

TABLE OF CONTENTS FOR INDEX 102-000

Sheet No.	Contents
1	Table of Contents Temporary Traffic Control Tables
2	Drop-offs
3	Miscellaneous Details
4	Post-mounted Work Zone Sign Supports
5	Project Information Signs
6	Work Zone Pavement Markings
7	Temporary Raised Rumble Strips
8	Temporary Traffic Control Devices

TABLE OF CONTENTS FOR 102 SERIES

Standard Plans Index	Index Title	Associated MUTCD Typical Application(s)
102-000	Temporary Traffic Control General Information and Devices	N/A
102-005	Work Beyond the Shoulder	TA-1
102-010	Work on the Shoulder	TA-3, TA-5, TA-6
102-015	Mobile Operations	TA-4, TA-17, TA-35
102-020	Temporary Roadway Closure	TA-13
102-025	Two-Lane Roadway, Lane Closure Using Flaggers	TA-10
102-030	Two-Lane Roadway, Lane Closure Using Temporary Traffic Signals	TA-12
102-035	Haul Road Crossing	TA-14
102-040	Two-Lane Roadway, Temporary Diversion	TA-7
102-045	Multilane Roadway, Single Lane Closure	TA-33
102-050	Multilane Roadway, Multiple Lane Closure	TA-37
102-055	Multilane Roadway, Lane Closure with Lane Shift	TA-36
102-060	Multilane Roadway, Temporary Diversion	TA-39
102-065	Limited Access Temporary Opening	N/A
102-070	Traffic Pacing	N/A
102-075	Work on the Sidewalk	TA-28, TA-29
102-100	Temporary Barrier	N/A
102-110	Type K Temporary Concrete Barrier System	N/A
102-120	Low Profile Barrier	N/A

GENERAL NOTES:

1. Use this Index for all work zones.
2. See the Plans for Work Zone Speed.

CLEAR ZONE WIDTHS FOR WORK ZONES

Work Zone Speed (mph)	Travel Lanes & Multilane Ramps (feet)	Auxiliary Lanes & Single Lane Ramps (feet)
≥ 60	30	18
55	24	14
45-50	18	10
≤ 40	14	10
All Speeds with Curb & Gutter	4' Behind Face of Curb	

CHANNELIZING DEVICE SPACING

Work Zone Speed (mph)	Max. Spacing (feet)			
	Cones or Tubular Markers		Type I Barricades, Type II Barricades, Vertical Panels, or Drums	
	Taper	Tangent	Taper	Tangent
≤ 45	25	50	25	50
≥ 50	25	50	50	100

TAPER LENGTH "L"

Work Zone Speed (mph)	Min. Length (feet)
≤ 40	$L = \frac{WS^2}{60}$
≥ 45	$L = WS$

Where: W = width of offset in feet
S = speed in mph

COMMON TAPER LENGTHS "L" (FEET)

Work Zone Speed (mph)	Width of Offset (feet)				
	5	8	10	11	12
25	55	85	105	115	125
30	75	120	150	165	180
35	105	165	205	225	245
40	135	215	270	295	320
45	225	360	450	495	540
50	250	400	500	550	600
55	275	440	550	605	660
60	300	480	600	660	720
65	325	520	650	715	780
70	350	560	700	770	840

BUFFER LENGTH "U"

Work Zone Speed (mph)	Min. Length (feet)
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730

Note: When Buffer Length "U" cannot be attained due to geometric constraints, use the greatest length possible, but not less than 155 feet.

WORK ZONE SIGN DISTANCE "X"

Road Type	Min. Spacing (feet)
Arterials and Collectors with Work Zone Speed ≤ 40 mph	200
Arterials and Collectors with Work Zone Speed ≥ 45 mph	500
Limited Access Roadways	1,500

Note: When using MUTCD Typical Applications, use the above values for all MUTCD "A", "B", and "C" distances between signs.

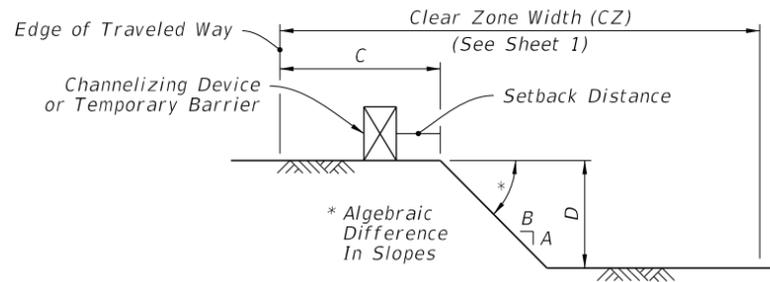
TABLE OF CONTENTS

TEMPORARY TRAFFIC CONTROL TABLES

9/5/2019 2:03:26 PM

DROP-OFF NOTES:

- When drop-offs occur within the clear zone due to construction or maintenance activities, protection devices are required (See Table 1). A drop-off is defined as a drop in elevation, parallel to the adjacent travel lanes, greater than 3" with slope (A:B) steeper than 1:4. In superelevated sections, the algebraic difference in slopes should not exceed 0.25 (See Drop-off Condition Detail).
- Optionally, mitigate drop-offs by placing slopes of optional base material per Specifications Section 285. Slopes shallower than 1:4 may be required to avoid algebraic difference in slopes greater than 0.25. Include the cost for the placement and removal of the material in Maintenance of Traffic, LSD. Use of this treatment in lieu of a temporary barrier is not eligible for CSIP consideration. Conduct daily inspections for deficiencies related to erosion, excessive slopes, rutting or other adverse conditions. Repair any deficiencies immediately.
- For Setback Distance, refer to the Index or Approved Products List (APL) drawing of the selected barrier.
- For Conditions 1 and 3 provided in Table 1, any drop-off condition that is created and restored within the same work period will not be subject to the use of temporary barriers. However, channelizing devices will be required.
- When permanent curb heights are $\geq 6"$, no channelizing device will be required. For curb heights $< 6"$, see Table 1.



DROP-OFF DETAIL

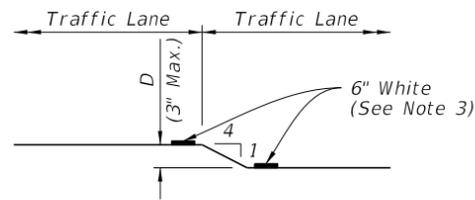
**Table 1
Drop-off Protection Requirements**

Condition	D (inches)	C (feet)	Device Required
1	>3	2 - 12	Temporary Barrier
2	>3 to ≤ 5	12 - CZ	Channelizing Device
3	>5	2 - CZ	Temporary Barrier
4	Removal of Bridge or Retaining Wall Barrier		Temporary Barrier
5	Removal of portions of Bridge Deck		Temporary Barrier

Note: Do not allow any drop-off conditions greater than 3 inches within two feet of the edge of traveled way.

MILLING & RESURFACING NOTES:

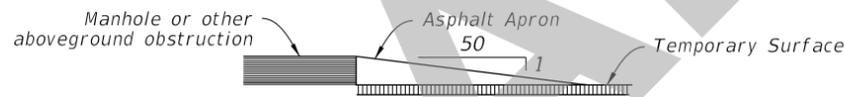
- Whenever there is a difference in elevation between adjacent travel lanes, place "Uneven Lanes" signs (W8-11) at intervals of 0.5 miles or less.
- If D is 1.5" or less, no drop-off treatment is required.
- If the slope of the drop-off is greater than 1:4 (not to exceed 1:1), place a 6" white solid line on each side of the drop-off. Additionally, place "Stay In Your Lane" signs (MOT-1-06) as a supplement to the "Uneven Lanes" signs (W8-11). This condition may be used for distances of three miles or less.



**MILLING & RESURFACING LANE
DROP-OFF TREATMENT DETAIL**

MANHOLE/CROSSWALK/JOINT DROP-OFF NOTES:

- Construct temporary asphalt apron for manholes extending 1" or more above the travel lane and crosswalks having an uneven surface greater than 1/4".
- Construct temporary asphalt apron for all transverse joints that have a difference in elevation of 1" or more.
- Remove aprons prior to constructing the next lift of asphalt.



MANHOLE/CROSSWALK/JOINT DROP-OFF DETAIL

PEDESTRIAN WAY DROP-OFF NOTES:

- A pedestrian way drop-off is defined as either:
 - a drop in elevation greater than 10" that is closer than 2' from the edge of the pedestrian way;
 - a slope steeper than 1:2 that begins closer than 2' from the edge of the pedestrian way when the total drop-off is greater than 60".
- Protect any drop-off adjacent to a pedestrian way with pedestrian longitudinal channelizing devices, temporary barrier wall, or approved handrail.

DROP-OFFS

9/5/2019 2:03:27 PM

LAST REVISION
11/01/19

REVISION

DESCRIPTION:

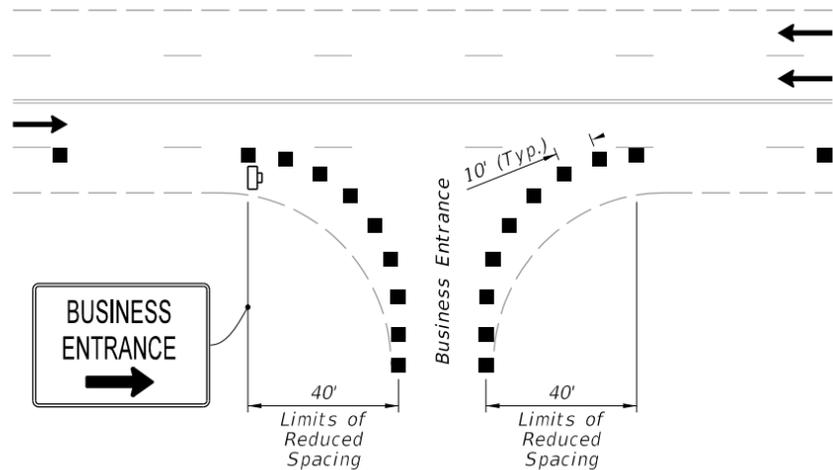


FY 2020-21
STANDARD PLANS

TEMPORARY TRAFFIC CONTROL
GENERAL INFORMATION AND DEVICES

INDEX
102-000

SHEET
2 of 8



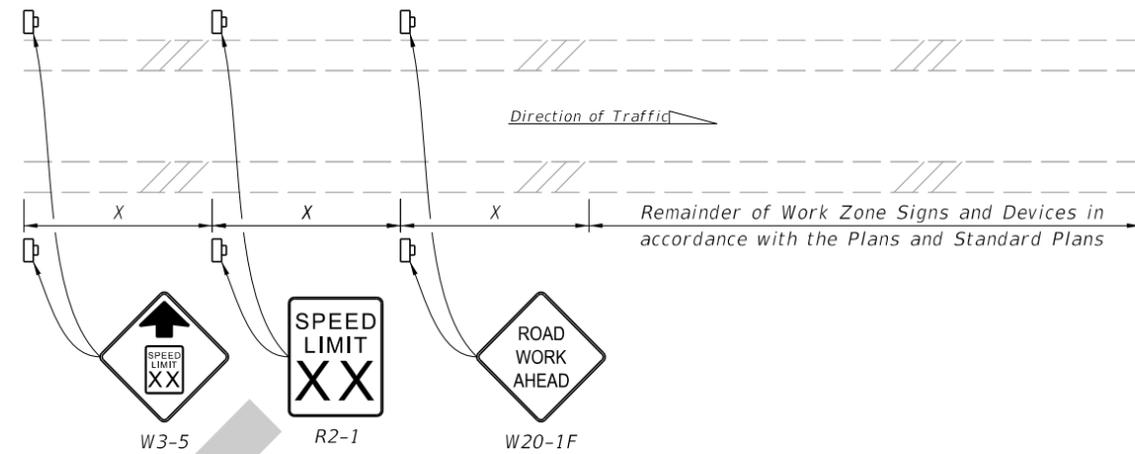
BUSINESS SIGN AND CHANNELIZING DEVICE PLACEMENT AT BUSINESS ENTRANCE

NOTES:

1. Use this detail when work disrupts a business entrance for greater than one entire calendar day.
2. For single business entrances, place one 24"X36" business sign with the business name at each affected driveway entrance. Logos may be provided by the business owners. Alternatively, a sign with the message "Business Entrance" (see Index 700-102) may be used when approved by the Engineer.
3. When two or more businesses share a common driveway entrance, place a 24"X36" with the message "Business Entrance" (see Index 700-102) at the common driveway entrance.

SYMBOLS:

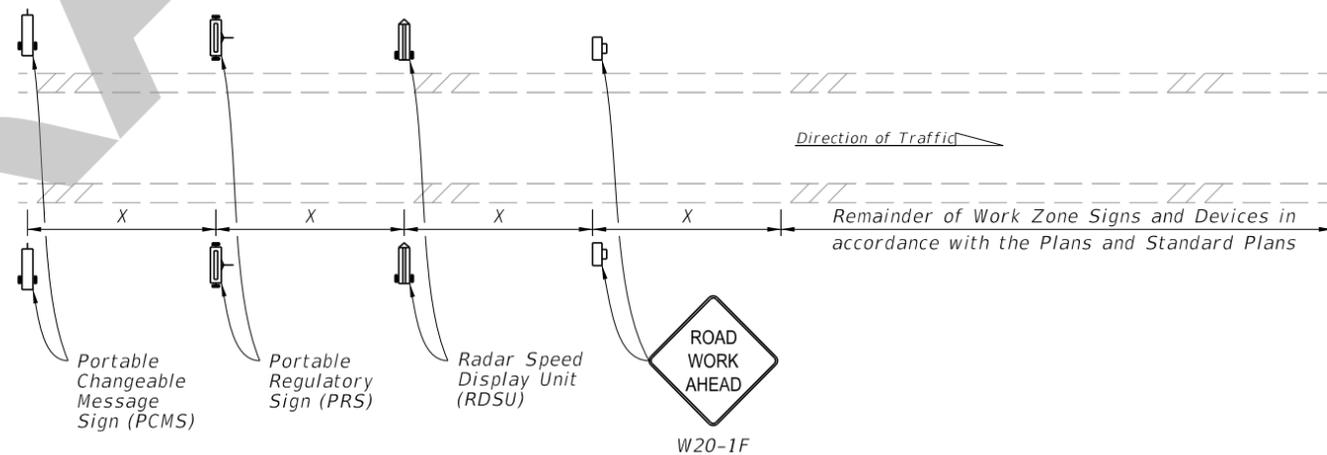
- Channelizing Device (See Sheet 8)
- ➔ Lane Identification and Direction of Traffic
- Work Zone Sign



SPEED REDUCTION SIGNING

NOTES:

1. X = Work Zone Sign Spacing
2. When called for in the Plans, use this detail in accordance with the Plans and Standard Plans. Place the speed reduction signs (W3-5 and R2-1) in advance of the "Road Work Ahead" sign (W20-1F) as shown.
3. Do not use this detail in conjunction with the Motorist Awareness System.
4. For speed reductions greater than 10 MPH, reduce speed in 10 MPH increments of 'X'.
5. Place additional "Speed Limit" signs (R2-1) at intervals of no less than one mile for rural conditions and 1,000 feet for urban conditions.
6. For undivided roadways, omit the signs shown in the median.



MOTORIST AWARENESS SYSTEM

NOTES:

1. X = Work Zone Sign Spacing
2. When called for in the Plans, use the Motorist Awareness System (MAS) in accordance with the Plans, and Standard Plans, Indexes 102-45, 102-50, 102-55, and 102-60. When using this detail with the Indexes, place the MAS devices (i.e., PCMS, PRS, and RDSU) in advance of the "Road Work Ahead" sign (W20-1F) as shown.
3. For a posted speed of 65 mph or greater, display speed with a ten mph reduction. For a posted speed of 60 mph, display a reduced speed of 55 mph. Use posted speed as the work zone speed.
4. Omit the PCMS in the median for roadways with three lanes or less in the same direction of traffic.

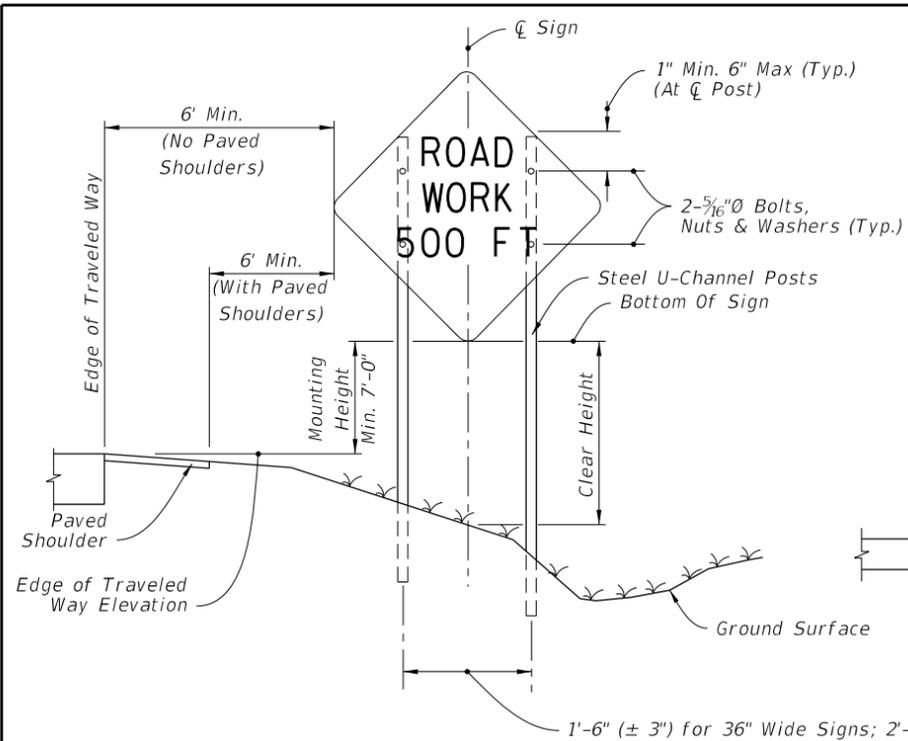
TYPICAL PCMS DISPLAY:

- With speed reduction:
 Message 1: WORKERS PRESENT AHEAD
 Message 2: SPEED REDUCED NEXT XXMI
- Without speed reduction:
 Message 1: WORKERS PRESENT AHEAD
 Message 2: NEXT XX MILES

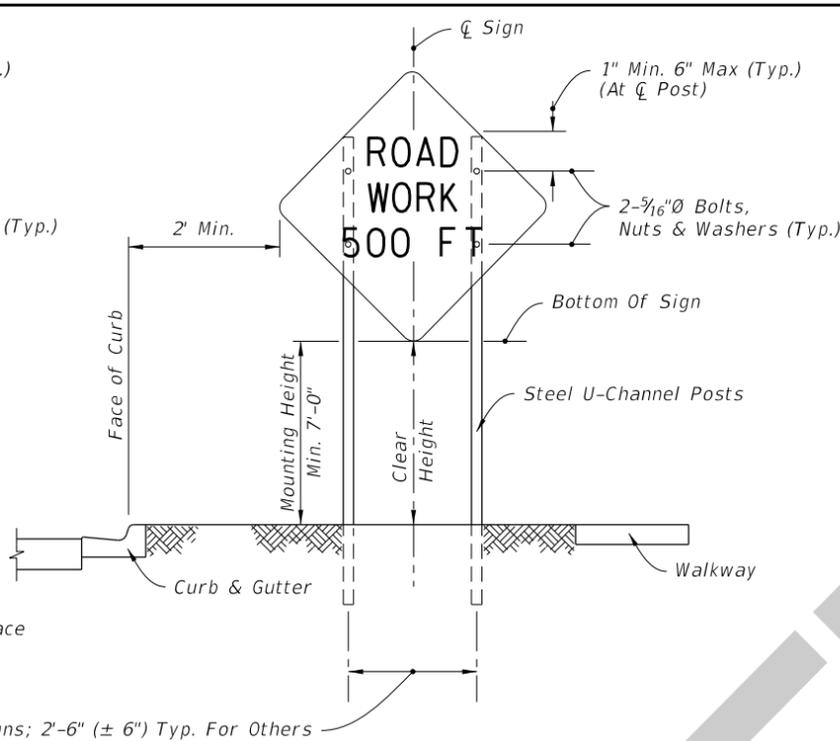
MISCELLANEOUS DETAILS

9/5/2019 2:03:29 PM

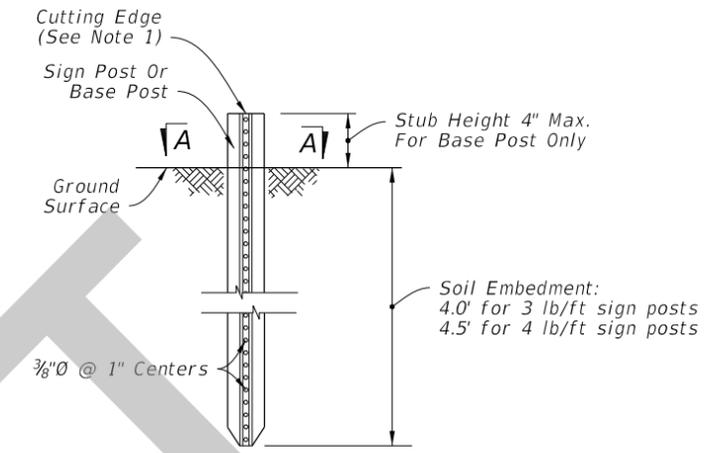
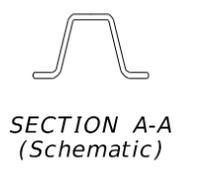
LAST REVISION 11/01/19	REVISION	DESCRIPTION:	 FY 2020-21 STANDARD PLANS	TEMPORARY TRAFFIC CONTROL GENERAL INFORMATION AND DEVICES	INDEX 102-000	SHEET 3 of 8
---------------------------	----------	--------------	---	--	------------------	-----------------



2 POSTS - FLUSH SHOULDER ROADWAY
(1 Post Similar)



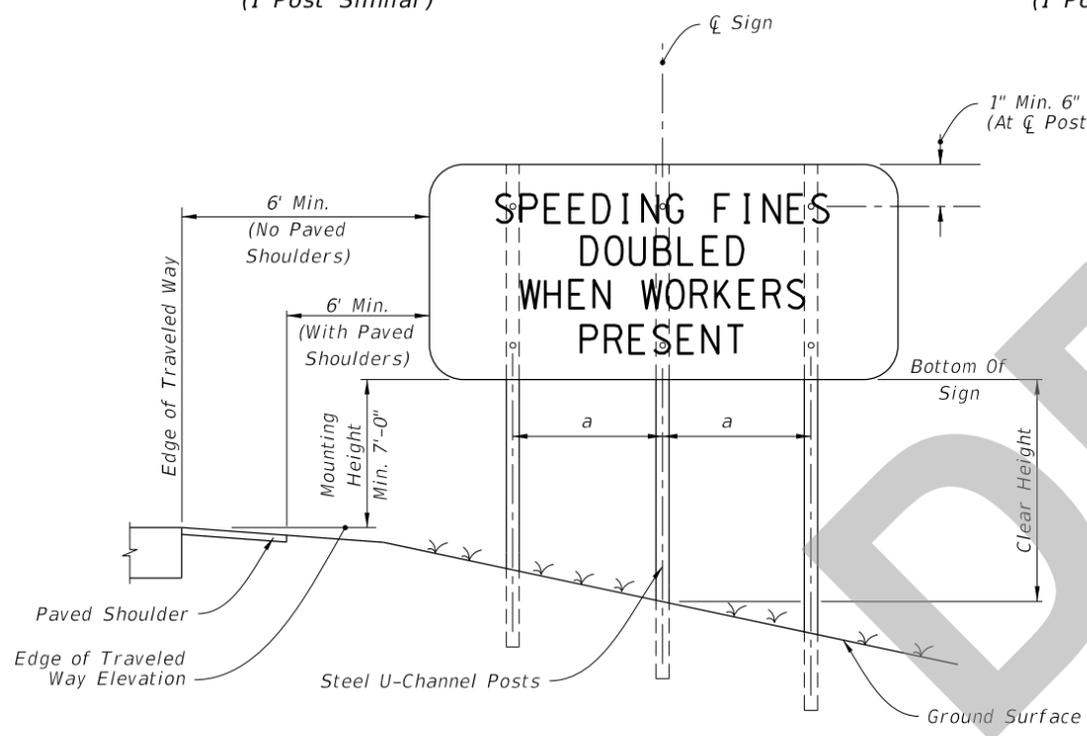
2 POSTS - CURB AND GUTTER ROADWAY
(1 Post Similar)



TYPICAL FOUNDATION DETAIL

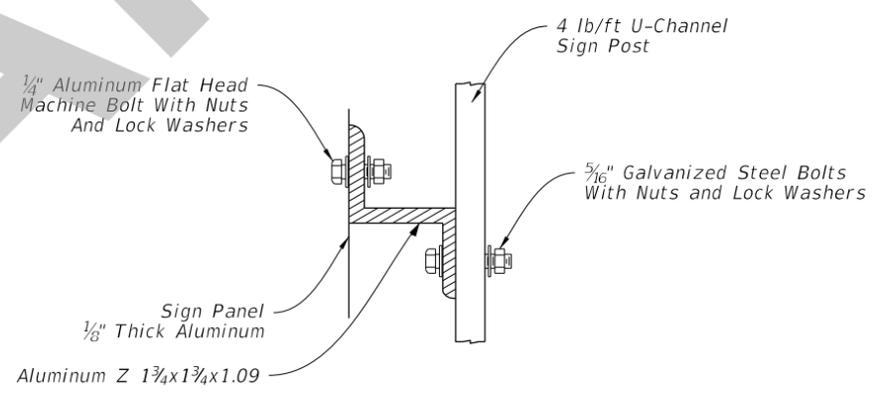
WORK ZONE SIGN POST TABLE:

SIGN AREA (ft ²)	NUMBER OF SIGN POSTS
< 9	1
9 to < 20	2
≥ 20 to < 50	3
50	4

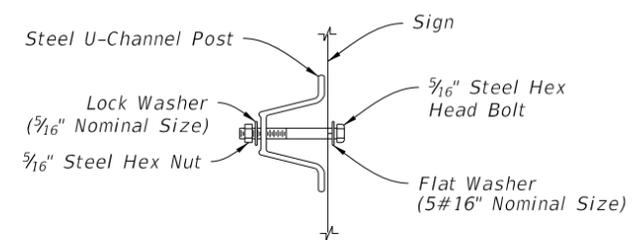


3 POSTS - FLUSH SHOULDER ROADWAY
Where: W = 48": a = 1' - 4 1/2" (± 1")
W = 60": a = 1' - 9" (± 1")
W = 72": a = 2' - 1" (± 1")

SIGN SUPPORT MOUNTING DETAILS



SIGN ATTACHMENT FOR 4 LB/FT SIGN POSTS DETAIL



SIGN ATTACHMENT FOR 3 LB/FT SIGN POSTS DETAIL

SIGN ATTACHMENT DETAILS

- NOTES:
- Do not install bolts closer than 1" to cutting edge of Base Post.
 - Soil plates are not required for posts installed in asphalt pavement, shoulder pavement, sidewalk, or existing rock with a minimum cumulative depth of 2'.
 - Use 3 lb/ft posts for Clear Height up to 10' and 4 lb/ft posts for Clear Height up to 12'.
 - For diamond warning signs with supplement plaque (up to 5 ft² in area), use 4 lb/ft posts for Clear Height up to 10'.

POST-MOUNTED WORK ZONE SIGN SUPPORTS

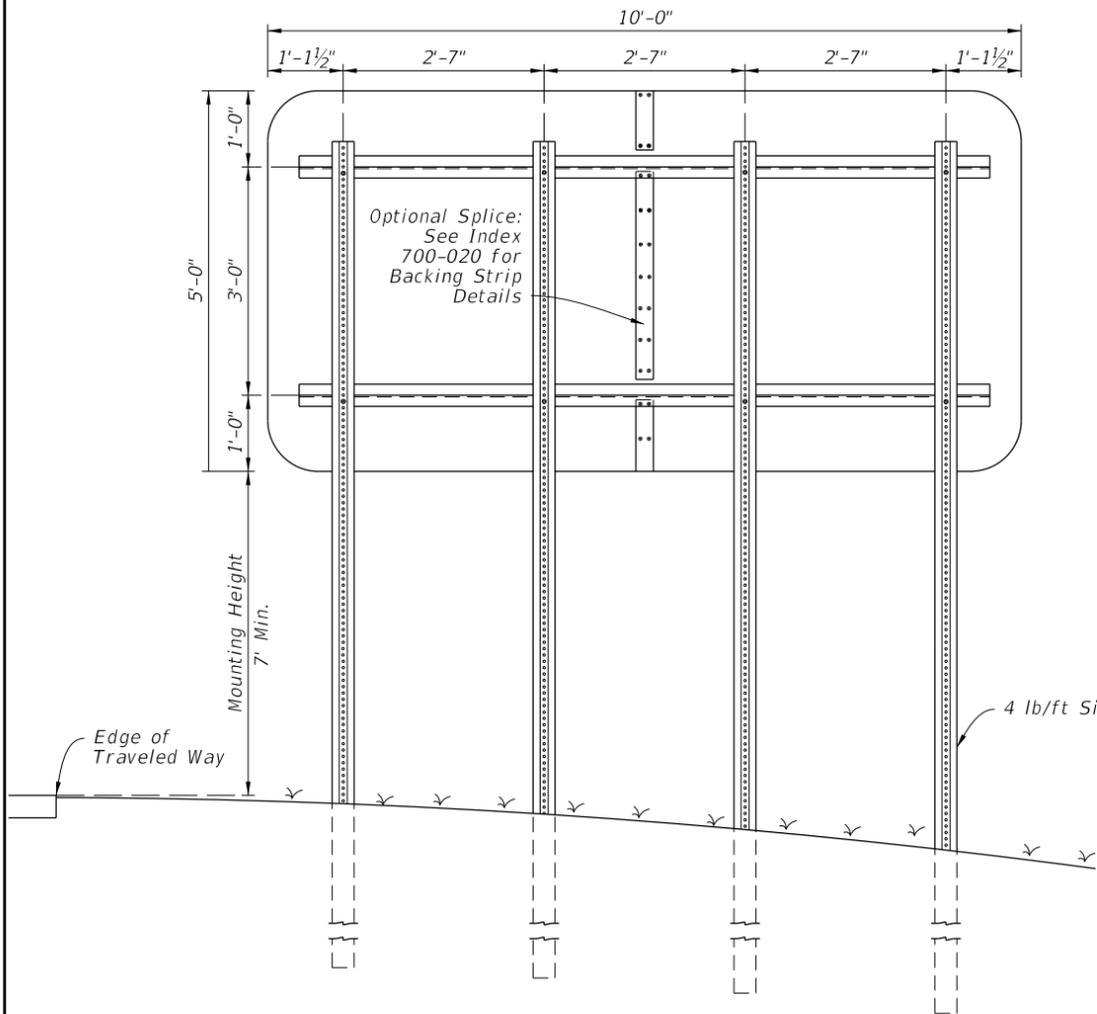
9/5/2019 2:03:30 PM

LAST REVISION	DESCRIPTION
11/01/19	

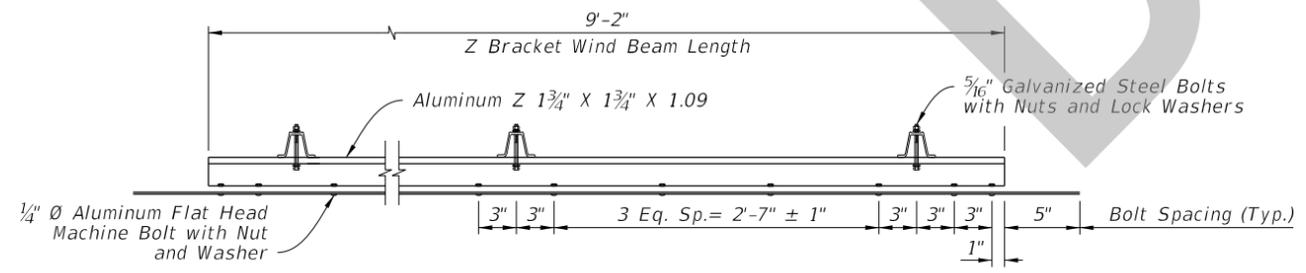
FDOT
FY 2020-21
STANDARD PLANS

TEMPORARY TRAFFIC CONTROL
GENERAL INFORMATION AND DEVICES

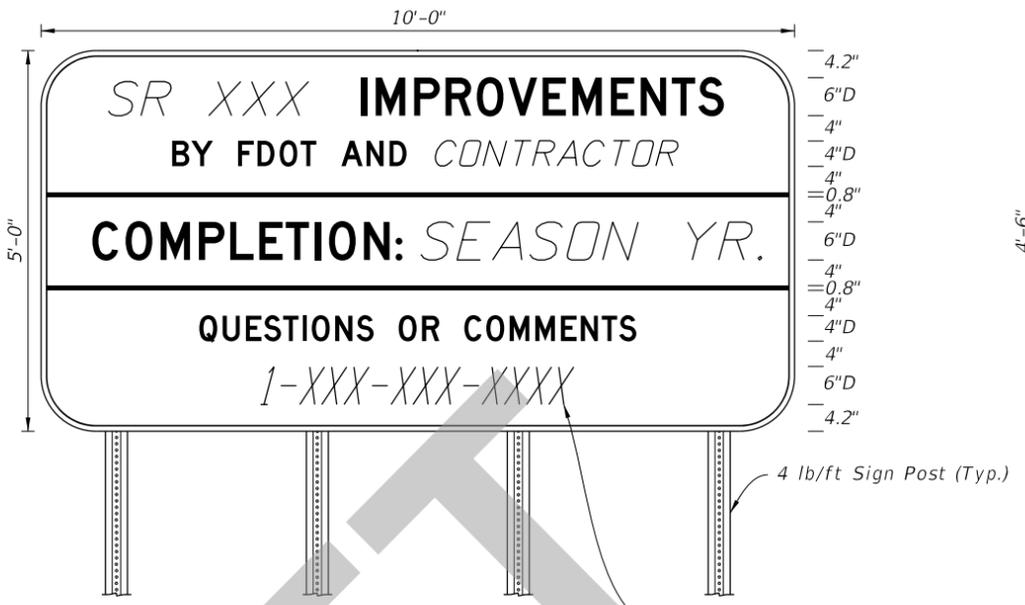
INDEX	SHEET
102-000	4 of 8



4 POSTS SIGN SUPPORT MOUNTING DETAIL

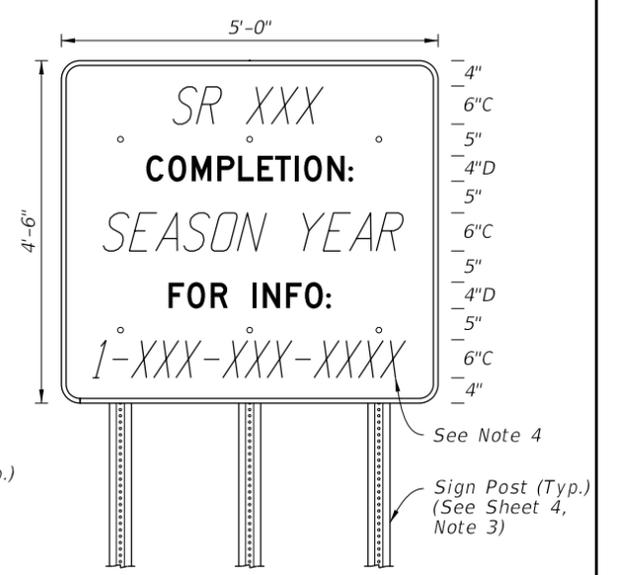


BRACKET DETAIL



BORDER 10'-0" x 5'-0"
 R=8" 8" Radii
 TH=0.25" 4" and 6" series D Legend
 IN=0.75" Blue Background
 White Legend and Border

PROJECT INFORMATION SIGN DETAIL FOR WORK ZONE SPEED OF 50 MPH OR GREATER



BORDER 5'-0" x 4'-6"
 R=3" 3" Radii
 TH=0.25" 4" series D Legend and
 IN=0.75" 6" series C Legend
 Blue Background
 White Legend and Border

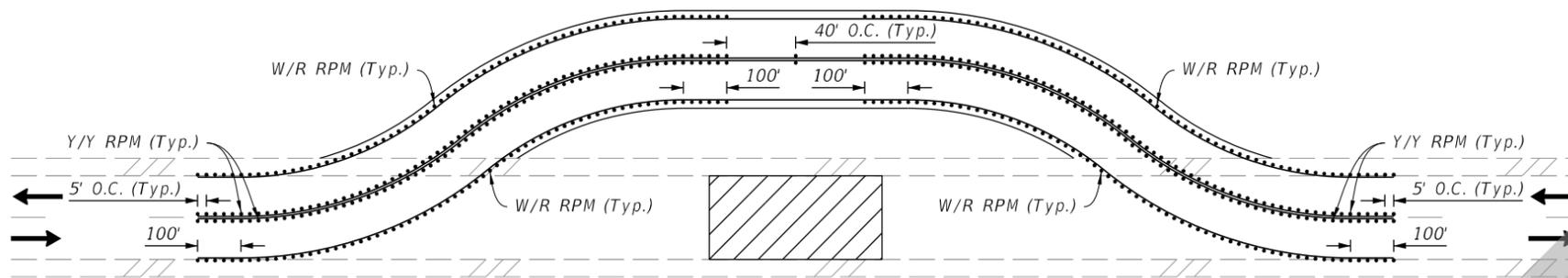
PROJECT INFORMATION SIGN DETAIL FOR WORK ZONE SPEED OF 45 MPH OR LESS

- NOTES:**
1. Road designation should be the most common designation (i.e., I-Interstate, SR-State Road, or US).
 2. Italic text on signs indicates variable information that is specific to the project.
 3. See Sheet 4 for the Typical Foundation Detail and the Sign Attachment Details.
 4. Under "Questions or Comments", use the project website, or a telephone number for those projects without websites.

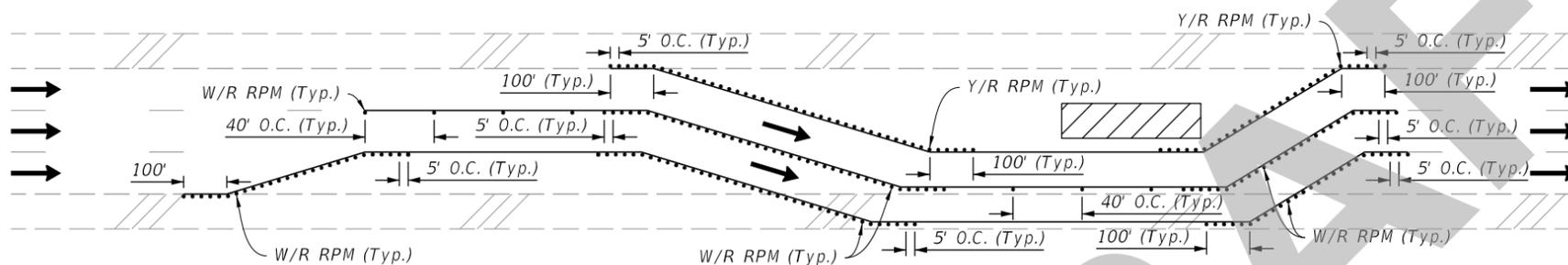
PROJECT INFORMATION SIGNS

9/5/2019 2:03:31 PM

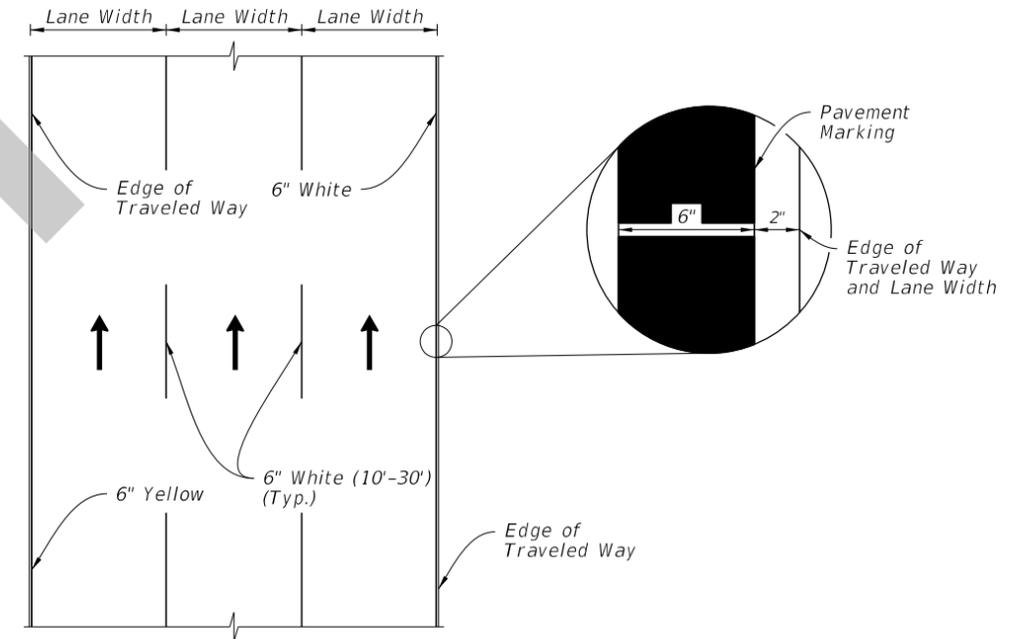
LAST REVISION 11/01/19	DESCRIPTION:	FDOT	FY 2020-21 STANDARD PLANS	TEMPORARY TRAFFIC CONTROL GENERAL INFORMATION AND DEVICES	INDEX 102-000	SHEET 5 of 8
---------------------------	--------------	------	------------------------------	--	------------------	-----------------



RPM PLACEMENT ON TWO-LANE ROADWAYS



RPM PLACEMENT ON MULTILANE ROADWAYS
(Lane Shift Shown, Other Multilane Typical Applications Similar)



PLACEMENT OF PAVEMENT MARKINGS

RPM PLACEMENT IN WORK ZONES

NOTES:

1. Install RPMs as a supplement to:
 - a. All lane lines
 - b. Edge lines in transitions (e.g., merges, diversions, lane shifts)
 - c. Edge lines of gore areas
2. Extend pavement marking and 5' RPM spacing by 100' in each direction for all transitions regardless of the line type.
3. Place RPMs in accordance with this detail and Index 706-001.

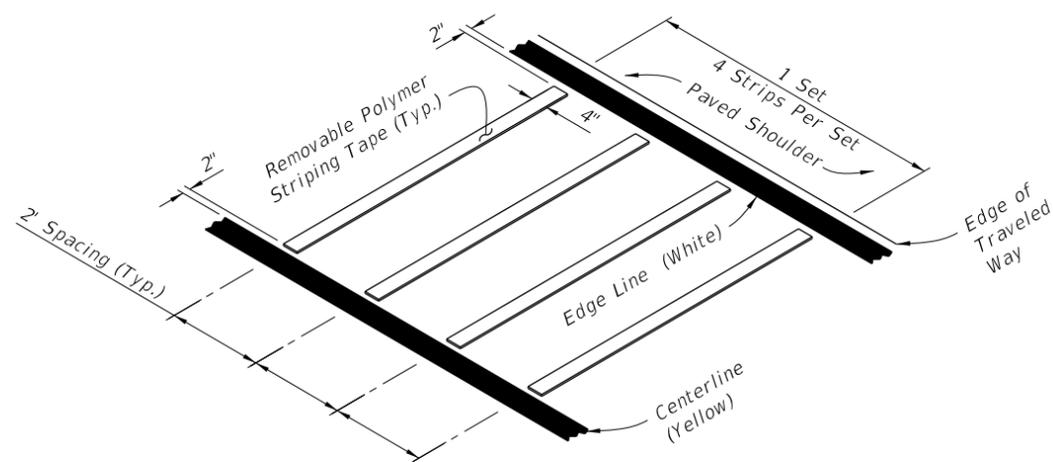
SYMBOLS:

- Work Space
- Lane Identification and Direction of Traffic

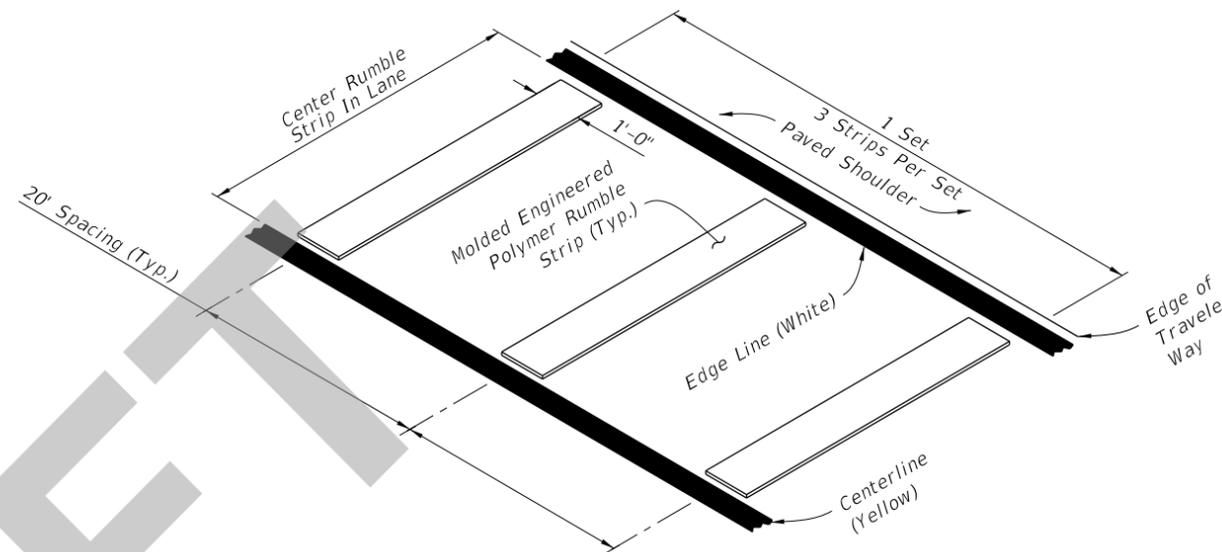
9/5/2019 2:03:32 PM

WORK ZONE PAVEMENT MARKINGS

LAST REVISION 11/01/19	REVISION	DESCRIPTION:	 FY 2020-21 STANDARD PLANS	TEMPORARY TRAFFIC CONTROL GENERAL INFORMATION AND DEVICES	INDEX 102-000	SHEET 6 of 8
---------------------------	----------	--------------	----------------------------------	--	------------------	-----------------



REMOVABLE POLYMER STRIPING TAPE



MOLDED ENGINEERED POLYMER MATERIAL

TEMPORARY RAISED RUMBLE STRIP SETS

NOTE:

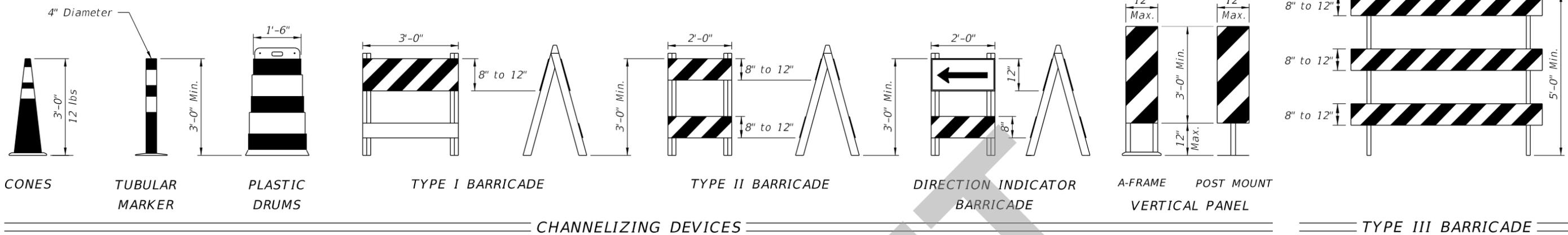
Use Temporary Raised Rumble Strips in accordance with the Plans and Specification 102.

DRAFT

TEMPORARY RAISED RUMBLE STRIPS

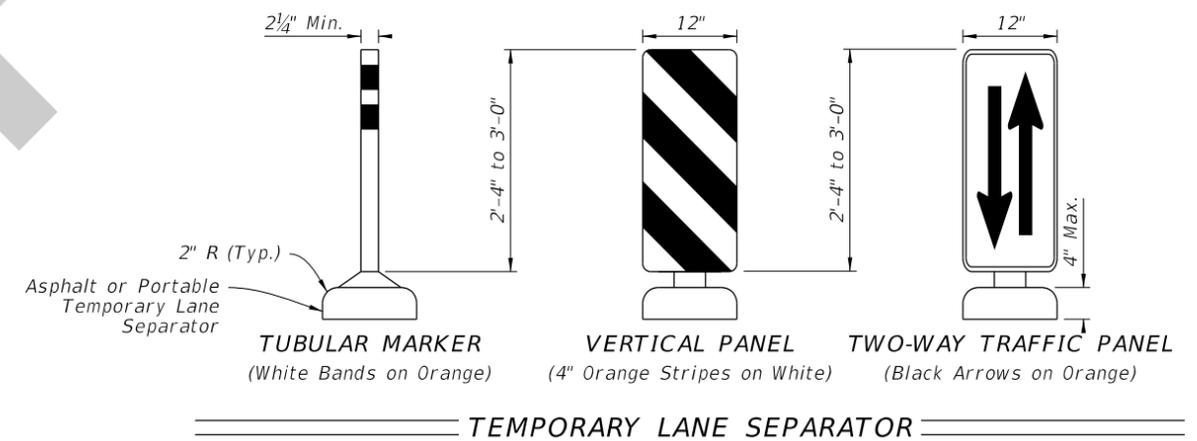
LAST REVISION 11/01/19	REVISION	DESCRIPTION:	 FY 2020-21 STANDARD PLANS	TEMPORARY TRAFFIC CONTROL GENERAL INFORMATION AND DEVICES	INDEX 102-000	SHEET 7 of 8
---------------------------	----------	--------------	---	--	------------------	-----------------

9/5/2019 2:03:33 PM



NOTE:

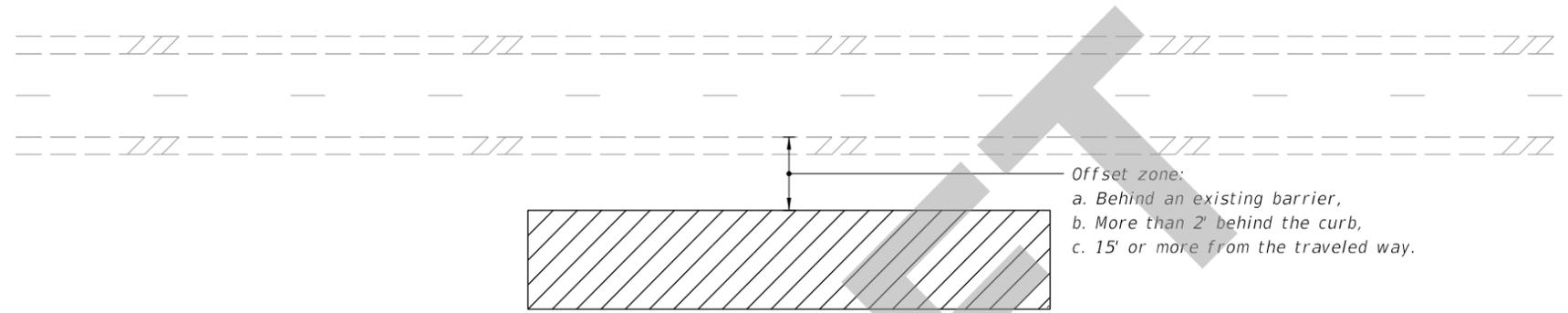
For pedestrian longitudinal channelizing device requirements, see Specification 990.



TEMPORARY TRAFFIC CONTROL DEVICES

9/5/2019 2:03:34 PM

LAST REVISION 11/01/19	REVISION	DESCRIPTION:		FY 2020-21 STANDARD PLANS	TEMPORARY TRAFFIC CONTROL GENERAL INFORMATION AND DEVICES	INDEX 102-000	SHEET 8 of 8
---------------------------	----------	--------------	--	------------------------------	--	------------------	-----------------



NOTES:

1. As determined by the Engineer, use a flagger, shoulder closure, or lane closure to accommodate a significant amount of work vehicle ingress and egress.
2. This Index may be applied to the medians of divided roadways.

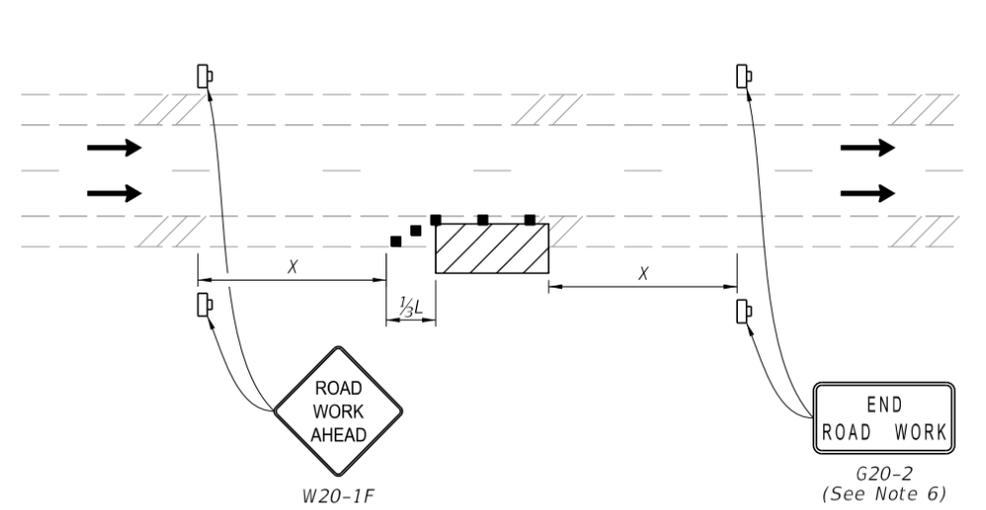
SYMBOLS:

 Work Space

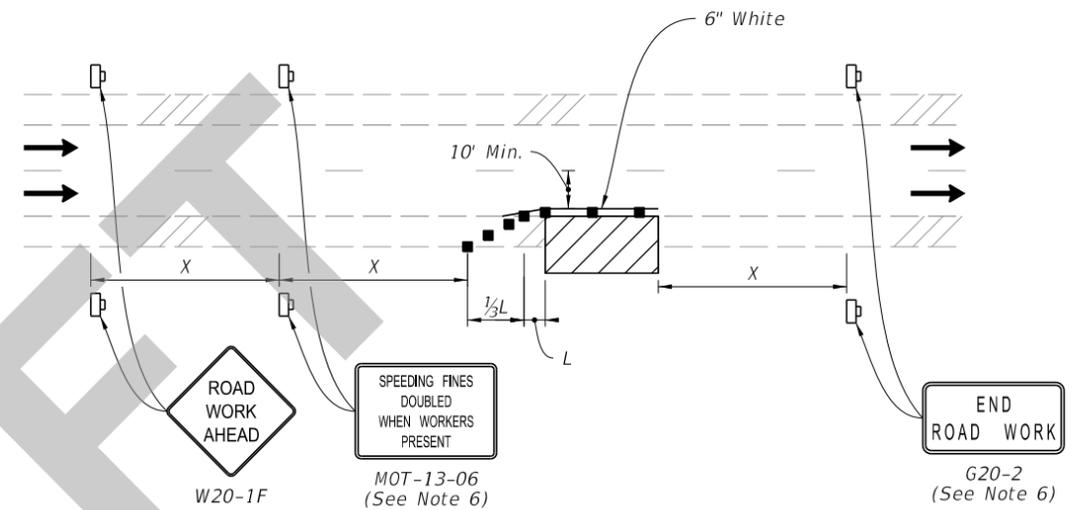
APPLIES TO TWO-LANE AND MULTILANE ROADWAYS

9/5/2019 2:03:35 PM

LAST REVISION 11/01/19	REVISION	DESCRIPTION:	 FY 2020-21 STANDARD PLANS	WORK BEYOND THE SHOULDER	INDEX 102-005	SHEET 1 of 1
------------------------------	----------	--------------	---	---------------------------------	-------------------------	------------------------



SHOULDER WORK BETWEEN 2' AND 15' FROM THE TRAVELED WAY
(Multilane Roadway Shown, Two-Lane Roadway Similar)



SHOULDER WORK LESS THAN 2' FROM THE TRAVELED WAY
WITH WORK ZONE SPEED OF 45 MPH OR LESS
(Multilane Roadway Shown, Two-Lane Roadway Similar)

NOTES:

1. L = Taper Length
X = Work Zone Sign Distance
See Index 102-000 for "L" and "X" values.
2. For incidental work (e.g., mowing or litter removal), only the Road Work Ahead sign is required.
3. As determined by the Engineer, use a flagger or lane closure to accommodate a significant amount of work vehicle ingress and egress.
4. For work less than two feet from the traveled way and work zone speed greater than 45 MPH, use a lane closure.
5. This Index may be applied to the medians of divided roadways.
6. The "Speeding Fines Doubled When Workers Present" signs (MOT-13-06) and "End Road Work" signs (G20-2) along with associated work zone sign distances may be omitted when the temporary condition is in place for 24 hours or less.

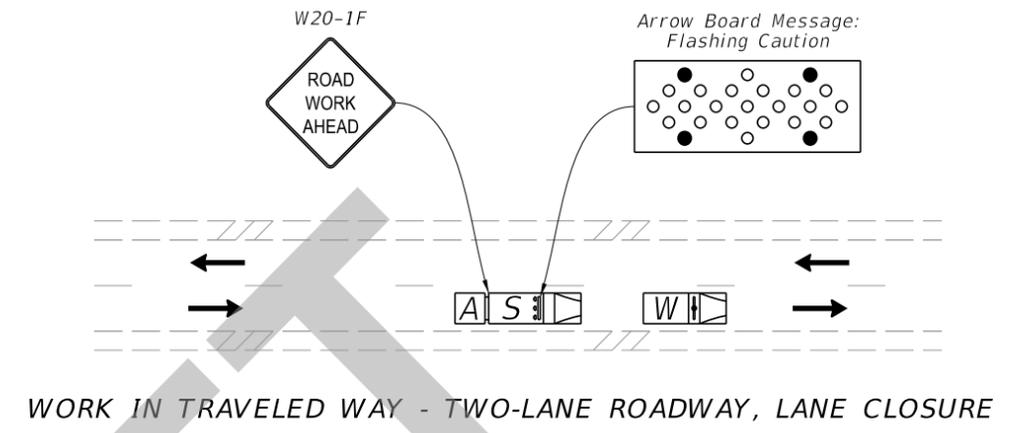
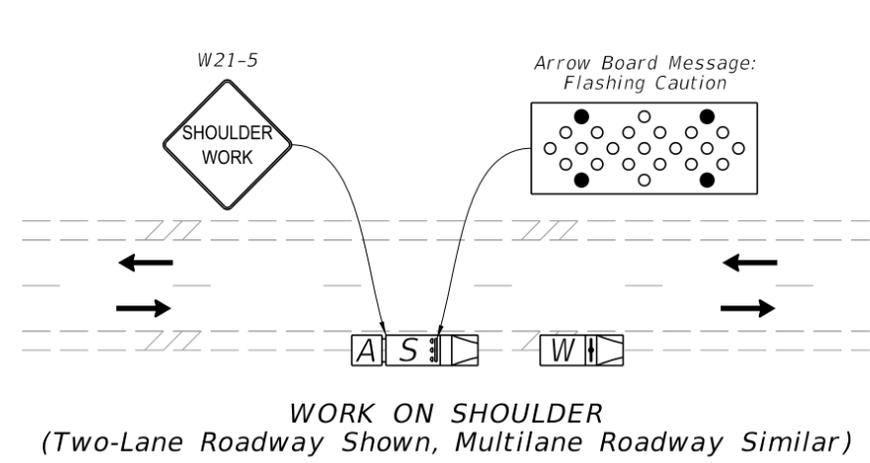
SYMBOLS:

- Work Space
- Channelizing Device (See Index 102-000)
- Work Zone Sign
- Lane Identification and Direction of Traffic

APPLIES TO TWO-LANE AND MULTILANE ROADWAYS

9/5/2019 2:03:36 PM

LAST REVISION 11/01/19	REVISION	DESCRIPTION:		FY 2020-21 STANDARD PLANS	WORK ON THE SHOULDER	INDEX 102-010	SHEET 1 of 1
---------------------------	----------	--------------	--	------------------------------	----------------------	------------------	-----------------



GENERAL NOTES:

1. Vehicle-mounted signs shall be mounted with the bottom of the sign at a minimum height of 48 inches above the pavement. Vehicle mounted changeable message signs may be used in lieu of truck mounted static signs. Changeable message signs shall flash alternately to read "Left or Right Lane" or "Two Left or Two Right Lanes", "Closed Ahead", and the arrow symbol. Arrow boards shall not be used with truck mounted changeable message signs. Sign legends shall be covered or turned from view when work is not in progress.
2. For multilane roadways with curb and no paved shoulder, omit the shadow vehicle that would have been used on the paved shoulder. In such instances, the warning sign should be mounted on the shadow vehicle farthest from the work vehicle.
3. Minimize the longitudinal spacing between vehicles to deter road users from driving in between.
4. Use inverted plan of the illustrations for work on left side of roadways.
5. Ensure that all vehicles in the mobile operation convoy have functional two-way communication.
6. If the speed of the mobile operation exceeds the existing posted speed limit on limited access roadways and one half the existing posted speed limit on other roadways, the Engineer may delete requirements for shadow vehicles and attenuators. In such situations, mount arrow board and sign on the work vehicle.

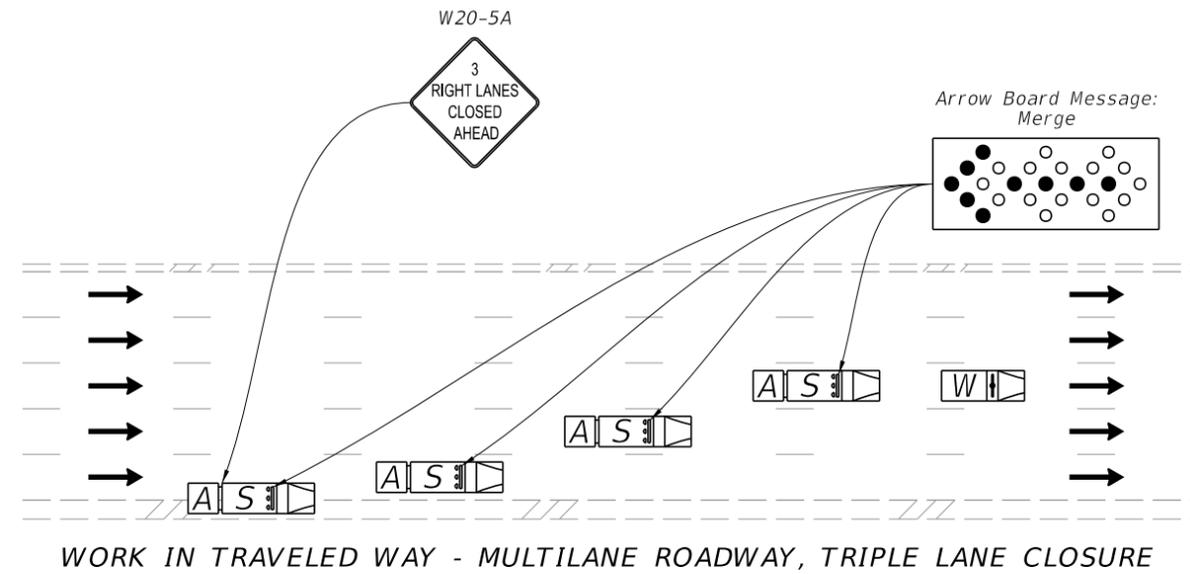
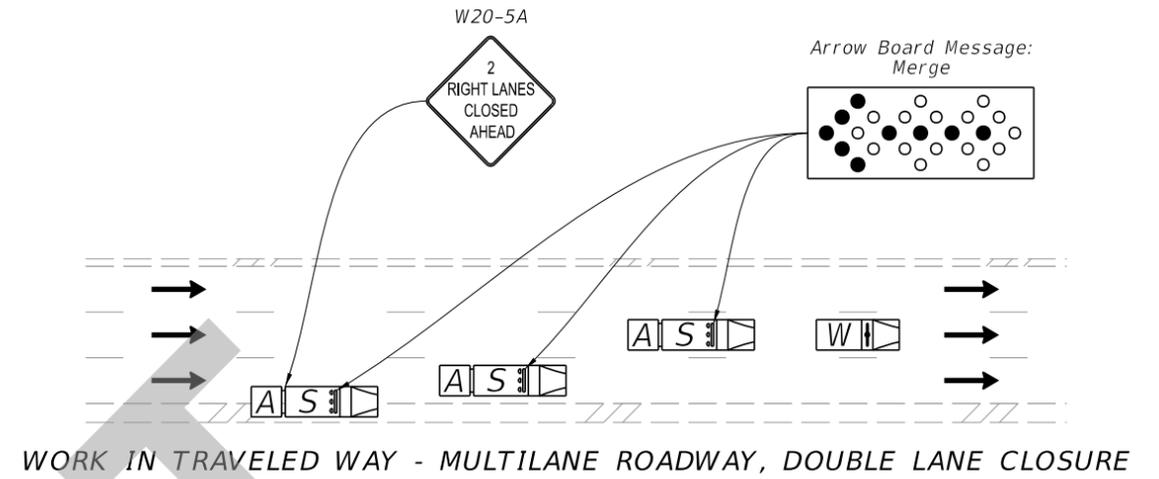
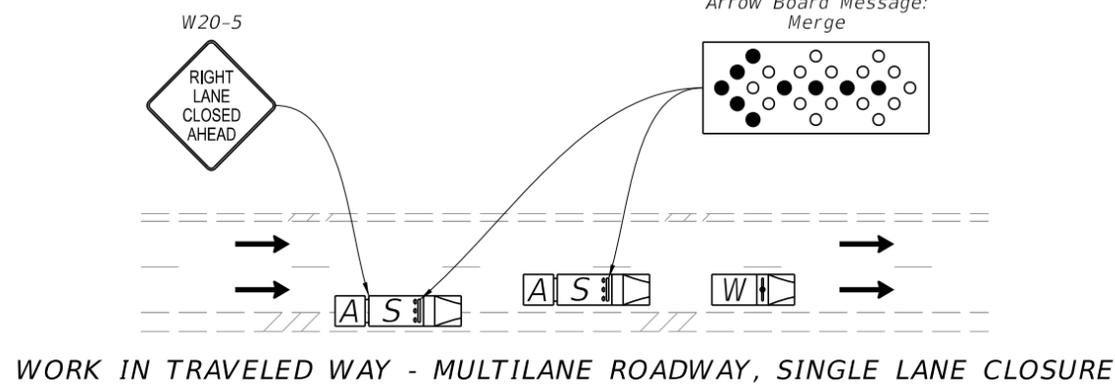
SYMBOLS:

- ➔ Lane Identification and Direction of Traffic
- ⓐ Truck Mounted Attenuator (TMA)
- 🚚 Work Vehicle With Warning Lights
- 🚗 Shadow (S) Vehicle With Warning Lights And Arrow Board

APPLIES TO TWO-LANE AND MULTILANE ROADWAYS

9/5/2019 2:03:37 PM

LAST REVISION 11/01/19	REVISION	DESCRIPTION:	 FY 2020-21 STANDARD PLANS	MOBILE OPERATIONS	INDEX 102-015	SHEET 1 of 2
---------------------------	----------	--------------	--	-------------------	------------------	-----------------



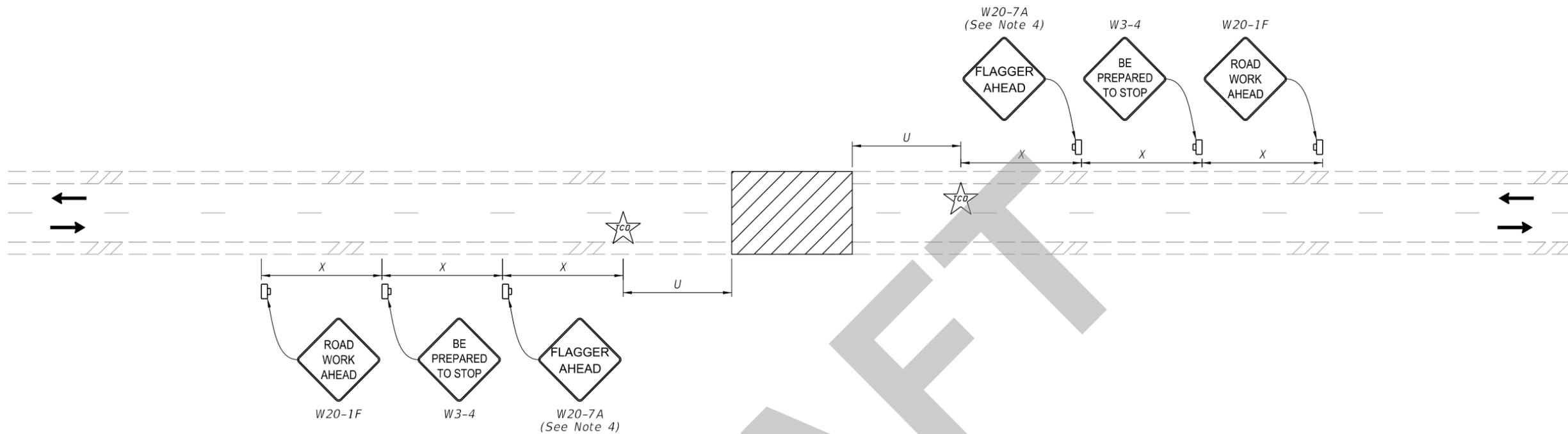
SYMBOLS:

- Lane Identification and Direction of Traffic
- Truck Mounted Attenuator (TMA)
- Work Vehicle With Warning Lights
- Shadow (S) Vehicle With Warning Lights And Arrow Board

DRAFT

9/5/2019 2:03:38 PM

LAST REVISION 11/01/19	REVISION	DESCRIPTION:	FY 2020-21 STANDARD PLANS	MOBILE OPERATIONS	INDEX 102-015	SHEET 2 of 2
---------------------------	----------	--------------	------------------------------	-------------------	------------------	-----------------



(Two-Lane Roadway Shown, Multilane Roadway Similar)

NOTES:

1. U = Buffer Length
X = Work Zone Sign Distance
See Index 102-000 for "U" and "X" values.
2. Do not use this Index for limited access roadways.
3. Use this Index for temporary daytime road closures of 5 minutes or less.
4. Optionally, use "Flagger Ahead" sign with symbol (W20-7) instead of "Flagger Ahead" sign with text (W20-7A).

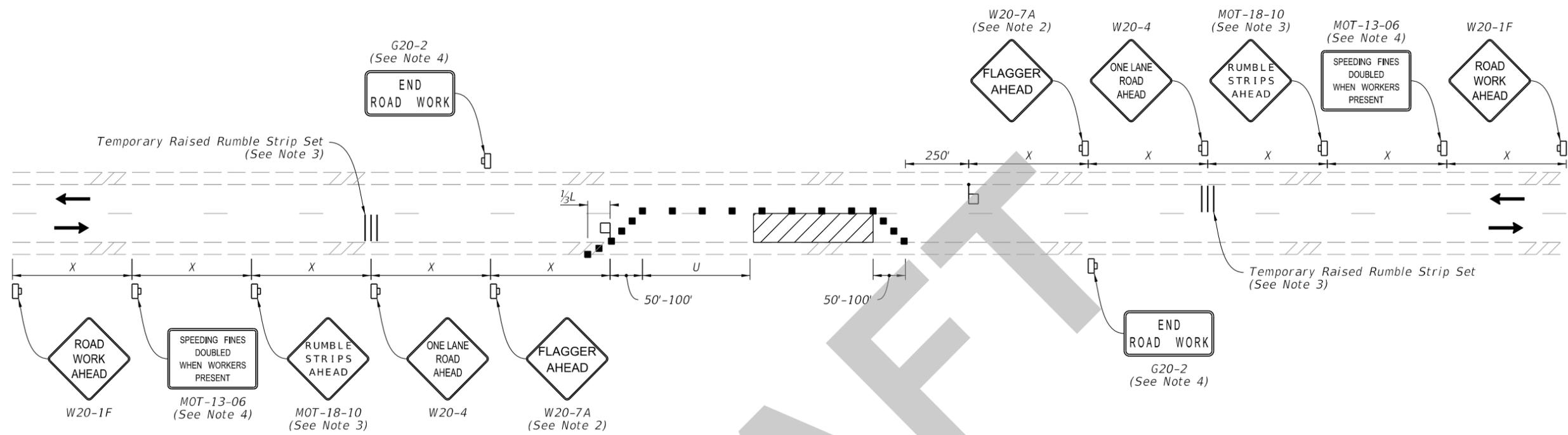
SYMBOLS:

- Work Space
- Work Zone Sign
- Lane Identification and Direction of Traffic
- Traffic Control Officer

APPLIES TO TWO-LANE AND MULTILANE ROADWAYS

9/5/2019 2:03:39 PM

LAST REVISION 11/01/19	REVISION	DESCRIPTION:		FY 2020-21 STANDARD PLANS	TEMPORARY ROADWAY CLOSURE	INDEX 102-020	SHEET 1 of 1
---------------------------	----------	--------------	--	------------------------------	---------------------------	------------------	-----------------



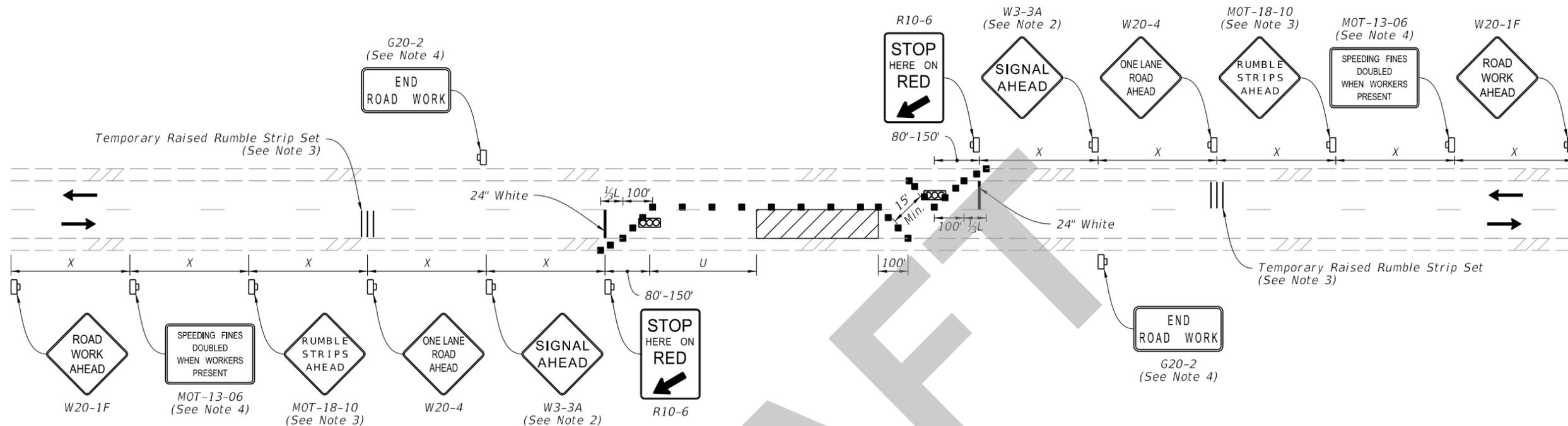
- NOTES:**
1. L = Taper Length
 U = Buffer Length
 X = Work Zone Sign Distance
 See Index 102-000 for "L", "U", "X", and channelizing device spacing values.
 2. Optionally, use "Flagger Ahead" sign with symbol (W20-7) instead of "Flagger Ahead" sign with text (W20-7A).
 3. Use temporary raised rumble strips in accordance with the Plans. If temporary raised rumble strips are not used, omit "Rumble Strips Ahead" signs (MOT-18-10) and associated work zone sign distance. See Index 102-000 for temporary raised rumble strip details.
 4. The "Speeding Fines Doubled When Workers Present" signs (MOT-13-06) and "End Road Work" signs (G20-2), along with associated work zone sign distances, may be omitted when the work zone will be in place for 24 hours or less.

SYMBOLS:

- Work Space
- Channelizing Device (See Index 102-000)
- Work Zone Sign
- Lane Identification and Direction of Traffic
- Flagger

9/5/2019 2:03:40 PM

LAST REVISION 11/01/19	REVISION	DESCRIPTION:		FY 2020-21 STANDARD PLANS	TWO-LANE ROADWAY, LANE CLOSURE USING FLAGGERS	INDEX 102-025	SHEET 1 of 1
---------------------------	----------	--------------	--	------------------------------	--	------------------	-----------------



NOTES:

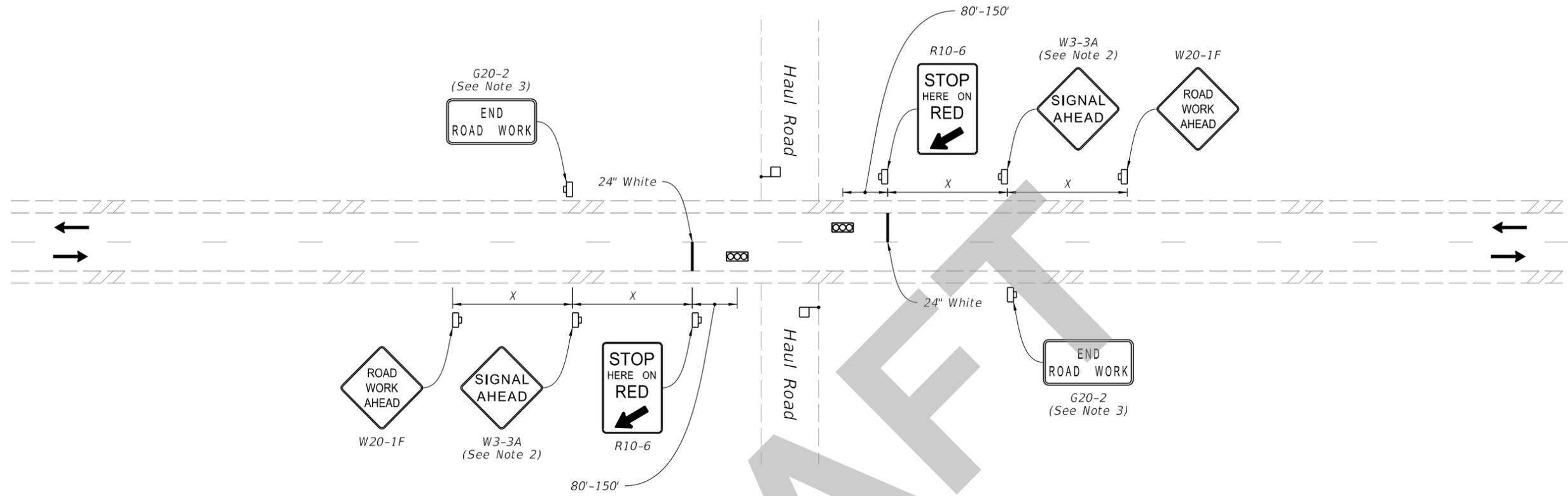
1. L = Taper Length
U = Buffer Length
X = Work Zone Sign Distance
See Index 102-000 for "L", "U", "X", and channelizing device spacing values.
2. Optionally, use "Signal Ahead" signs with symbols (W3-3) instead of "Signal Ahead" signs with text (W3-3A).
3. Use temporary raised rumble strips in accordance with the Plans. If temporary raised rumble strips are not used, omit "Rumble Strips Ahead" signs (MOT-18-10) and associated work zone sign distance. See Index 102-000 for temporary raised rumble strip details.
4. The "Speeding Fines Doubled When Workers Present" signs (MOT-13-06) and "End Road Work" signs (G20-2), along with associated work zone sign distances, may be omitted when the work zone will be in place for 24 hours or less.
5. For the maximum distance between temporary traffic signals, do not exceed the distance at which the temporary traffic signals can safely communicate. When the distance temporary traffic signals is greater than 0.25 miles, use a combination of a pilot vehicle and manually-controlled temporary traffic signals.
6. Monitor temporary traffic signals by having one or more workers present during operation. In the event of a temporary traffic signal failure, use flaggers to control traffic.

SYMBOLS:

- Work Space
- Channelizing Device (See Index 102-000)
- Lane Identification and Direction of Traffic
- Temporary Traffic Signal
- Work Zone Sign

9/5/2019 2:03:43 PM

LAST REVISION 11/01/19	REVISION	DESCRIPTION:		FY 2020-21 STANDARD PLANS	TWO-LANE ROADWAY, LANE CLOSURE USING TEMPORARY TRAFFIC SIGNALS	INDEX 102-030	SHEET 1 of 1
---------------------------	----------	--------------	--	------------------------------	---	------------------	-----------------



(Two-Lane Roadway Shown, Multilane Roadway Similar)

NOTES:

1. X = Work Zone Sign Distance
See Index 102-000 for "X" values.
2. Optionally, use "Signal Ahead" signs with symbols (W3-3) instead of "Signal Ahead" signs with text (W3-3A).
3. The "End Road Work" signs (G20-2) may be omitted when the work zone is in place for 24 hours or less.
4. Optionally, use temporary traffic signals for control of the haul road.

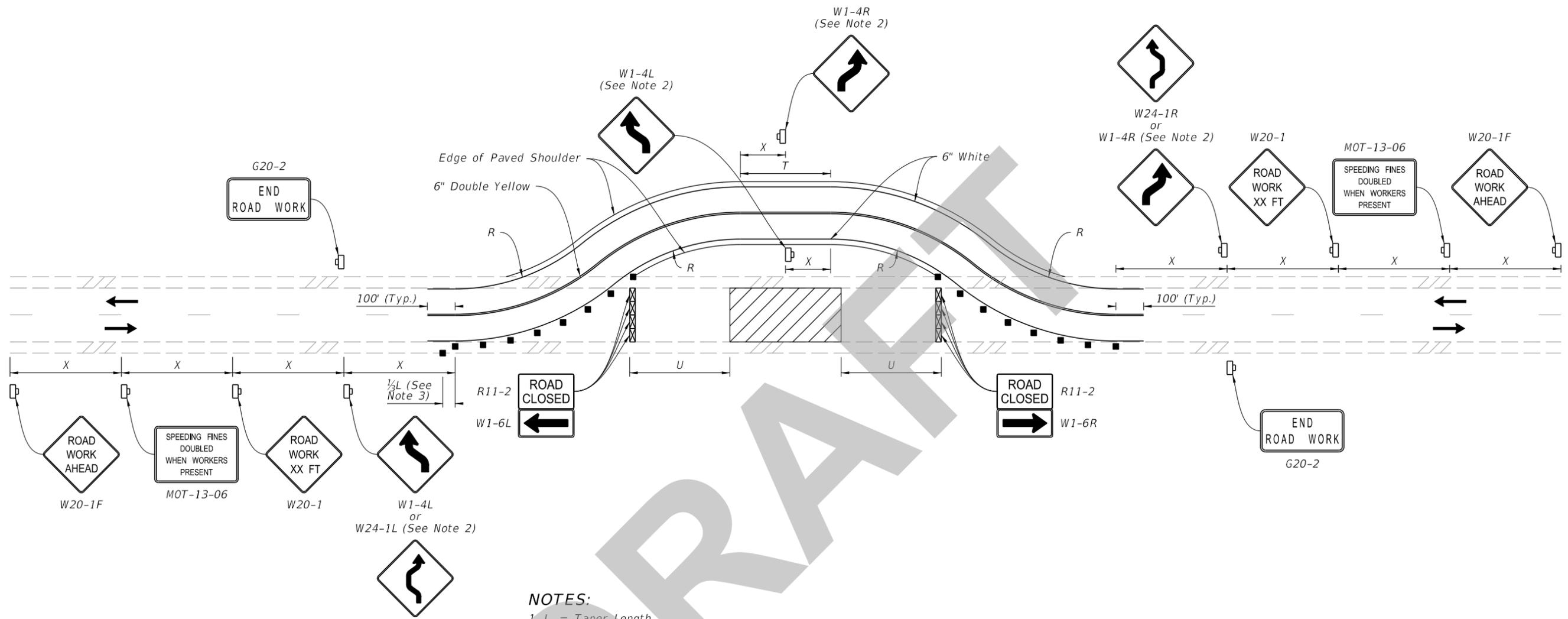
SYMBOLS:

- ➔ Lane Identification and Direction of Traffic
- ⓧ Temporary Traffic Signal
- 📍 Work Zone Sign
- 👤 Flagger

9/5/2019 2:03:44 PM

LAST REVISION 11/01/19	REVISION	DESCRIPTION:	 FY 2020-21 STANDARD PLANS	HAUL ROAD CROSSING	INDEX 102-035	SHEET 1 of 1
---------------------------	----------	--------------	---	--------------------	------------------	-----------------

9/5/2019 2:03:45 PM

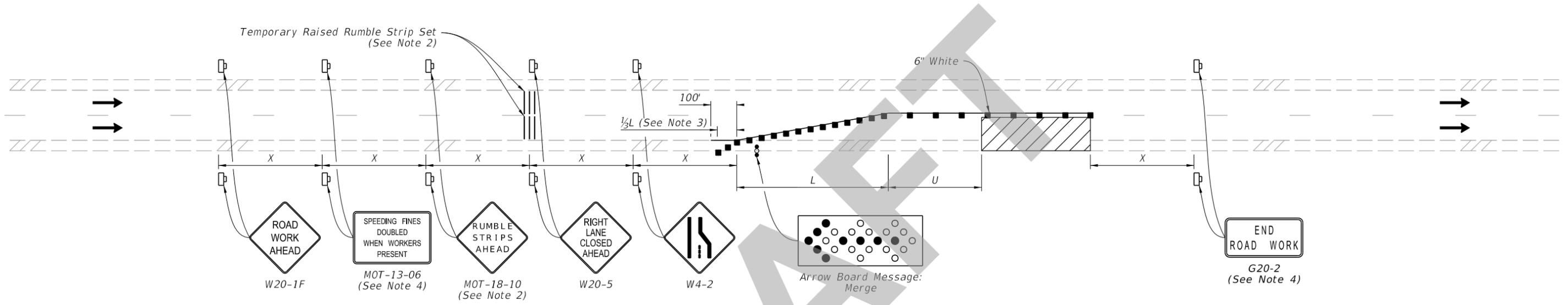


NOTES:

1. L = Taper Length
 U = Buffer Length
 X = Work Zone Sign Distance
 R = Radius of Curve
 See Index 102-000 for "L", "U", "X", and channelizing device spacing values. See Plans for "R" values.
2. If the tangent distance "T" is less than 600', then, for each direction, use a "Double Reverse Curve" sign (W24-1) instead of the first "Reverse Curve" sign (W1-4) and omit the second "Reverse Curve" sign.
3. If the temporary paved shoulder matches the width of the existing paved shoulder, omit taper and channelizing devices from the paved shoulder.

SYMBOLS:

- Work Space
- Channelizing Device (See Index 102-000)
- Work Zone Sign
- Lane Identification and Direction of Traffic
- Type III Barricade



NOTES:

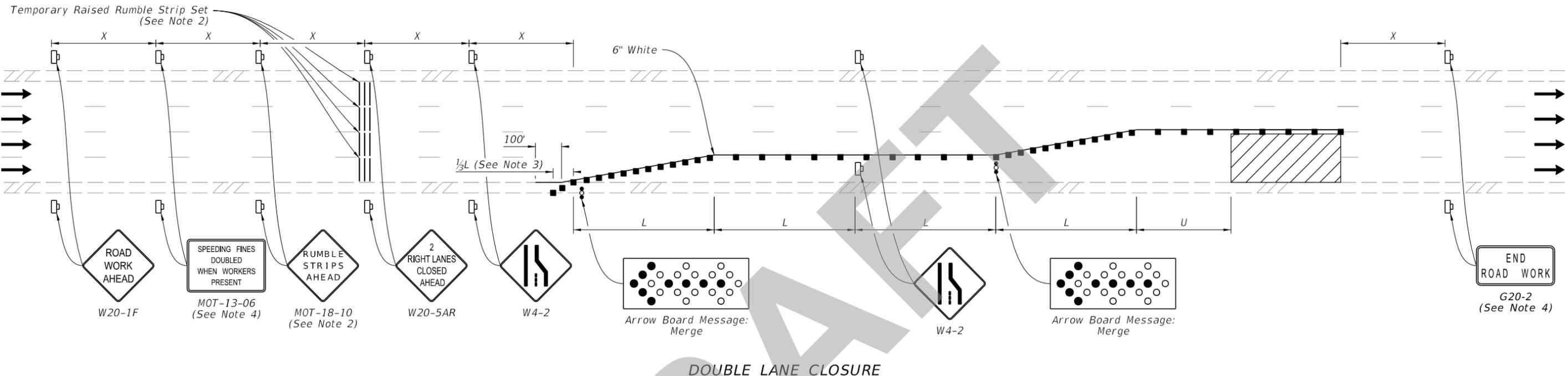
1. L = Taper Length
U = Buffer Length
X = Work Zone Sign Distance
See Index 102-000 for "L", "U", "X", and channelizing device spacing values.
2. Use temporary raised rumble strips in accordance with the Plans. If temporary raised rumble strips are not used, omit "Rumble Strips Ahead" signs (MOT-18-10) and associated work zone sign distance. See Index 102-000 for temporary raised rumble strip details.
3. If the paved shoulder is less than 4' in width, omit the taper and channelizing devices from the paved shoulder.
4. The "Speeding Fines Doubled When Workers Present" signs (MOT-13-06) and "End Road Work" signs (G20-2), along with associated work zone sign distances, may be omitted when the work zone will be in place for 24 hours or less.
5. Use inverted plan of the illustrations for work on left side of roadways.

SYMBOLS:

- Work Space
- Channelizing Device (See Index 102-000)
- Work Zone Sign
- Lane Identification and Direction of Traffic
- Arrow Board

9/5/2019 2:03:47 PM

LAST REVISION 11/01/19	REVISION	DESCRIPTION:		FY 2020-21 STANDARD PLANS	MULTILANE ROADWAY, SINGLE LANE CLOSURE	INDEX 102-045	SHEET 1 of 1
---------------------------	----------	--------------	--	-------------------------------------	---	-------------------------	------------------------



DOUBLE LANE CLOSURE

NOTES:

1. L = Taper Length
U = Buffer Length
X = Work Zone Sign Distance
See Index 102-000 for "L", "U", "X", and channelizing device spacing values.
2. Use temporary raised rumble strips in accordance with the Plans. If temporary raised rumble strips are not used, omit "Rumble Strips Ahead" signs (MOT-18-10) and associated work zone sign distance. See Index 102-000 for temporary raised rumble strip details.
3. If the paved shoulder is less than 4' in width, omit taper and channelizing devices from the paved shoulder.
4. The "Speeding Fines Doubled When Workers Present" signs (MOT-13-06) and "End Road Work" signs (G20-2), along with associated work zone sign distances, may be omitted when the work zone condition will be in place for 24 hours or less.
5. Use inverted plan of the illustrations for work on left side of roadways.

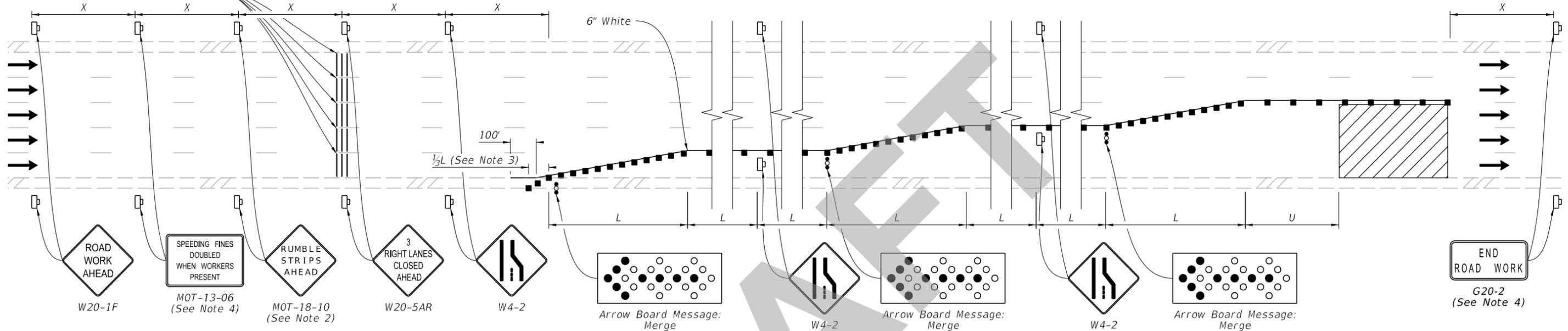
SYMBOLS:

- Work Space
- Channelizing Device (See Index 102-000)
- Work Zone Sign
- Lane Identification and Direction of Traffic
- Arrow Board

9/5/2019 2:03:48 PM

LAST REVISION 11/01/19	REVISION	DESCRIPTION:		FY 2020-21 STANDARD PLANS	MULTILANE ROADWAY, MULTIPLE LANE CLOSURES	INDEX 102-050	SHEET 1 of 2
---------------------------	----------	--------------	--	-------------------------------------	---	------------------	-----------------

Temporary Raised Rumble Strip Set
(See Note 2)



TRIPLE LANE CLOSURE

NOTES:

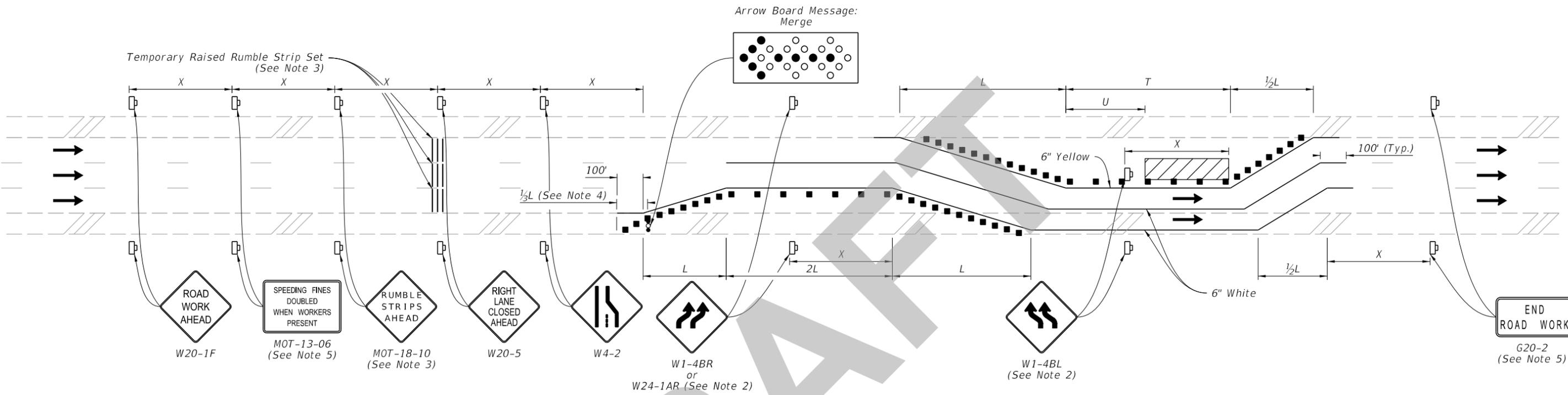
1. L = Taper Length
U = Buffer Length
X = Work Zone Sign Distance
See Index 102-000 for "L", "U", "X", and channelizing device spacing values.
2. Use temporary raised rumble strips in accordance with the Plans. If temporary raised rumble strips are not used, omit "Rumble Strips Ahead" signs (MOT-18-10) and associated work zone sign distance. See Index 102-000 for temporary raised rumble strip details.
3. If the paved shoulder is less than 4' in width, omit taper and channelizing devices from the paved shoulder.
4. The "Speeding Fines Doubled When Workers Present" signs (MOT-13-06) and "End Road Work" signs (G20-2), along with associated work zone sign distances, may be omitted when the work zone will be in place for 24 hours or less.
5. Use inverted plan of the illustrations for work on left of roadways.

SYMBOLS:

- Work Space
- Channelizing Device (See Index 102-000)
- Work Zone Sign
- Lane Identification and Direction of Traffic
- Arrow Board

9/5/2019 2:03:49 PM

LAST REVISION 11/01/19	REVISION	DESCRIPTION:		FY 2020-21 STANDARD PLANS	MULTILANE ROADWAY, MULTIPLE LANE CLOSURES	INDEX 102-050	SHEET 2 of 2
---------------------------	----------	--------------	--	------------------------------	---	------------------	-----------------



NOTES:

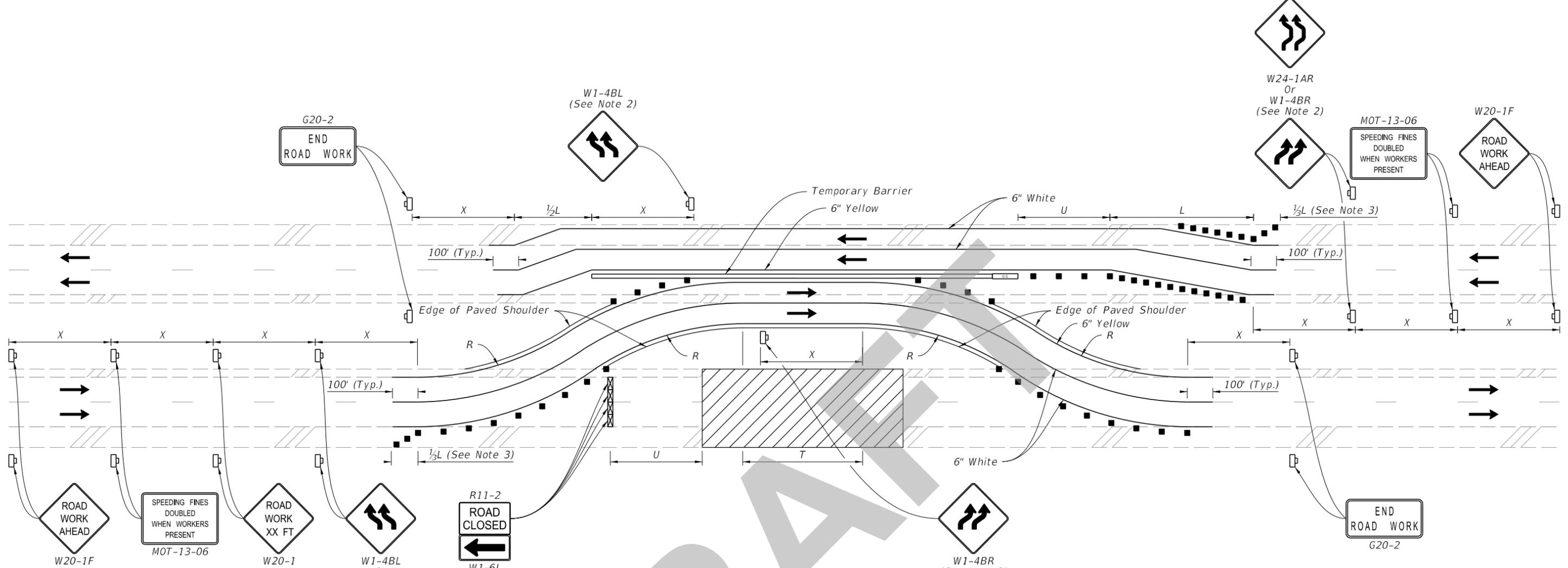
1. L = Taper Length
U = Buffer Length
X = Work Zone Sign Distance
See Index 102-000 for "L", "U", "X", and channelizing device spacing values.
2. If the tangent distance "T" is less than 600', then use "Double Reverse Curve" signs (W24-1A) instead of the first pair of "Reverse Curve" signs (W1-4B) and omit the second pair of "Reverse Curve" signs.
3. Use temporary raised rumble strips in accordance with the Plans. If temporary raised rumble strips are not used, omit "Rumble Strips Ahead" signs (MOT-18-10) and associated work zone sign distance. See Index 102-000 for temporary raised rumble strip details.
4. If the paved shoulder is less than 4' in width, omit taper and channelizing devices from the paved shoulder.
5. The "Speeding Fines Doubled When Workers Present" signs (MOT-13-06) and "End Road Work" signs (G20-2), along with associated work zone sign distances, may be omitted when the work zone will be in place for 24 hours or less.

SYMBOLS:

- Work Space
- Channelizing Device (See Index 102-000)
- Work Zone Sign
- Lane Identification and Direction of Traffic
- Arrow Board

9/5/2019 2:03:51 PM

LAST REVISION 11/01/19	REVISION	DESCRIPTION:		FY 2020-21 STANDARD PLANS	MULTILANE ROADWAY, LANE CLOSURE WITH LANE SHIFT	INDEX 102-055	SHEET 1 of 1
---------------------------	----------	--------------	--	------------------------------	--	------------------	-----------------



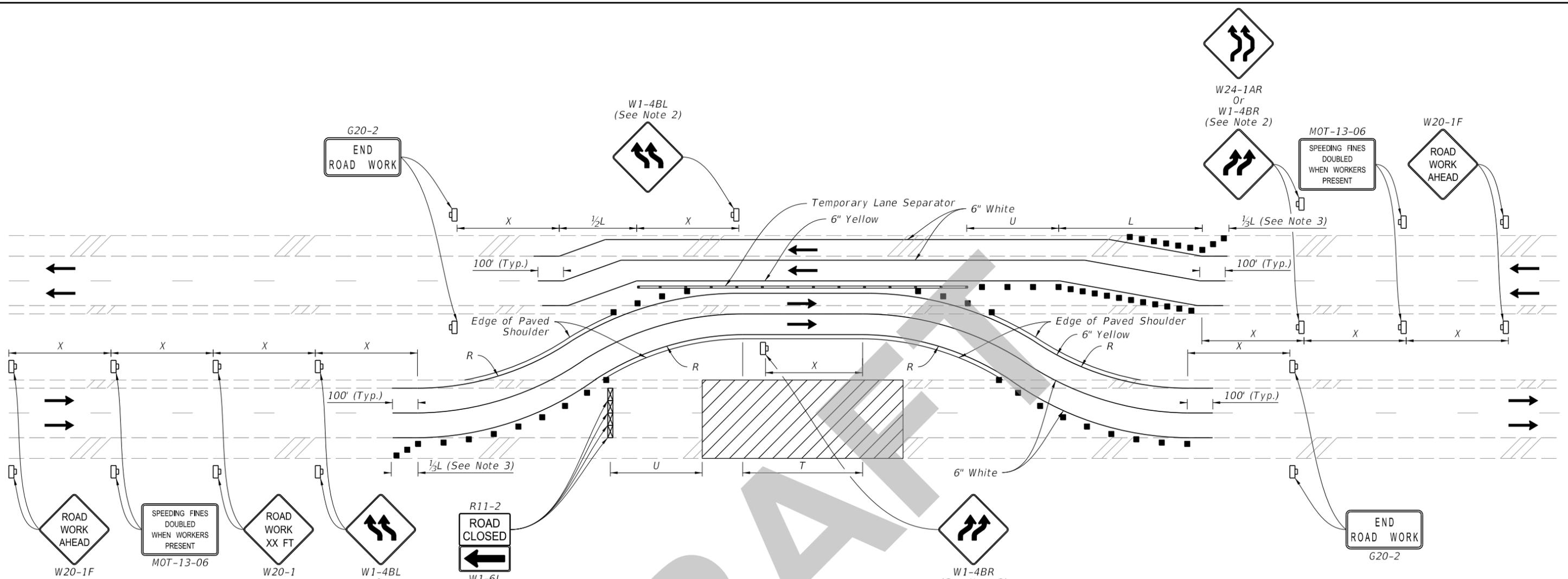
TEMPORARY DIVERSION FOR ROADWAYS WITH WORK ZONE SPEED OF 50 MPH OR GREATER

- NOTES:**
1. L = Taper Length
 U = Buffer Length
 X = Work Zone Sign Distance
 R = Radius of Curve
 See Index 102-000 for "L", "U", "X", channelizing device spacing values. See Plans for "R" values.
 2. If the tangent distance "T" is less than 600', then use "Double Reverse Curve" signs (W24-1A) instead of the first pair of "Reverse Curve" signs (W1-4B) and omit the second pair of "Reverse Curve" signs.
 3. If the paved shoulder is less than 4' in width, omit the taper and channelizing devices shown on the paved shoulder.

- SYMBOLS:**
- Work Space
 - Channelizing Device (See Index 102-000)
 - Work Zone Sign
 - Lane Identification and Direction of Traffic
 - Crash Cushion
 - Type III Barricade

9/5/2019 2:03:52 PM

LAST REVISION 11/01/19	REVISION	DESCRIPTION:		FY 2020-21 STANDARD PLANS	MULTILANE ROADWAY, TEMPORARY DIVERSION	INDEX 102-060	SHEET 1 of 2
---------------------------	----------	--------------	--	------------------------------	--	------------------	-----------------



**TEMPORARY DIVERSION FOR ROADWAYS WITH
WORK ZONE SPEED OF 45 MPH OR LESS**

NOTES:

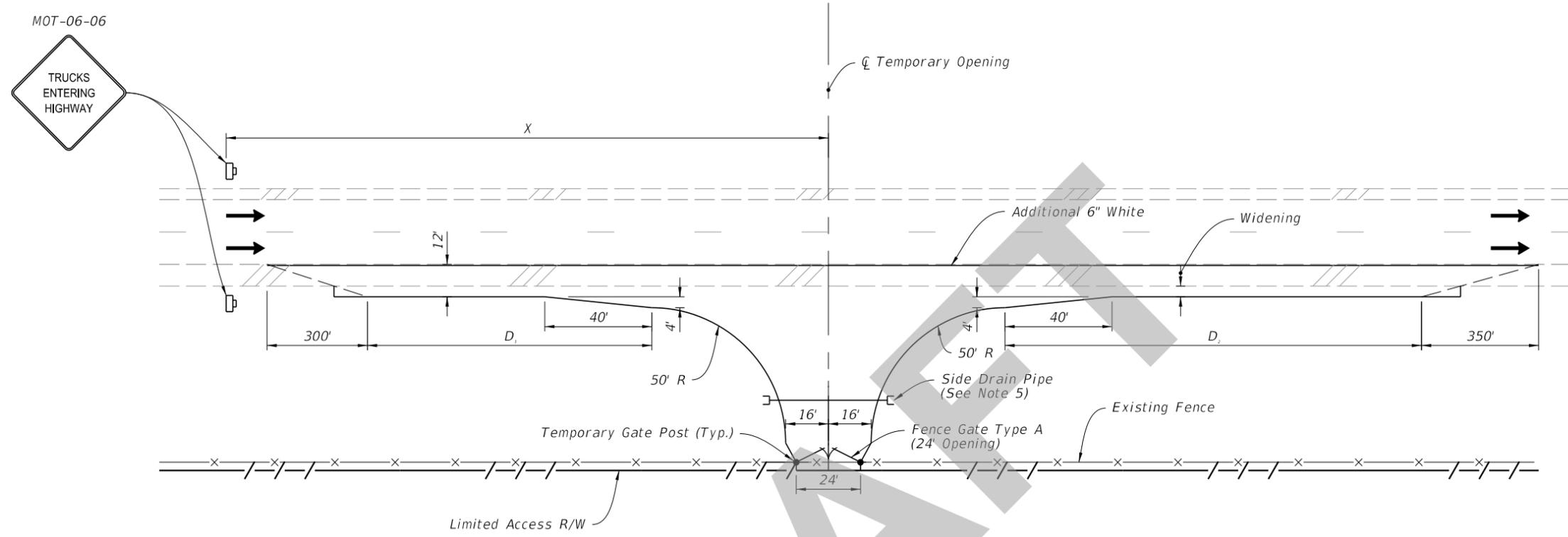
1. L = Taper Length
U = Buffer Length
X = Work Zone Sign Distance
R = Radius of Curve
See Index 102-000 for "L", "U", "X", channelizing device spacing values. See Plans for "R" values.
2. If the tangent distance "T" is less than 600', then use "Double Reverse Curve" signs (W24-1A) instead of the first pair of "Reverse Curve" signs (W1-4B) and omit the second pair of "Reverse Curve" signs.
3. If the paved shoulder is less than 4' in width, omit the taper and channelizing devices shown on the paved shoulder.

SYMBOLS:

- Work Space
- Channelizing Device (See Index 102-000)
- Work Zone Sign
- Lane Identification and Direction of Traffic
- Type III Barricade

9/5/2019 2:03:53 PM

LAST REVISION 11/01/19	REVISION	DESCRIPTION:		FY 2020-21 STANDARD PLANS	MULTILANE ROADWAY, TEMPORARY DIVERSION	INDEX 102-060	SHEET 2 of 2
------------------------------	----------	--------------	--	------------------------------	--	------------------	-----------------



LENGTH OF ACCESS LANES		
Grade	D ₁ (feet)	D ₂ (feet)
2% or less	590	1540
3 to 4% Upgrade	530	2310
3 to 4% Downgrade	710	925

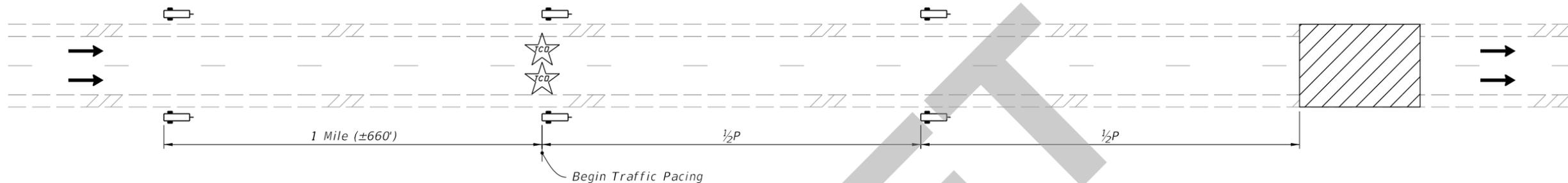
SYMBOLS:

- ▣ Work Zone Sign
- ➔ Lane Identification and Direction of Traffic

NOTES:

1. X = Work Zone Sign Distance
See Index 102-000 for "X" value.
2. Locate temporary openings in areas having adequate sight distance.
3. Do not locate temporary openings within 1.5 miles of interchanges, nor within 2000 feet of the acceleration-deceleration lanes at rest areas, median openings, other access openings, or other highway service areas.
4. Do not remove existing guardrail or barrier for temporary openings.
5. Use mitered end sections for any end sections within the clear zone.
6. Match cross slope of existing shoulder for widening.
7. Provide 2' of unpaved shoulder outside of the widening.

9/5/2019 2:03:55 PM



TYPICAL PCMS DISPLAY:

One week prior to pacing operation:
 Message 1: EXPECT DELAYS ON
 Message 2: MMM DD-DD X AM - X AM

During day of pacing operation:
 Message 1: ROAD WORK TONIGHT
 Message 2: EXPECT PERIODIC DELAYS

During pacing operation:
 Message 1: SLOW TRAFFIC AHEAD
 Message 2: BE PREPARED TO STOP

SYMBOLS:

- Work Space
- Lane Identification and Direction of Traffic
- Portable Changeable Message Sign (PCMS)
- Traffic Control Officer

NOTES:

1. P = Traffic Pacing Length
 For "P" value, see Traffic Pacing Length table or calculate using Formulas.
2. See the Plans for traffic pacing restrictions.
3. Do not exceed work duration of 30 minutes or traffic pacing length of 10 miles.
4. Coordinate with the traffic control officer supervisor to provide the correct number of traffic control officers for each traffic pacing operation.
5. Ensure that the necessary equipment is properly positioned for the work before requesting that the traffic control officer supervisor initiate the traffic pacing operation,
6. If workers or equipment are within the traveled way during the traffic pacing operation, use a truck- or trailer-mounted attenuator with portable changeable message sign to protect the work.
7. Maintain communications with all police vehicles throughout the traffic pacing.
8. Where feasible, do not pace traffic past the last available existing egress until the work has been completed.
9. When more than one traffic pacing operation is required in a calendar day, allow sufficient time between pacing operations to permit traffic to return to normal speed and flow.
10. For work durations of less than five minutes (e.g. moving large vehicles across the roadway), portable changeable message signs and truck-mounted attenuators are not required. Use traffic pacing length values from the five minute column of the table.

TRAFFIC PACING LENGTH "P"						
Pacing Speed = 20 mph						
Work Zone Speed (mph)	Work Duration (minutes)					
	5	10	15	20	25	30
70	2.3	4.7	7.0	9.3	-	-
65	2.4	4.8	7.2	9.6	-	-
60	2.5	5.0	7.5	10.0	-	-
55	2.6	5.2	7.9	-	-	-
50	2.8	5.6	8.3	-	-	-

Notes: (1) All lengths in the above table are in miles.
 (2) For work durations with no values shown above, calculate length using a reduced pacing speed, but not less than 10 mph.

FORMULAS:

S_w = Work Zone Speed (mph)
 S_p = Pacing Speed (mph)
 t_w = Work Duration (minutes)
 P = Traffic Pacing Length (miles)

$$P = \frac{t_w}{60} S_p \left(\frac{S_p}{S_w - S_p} + 1 \right)$$

$$P = P_c + P_w$$

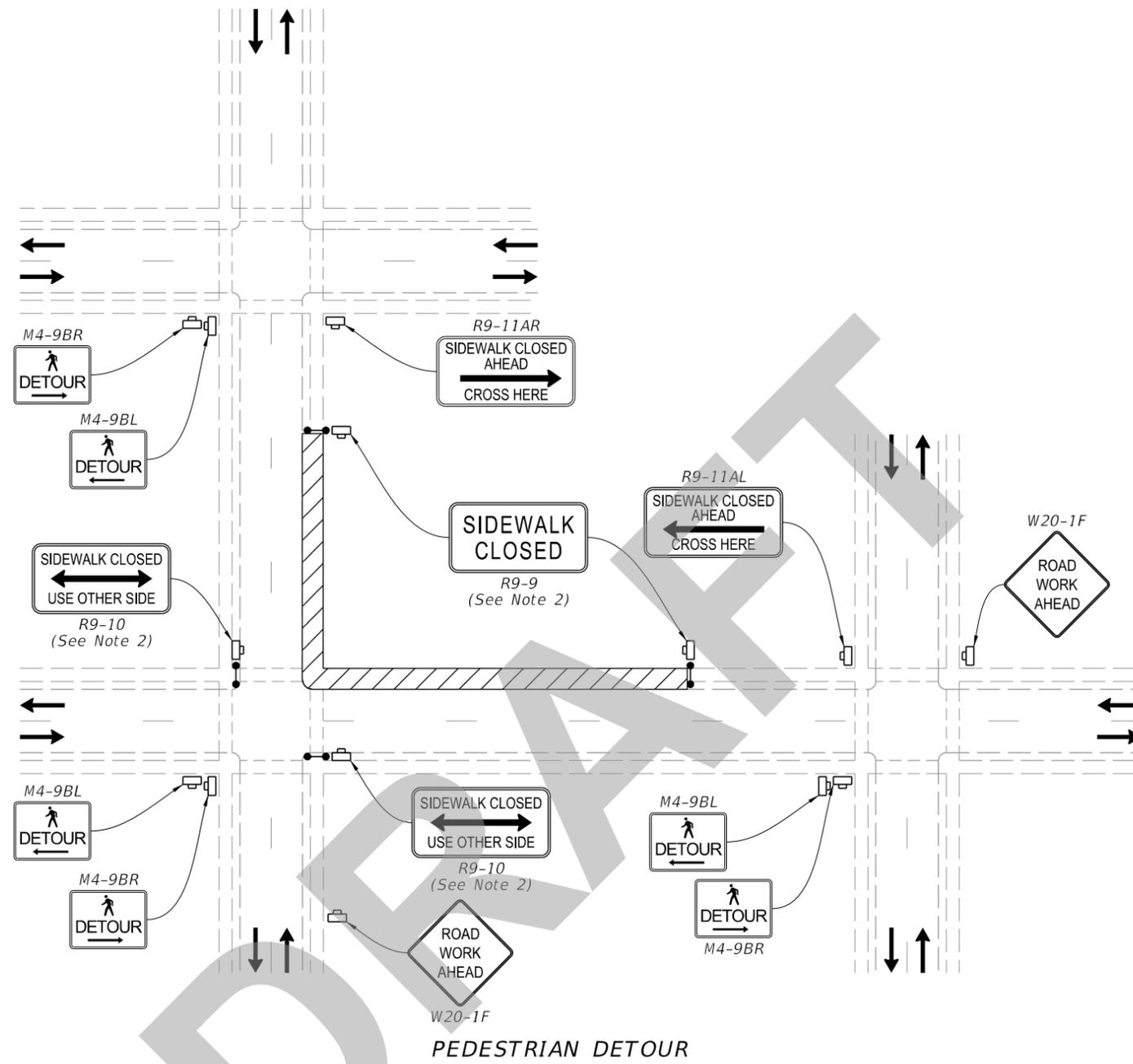
P_c = distance paced vehicles must travel before the vehicles at regulatory speed have cleared the work zone

$$P_c = \left(\frac{t_w}{60} \times S_p^2 \right) / (S_w - S_p)$$

P_w = distance paced vehicles travel while work is performed

$$P_w = \left(\frac{t_w}{60} \times S_p \right)$$

9/5/2019 2:03:56 PM



PEDESTRIAN DETOUR

NOTES:

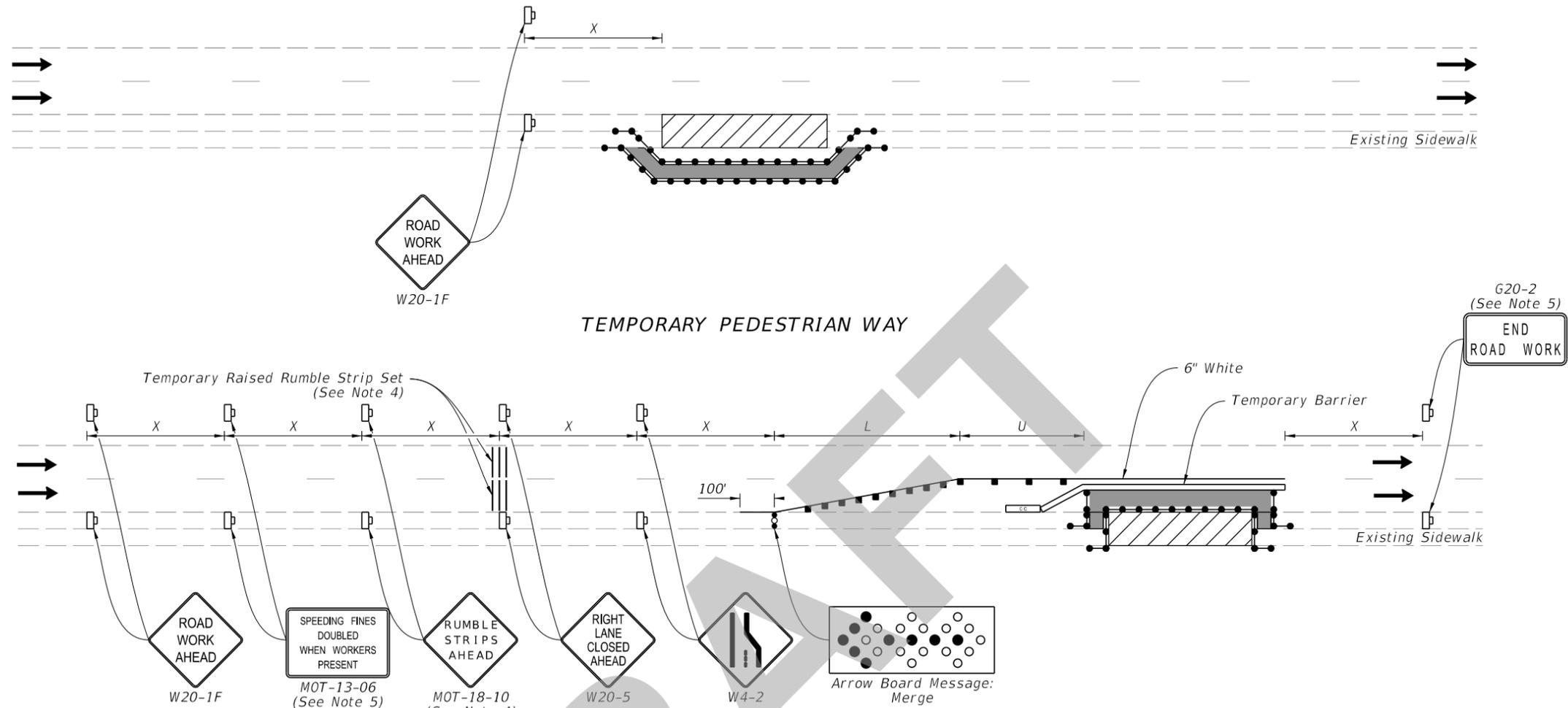
1. Cover or deactivate pedestrian traffic signal display(s) controlling closed crosswalks.
2. Place pedestrian LCDs across the full width of the closed sidewalk.
3. "Sidewalk Closed" signs (R9-XX) may be mounted on pedestrian LCDs in accordance with the manufacturer's instructions.

SYMBOLS:

- Work Space
- Work Zone Sign
- Lane Identification and Direction of Traffic
- Pedestrian Longitudinal Channelizing Device (LCD)

9/5/2019 2:03:57 PM

LAST REVISION 11/01/19	REVISION	DESCRIPTION:		FY 2020-21 STANDARD PLANS	WORK ON THE SIDEWALK	INDEX 102-075	SHEET 1 of 2
---------------------------	----------	--------------	--	------------------------------	----------------------	------------------	-----------------



TEMPORARY PEDESTRIAN WAY DIVERTING TRAFFIC INTO THE TRAVELED WAY
 (Temporary Barrier Shown, Low Profile Barrier Similar)

NOTES:

1. L = Taper Length
 U = Buffer Length
 X = Work Zone Sign Distance
 See Index 102-000 for "L", "U", "X", channelizing device spacing values.
2. Provide a 5' wide temporary pedestrian way with a maximum cross-slope of 0.02, except where space restrictions warrant a minimum width of 4'. Provide a 5' x 5' passing space for temporary pedestrian ways less than 5' in width at intervals not to exceed 200'.
3. When temporary pedestrian ways require curb ramps, meet the requirements of Index 522-002. Detectable warnings are not required for curb ramps diverting pedestrian traffic into a closed lane.
4. Use temporary raised rumble strips in accordance with the Plans. If temporary raised rumble strips are not used, omit "Rumble Strips Ahead" signs (MOT-18-10) and associated work zone sign distance. See Index 102-000 for temporary raised rumble strip details.
5. The "Speeding Fines Doubled When Workers Present" signs (MOT-13-06) and "End Road Work" signs (G20-2), along with associated work zone sign distances, may be omitted when the work zone will be in place for 24 hours or less.

SYMBOLS:

- Work Space
- Channelizing Device (See Index 102-000)
- Work Zone Sign
- Lane Identification and Direction of Traffic
- Arrow Board
- Crash Cushion
- Pedestrian Longitudinal Channelizing Device (LCD)
- Temporary Pedestrian Way

9/5/2019 2:03:58 PM

LAST REVISION 11/01/19	REVISION	DESCRIPTION:		FY 2020-21 STANDARD PLANS	WORK ON THE SIDEWALK	INDEX 102-075	SHEET 2 of 2
---------------------------	----------	--------------	--	------------------------------	----------------------	------------------	-----------------