGULATORS SHALL BE PROPERLY TRAINED AND SUPERVISED.
- 9A. IN ANY OPERATION INVOLVING MORE THAN ONE TRAFFIC REGULATOR, ONE PERSON SHOULD BE DESIGNATED AS HEAD TRAFFIC REGULATOR.
10. ALL TRAFFIC REGULATORS' CONDUCT, THEIR EQUIPMENT, AND TRAFFIC REGULATING PROCEDURES SHALL CONFORM TO THE CURRENT EDITION OF THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD) AND THE CURRENT EDITION OF THE MDOT HANDBOOK ENTITLED "TRAFFIC REGULATORS INSTRUCTION MANUAL."
11. WHEN TRAFFIC REGULATING IS ALLOWED DURING THE HOURS OF DARKNESS, APPROPRIATE LIGHTING SHALL BE PROVIDED TO SUFFICIENTLY ILLUMINATE THE TRAFFIC REGULATOR'S STATIONS.
- 12E. THE MAXIMUM DISTANCE BETWEEN THE TRAFFIC REGULATORS SHALL BE NO MORE THAN 2 MILES IN LENGTH UNLESS RESTRICTED FURTHER IN THE SPECIAL PROVISIONS FOR MAINTAINING TRAFFIC. ALL SEQUENCES OF MORE THAN 2 MILES IN LENGTH WILL REQUIRE WRITTEN PERMISSION FROM THE ENGINEER BEFORE PROCEEDING.
13. WHEN INTERSECTING ROADS OR SIGNIFICANT TRAFFIC GENERATORS (SHOPPING CENTERS, MOBILE HOME PARKS, ETC.) OCCUR WITHIN THE ONE-LANE TWO-WAY OPERATION, INTERMEDIATE TRAFFIC REGULATORS AND APPROPRIATE SIGNING SHALL BE PLACED AT THESE LOCATIONS.

 TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL	TYPICAL TEMPORARY TRAFFIC CONTROL FOR A TWO-LANE TWO-WAY ROADWAY WHERE ONE LANE IS CLOSED UTILIZING TRAFFIC REGULATORS AND USING A REDUCED SPEED LIMIT WHERE WORKERS PRESENT		
DRAWN BY: CON:AE:djf	JUNE 2006	M0160a	SHEET 2 OF 3
CHECKED BY: BMM	PLAN DATE:		
FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0160a.dgn REV. 08/17/2007			

NOT TO SCALE

- 14. ADDITIONAL SIGNING AND/OR ELONGATED SIGNING SEQUENCES SHOULD BE USED WHEN TRAFFIC VOLUMES ARE SIGNIFICANT ENOUGH TO CREATE BACKUPS BEYOND THE W3-4 SIGNS.
- 15. THE HAND HELD (PADDLE) SIGNS REQUIRED BY THE MMUTCD TO CONTROL TRAFFIC WILL BE PAID FOR AS PART OF FLAG CONTROL.
- 28E. THE TRAFFIC REGULATORS SHOULD BE POSITIONED AT OR NEAR THE SIDE OF THE ROAD SO THAT THEY ARE SEEN CLEARLY AT A MINIMUM DISTANCE OF 500 FEET. THIS MAY REQUIRE EXTENDING THE BEGINNING OF THE LANE CLOSURE TO OVERCOME VIEWING PROBLEMS CAUSED BY HILLS AND CURVES.
- 29D. THE TYPE OF REFLECTIVE SHEETING USED FOR THE "WHERE WORKERS PRESENT" PLAQUE SHALL BE THE SAME AS THE TYPE USED FOR THE PARENT SIGN.



COLORS

LEGEND AND BORDER - BLACK (NON-REFLECTORIZED)
 BACKGROUND - ORANGE (REFLECTORIZED)

SIGN SIZES

- DIAMOND WARNING - 48" x 48"
- "WORKERS PRESENT" PLAQUE - 48" x 36"
- RECTANGULAR REGULATORY - 48" x 60"
- R5-18c REGULATORY - 48" x 48"

NOT TO SCALE

 TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL	TYPICAL TEMPORARY TRAFFIC CONTROL FOR A TWO-LANE TWO-WAY ROADWAY WHERE ONE LANE IS CLOSED UTILIZING TRAFFIC REGULATORS AND USING A REDUCED SPEED LIMIT WHERE WORKERS PRESENT	
	DRAWN BY: CON:AE:djf CHECKED BY: BMM	JUNE 2006 PLAN DATE:
FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0160a.dgn REV. 08/17/2007		

Notes for Figure 6H-8—Typical Application 8 (MI)
Road Closure with Off-Site Detour

Guidance:

1. Regulatory traffic control devices should be modified as needed for the duration of the detour.

Option:


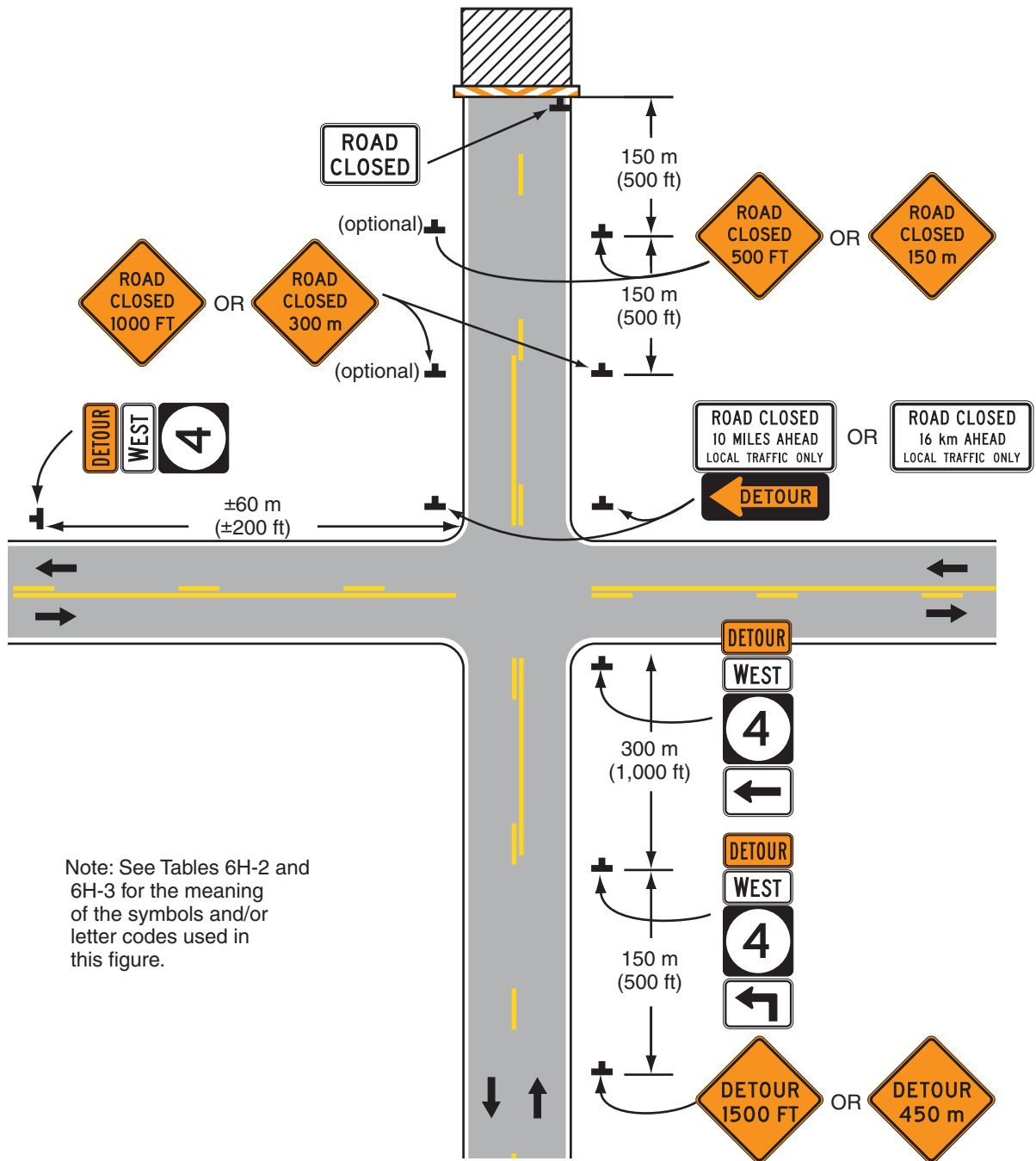
-  2. If the road is **closed a short** distance beyond the intersection and there are **few** origin/destination points beyond the intersection, the ROAD CLOSED and DETOUR signs on Type III Barricades may be located **in the center** of the traveled way.
3. A Route Sign Directional assembly may be placed on the far left corner of the intersection to augment or replace the one shown on the near right corner.
4. Flashing warning lights and/or flags may be used to call attention to the advance warning signs.
5. Cardinal direction plaques may be used with route signs.



Figure 6H-8. Road Closure with Off-Site Detour (MI) (TA-8)



Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

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