



SURVEY MAINTAINING TRAFFIC TYPICALS



FILE: Cover for Survey.dgn

COVER SHEET

NO:

SURVEY COVER SHEET

DATE:
JUNE 2021

SHEET:

1 OF 1

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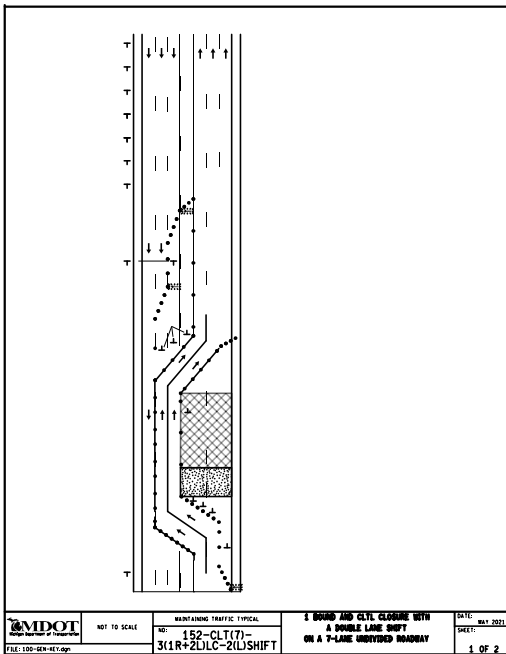
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TYPICAL NUMBER KEY

CODES

AB = ARROW BOARD
 AW = ADVANCE WARNING
 C = CLOSURE
 CLT = CENTER LEFT TURN LANE
 CROSS = CROSSOVER
 CruSha = CRUSH AND SHAPE
 EM = EARLY MERGE
 EnR = ENTRANCE RAMP
 ExR = EXIT RAMP
 FW = FREEWAY
 GEN = GENERAL INFORMATION
 GORE = FREEWAY GORE AREA
 IN = INSIDE
 INT = INTERSECTION
 L = LANE
 (L) = LEFT
 LC = LANE CLOSURE
 LD = LONG DURATION

LO = LANE OPEN
 O = OUTSIDE (LANE CLOSURE)
 OUT = OUTSIDE OF SHOULDER
 MID = MIDDLE OF INTERSECTION OR ROAD
 NFW = NON-FREEWAY
 PARK = PARKING LANE
 PCMS = PORTABLE CHANGEABLE MESSAGE SIGN
 (R) = RIGHT
 ROLL = ROLLING ROADBLOCK
 RUM = RUMBLE STRIP
 SD = SHORT DURATION
 SHL = SHOULDER CLOSURE
 SIGN = SIGN
 SPEED = SPEED
 STA = STOPPED TRAFFIC ADVISORY
 TR = TRAFFIC REGULATOR
 TS = TEMPORARY SIGNAL
 ZIP = ZIPPER MERGE



100 - GENERAL NOTES
 110 - TRAFFIC REGULATORS
 120 - NON-FREEWAY
 130 - CENTER LEFT TURN (CLT) LANES
 140 - PARKING LANES
 150 - CLT 7 LANE SECTIONS
 160 - SIGNAL WORK
 200 - FREEWAY CLOSURES
 210 - FREEWAY LANE SHIFTS
 220 - FREEWAY ENTRANCE RAMPS
 230 - FREEWAY EXIT RAMPS
 300 - ADVANCE WARNINGS
 310 - CROSSOVER CLOSURE
 320 - CRUSH AND SHAPE
 340 - MERGE SYSTEMS
 350 - GORE LOCATIONS
 360 - ROLLING ROADBLOCK
 4000 - MAINTENANCE
 5000 - SURVEY

EXAMPLE TYPICAL

CODE: 152-CTL(7)-3(1R+2L)LC-2(L)SHIFT

152 - TYPICAL NUMBER

CTL(7) = CENTER LEFT TURN LANE, 7 LANES TOTAL.

3(1R+2L)LC = 3 LANES CLOSED, (1 RIGHT LANE AND 2 LEFT LANES).

2(L)SHIFT = 2 LANES SHIFTED TO THE LEFT.

NOT TO SCALE

	NOT TO SCALE	MAINTAINING TRAFFIC TYPICAL	TYPICAL NUMBERING KEY	DATE: MAY 2021
		NO: 100-GEN-KEY		SHEET: 1 OF 1

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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
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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:

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

$$"L" = W \times S \quad \text{WHERE POSTED SPEED PRIOR TO THE WORK AREA IS 45 MPH OR GREATER}$$

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

TAPER LENGTH

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

DOWNSTREAM TAPERS

(USE IS RECOMMENDED)

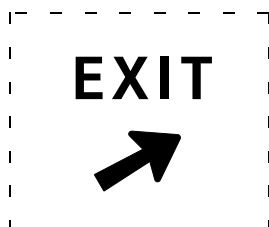
100' (PER LANE)

MAXIMUM SPACING FOR CHANNELIZING DEVICES

WORK ZONE SPEED LIMIT	DAY AND NIGHT 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



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MAINTAINING TRAFFIC TYPICAL

NO: 101-GEN-
SPACING-CHARTS

FILE: 101-GEN-SPACING-CHARTS.dgn

"B", "D" AND "L" TABLES
CHANNELIZING DEVICE SPACING
SIGN BORDER KEY AND ROLL-AHEAD SPACING

DATE: MAY 2021

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.

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 (NCHRP 350) 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: R5-18b 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 R5-18b 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 (W3-5b) 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.

TEMPORARY TRAFFIC CONTROL DEVICE NOTES

- TCD1: 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.
- TCD2: 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.
- TCD3: TYPE III BARRICADES MUST BE LIGHTED FOR OVERNIGHT CLOSURES.
- TCD4: WHEN THE HAUL ROAD IS NOT IN USE, PLACE LIGHTED TYPE III BARRICADES WITH "ROAD CLOSED" EXTENDING COMPLETELY ACROSS THE HAUL ROAD.
- TCD5: USE VERTICAL PANELS IN LIEU OF THE TYPE B HIGH INTENSITY LIGHT SHOWN IN THE STANDARD PLAN FOR TEMPORARY CONCRETE BARRIER (R-53, AND R-126) WHEN USED WITH A TEMPORARY SIGNAL SYSTEM.
- TCD6: 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.
- TCD7: ADDITIONAL TYPE III BARRICADES MAY BE REQUIRED TO COMPLETELY CLOSE OFF ROAD FROM EDGE OF PAVEMENT TO EDGE OF PAVEMENT.
- TCD8: 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.
- TCD9: 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.
- TCD10: SEE THE WORK ZONE SAFETY AND MOBILITY MANUAL, PORTABLE CHANGEABLE MESSAGE SIGN GUIDELINES FOR RECOMMENDED AND CORRECT PCMS MESSAGING. STAGGER PCMS 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 MERGE DISTANCE. WORK SHOULD BE EXPEDITED TO AVOID THE STOP AND/OR YIELD CONDITIONS.



NOT TO SCALE

MAINTAINING TRAFFIC TYPICAL

NO:

102-GEN-NOTES

TRAFFIC TYPICALS
NOTE SHEET

DATE:
MAY 2021

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THE FOLLOWING NOTES APPLY IF CALLED FOR ON THE TRAFFIC TYPICAL

SIGNAL NOTES

- SIG1: EXISTING SIGNAL MUST BE EITHER 4-WAY FLASHING RED, BAGGED, OR TURNED OFF.
- SIG2: SIGNAL IS IN OPERATION.
- SIG3: DELINEATE THE WORK ZONE AREA WITH 28 INCH CONES FOR DAYTIME WORK, OR 42 INCH CHANNELIZING DEVICES FOR NIGHTTIME WORK.
- SIG4: THE CONTRACTOR MUST HAVE A DESIGNATED SPOTTER IF THE AERIAL BUCKET TRUCK IS LOCATED OVER ACTIVE TRAVEL LANES.
- SIG5: 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.
- SIG6: 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.



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MAINTAINING TRAFFIC TYPICAL

NO:

102-GEN-NOTES

TRAFFIC TYPICALS
NOTE SHEET

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MAY 2021

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2 OF 2

SIGN NUMBER KEY



E5-1f
48" x 48"
60" x 48"



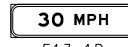
E5-2
48" x 36"



E5-2a
48" x 36"



E5-3
48" x 36"



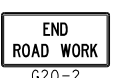
E13-1P
VAR x 24"



E13-1aP
36" x 24"



G20-1
60" x 24"



G20-2
48" x 24"



G20-4
36" x 18"



I-6a
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"



M4-9L
30" x 24"
48" x 36"
60" x 48"



M4-9R
30" x 24"
48" x 36"
60" x 48"



M4-9j
30" x 24"
48" x 36"
60" x 48"



M4-9kL
30" x 30"
48" x 42"
60" x 54"



M4-9kR
30" x 30"
48" x 42"
60" x 54"



M4-9mL
30" x 30"
48" x 42"
60" x 54"



M4-9mR
30" x 30"
48" x 42"
60" x 54"



M4-9dL
12" x 18"



M4-9dR
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"

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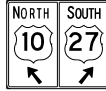
SIGN NUMBER KEY



M8-1gL
36" x 66"



M8-1gR
36" x 66"



M8-2d
60" x 48"



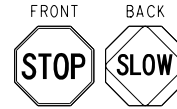
OM-3L
12" x 36"
24" x 48"
36" x 72"



OM-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"



R1-2aP
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"



R3-8d
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"



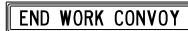
R5-18b
48" x 60"



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"



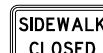
R6-2R
12" x 16"
18" x 24"
24" x 30"
36" x 48"
48" x 60"



R8-3
12" x 12"
18" x 18"
24" x 24"
36" x 36"
48" x 48"



R9-8
36" x 18"



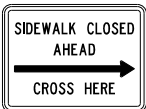
R9-9
24" x 12"
30" x 18"



R9-10
24" x 12"
48" x 24"



R9-11L
24" x 12"
48" x 36"



R9-11R
24" x 12"
48" x 36"



R9-11aL
24" x 12"
48" x 24"



R9-11aR
24" x 12"
48" x 24"



R10-6b
36" x 54"



R11-2
48" x 30"



R11-2a
48" x 30"



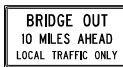
R11-2b
48" x 30"



R11-2c
60" x 30"



R11-3a
60" x 30"



R11-3b
60" x 30"



R11-4
60" x 30"

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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"



W1-4bL
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W1-4bR
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"



W24-1cP
24" x 18"
30" x 24"



W24-1R
30" x 30"
36" x 36"
48" x 48"



W24-1aL
30" x 30"
36" x 36"
48" x 48"



W24-1aR
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"



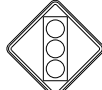
W1-8R
12" x 18"
18" x 24"
24" x 30"
30" x 36"
36" x 48"



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"
30" x 30"
36" x 36"
48" x 48"



W3-4
30" x 30"
36" x 36"
48" x 48"
60" x 60"



W3-4b
30" x 30"
36" x 36"
48" x 48"



W3-5
36" x 36"
48" x 48"



W3-5a
30" x 30"
36" x 36"
48" x 48"
60" x 60"



W3-5b
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"



W4-5P
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"



W4-7L
30" x 30"
36" x 36"
48" x 48"
60" x 60"



W4-7R
30" x 30"
36" x 36"
48" x 48"
60" x 60"



W5-1
30" x 30"
36" x 36"
48" x 48"



W5-2
18" x 18"
30" x 30"
36" x 36"
48" x 48"



W5-3
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W5-4
30" x 30"
36" x 36"
48" x 48"



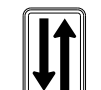
W6-1
30" x 30"
36" x 36"
48" x 48"



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"



W8-1
18" x 18"
24" x 24"
30" x 30"
36" x 36"
48" x 48"

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NO:

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W8-2
18" x 18"
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W8-3
18" x 18"
30" x 30"
36" x 36"
48" x 48"



W8-4
18" x 18"
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W8-5
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W8-5P
24" x 18"
30" x 24"
36" x 30"



W8-7
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W8-8
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W8-9
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W8-11
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W8-12
30" x 30"
36" x 36"
48" x 48"



W8-14
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W8-15
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W8-15P
24" x 18"
30" x 24"
36" x 30"



W8-17L
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W8-17R
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W8-17P
24" x 18"
30" x 24"
36" x 30"



W8-18
24" x 24"
36" x 36"
48" x 48"



W8-23
24" x 24"
36" x 36"
48" x 48"



W8-24
30" x 30"
36" x 36"
48" x 48"



W8-25
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W8-26
36" x 36"
48" x 48"



W9-1L
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W9-1R
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W9-2L
30" x 30"
36" x 36"
48" x 48"



W9-2R
30" x 30"
36" x 36"
48" x 48"



W9-3C
30" x 30"
36" x 36"
48" x 48"
60" x 60"



W9-3L
30" x 30"
36" x 36"
48" x 48"
60" x 60"



W9-3R
30" x 30"
36" x 36"
48" x 48"
60" x 60"



W9-3a
30" x 30"
36" x 36"
48" x 48"
60" x 60"



W9-3b
30" x 30"
36" x 36"
48" x 48"
60" x 60"



W11-10
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W11-10a
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W11-24
36" x 36"
48" x 48"



W12-1
24" x 24"
30" x 30"
36" x 36"
48" x 48"



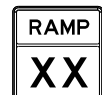
W12-2
18" x 18"
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W13-1P
18" x 18"
24" x 24"
30" x 30"



W13-2
24" x 30"
36" x 48"
48" x 60"



W13-3
24" x 30"
36" x 48"
48" x 60"



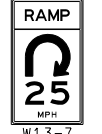
W13-4P
24" x 24"
36" x 36"



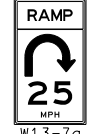
W13-6
24" x 42"
36" x 60"
48" x 84"



W13-6a
24" x 42"
36" x 60"
48" x 84"



W13-7
24" x 42"
36" x 60"
48" x 84"



W13-7a
24" x 42"
36" x 60"
48" x 84"



W14-3
36" x 24"
40" x 30"
48" x 36"
64" x 48"



W16-2P
18" x 12"
24" x 18"
30" x 24"



W16-4aP
18" x 12"
24" x 18"
30" x 24"
36" x 30"



W16-12P
24" x 18"



W16-13P
24" x 18"
30" x 24"



W20-1
24" x 24"
30" x 30"
36" x 36"
48" x 48"
60" x 60"



W20-1a
24" x 24"
30" x 30"
36" x 36"
48" x 48"
60" x 60"



W20-1b
24" x 24"
30" x 30"
36" x 36"
48" x 48"
60" x 60"



W20-1c
24" x 24"
30" x 30"
36" x 36"
48" x 48"
60" x 60"



W20-1d
24" x 24"
30" x 30"
36" x 36"
48" x 48"
60" x 60"



W20-2
30" x 30"
36" x 36"
48" x 48"



W20-3
30" x 30"
36" x 36"
48" x 48"



W20-3a
30" x 30"
36" x 36"
48" x 48"

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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"



W20-5aL2
30" x 30"
36" x 36"
48" x 48"



W20-5aL3
30" x 30"
36" x 36"
48" x 48"



W20-5aR2
30" x 30"
36" x 36"
48" x 48"



W20-5aR3
30" x 30"
36" x 36"
48" x 48"



W20-7a
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"



W20-14aP
36" x 12"
48" x 12"



W20-14bP
36" x 12"
48" x 12"



W20-15
36" x 36"
48" x 48"



W20-15a
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"



W21-5aL
30" x 30"
36" x 36"
48" x 48"
60" x 60"



W21-5aR
30" x 30"
36" x 36"
48" x 48"
60" x 60"



W21-5bL
30" x 30"
36" x 36"
48" x 48"
60" x 60"



W21-5bR
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 MDOT SHS 13-WORK ZONE FOR SIGN DETAILS



NOT TO SCALE

MAINTAINING TRAFFIC TYPICAL

NO:

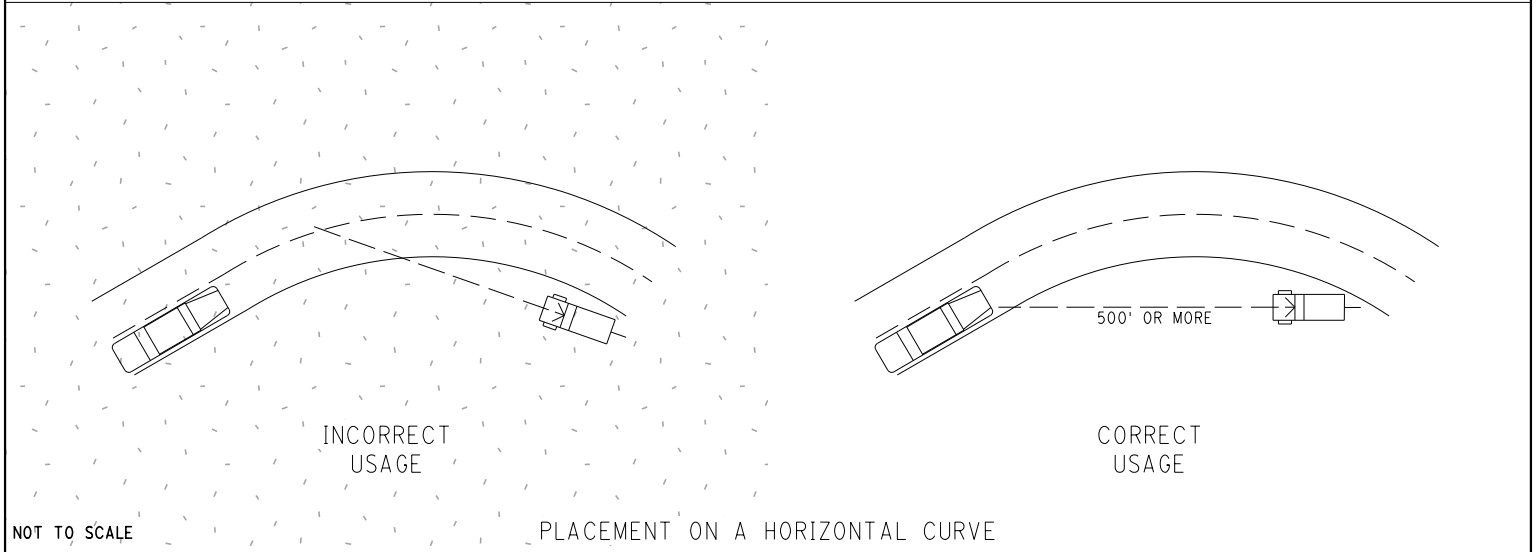
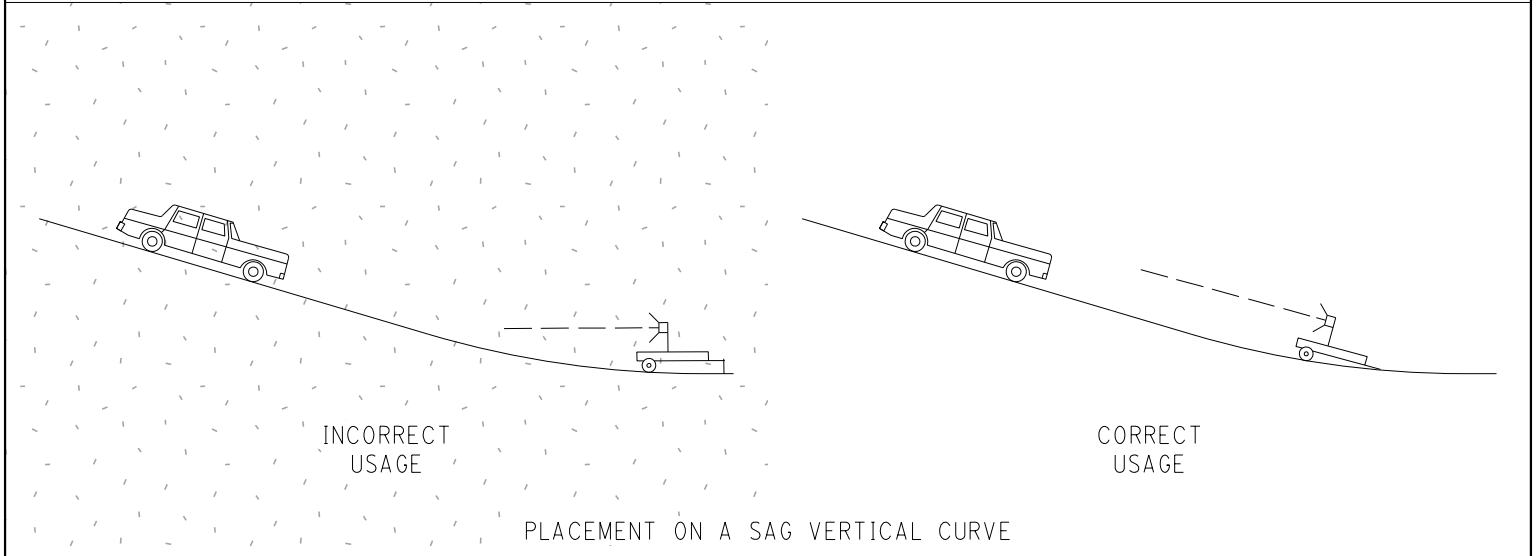
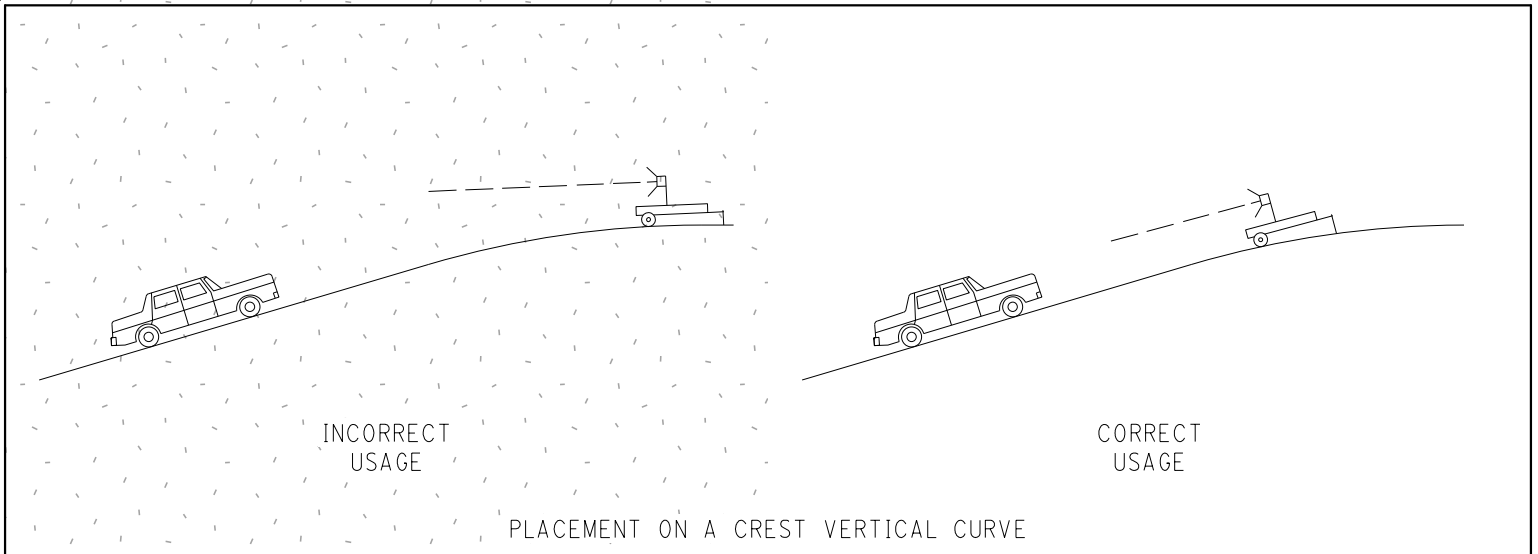
103-GEN-SIGN

TRAFFIC TYPICAL
SIGN SHEET

DATE:
JUNE 2021

SHEET:

5 OF 5



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

SPEED
LIMIT
XX
R2-1

WHERE
WORKERS
PRESENT
45
R2-1a

SPEED
LIMIT
XX
R2-1

WHERE
WORKERS
PRESENT
45
R2-1a

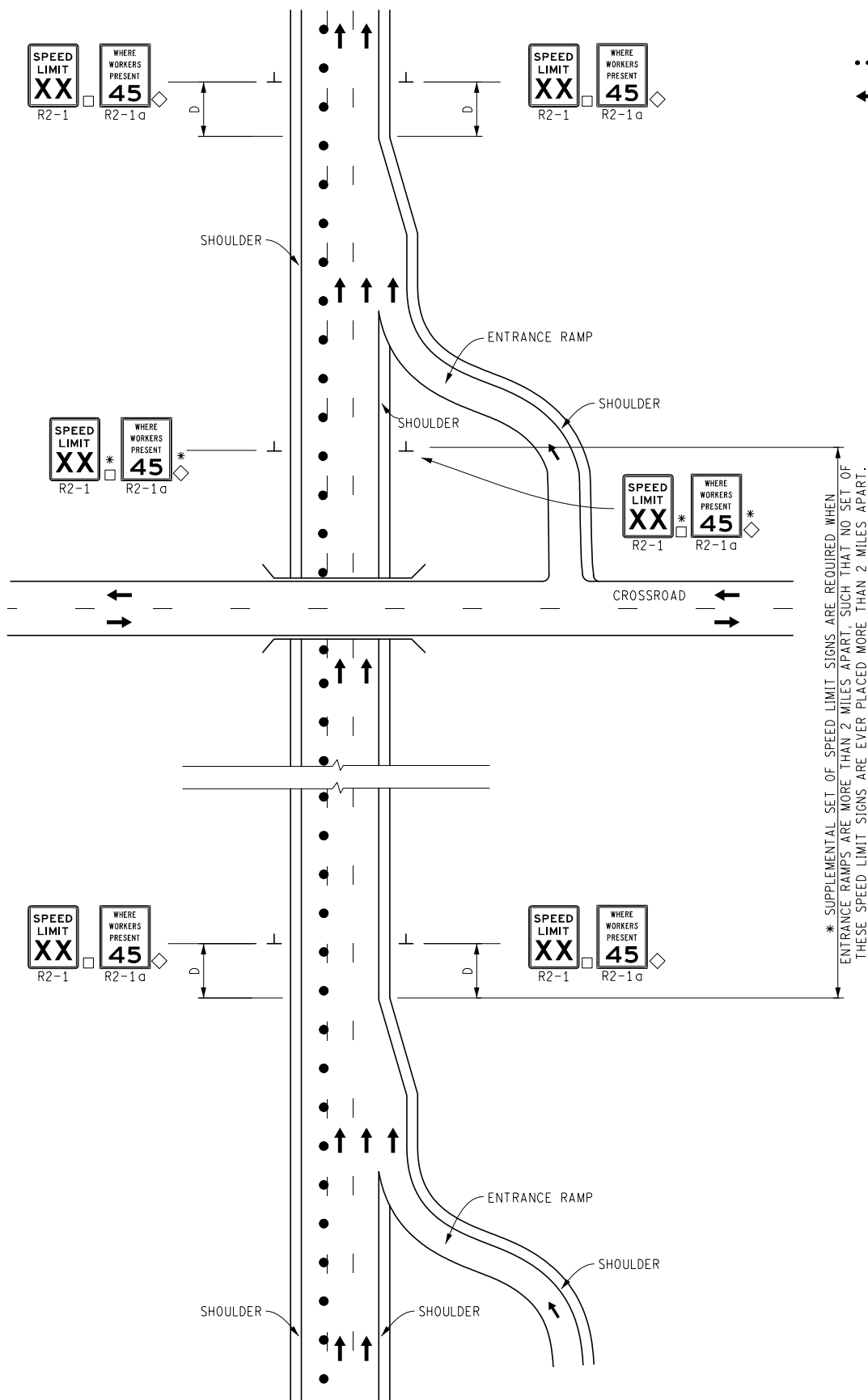
KEY

- ... CHANNELIZING DEVICE
- ← TRAFFIC FLOW
- PLACE AS INDICATED IN NOTE S5
- ◇ R2-1a OPTIONAL

STANDARD NOTES

(SEE GEN-NOTES)

GENERAL: G1, G2, G3, G4
SIGNING: S1, S5, S8
DEVICES: TCD2



KEY

- CHANNELIZING DEVICE
- ↑ TRAFFIC FLOW
- ⬆ LIGHTED ARROW PANEL
- I TYPE III BARRICADE
- ◆ PART OF LEAD-IN SIGNING SEQUENCE
- ◆ REQUIRED AFTER MAJOR INTERSECTIONS

STANDARD NOTES

(SEE GEN-NOTES)

GENERAL: G1, G2, G3, G4
SIGNING: S1, S5
DEVICES: TCD1, TCD2, TCD3, TCD6

MAJOR
INTERSECTION

MAJOR
INTERSECTION

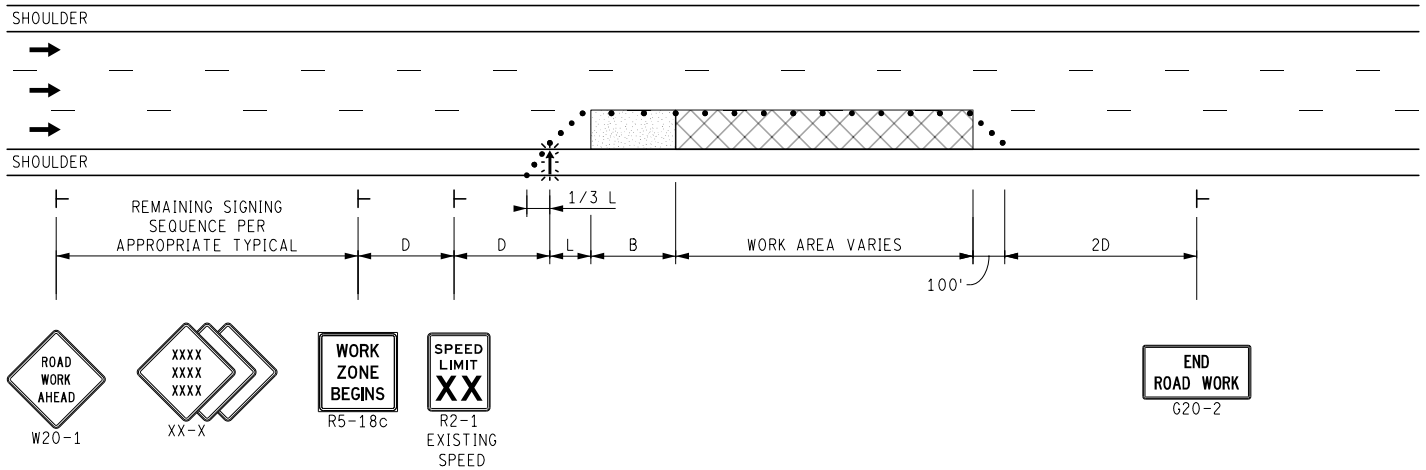
MAJOR
INTERSECTION

GREATER THAN 2 MILES
LESS THAN 4 MILES

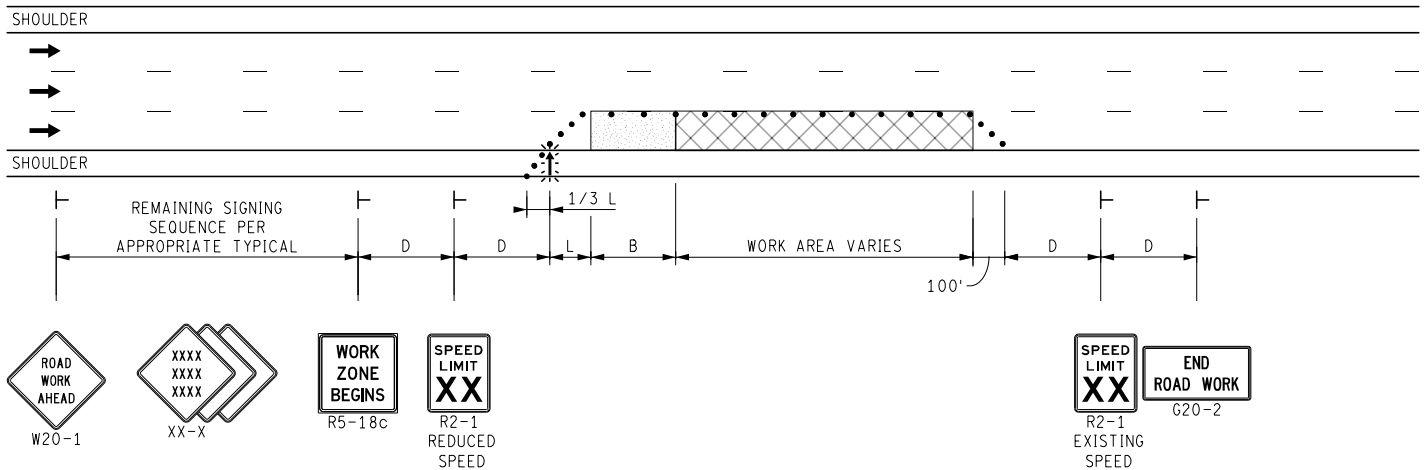
LESS THAN 2 MILES

LESS THAN 2 MILES

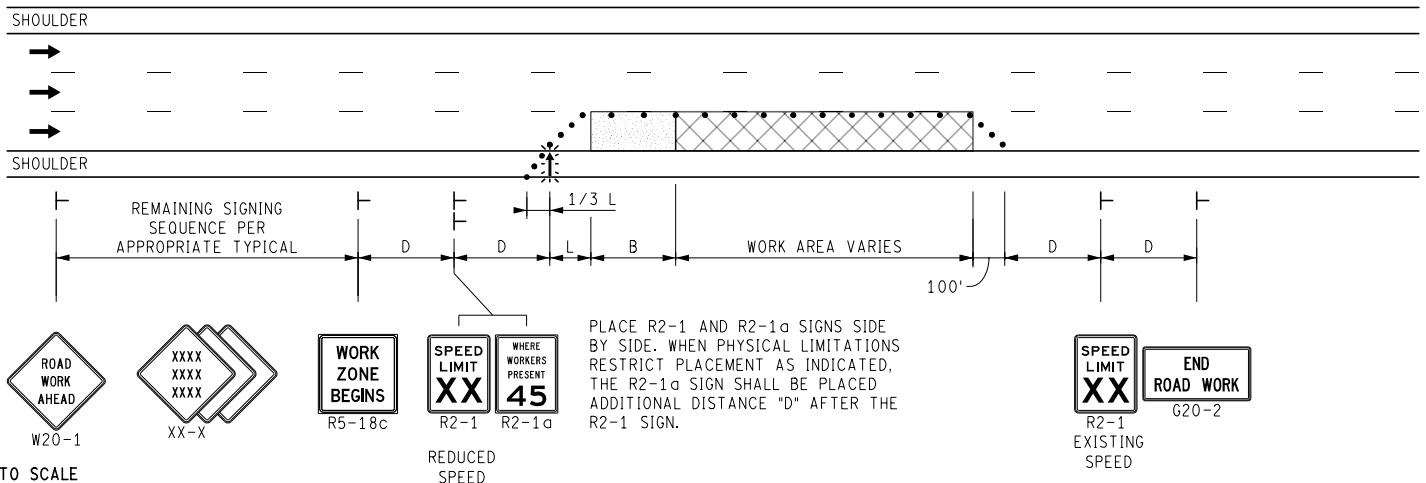
NO SPEED REDUCTION THROUGH WORK ZONE



REDUCED SPEED THROUGH WORK ZONE



REDUCED SPEED THROUGH WORK ZONE USING "WHERE WORKERS PRESENT"



NOT TO SCALE



NOT TO SCALE

MAINTAINING TRAFFIC TYPICAL
NO: 107-GEN-SPEED

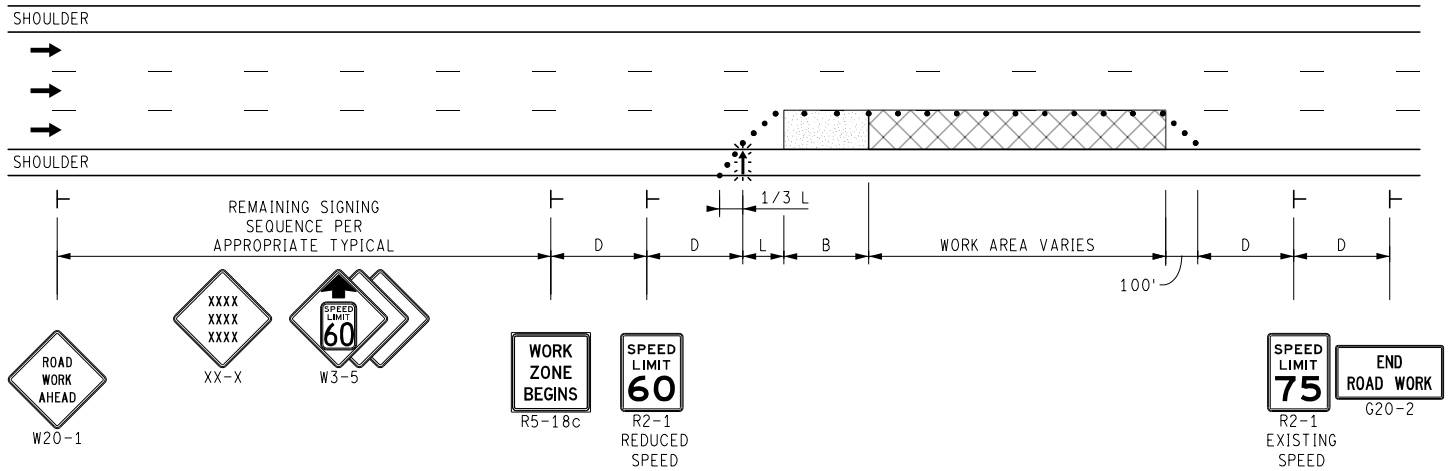
SPEED LIMIT LAYOUT

DATE: MAY 2021
SHEET:

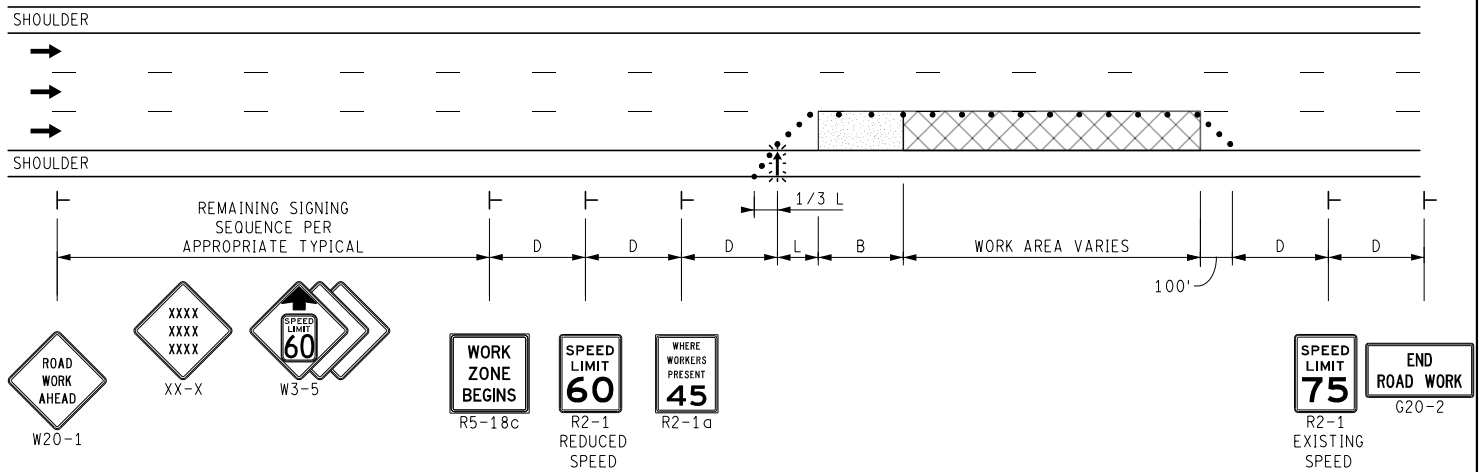
FILE: 107-GEN-SPEED.dgn

1 OF 2

REDUCED SPEED FROM 75 TO 60 THROUGH WORK ZONE



REDUCED SPEED FROM 75 TO 45 WWP THROUGH WORK ZONE



NOT TO SCALE



NOT TO SCALE

MAINTAINING TRAFFIC TYPICAL

NO: 107-GEN-SPEED

SPEED LIMIT LAYOUT

DATE: MAY 2021

SHEET:

FILE: 107-GEN-SPEED.dgn

2 OF 2

KEY

← TRAFFIC FLOW

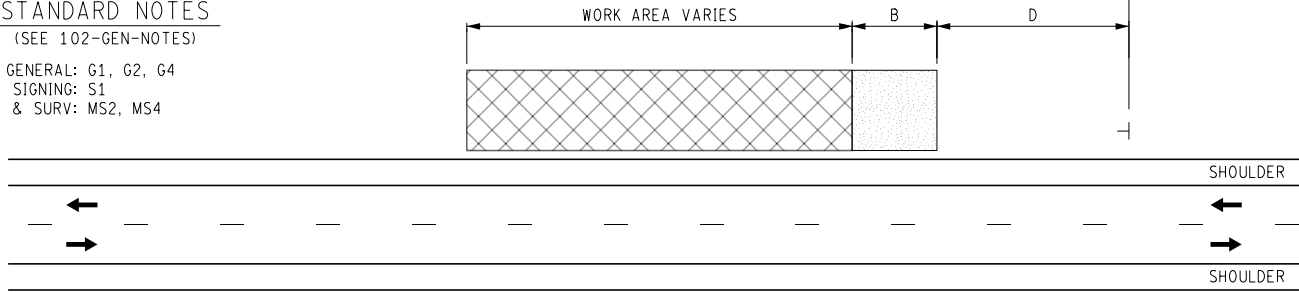
STANDARD NOTES

(SEE 102-GEN-NOTES)

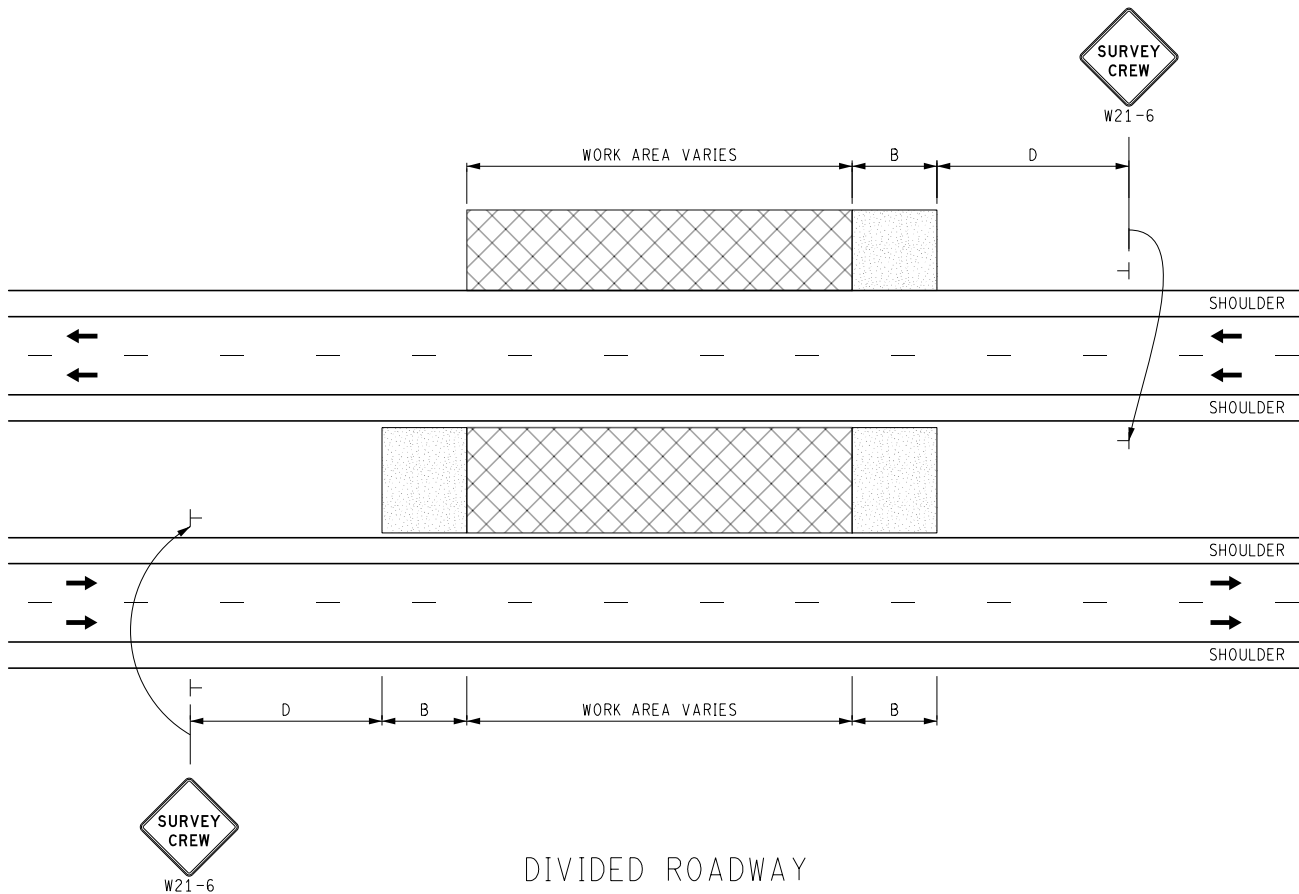
GENERAL: G1, G2, G4
SIGNING: S1
MAINT & SURV: MS2, MS4



W21-6



UNDIVIDED MULTI-LANE ROADWAY



DIVIDED ROADWAY

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 W21-6 SIGN, W20-1 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.

NOT TO SCALE

<p>Michigan Department of Transportation</p>	<p>SURVEYING MAINTAINING TRAFFIC TYPICAL</p>	<p>DURATION: APPLIES TO ALL DURATIONS</p>	<p>WORK OUTSIDE SHOULDER</p>	DATE: MAY 2021
				NO: 5000-S-SHL-OUT
				SHEET: 1 OF 1

FILE: 5000-S-SHL-OUT.dgn

KEY

- CHANNELIZING DEVICES
- ⚡ LIGHTED ARROW PANEL (CAUTION MODE)
- ← TRAFFIC FLOW
- ⏸ TRAFFIC REGULATOR

NOTES

1. FOR LOW VOLUME SITUATIONS WITH SHORT WORK ZONES ON STRAIGHT ROADWAYS WHERE THE TRAFFIC REGULATOR IS VISIBLE TO MOTORISTS APPROACHING FROM BOTH DIRECTIONS, A SINGLE TRAFFIC REGULATOR MAY BE USED.

STANDARD NOTES

(SEE 102-GEN-NOTES)

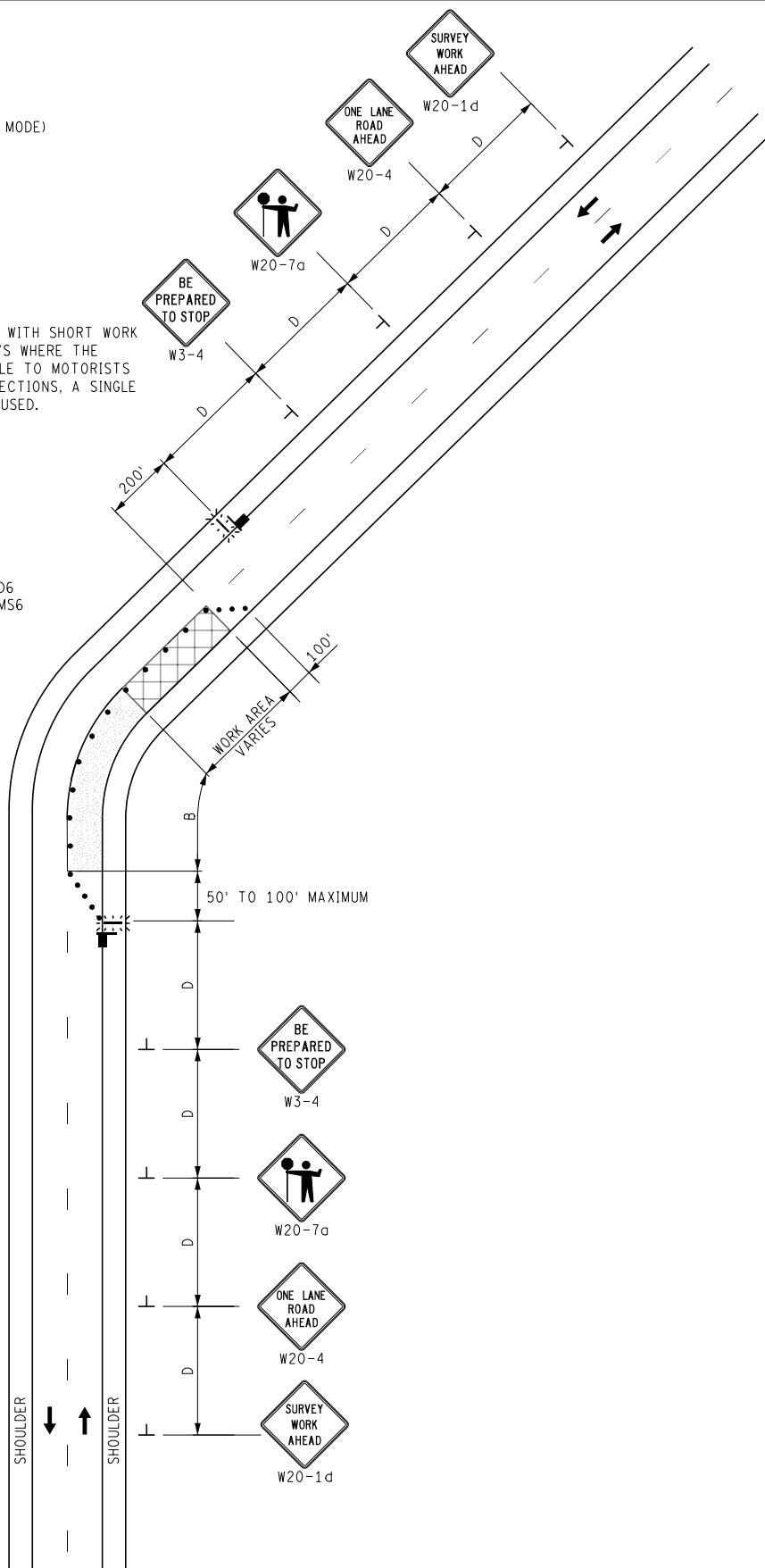
GENERAL: G1, G2, G3, G4

SIGNING: S1

TRAF REG: TR1, TR2, TR3

DEVICES: TCD1, TCD2, TCD6

MAINT & SURV: MS2, MS3, MS4, MS6



NOT TO SCALE



SURVEYING
MAINTAINING TRAFFIC
TYPICAL


DURATION:
SHORT-TERM STATIONARY

LANE CLOSURE
ON A TWO-LANE, TWO-WAY ROADWAY
UTILIZING TRAFFIC REGULATORS

DATE:
MAY 2021
NO:
5110-S-TR-NFW-2L
SHEET:
1 OF 1

FILE: 5110-S-TR-NFW-2L.dgn

KEY

- ... CHANNELIZING DEVICES
- ⚡ LIGHTED ARROW PANEL (CAUTION MODE)
- ← TRAFFIC FLOW
-  SHADOW VEHICLE WITH OPTIONAL TRUCK MOUNTED ATTENUATOR

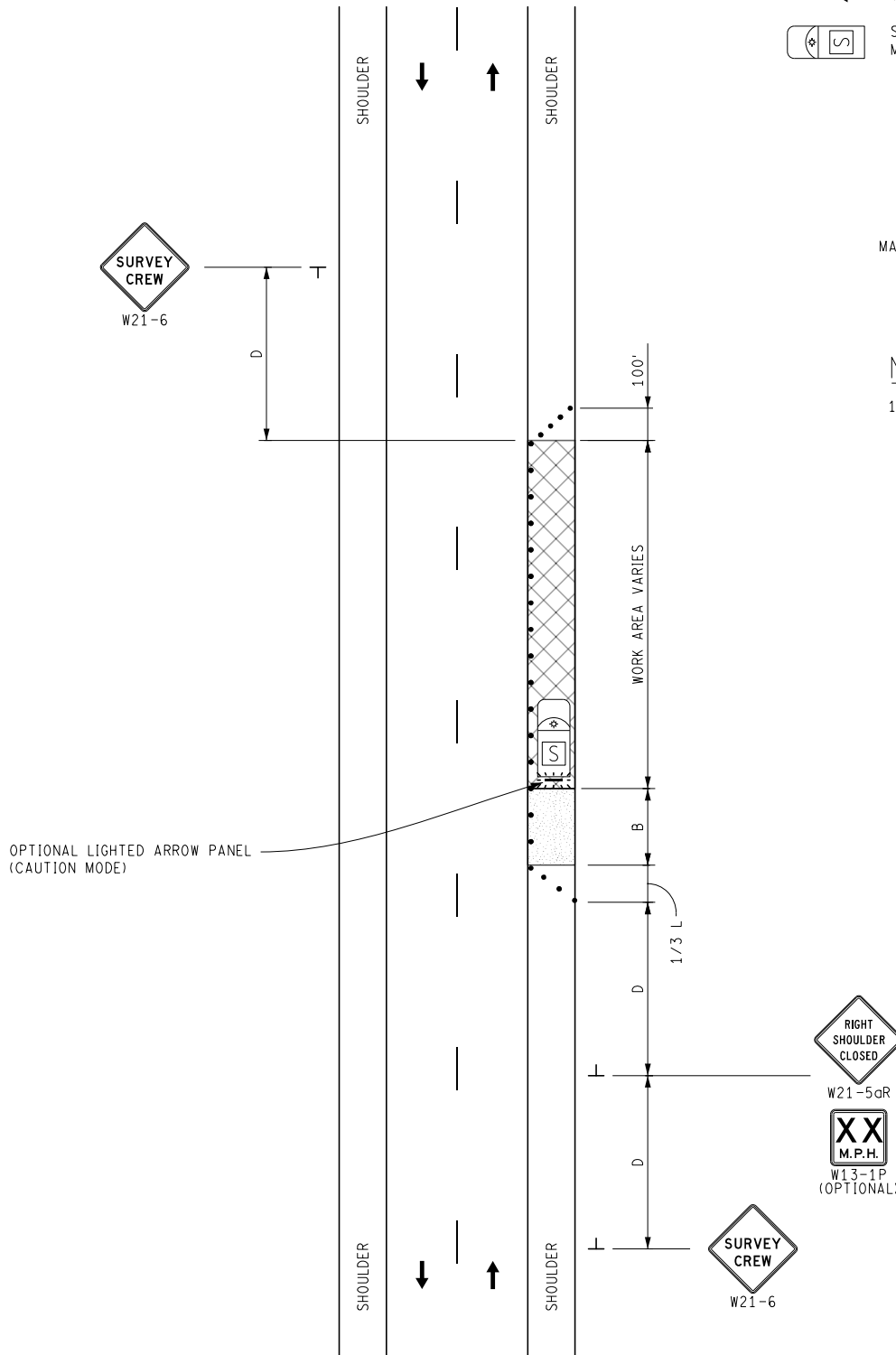
STANDARD NOTES

(SEE 102-GEN-NOTES)

GENERAL: G1, G2, G3, G4
SIGNING: S1
DEVICES: TCD1, TCD2, TCD6
MAINT & SURV: MS1, MS2, MS3, MS4, MS6

NOTES

1. IF MINOR ENCROACHMENT INTO THE TRAVEL LANE OCCURS, ALL LANES SHOULD BE A MINIMUM OF 10 FEET IN WIDTH, OTHERWISE THE APPROPRIATE LANE CLOSURE SHOULD BE USED.



NOT TO SCALE



SURVEYING
MAINTAINING TRAFFIC
TYPICAL

DURATION:
SHORT-TERM STATIONARY

SHOULDER CLOSURE
ON A TWO-LANE, TWO-WAY ROADWAY

DATE:
MAY 2021

NO:
5122-S-NFW-SHL

SHEET:
1 OF 1

FILE: 5122-S-NFW-SHL.dgn

KEY

- CHANNELIZING DEVICES
- ⚡ LIGHTED ARROW PANEL
- ← TRAFFIC FLOW

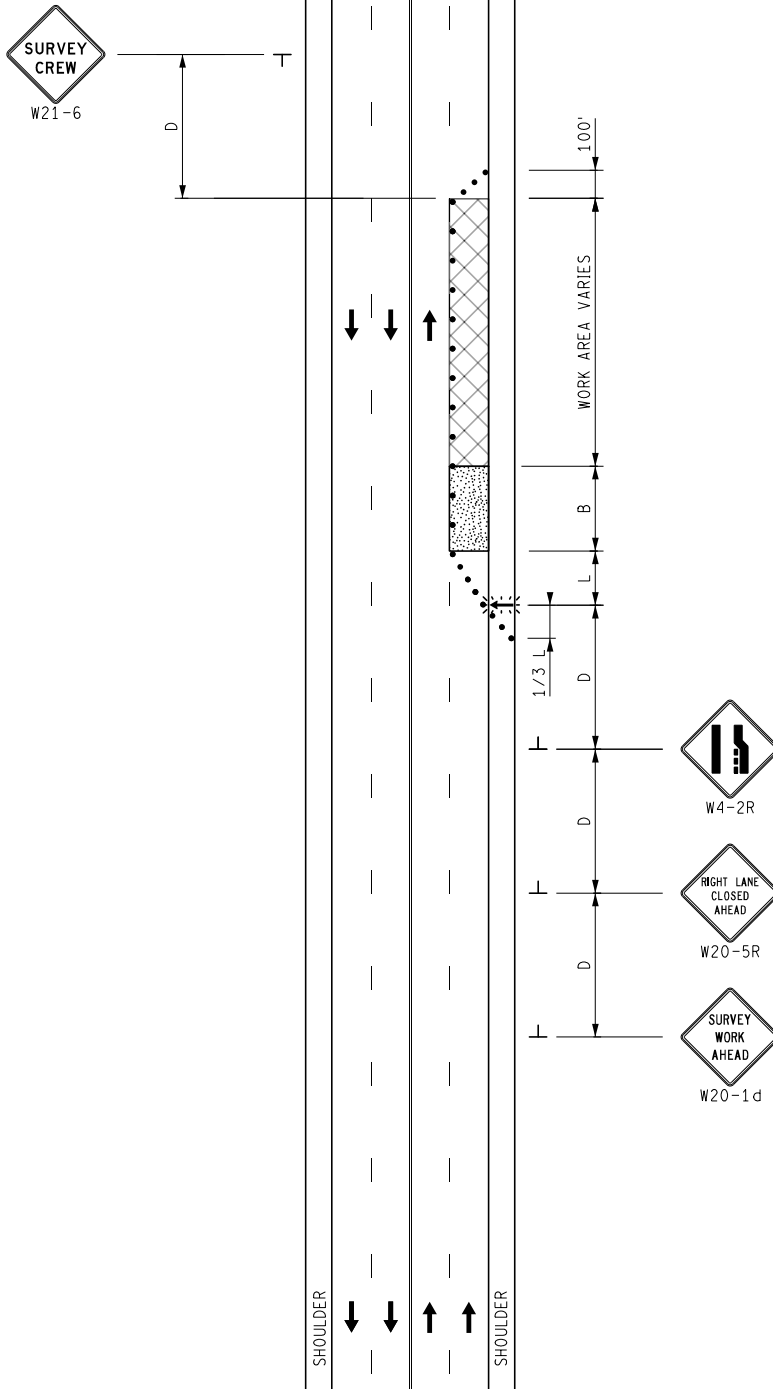
NOTES

1. FOR SHORT DURATION OPERATIONS, AT LEAST ONE ADVANCE WARNING SIGN (W21-6 OR W20-1) MUST BE USED.

STANDARD NOTES

(SEE 102-GEN-NOTES)

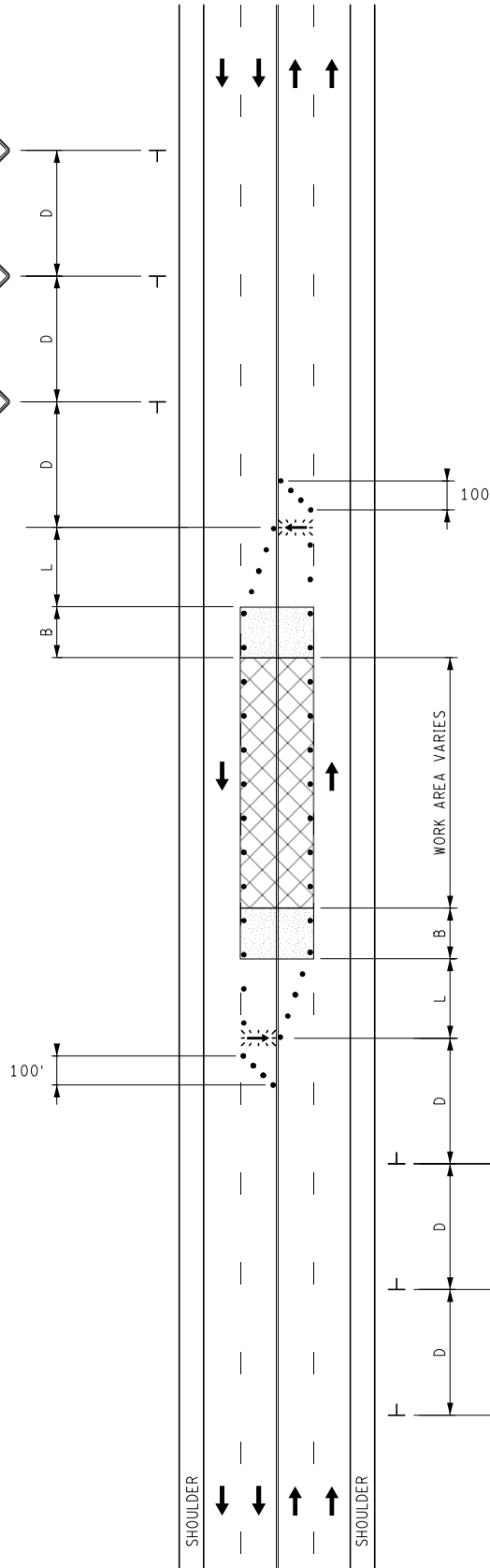
GENERAL: G1, G2, G3, G4
 SIGNING: S1
 DEVICES: TCD1, TCD2, TCD6
 MAINT & SURV: MS2, MS3, MS4, MS6



NOT TO SCALE

	SURVEYING MAINTAINING TRAFFIC TYPICAL	DURATION: SHORT-TERM STATIONARY SHORT DURATION	SINGLE LANE CLOSURE ON AN UNDIVIDED MULTI-LANE ROADWAY	DATE: MAY 2021 NO: 5123-S- NFW-1LC-(R) SHEET: 1 OF 1
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FILE: 5123-S-NFW-1LC-(R).dgn



KEY

- CHANNELIZING DEVICES
- ⌵ LIGHTED ARROW PANEL
- ← TRAFFIC FLOW

NOTES

1. FOR SHORT DURATION OPERATIONS, AT LEAST ONE ADVANCE WARNING SIGN (W20-1 OR W21-6) SHALL BE USED.

STANDARD NOTES

(SEE 102-GEN-NOTES)

GENERAL: G1, G2, G3, G4
 SIGNING: S1
 DEVICES: TCD1, TCD2, TCD6
 MAINT & SURV: MS2, MS3, MS4, MS6

NOT TO SCALE



SURVEYING
MAINTAINING TRAFFIC
TYPICAL

DURATION:
SHORT-TERM STATIONARY
SHORT DURATION

LANE CLOSURE - INSIDE TWO LANES
OF AN UNDIVIDED MULTI-LANE ROADWAY

DATE:
MAY 2021
NO: 5125-S-
NFW-2LC-(IN)
SHEET:
1 OF 1

FILE: 5125-S-NFW-2LC-(IN).dgn

KEY

- ... CHANNELIZING DEVICES
- ⌵ LIGHTED ARROW PANEL
- ← TRAFFIC FLOW

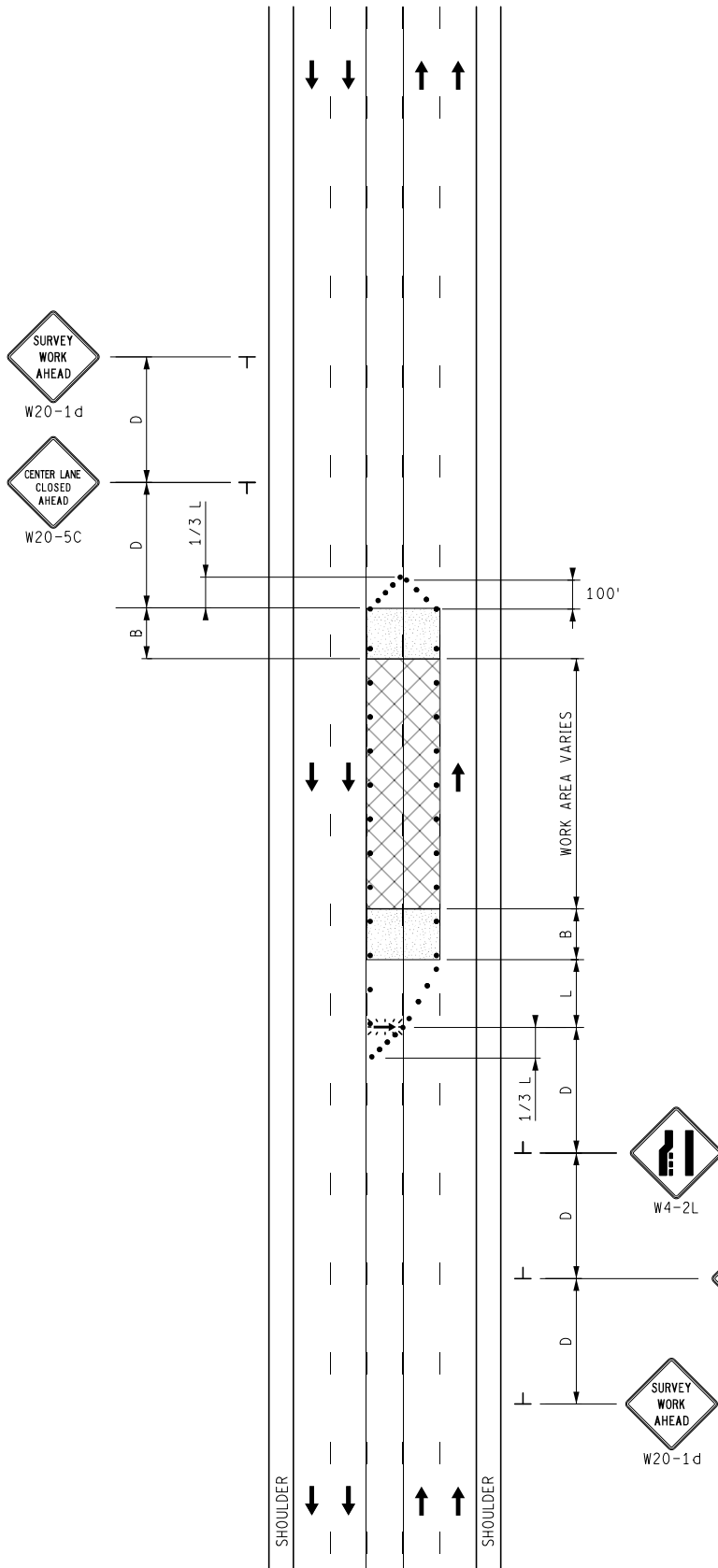
NOTES

- FOR SHORT DURATION OPERATIONS, AT LEAST ONE ADVANCE WARNING SIGN (W21-6 OR W20-1) SHALL BE USED.

STANDARD NOTES

(SEE 102-GEN-NOTES)

GENERAL: G1, G2, G3, G4
 SIGNING: S1
 DEVICES: TCD1, TCD2, TCD6
 MAINT & SURV: MS2, MS3, MS4, MS6



NOT TO SCALE

	SURVEYING MAINTAINING TRAFFIC TYPICAL	DURATION: SHORT-TERM STATIONARY SHORT DURATION	CENTER AND LEFT LANE CLOSURE OF AN UNDIVIDED MULTI-LANE ROADWAY	DATE: MAY 2021 NO: 5133-S- CLT-1LC-(L) SHEET: 1 OF 1
--	---	--	--	---

FILE: 5133-S-CLT-1LC-(L).dgn

KEY

- CHANNELIZING DEVICES
- ⚡ LIGHTED ARROW PANEL
- ← TRAFFIC FLOW

NOTES

1. IF THE WORK SPACE IS LESS THAN $\frac{1}{2}$ MILE FROM THE BEGINNING OF THE PASSING LANE, THE PASSING LANE SHOULD BE CLOSED FROM THE BEGINNING.
2. IF THERE IS LESS THAN 1000 FEET OF PASSING LANE REMAINING BEYOND THE WORK SPACE, THE PASSING LANE SHOULD BE CLOSED TO THE END.
3. COVER CONFLICTING PERMANENT ADVANCED PASSING LANE SIGNS PRIOR TO THE WORK SPACE.

STANDARD NOTES

(SEE 102-GEN-NOTES)

GENERAL: G1, G2, G3, G4
SIGNING: S1
DEVICES: TCD1, TCD2, TCD6
MAINT & SURV: MS2, MS3, MS4, MS6

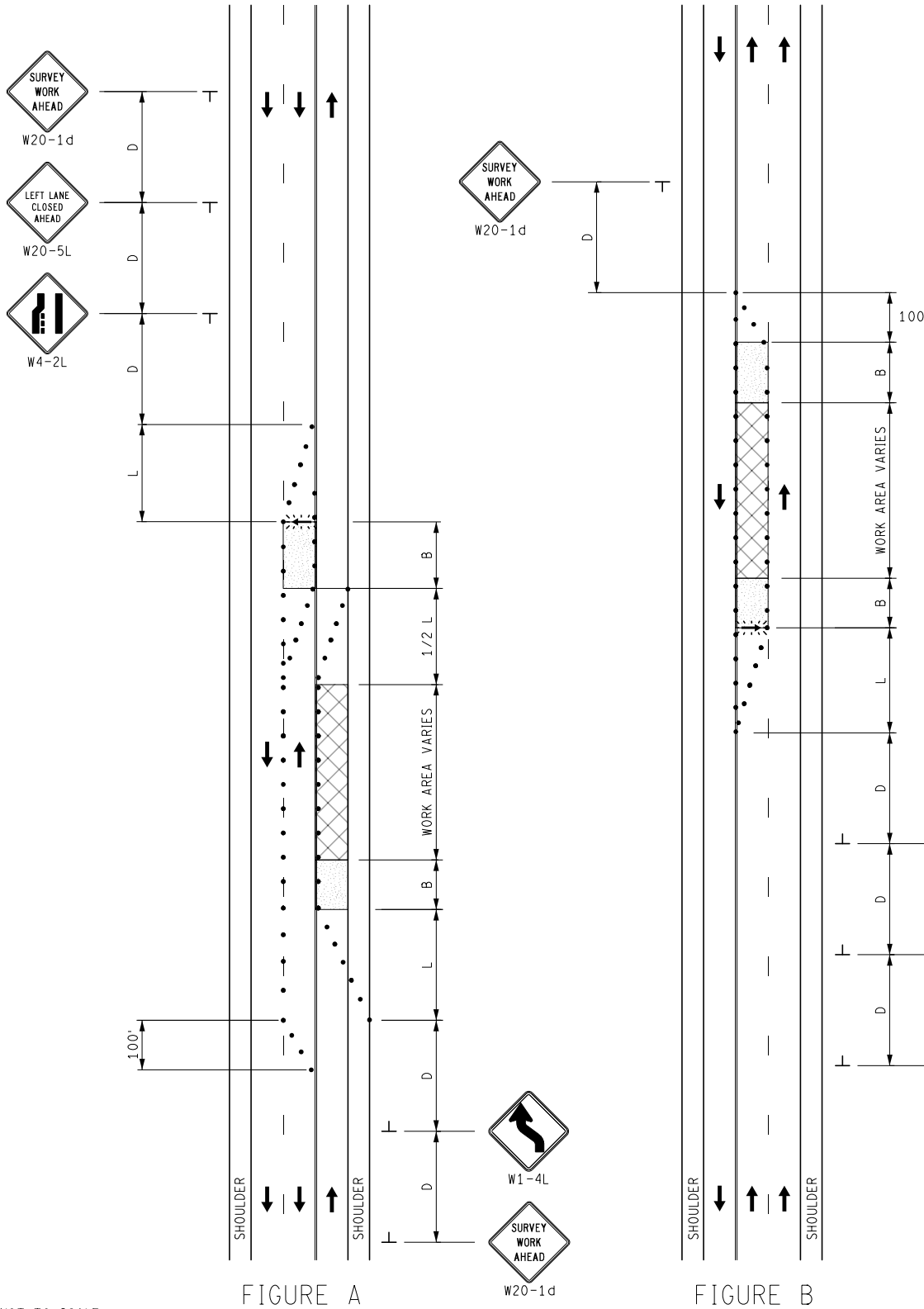


FIGURE A

FIGURE B

NOT TO SCALE



SURVEYING
MAINTAINING TRAFFIC
TYPICAL

DURATION:
SHORT-TERM STATIONARY

LANE CLOSURE ON A 3-LANE,
TWO-WAY ROADWAY

DATE:
MAY 2021
NO: 5181-S-
NFW-1LC
SHEET:
1 OF 1

FILE: 5181-S-NFW-1LC.dgn

KEY

- CHANNELIZING DEVICES
- ⚡ LIGHTED ARROW PANEL (CAUTION MODE)
- ← TRAFFIC FLOW
- TRAFFIC REGULATOR

NOTES

1. TYPICAL MAY ONLY BE USED ON LOW VOLUME ROADWAYS WITH POSTED SPEED LIMIT OF 55 MPH OR LESS AND SUFFICIENT LANE AND SHOULDER WIDTH TO ALLOW 10 FT TRAVEL LANES ON EACH SIDE OF WORK SPACE.
2. FOR SURVEYING ON THE CENTERLINE OF A HIGH VOLUME OR HIGHER SPEED ROAD, ONE LANE SHALL BE CLOSED USING APPROPRIATE LANE CLOSURE.

STANDARD NOTES

(SEE 102-GEN-NOTES)

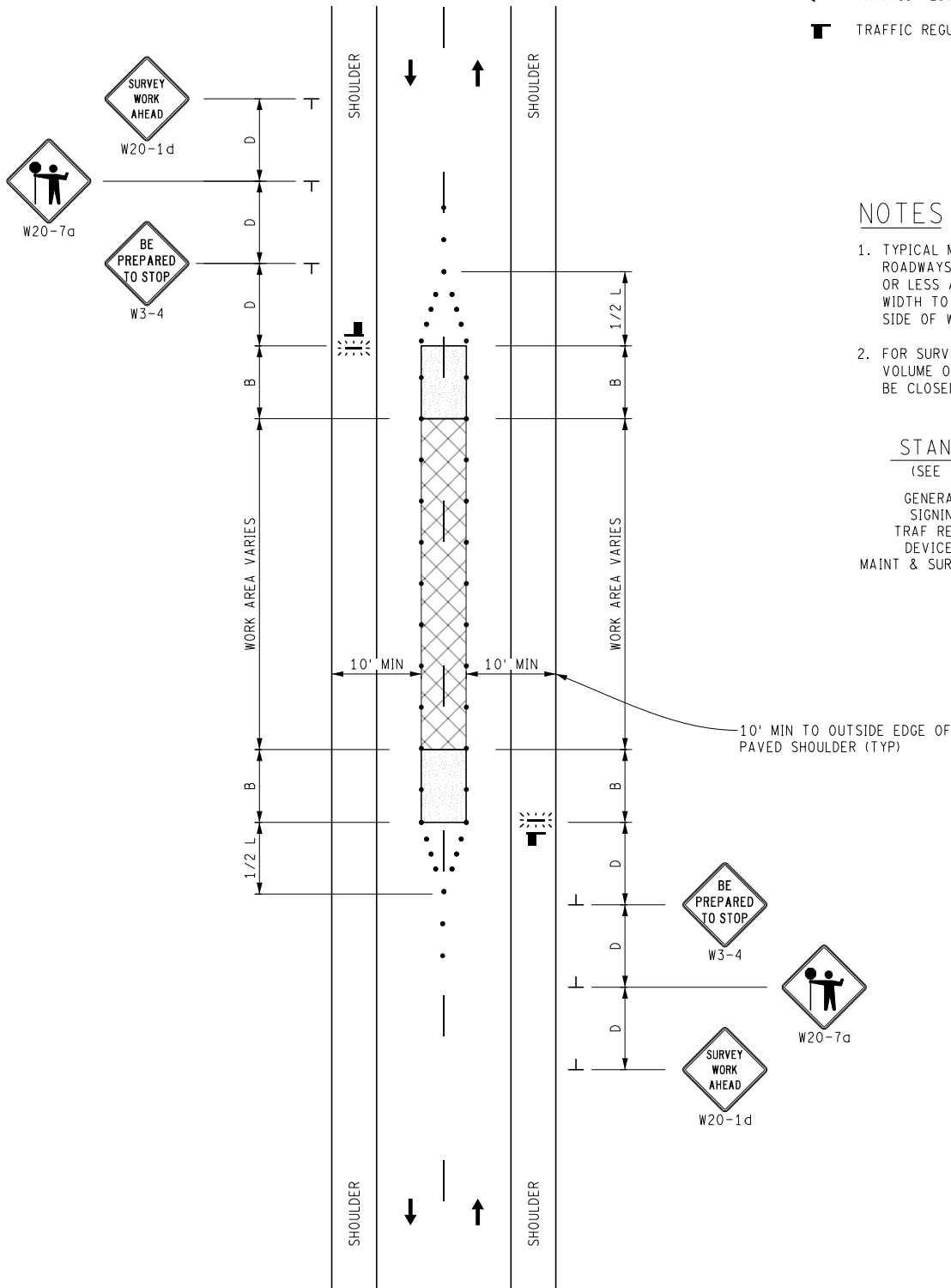
GENERAL: G1, G2, G3, G4

SIGNING: S1

TRAF REG: TR1, TR2

DEVICES: TCD1, TCD2, TCD6

MAINT & SURV: MS2, MS3, MS4, MS6



NOT TO SCALE



SURVEYING
MAINTAINING TRAFFIC
TYPICAL

DURATION:
SHORT-TERM STATIONARY

CLOSURE OF THE CENTER OF A
TWO-LANE, TWO-WAY ROADWAY UTILIZING
TRAFFIC REGULATORS FOR POSTED
SPEEDS OF 55 MPH OR LESS

DATE:
MAY 2021
NO:
5182A-S-NFW-MID
SHEET:
1 OF 1

FILE: 5182A-S-NFW-MID.dgn

KEY

... CHANNELIZING DEVICES

← TRAFFIC FLOW

 WORK VEHICLE

NOTES

1. TYPICAL MAY ONLY BE USED ON LOW VOLUME ROADWAYS WITH POSTED SPEED LIMIT OF 55 MPH OR LESS AND SUFFICIENT LANE AND SHOULDER WIDTH TO ALLOW 10 FT TRAVEL LANES ON EACH SIDE OF WORK SPACE.

STANDARD NOTES

(SEE 102-GEN-NOTES)

GENERAL: G1, G2, G3, G4

SIGNING: S1

DEVICES: TCD1, TCD2, TCD6

MAINT & SURV: MS2, MS3, MS4, MS6

(OMIT WHEN SPEED LIMIT IS BELOW 55 MPH)

WHERE WORKERS PRESENT
45
R2-1a

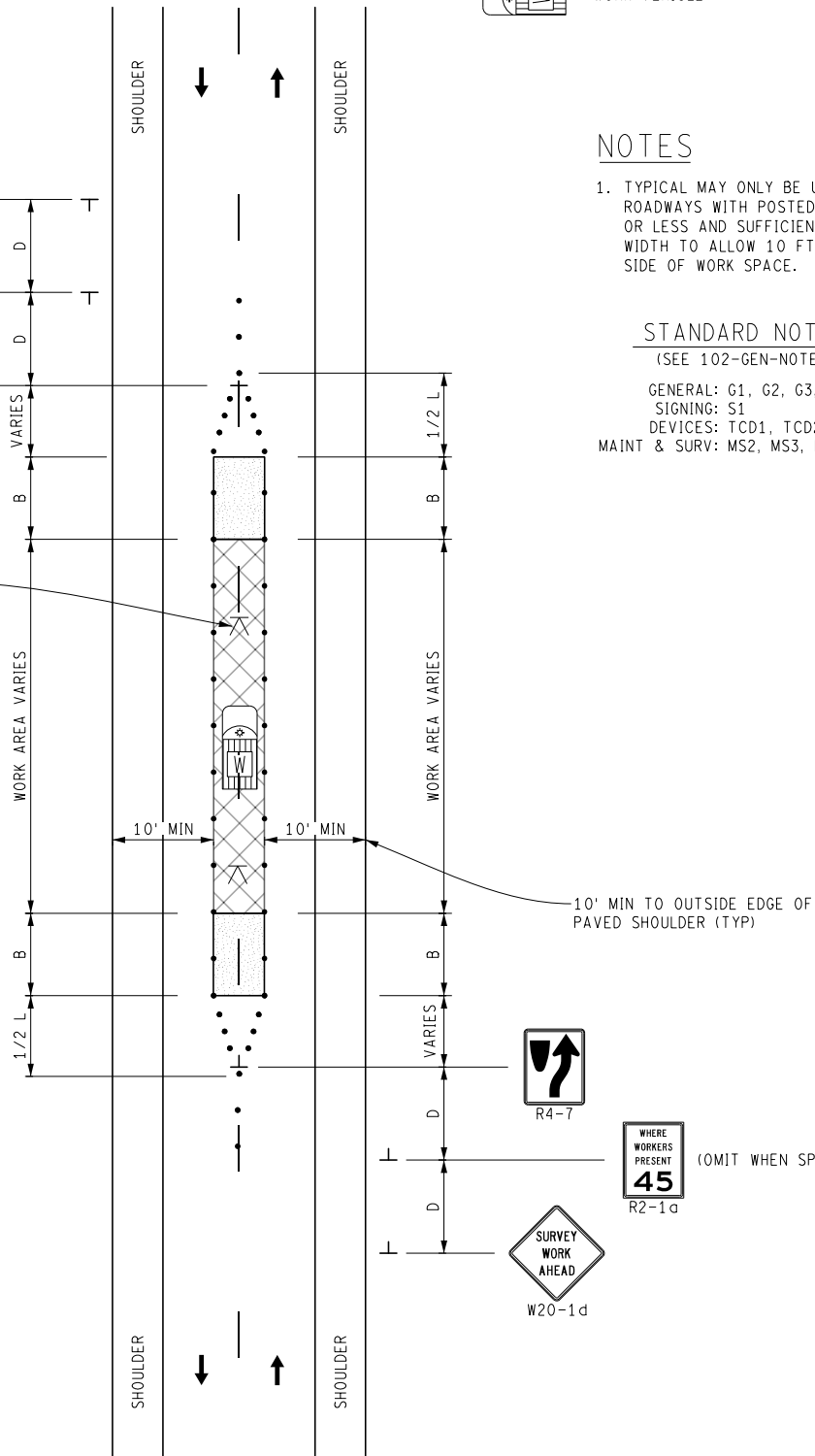


W20-1d



R4-7

INSTRUMENT (TYP)



R4-7

WHERE WORKERS PRESENT
45
R2-1a

(OMIT WHEN SPEED LIMIT IS BELOW 55 MPH)



W20-1d

NOT TO SCALE



SURVEYING
MAINTAINING TRAFFIC
TYPICAL

DURATION:
SHORT-TERM STATIONARY

CLOSURE OF THE CENTER OF A
TWO-LANE, TWO-WAY ROADWAY
WITH LOW TRAFFIC VOLUMES


DATE:
MAY 2021

NO:
5182B-S-NFW-MID

SHEET:
1 OF 1

FILE: 5182B-S-NFW-MID.dgn

KEY

- CHANNELIZING DEVICES
- ⚡ LIGHTED ARROW PANEL (CAUTION MODE)
- ← TRAFFIC FLOW
-  SHADOW VEHICLE WITH AMBER BEACON AND OPTIONAL TRUCK MOUNTED ATTENUATOR

NOTES

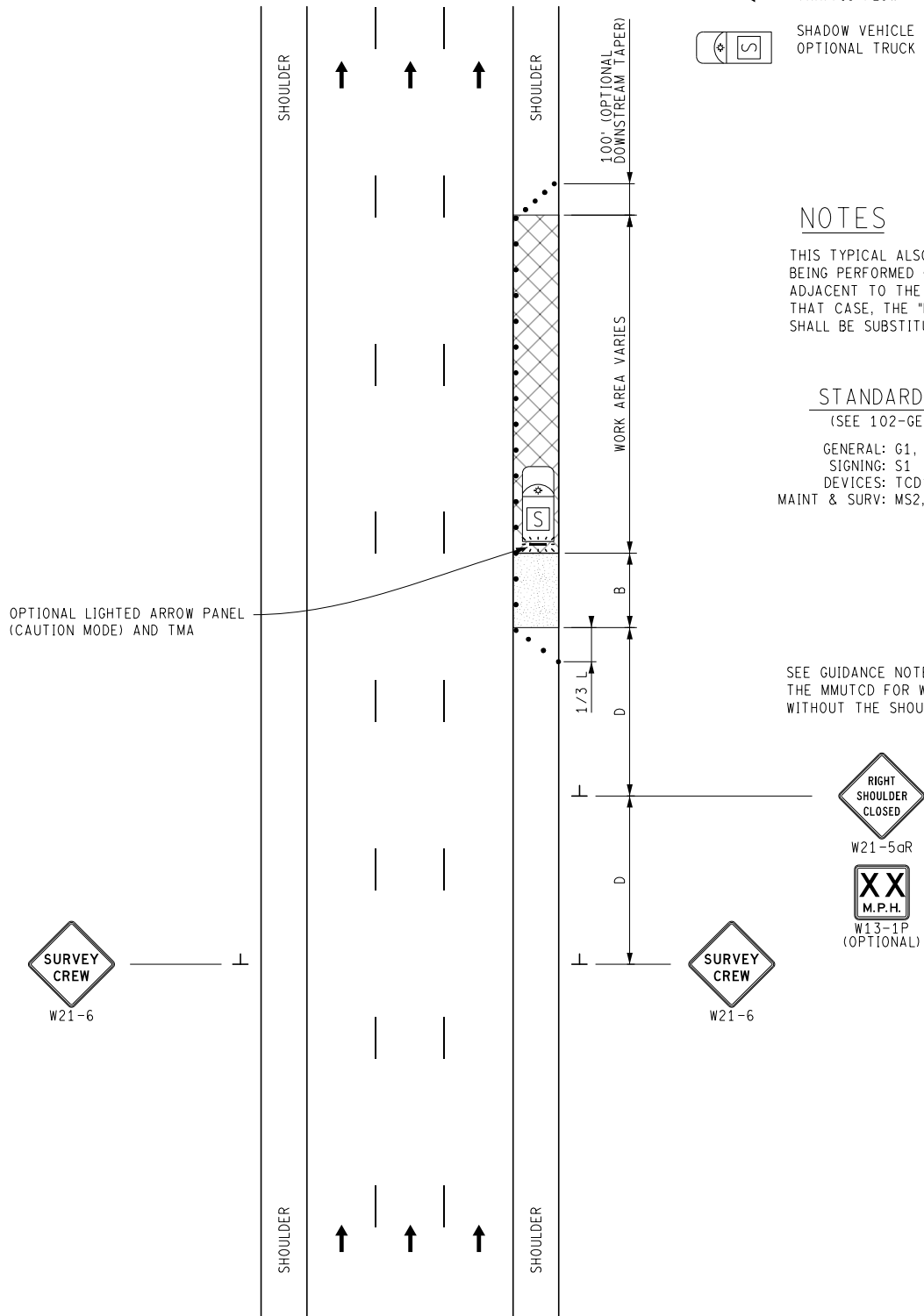
THIS TYPICAL ALSO MAY BE USED WHEN WORK IS BEING PERFORMED ON THE LEFT SHOULDER ADJACENT TO THE MEDIAN OF THE FREEWAY. IN THAT CASE, THE "LEFT SHOULDER CLOSED" SIGN SHALL BE SUBSTITUTED.

STANDARD NOTES

(SEE 102-GEN-NOTES)

GENERAL: G1, G2, G3, G4
SIGNING: S1
DEVICES: TCD1, TCD2, TCD6
MAINT & SURV: MS2, MS3, MS4, MS6

SEE GUIDANCE NOTE 03 IN SECTION 6G.07 OF THE MMUTCD FOR WHY THE SIGN ON THE SIDE WITHOUT THE SHOULDER CLOSURE IS NOT NEEDED.



NOT TO SCALE



SURVEYING
MAINTAINING TRAFFIC
TYPICAL

DURATION:
SHORT-TERM STATIONARY

SHOULDER CLOSURE
ON A DIVIDED ROADWAY OR FREEWAY

DATE:
MAY 2021

NO:
5200-S-FW-SHL

SHEET:
1 OF 1

FILE: 5200-S-FW-SHL.dgn

KEY

- ... CHANNELIZING DEVICES
- ⚡ LIGHTED ARROW PANEL
- ← TRAFFIC FLOW

NOTES

- THIS TYPICAL MAY ALSO BE USED WHEN WORK IS BEING PERFORMED IN THE LANE ADJACENT TO THE MEDIAN. IN THIS CASE, THE "LEFT LANE CLOSED AHEAD" SIGNS AND THE CORRECT CORRESPONDING LANE ENDS SIGN SHALL BE SUBSTITUTED.

STANDARD NOTES

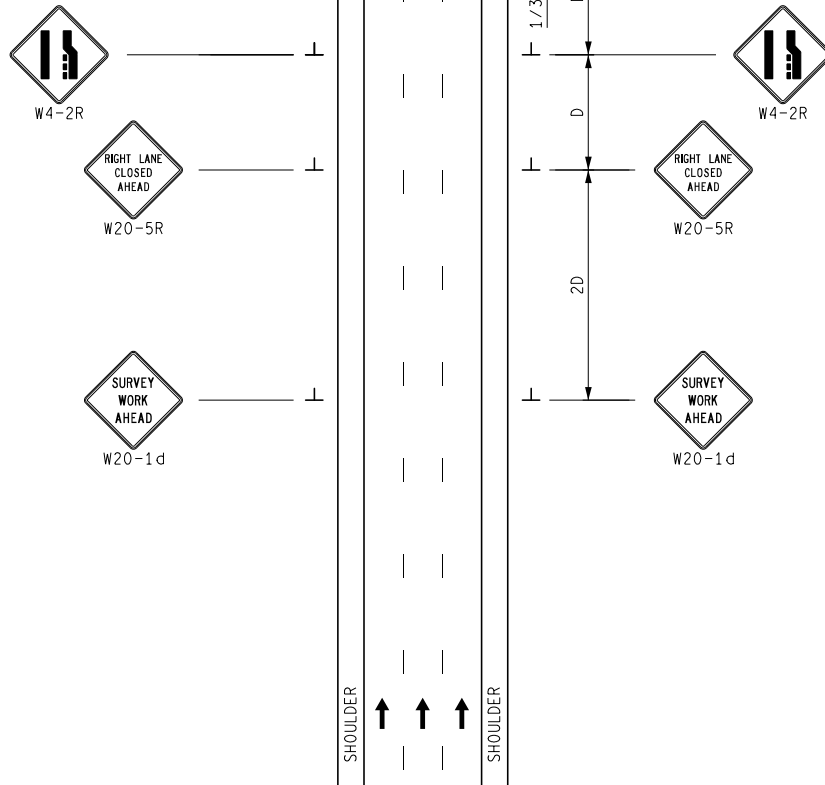
(SEE 102-GEN-NOTES)

GENERAL: G1, G2, G3, G4

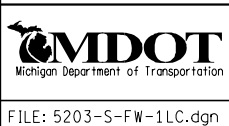
SIGNING: S1

DEVICES: TCD1, TCD2, TCD6

MAINT & SURV: MS2, MS3, MS4, MS6



NOT TO SCALE

 <p>Michigan Department of Transportation</p>	<p>SURVEYING MAINTAINING TRAFFIC TYPICAL</p>	<p>DURATION: SHORT-TERM STATIONARY</p>	<p>SINGLE LANE CLOSURE ON A FREEWAY</p>	<p>DATE: MAY 2021</p> <p>NO: 5203-S-FW-1LC</p> <p>SHEET: 1 OF 1</p>
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FILE: 5203-S-FW-1LC.dgn

KEY

- ... CHANNELIZING DEVICES
- ⚡ LIGHTED ARROW PANEL
- ← TRAFFIC FLOW

NOTES

1. THIS TYPICAL MAY ALSO BE USED WHEN WORK IS BEING PERFORMED IN THE LANE ADJACENT TO THE OUTSIDE OF THE FREEWAY. IN THAT CASE, W20-5aL2 AND W4-2L MUST BE SUBSTITUTED WITH W20-5aR2 AND W4-2R.
2. A LIGHTED ARROW PANEL IN ARROW MODE IS REQUIRED FOR EACH LANE CLOSURE.

STANDARD NOTES

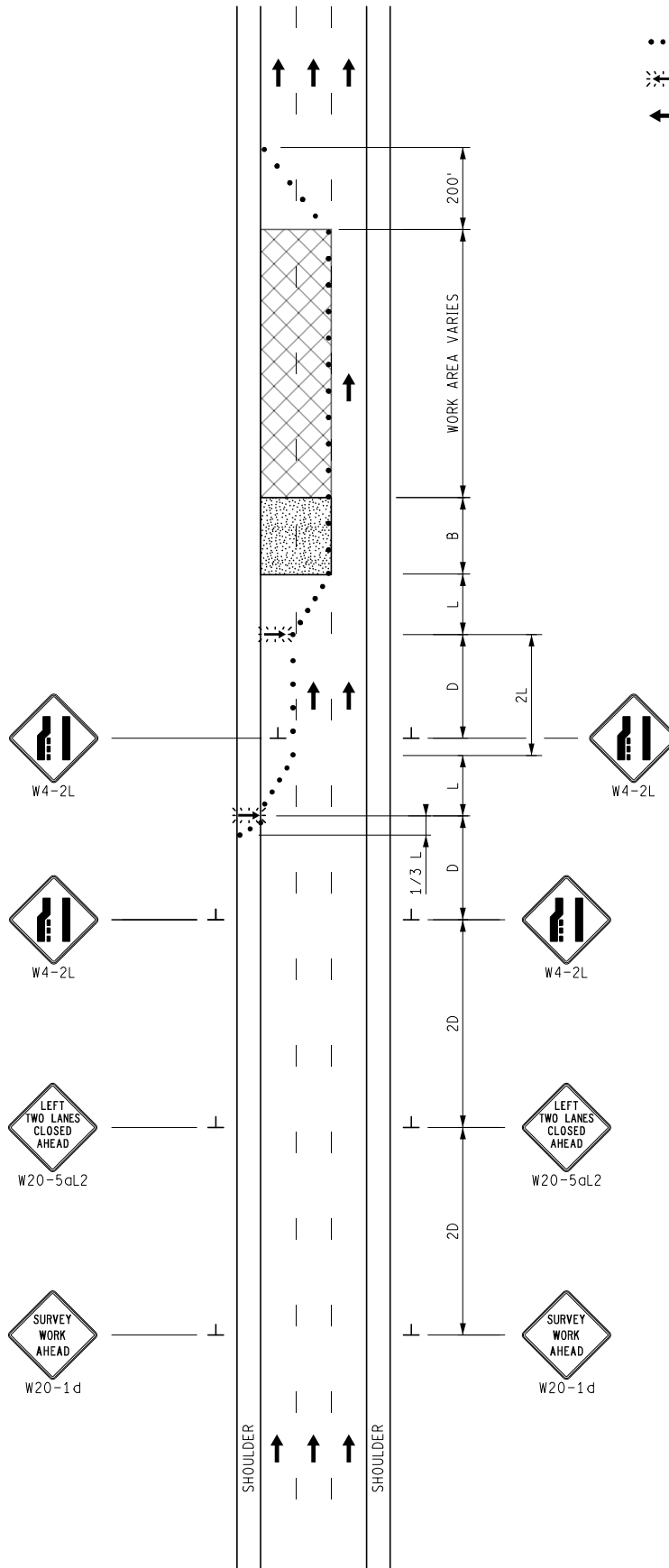
(SEE 102-GEN-NOTES)

GENERAL: G1, G2, G3, G4

SIGNING: S1

DEVICES: TCD1, TCD2, TCD6

MAINT & SURV: MS2, MS3, MS4, MS6



NOT TO SCALE



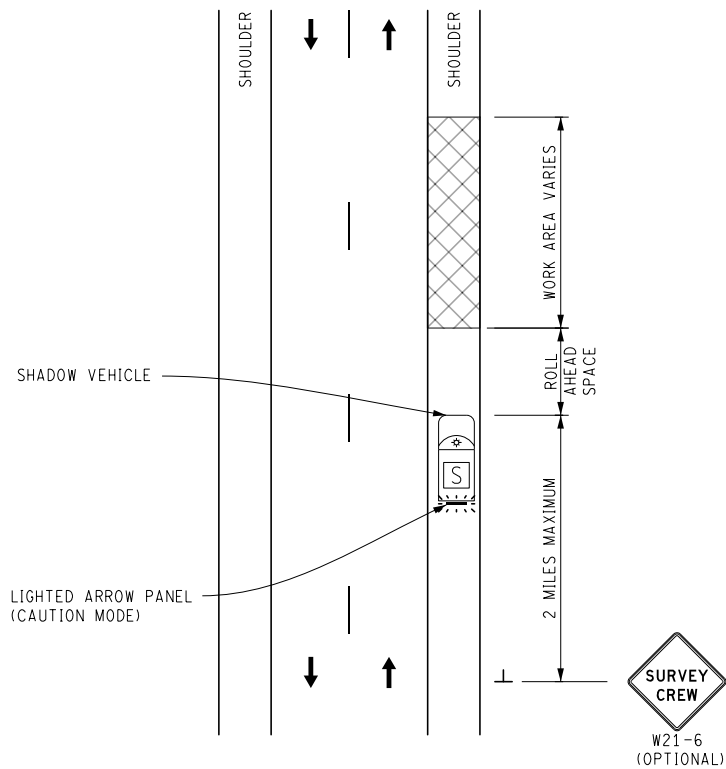
SURVEYING
MAINTAINING TRAFFIC
TYPICAL

DURATION:
SHORT-TERM STATIONARY

TWO-LANE CLOSURE ON A FREEWAY

DATE:
MAY 2021
NO:
5205-S-FW-2LC-(L)
SHEET:
1 OF 1

FILE: 5205-S-FW-2LC-(L).dgn



KEY

⚡ LIGHTED ARROW PANEL (CAUTION MODE)

← TRAFFIC FLOW

☺ S SHADOW VEHICLE

STANDARD NOTES

(SEE 102-GEN-NOTES)

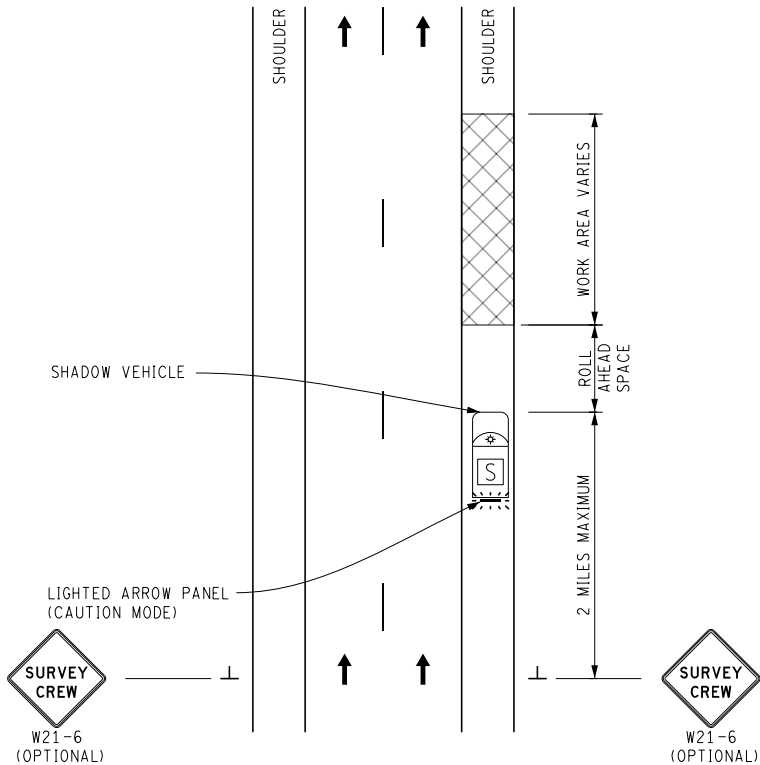
GENERAL: G1, G2, G3, G4

SIGNING: S1

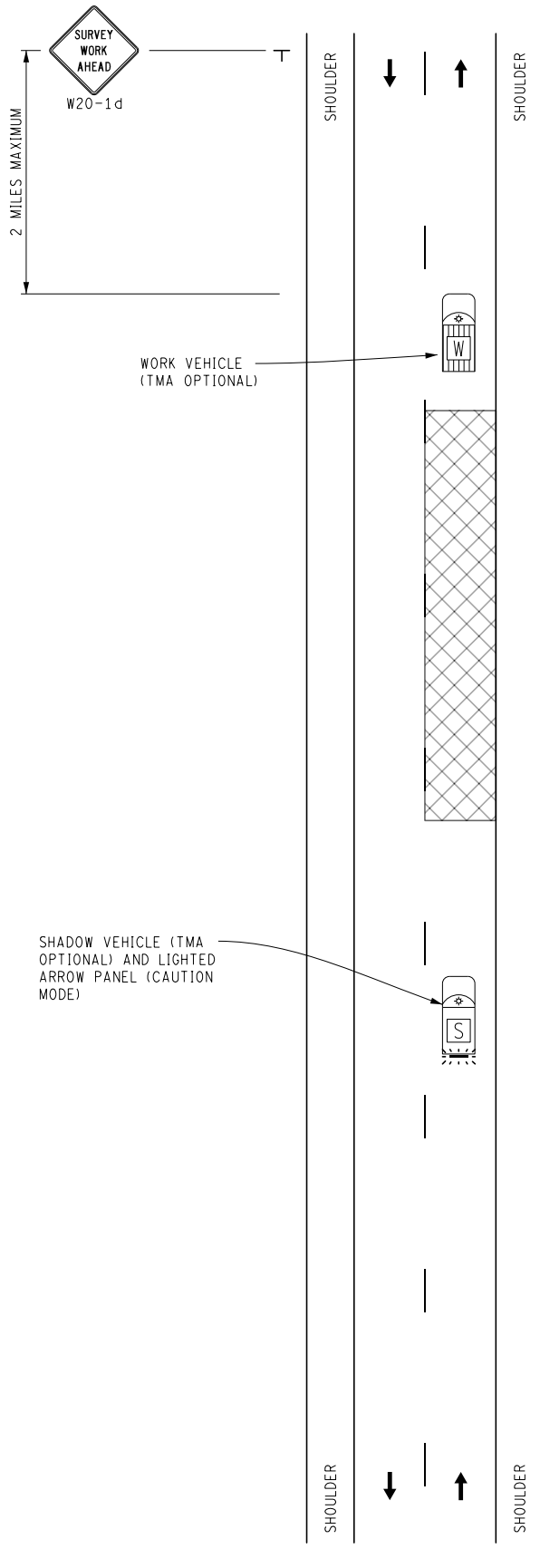
MAINT & SURV: MS1, MS2, MS3, MS4, MS6

NOTES

1. AT A MINIMUM, MAINTAINING TRAFFIC SHALL CONSIST OF A VEHICLE WITH AN AMBER BEACON. NO SIGNS OR CHANNELIZING DEVICES ARE REQUIRED.
2. IF THE OPERATION HAS A VEHICLE(S) PARKED ON THE SHOULDER OR VEHICLE(S) ACCESSING THE WORK SITE VIA THE HIGHWAY OR CROSSING THE HIGHWAY TO PERFORM OPERATIONS, A "SURVEY CREW" SIGN(S) SHOULD BE USED. THE W21-6 SIGN(S) SHOULD BE PLACED PRIOR TO WORK ARE TO INDICATE TO THE PUBLIC THAT A SURVEY CREW IS IN THE AREA. THE ADVANCED SIGNAGE SHOULD BE WITHIN 2 MILES OF THE SURVEY AREA.
3. WORK IN THE ROADWAY COINCIDES WITH GAPS IN THE TRAFFIC SO FLOW IS NOT IMPEDED. A SPOTTER SHOULD BE USED AND LOCATED SUFFICIENTLY IN ADVANCE OF THE WORKERS TO WARN WORKERS OF APPROACHING TRAFFIC.
4. DO NOT USE THIS TYPICAL IF TRAFFIC MUST BE CONTROLLED TO GAIN SAFE ACCESS TO THE WORK SPACE DUE TO HIGH TRAVEL SPEEDS OR TRAFFIC VOLUMES. USE THE APPROPRIATE LANE CLOSURE TYPICAL.



NOT TO SCALE



KEY

LIGHTED ARROW PANEL (CAUTION MODE)

TRAFFIC FLOW

SHADOW VEHICLE

WORK VEHICLE

NOTES

1. IF A LIGHTED ARROW PANEL IS USED, IT SHALL BE IN CAUTION MODE.
2. THE SIGN(S) SHOULD BE PLACED PRIOR TO WORK AREA TO INDICATE TO THE PUBLIC THAT A SURVEY CREW IS IN THE AREA. THE ADVANCED SIGNAGE SHOULD BE WITHIN 2 MILES OF THE SURVEY AREA.
3. WHERE PRACTICAL AND WHEN NEEDED, THE WORK AND SHADOW VEHICLES SHOULD PULL OVER PERIODICALLY TO ALLOW VEHICULAR TRAFFIC TO PASS.

STANDARD NOTES

(SEE 102-GEN-NOTES)

GENERAL: G1, G2, G3, G4

SIGNING: S1

MAINT & SURV: MS1, MS2, MS3, MS4, MS5, MS6

NOT TO SCALE



SURVEYING
MAINTAINING TRAFFIC
TYPICAL

DURATION:
SHORT DURATION
MOBILE

MOBILE OPERATION ON A
TWO-LANE ROADWAY WITHIN
150 FEET OF WORK VEHICLE

DATE:
MAY 2021
NO:
5403-S-NFW-2L
SHEET:
1 OF 1

FILE: 5403-S-NFW-2L.dgn

KEY



LIGHTED ARROW PANEL



TRAFFIC FLOW



SHADOW VEHICLE WITH OPTIONAL TRUCK MOUNTED ATTENUATOR



WORK VEHICLE WITH OPTIONAL TRUCK MOUNTED ATTENUATOR

NOTES

1. THIS TYPICAL ALSO MAY BE USED WHEN WORK IS BEING PERFORMED IN THE LANE ADJACENT TO THE MEDIAN OF THE ROADWAY. IN THIS CASE, THE "LEFT LANE CLOSED AHEAD" SIGNS SHALL BE SUBSTITUTED.
2. THE LEAD IN SIGNS SHOULD BE PLACED PRIOR TO THE WORK AREA TO INDICATE TO THE PUBLIC THAT A SURVEY CREW IS IN THE AREA. THE ADVANCED SIGNAGE SHOULD BE WITHIN 2 MILES OF THE SURVEY AREA.

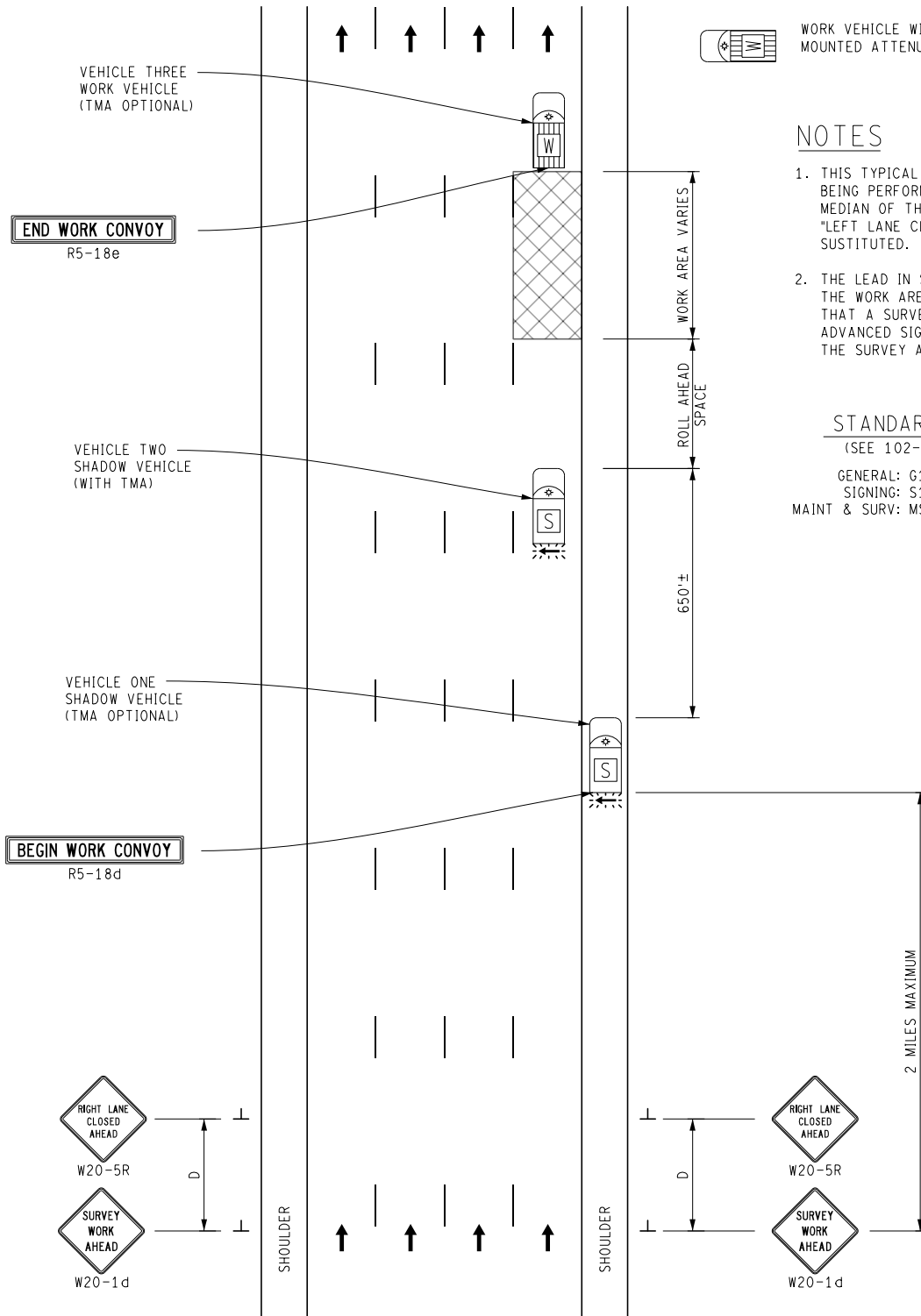
STANDARD NOTES

(SEE 102-GEN-NOTES)

GENERAL: G1, G2, G3, G4

SIGNING: S1

MAINT & SURV: MS1, MS2, MS3, MS4, MS5, MS6



NOT TO SCALE



SURVEYING
MAINTAINING TRAFFIC
TYPICAL

DURATION:

SHORT DURATION
MOBILE

MOBILE OPERATION
ON A MULTI-LANE ROADWAY

DATE:
MAY 2021

NO:
5421-S-FW-1LC

SHEET:
1 OF 1

FILE: 5421-S-FW-1LC.dgn

KEY



LIGHTED ARROW PANEL



TRAFFIC FLOW



SHADOW VEHICLE WITH OPTIONAL TRUCK MOUNTED ATTENUATOR



WORK VEHICLE WITH OPTIONAL TRUCK MOUNTED ATTENUATOR

NOTES

1. THIS TYPICAL ALSO MAY BE USED WHEN WORK IS BEING PERFORMED IN THE LANE ADJACENT TO THE MEDIAN OF THE ROADWAY. IN THIS CASE, THE "LEFT TWO LANES CLOSED AHEAD" SIGNS SHALL BE SUBSTITUTED.
2. THE LEAD IN SIGNS SHOULD BE PLACED PRIOR TO THE WORK AREA TO INDICATE TO THE PUBLIC THAT A SURVEY CREW IS IN THE AREA. THE ADVANCED SIGNAGE SHOULD BE WITHIN 2 MILES OF THE SURVEY AREA.

STANDARD NOTES

(SEE 102-GEN-NOTES)

GENERAL: G1, G2, G3, G4

SIGNING: S1

MAINT & SURV: MS1, MS2, MS3, MS4, MS5, MS6

PLACE "END WORK CONVOY" SIGN ON LAST VEHICLE IN WORK AREA (TMA OPTIONAL)

END WORK CONVOY

R5-18e

VEHICLE THREE (WITH TMA)

VEHICLE FOUR (OPTIONAL) (TMA OPTIONAL)

VEHICLE TWO (WITH TMA), MAY STRADDLE SHOULDER

VEHICLE ONE (TMA OPTIONAL)

BEGIN WORK CONVOY

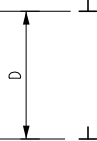
R5-18d



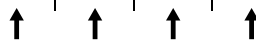
W20-5aR2



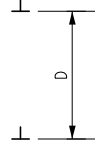
W20-1d



SHOULDER



SHOULDER



W20-5aR2



W20-1d

2 MILES MAXIMUM

WORK AREA VARIES

ROLL AHEAD SPACE

650'±

650'±

NOT TO SCALE



SURVEYING
MAINTAINING TRAFFIC
TYPICAL

DURATION:

SHORT DURATION
MOBILE

MOBILE OPERATION
ON A MULTILANE ROADWAY - 2 LANES

DATE:
MAY 2021

NO:
5422-S-FW-2LC

SHEET:
1 OF 1

FILE: 5422-S-FW-2LC.dgn