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**GENERAL NOTES:**

- This Index contains information specific to the Federal and State guidelines and standards for the preparation of traffic control plans and for the execution of traffic control in work zones, for construction and maintenance operations and utility work on highways, roads and streets on the State Highway System. Certain requirements in this Index are based on the high volume nature of State Highways. For highways, roads and streets off the State Highway System, the local agency (City/County) having jurisdiction may adopt requirements based on the minimum requirements provided in the MUTCD.
- Use this Index in accordance with the Plans and Indexes 102-601 through 102-680. Indexes 102-601 through 102-680 are Department-specific typical applications of commonly encountered situations. Adjust device location or number thereof as recommended by the Worksite Traffic Supervisor and approved by the Engineer. Devices include, but are not limited to, flaggers, portable temporary signals, signs, pavement markings, and channelizing devices. Comply with MUTCD or applicable Department criteria for any changes and document the reason for the change.
- Except for emergencies, any road closure on State Highway System must comply with Section 335.15, F.S.

Work Zone Speed (mph)	Max. Spacing (feet)			
	Cones or Temporary 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

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

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

\* For Limited access roadways with work zone speed ≤ 55 mph, the minimum spacing may be reduced in accordance with the MUTCD and as approved by the Engineer.

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 "B" cannot be attained due to geometric constraints, use the greatest length possible, but not less than 155 feet.

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**DEFINITIONS:**

**Regulatory Speed (In Work Zones)**

The maximum permitted travel speed posted for the work zone is indicated by the regulatory speed limit signs. The work zone speed must be shown or noted in the plans. This speed should be used as the minimum design speed to determine runout lengths, departure rates, flare rates, lengths of need, clear zone widths, taper lengths, crash cushion requirements, marker spacings, superelevation and other similar features.

**Advisory Speed**

The maximum recommended travel speed through a curve or a hazardous area.

**Travel Way**

The portion of the roadway for the movement of vehicles. For traffic control through work zones, travel way may include the temporary use of shoulders and any other permanent or temporary surface intended for use as a lane for the movement of vehicular traffic.

a. *Travel Lane:* The designated widths of roadway pavement marked to carry through traffic and to separate it from opposing traffic or traffic occupying other traffic lanes.

b. *Auxiliary Lane:* The designated widths of roadway pavement marked to separate speed change, turning, passing and climbing maneuvers from through traffic.

**Detour, Lane Shift, and Diversion**

A detour is the redirection of traffic onto another roadway to bypass the temporary traffic control zone. A lane shift is the redirection of traffic onto a different section of the permanent pavement. A diversion is the redirection of traffic onto a temporary roadway, usually adjacent to the permanent roadway and within the limits of the right of way.

**Aboveground Hazard**

An aboveground hazard is any object, material or equipment other than traffic control devices that encroaches upon the travel way or that is located within the clear zone which does not meet the Department's safety criteria, i.e., anything that is greater than 4" in height and is firm and unyielding or doesn't meet breakaway requirements.

**TEMPORARY TRAFFIC CONTROL DEVICES:**

1. All temporary traffic control devices shall be ON the Department's Approved Products List (APL). Ensure the appropriate APL number is permanently marked on the device in a readily visible location.

2. All temporary traffic control devices shall be removed as soon as practical when they are no longer needed. When work is suspended for short periods of time, temporary traffic control devices that are no longer appropriate shall be removed or covered. Do not store temporary traffic control devices on the shoulder, sidewalk, or other roadway facility not affected by the work when work is suspended.

3. Arrow Boards, Portable Changeable Message Signs, Radar Speed Display Trailer, Portable Regulatory Signs, and any other trailer mounted device shall be delineated with a channelizing device placed at each corner when in use and shall be moved outside the travel way and clear zone or be shielded by a barrier or crash cushion when not in use.

**OVERHEAD WORK:**

Work is only allowed over a traffic lane when one of the following options is used:

**OPTION 1 (OVERHEAD WORK USING A MODIFIED LANE CLOSURE)**

Overhead work using a modified lane closure is allowed if all of the following conditions are met:

- a. Work operation is located in a signalized intersection and limited to signals, signs, lighting and utilities.
- b. Work operations are 60 minutes or less.
- c. Speed limit is 45 mph or less.
- d. Aerial lift equipment in the work area has high-intensity, rotating, flashing, oscillating, or strobe lights operating.
- e. Aerial lift equipment is placed directly below the work area to close the lane.
- f. Traffic control devices are placed in advance of the vehicle/equipment closing the lane using a minimum 100 foot taper.
- g. Volume or complexity of the roadway may dictate additional devices, signs, flagmen and/or a traffic control officer.

**OPTION 2 (OVERHEAD WORK ABOVE AN OPEN TRAFFIC LANE)**

Overhead work above a open traffic lane is allowed if all of the following conditions are met:

- a. Work operation is located on a utility pole, light pole, signal pole, or their appurtenances.
- b. Work operations are 60 minutes or less.
- c. Speed limit is 45 mph or less.
- d. No encroachment by any part of the work activities and equipment within an area bounded by 2 feet outside the edge of travel way and 18 feet high.
- e. Aerial lift equipment in the work area has high-intensity, rotating, flashing, oscillating, or strobe lights operating.
- f. Volume or complexity of the roadway may dictate additional devices, signs, flagmen and/or a traffic control officer.
- g. Adequate precautions are taken to prevent parts, tools, equipment and other objects from falling into open lanes of traffic.
- h. Other Governmental Agencies, Rail facilities, or Codes may require a greater clearance. The greater clearance required prevails as the rule.

**OPTION 3 (OVERHEAD WORK ADJACENT TO AN OPEN TRAFFIC LANE)**

Overhead work adjacent to an open traffic lane is allowed if all of the following conditions are met:

- a. Work operation is located on a utility pole, light pole, signal pole, or their appurtenances.
- b. Work operations are 1 day or less.
- c. Speed limit is 45 mph or less.
- d. No encroachment by any part of the work activities and equipment within 2 foot from the edge of travel way up to 18' height. Above 18' in height, no encroachment by any part of the work activities and equipment over the open traffic lane (except as allowed in Option 2 for work operations of 60 minutes or less).
- e. Aerial lift equipment in the work area has high-intensity, rotating, flashing, oscillating, or strobe lights operating.
- f. Volume or complexity of the roadway may dictate additional devices, signs, flagmen and/or a traffic control officer.
- g. Adequate precautions are taken to prevent parts, tools, equipment and other objects from falling into open lanes of traffic.
- h. Other Governmental Agencies, Rail facilities, or Codes may require a greater clearance. The greater clearance required prevails as the rule.

**OVERHEAD WORK: (Cont.)**

**OPTION 4 (OVERHEAD WORK MAINTAINING TRAFFIC WITH NO ENCROACHMENT BELOW THE OVERHEAD WORK AREA)**

Traffic shall be detoured, shifted, diverted or paced as to not encroach in the area directly below the overhead work operations in accordance with the appropriate index drawing or detailed in the plans. This option applies to, but not limited to, the following construction activities:

- a. Beam, girder, segment, and bent/pier cap placement.
- b. Form and falsework placement and removal.
- c. Concrete placement.
- d. Railing construction located at edge of deck.
- e. Structure demolition.

**OPTION 5 (CONDUCTOR/CABLE PULLING ABOVE AN OPEN TRAFFIC LANE)**

Overhead cable and/or de-energized conductor installations initial pull to proper tension shall be done in accordance with the appropriate Index or temporary traffic control plan.

Continuous pulling operations of secured cable and/or conductors are allowed over open lane(s) of traffic with no encroachment by any part of the work activities, materials or equipment within the minimal vertical clearance above the travel way. The utility shall take precautions to ensure that pull ropes and conductors/cables at no time fall below the minimum vertical clearance.

On Limited Access facilities, a site specific temporary traffic control plan is required. The temporary traffic control plan shall include:

- a. The temporary traffic control set up for the initial pulling of the pull rope across the roadway.
- b. During pulling operations, advance warning consisting of no less than a Changeable Message Sign upstream of the work area with alternating messages, "Overhead Work Ahead" and "Be Prepared to Stop" followed by a traffic control officer and police vehicle with blue lights flashing during the pulling operation.

**RAILROADS:**

Railroad crossings affected by a construction project should be evaluated for traffic controls to reduce queuing on the tracks. The evaluation should include as a minimum: traffic volumes, distance from the tracks to the intersections, lane closure or taper locations, signal timing, etc.

**SIGHT DISTANCE:**

- 1. *Tapers:* Transition tapers should be obvious to drivers. If restricted sight distance is a problem (e.g., a sharp vertical or horizontal curve), the taper should begin well in advance of the view obstruction. The beginning of tapers should not be hidden behind curves.
- 2. *Intersections:* Traffic control devices at intersections must provide sight distances for the road user to perceive potential conflicts and to traverse the intersection safely. Construction equipment and materials shall not restrict intersection sight distance.

**ABOVEGROUND HAZARD:**

- 1. Aboveground hazards (see definitions) are to be considered work areas during working hours and treated with appropriate work zone traffic control procedures. During nonworking hours, all objects, materials and equipment that constitute an aboveground hazard must be stored/placed outside the travel way and clear zone or be shielded by a barrier or crash cushion.
- 2. For aboveground hazards within a work zone the clear zone required should be based on the regulatory speed posted during construction.

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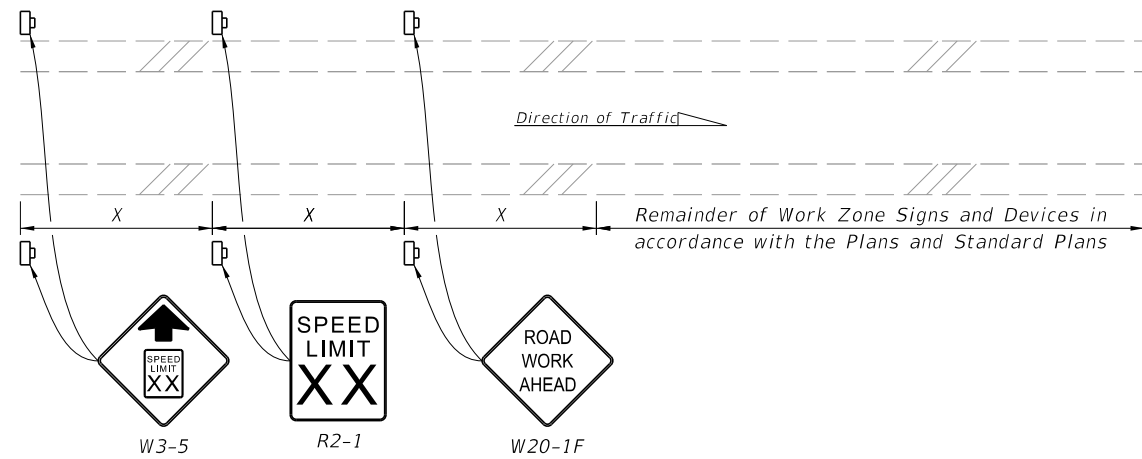
LAST REVISION 11/01/20	REVISION DESCRIPTION:	 <b>FY 2022-23 STANDARD PLANS</b>	<b>GENERAL INFORMATION FOR TRAFFIC CONTROL THROUGH WORK ZONES</b>	INDEX <b>102-600</b>	SHEET <b>2 of 11</b>
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**CLEAR ZONE WIDTHS FOR WORK ZONES:**

The term 'clear zone' describes the unobstructed relatively flat area, impacted by construction, extending outward from the edge of the traffic lane. The table below gives clear zone widths in work zones for medians and roadside conditions other than for roadside canals; where roadside canals are present, clear zone widths are to conform with the distances to canals as described in the FDOT Design Manual 215.2.

WORK ZONE SPEED (MPH)	TRAVEL LANES & MULTILANE RAMPS (feet)	AUXILIARY LANES & SINGLE LANE RAMPS (feet)
60-70	30	18
55	24	14
45-50	18	10
30-40	14	10
ALL SPEEDS CURB & GUTTER	4' BEHIND FACE OF CURB	4' BEHIND FACE OF CURB

NOTE: For temporary conditions where existing curb has been removed but not reconstructed, curb and gutter values may be used.



**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 the speed in 10 MPH increments of 'X' distance. Do not reduce the speed below the minimum statutory speed for the class of facility.
5. Place additional "Speed Limit" signs (R2-1) at intervals of no more than one mile for rural conditions and 1,000 feet for urban conditions.
6. For undivided roadways, omit the signs shown in the median.
7. Remove temporary regulatory speed signs as soon as the conditions requiring the reduced speed no longer exist. Once the work zone regulatory speeds are removed, the regulatory speed existing prior to construction will automatically go back into effect.

**SPEED REDUCTION SIGNING**

**SUPERELEVATION:**

Horizontal curves constructed in conjunction with work zone traffic control should have the required superelevation applied to the design radii. Under conditions where normal crown controls curvature, the minimum radii that can be applied are listed in the table below.

WORK ZONE POSTED SPEED	MINIMUM RADIUS
MPH	feet
70	4090
65	3130
60	2400
55	1840
50	1390
45	1080
40	820
35	610
30	430
Superelevate When Smaller Radii is Used	

**OVERWEIGHT/OVERSIZE VEHICLES:**

Restrictions to Lane Widths, Heights or Load Capacity can greatly impact the movement of over dimensioned loads. The Contractor shall notify the Engineer who in turn shall notify the State Permits Office, phone no. (850) 410-5777, at least seven calendar days in advance of implementing a maintenance of traffic plan which will impact the flow of overweight/oversized vehicles. Information provided shall include location, type of restriction (height, width or weight) and restriction time frames. When the roadway is restored to normal service the State Permits Office shall be notified immediately.

**LANE WIDTHS:**

Lane widths of through roadways should be maintained through work zone travel ways wherever practical. Provide minimum widths for work zone travel lanes as follows: 11' for Interstate with at least one 12' lane provided in each direction, unless formally excepted by the Federal Highway Administration; 11' for all other limited access roadways; and 10' for all other facilities.

**HIGH-VISIBILITY SAFETY APPAREL:**

All high-visibility safety apparel shall meet the requirements of the International Safety Equipment Association (ISEA) and the American National Standards Institute (ANSI) for "High-Visibility Safety Apparel", and labeled as ANSI/ISEA 107-2004 or newer. The apparel background (outer) material color shall be either fluorescent orange-red or fluorescent yellow-green as defined by the standard. The retroreflective material shall be orange, yellow, white, silver, yellow-green, or a fluorescent version of these colors, and shall be visible at a minimum distance of 1,000 feet. Class 3 apparel may be substituted for Class 2 apparel. Replace apparel that is not visible at 1,000 feet.

**WORKERS:** All workers within the right-of-way shall wear ANSI/ISEA Class 2 apparel. Workers operating machinery or equipment in which loose clothing could become entangled during operation shall wear fitted high-visibility safety apparel. Workers inside the bucket of a bucket truck are not required to wear high-visibility safety apparel.

**UTILITIES:** When other industry apparel safety standards require utility workers to wear apparel that is inconsistent with FDOT requirements such as NFPA, OSHA, ANSI, etc., the other standards for apparel may prevail.

**FLAGGERS:** For daytime activities, Flagger shall wear ANSI/ISEA Class 2 apparel. For nighttime activities, Flagger shall wear ANSI/ISEA Class 3 apparel.

**LENGTH OF LANE CLOSURES:**

For interstates and state highways with a posted speed of 55MPH or greater, lane closures must not exceed 3 miles (includes taper, buffer, and work zone) in any given direction and must not close two consecutive interchanges.

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**FLAGGER CONTROL:**

**Regulatory Speed (In Work Zones)**

Where flaggers are used, a FLAGGER symbol or legend sign must replace the WORKERS symbol or legend sign.

The flagger must be clearly visible to approaching traffic for a distance sufficient to permit proper response by the motorist to the flagging instructions, and to permit traffic to reduce speed or to stop as required before entering the work site. Flaggers shall be positioned to maintain maximum color contrast between the Flagger's high-visibility safety apparel and equipment and the work area background.

**Hand-Signaling Devices**

STOP/SLOW paddles are the primary hand-signaling device. The STOP/SLOW paddle shall have an octagonal shape on a rigid handle. If the STOP/SLOW paddle is placed on a rigid staff, the minimum length of the staff, measured from the bottom of the paddle to the end of the staff that rests on the ground, must not be less than 6 ft. STOP/SLOW paddles shall be at least 24 inches wide with letters at least 6 inches high and should be fabricated from light semirigid material. The background of the STOP face shall be red with white letters and border. The background of the SLOW face shall be orange with black letters and border. When used at night-time, the STOP/SLOW paddle shall be retroreflectorized.

Flag use is limited to immediate emergencies, intersections, and when working on the centerline or shared left turn lanes where two (2) flaggers are required and there is opposing traffic in the adjacent lanes. Flags, when used, shall be a minimum of 24 inches square, made of a good grade of red material, and securely fastened to a staff that is approximately 36 inches in length. When used at nighttime, flags shall be retroreflectorized red.

Flashlight, lantern or other lighted signal that will display a red warning light shall be used at night.

**Flagger Stations**

Flagger stations shall be located far enough in advance of the work area so that approaching road users will have sufficient distance to stop before entering the work area. When used at nighttime, the flagger station shall be illuminated.

**SURVEY WORK ZONES:**

The SURVEY CREW AHEAD symbol or legend sign shall be the principal Advance Warning Sign used for Traffic Control Through Survey Work Zones and may replace the ROAD WORK AHEAD sign when lane closures occur, at the discretion of the Party Chief.

When Traffic Control Through Work Zones is being used for survey purposes only, the END ROAD WORK sign as called for on certain 102 Series of Indexes should be omitted.

**Survey Between Active Traffic Lanes or Shared Left Turn Lanes**

The following provisions apply to Main Roadway Traffic Control Work Zones. These provisions must be adjusted by the Party Chief to fit roadway and traffic conditions when the Survey Work Zone includes intersections.

(A) A STAY IN YOUR LANE (MOT-1-06) sign shall be added to the Advance Warning Sign sequence as the second most immediate sign from the work area.

(B) Elevation Surveys-Cones may be used at the discretion of the Party Chief to protect prism holder and flagger(s). Cones, if used, may be placed at up to 50' intervals along the break line throughout the work zone.

**SURVEY WORK ZONES: (Cont.)**

(C) Horizontal Control-With traffic flow in the same direction, cones shall be used to protect the backsight tripod and/or instrument. Cones shall be placed at the equipment, and up to 50' intervals for at least 200' towards the flow of traffic.

(D) Horizontal Control-With traffic flow in opposite directions, cones shall be used to protect the backsight tripod and/or instrument. Cones shall be placed at the equipment, and up to 50' intervals for at least 200' in both directions towards the flow of traffic.

**SIGNS:**

**SIGN MATERIALS**

Mesh signs and non-retroreflective vinyl signs may only be used for daylight operations. Non-retroreflective vinyl signs must meet the requirements of Specifications Section 994.

Retroreflective vinyl signs meeting the requirements of Specification Section 994 may be used for daylight or night operations not to exceed 1 day except as noted in the Indexes.

Rigid or Lightweight sign panels may be used in accordance with the vendor APL drawing for the sign stand to which they are attached.

**INTERSECTING ROAD SIGNING**

Signing for the control of traffic entering and leaving work zones by way of intersecting crossroads shall be adequate to make drivers aware of work zone conditions. When Work operations exceed 60 minutes, place the ROAD WORK AHEAD sign on the side street entering the work zone.

**ADJOINING AND/OR OVERLAPPING WORK ZONE SIGNING**

Adjoining work zones may not have sufficient spacing for standard placement of signs and other traffic control devices in their advance warning areas or in some cases other areas within their traffic control zones. Where such restraints or conflicts occur or are likely to occur, one of the following methods will be employed to avoid conflicts and prevent conditions that could lead to misunderstanding on the part of the traveling public as to the intended travel way by the traffic control procedure applied:

(A) For scheduled projects the engineer in responsible charge of project design will resolve anticipated work zone conflicts during the development of the project traffic control plan. This may entail revision of plans on preceding projects and coordination of plans on concurrent projects.

(B) Unanticipated conflicts arising between adjoining in progress highway construction projects will be resolved by the Resident Engineer for projects under his residency, and, by the District Construction Engineer for in progress projects under adjoining residencies.

(C) The District Maintenance Engineer will resolve anticipated and occurring conflicts within scheduled maintenance operations.

(D) The Unit Maintenance Engineer will resolve conflicts that occur within routine maintenance works; between routine maintenance work, unscheduled work and/or permitted work; and, between unit controlled maintenance works and highway construction projects.

**SIGNS: (Cont.)**

**SIGN COVERING AND INTERMITTENT WORK STOPPAGE SIGNING**

Existing or temporary traffic control signs that are no longer applicable or are inconsistent with intended travel paths shall be removed or fully covered.

Sign blanks or other available coverings must completely cover the existing sign. Rigid sign coverings shall be the same size as the sign it is covering, and bolted in a manner to prevent movement.

Sign covers are incidental to work operations and are not paid for separately.

**SIGNING FOR DETOURS, LANE SHIFTS AND DIVERSIONS**

Detours should be signed clearly over their entire length so that motorists can easily determine how to return to the original roadway. The reverse curve (W1-4) warning sign should be used for the advanced warning for a lane shift. A diversion should be signed as a lane shift.

**EXTENDED DISTANCE ADVANCE WARNING SIGN**

Advance Warning Signs shall be used at extended distance of one-half mile or more when limited sight distance or the nature of the obstruction may require a motorist to bring their vehicle to a stop. Extended distance Advanced Warning Signs may be required on any type roadway, but particularly be considered on multilane divided highways where vehicle speed is generally in the higher range (45 MPH or more).

**UTILITY WORK AHEAD SIGN**

The UTILITY WORK AHEAD (W21-7) sign may be used as an alternate to the ROAD WORK AHEAD or the ROAD WORK XX FT (W20-1) sign for utility operations on or adjacent to a highway.

**LENGTH OF ROAD WORK SIGN**

The length of road work sign (G20-1) bearing the legend ROAD WORK NEXT \_\_\_\_\_ MILES is required for all projects of more than 2 miles in length. The number of miles entered should be rounded up to the nearest mile. The sign shall be located at begin construction points.


**GROOVED PAVEMENT AHEAD SIGN**

The GROOVED PAVEMENT AHEAD sign is required 500 feet in advance of a milled or grooved surface open to traffic. The W8-15P placard shall be used in conjunction with the GROOVED PAVEMENT AHEAD sign.

**END ROAD WORK SIGN**

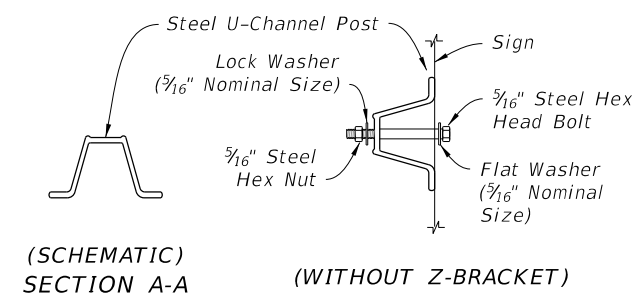
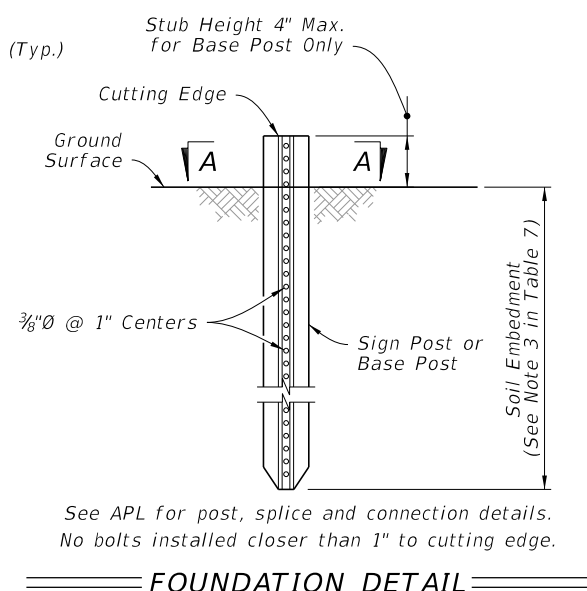
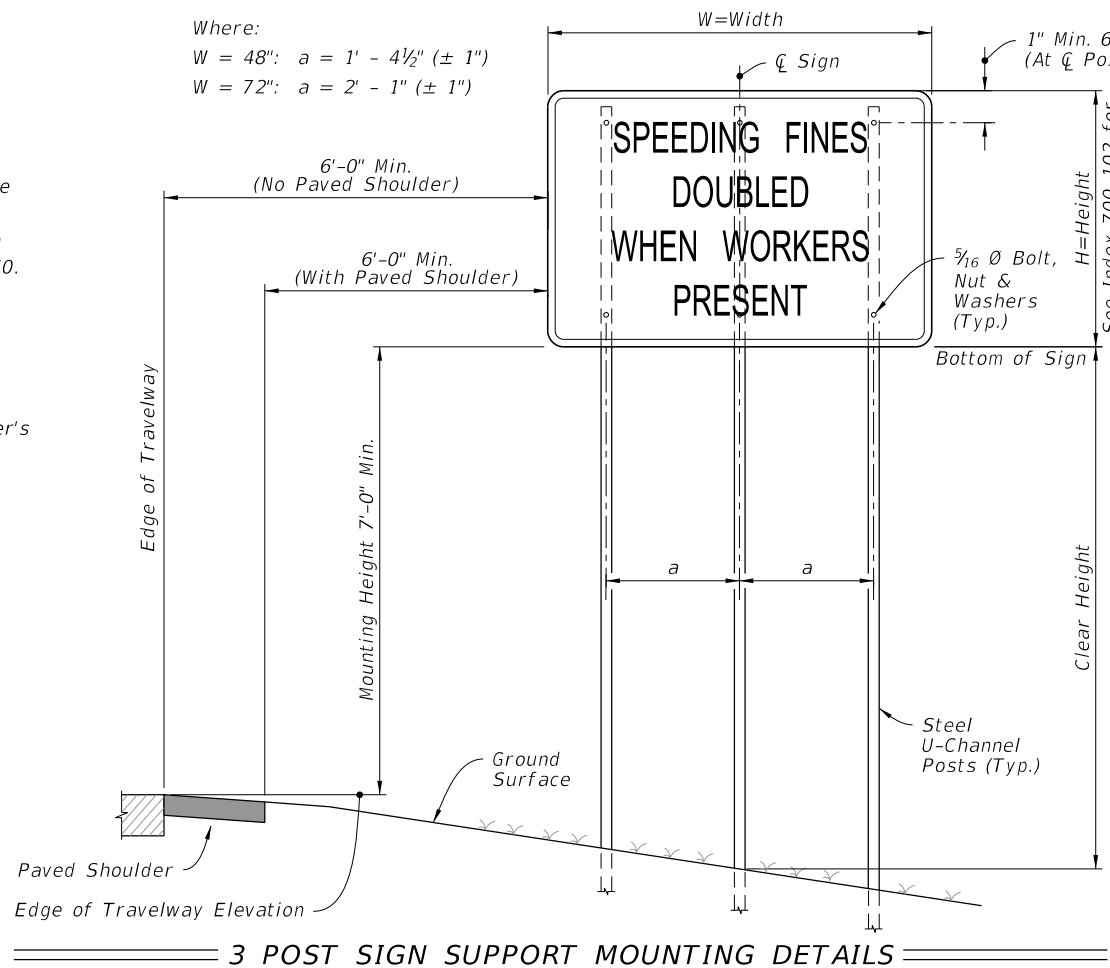
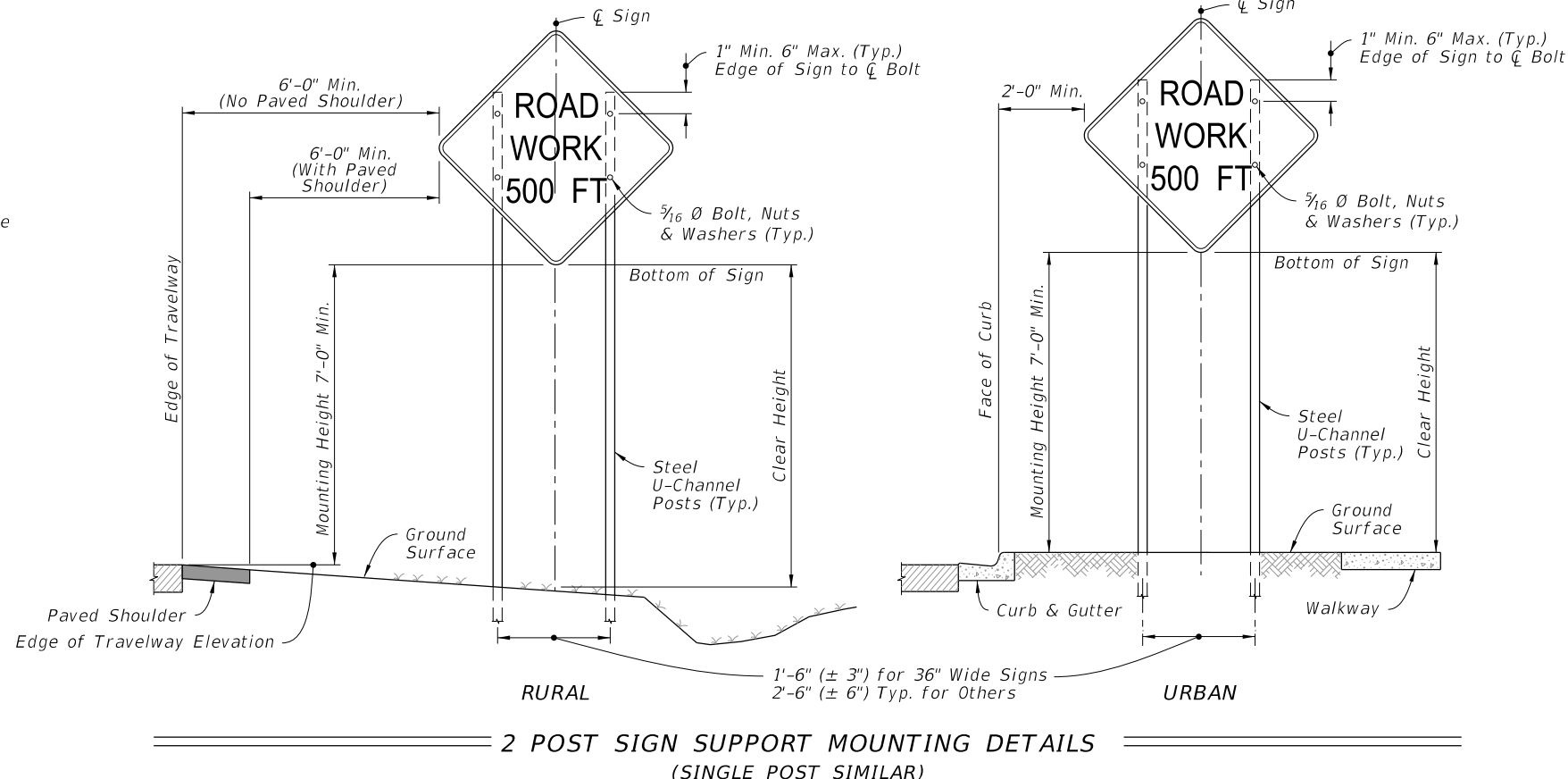
The END ROAD WORK sign (G20-2) should be installed on all projects, but may be omitted where the work operation is less than 1 day. The sign should be placed approximately 500 feet beyond the end of a construction or maintenance project unless other distance is called for in the plans. When other Construction or Maintenance Operations occur within 1 mile this sign should be omitted and signing coordinated in accordance with Index 102-600, ADJOINING AND/OR OVERLAPPING WORK ZONE SIGNING.

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**NOTES:**

- All signs shall be post mounted when work operations exceed one day except for:
  - Road closure signs mounted in accordance with the vendor drawing for the Type III Barricade shown on the APL.
  - Pedestrian and bicycle advanced warning or pedestrian regulatory signs mounted on sign supports in accordance with the vendor drawing shown on the APL.
  - Median barrier mounted signs per Index 700-013.
  - Bridge mounted signs per Index 700-012.
- Unless shielded with barrier or outside of the Clear Zone, signs mounted on temporary supports or barricades, and barricade/sign combination must be crashworthy in accordance with NCHRP 350 requirements and included on the Approved Products List (APL).
- Use only approved systems listed on the Department's Approved Products List (APL).
- Manufacturers seeking approval of U-Channel and steel square tube sign support assemblies for inclusion on the Approved Products List (APL) must submit a APL application, design calculations (for square tube only), and detailed drawings showing the product meets all the requirements of this Index.
- Provide 3 lb/ft Steel U-Channel Posts with a minimum section modulus of 0.43 in<sup>3</sup> for 60 ksi steel, a minimum section modulus of 0.37 in<sup>3</sup> for 70 ksi steel, or a minimum section modulus of 0.34 in<sup>3</sup> for 80 ksi steel.
- Provide 4 lb/ft Steel U-Channel Posts with a minimum section modulus of 0.56 in<sup>3</sup> for 60 ksi steel, or a minimum section modulus of 0.47 in<sup>3</sup> for 70 ksi or 80 ksi steel.
- U-channel posts shall conform with ASTM A 499, Grade 60, or ASTM A 576, Grade 1080 (with a minimum yield strength of 60 ksi). Square tube posts shall conform with ASTM A 653, Grade 50, or ASTM A 1011, Grade 50.
- Sign attachment bolts, washers, nuts, and spacers shall conform with ASTM A307 or A 36.
- Install 4 lb/ft Steel U-Channel Posts with approved breakaway splice in accordance with the manufacturer's detail shown on the APL.
- The contractor may install 3 lb/ft Steel U-Channel Posts with approved breakaway splice in accordance with the manufacturer's detail shown on the APL.
- Install all posts plumb.
- The contractor may set posts in preformed holes to the specified depth with suitable backfill tamped securely on all sides, or drive 3 lb/ft sign posts and any size base post in accordance with the manufacturer's detail shown on the APL.

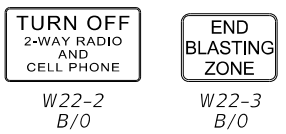
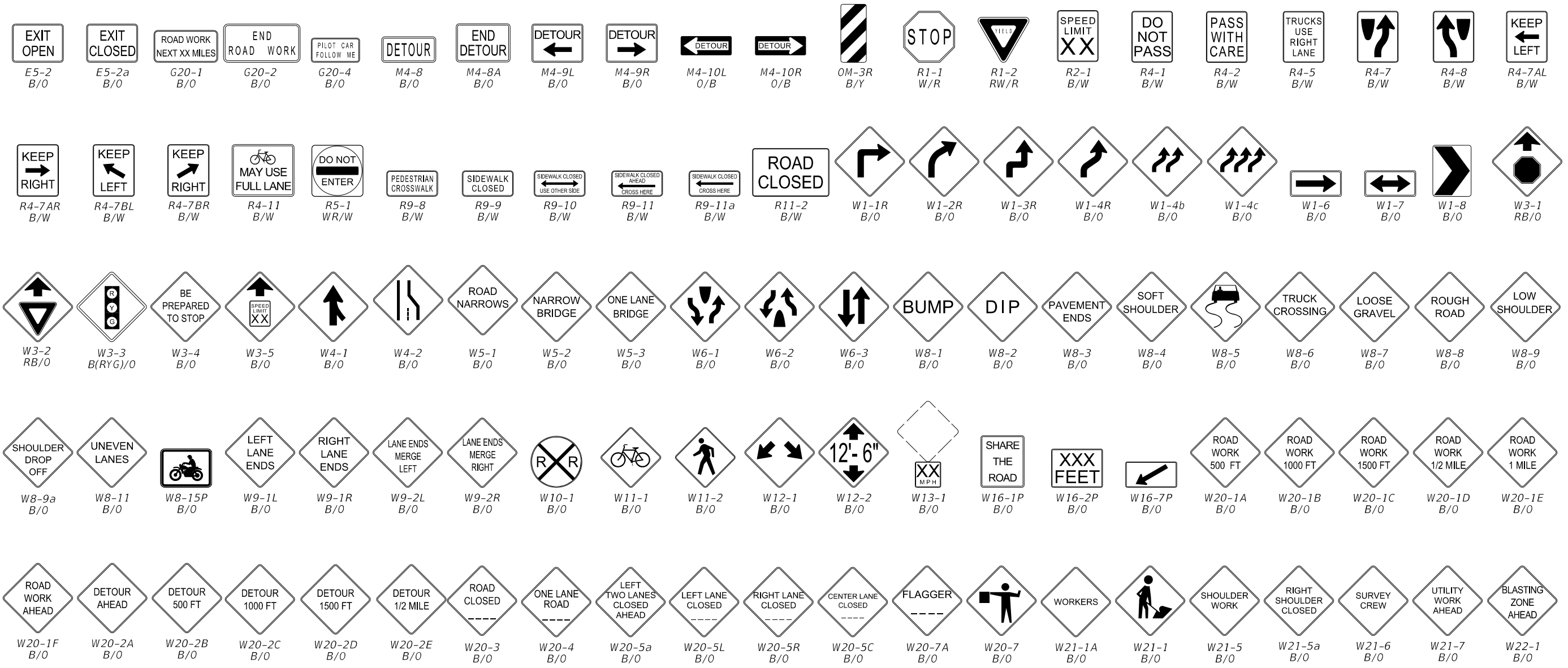


**TABLE 7  
POST AND FOUNDATION  
TABLE FOR  
WORK ZONE SIGNS**

SIGN SHAPE	SIGN SIZE (Inches)	NUMBER OF STEEL U CHANNEL POSTS
Octagon	30x30	1
	36x36x36	1
Triangle	48x48x48	1
	60x60x60	2
	24x18	1
Rectangle (W x H)	24x30	1
	30x24	1
	36x18	1
	36x24	1
	48x18	1
	48x24	1
	36x48	2
	48x30	2
	48x36	2
	54x36	2
Square	30x30	1
	36x36	2
	48x48	2
Diamond	48x48	2
Circle	36Ø	2

- Notes For Table:**
- Use 3 lb/ft posts for Clear Height up to 10' and 4 lb/ft posts for Clear Height up to 12'.
  - Minimum foundation depth is 4.0' for 3 lb/ft posts and 4.5' for 4 lb/ft posts.
  - For both 3 lb/ft and 4 lb/ft base or sign posts installed in rock, a minimum cumulative depth of 2' of rock layer is required.
  - The soil plate as shown on the APL vendor drawing is not required for base posts or sign posts installed in existing rock (as defined in Note 3), asphalt roadway, shoulder pavement or soil under sidewalk.
  - For diamond warning signs with supplement plaque (up to 5 ft<sup>2</sup> in area), use 4 lb/ft posts for up to 10 ft Clear Height (measure to the bottom of diamond warning sign).

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**NOTES:**

1. The size of diamond shaped Temporary Traffic Control (TTC) warning signs shall be a minimum of 48" X 48".
  2. Fluorescent orange shall be used for all orange colored work zone signs.
  3. The sign shields, symbols and messages contained on this sheet are provided for ready reference to those signs used in the development of the 102 Series of Indexes and are commonly used in the development of traffic control plans. For additional signs and sign detail information refer to the STANDARD HIGHWAY SIGNS MANUAL as specified in the MUTCD. Special signs for traffic control plans will be as approved by the State Traffic Plans Engineer.
- The sign codes shown on this sheet are for the purpose of identifying cell names found in the Traffic Control Cell Library (TCZ.Cel).
- The STANDARD HIGHWAY SIGNS MANUAL should be referenced for the official sign codes for use in the development of traffic control plans.
- See Index 700-102 for MOT sign details.

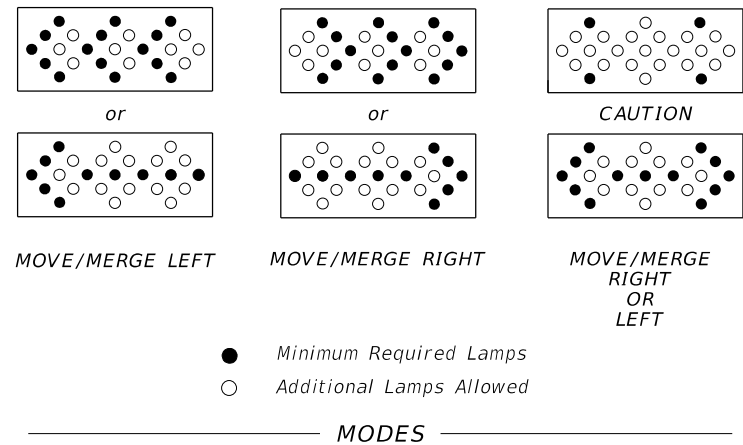
**COLOR CODES:**

- Legend and/or Symbol Background
- R-Red (Reflectorized)
  - Y-Yellow (Reflectorized)
  - G-Green (Reflectorized)
  - O-Orange (Reflectorized)
  - B-Black (Non-Reflectorized)
  - W-White (Reflectorized)

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**COMMONLY USED WARNING AND REGULATORY SIGNS IN WORK ZONES**

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**NOTES:**

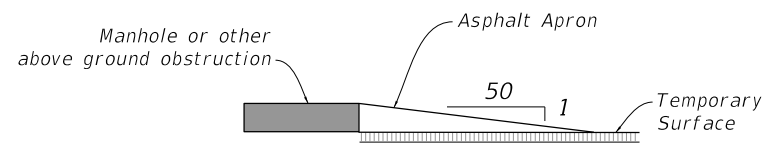
An arrow board in the arrow or chevron mode shall be used only for stationary or moving lane closures on multilane roadways.

For shoulder work, blocking the shoulder, for roadside work near the shoulder, or for temporarily closing one lane on a two-lane, two-way roadway, an arrow board shall be used only in the caution mode.

A single arrow board shall not be used to merge traffic laterally more than one lane. When arrow boards are used to close multiple lanes, a single board shall be used at the merging taper for each closed lane.

When Advance Warning Arrow Boards are used at night, the intensity of the flashers shall be reduced during darkness when lower intensities are desirable.

**ADVANCE WARNING ARROW BOARDS**



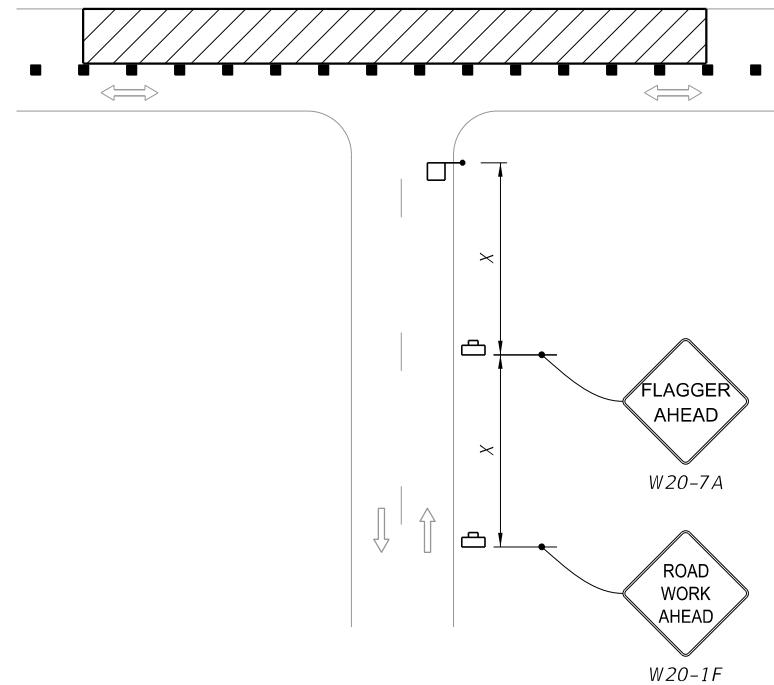
**NOTES:**

Manholes extending 1" or more above the travel lane and crosswalks having an uneven surface greater than 1/4" shall have a temporary asphalt apron constructed as shown above.

All transverse joints that have a difference in elevation of 1" or more shall have a temporary asphalt apron constructed as shown above.

The apron is to be removed prior to constructing the next lift of asphalt. The cost of the temporary asphalt shall be included in the contract unit price for Maintenance of Traffic, LS.

**MANHOLES/CROSSWALKS/JOINTS**



**NOTE:**

Optionally, use "Flagger Ahead" sign with text (W20-7A) instead of "Flagger Ahead" sign with symbol (W20-7).

**SIDE ROAD INTERSECTING THE WORK ZONE**

**SIGNALS:**

Existing traffic signal operations that require modification in order to carry out work zone traffic control shall be included in the Plans and be approved by the District Traffic Operations Engineer.

Refer to Specification 102-9 for additional information.

**CHANNELIZING DEVICES:**

Channelizing devices for work zone traffic control shall be as prescribed in Part VI of the MUTCD, subject to supplemental revisions provided in the contract documents and the 102 Series of Indexes. Lighting Devices must not be used to supplement channelization. Omit tapers and channelizing devices for paved shoulders less than 4' in width.

**CHANNELIZING DEVICE CONSISTENCY:**

Barricades, vertical panels, cones, tubular markers and drums shall not be intermixed within either the lateral transition or within the tangent alignment.

**TRUCK/TRAILER-MOUNTED ATTENUATORS:**

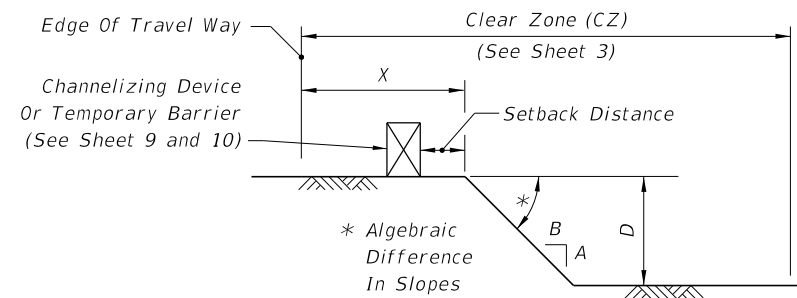
Truck/Trailer-mounted attenuators (TMA) can be used for moving operations and short-term stationary operations. For moving operations, see Index 102-607. For short-term, stationary operations, see Part VI of the MUTCD.

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**DROP-OFF CONDITION NOTES**

1. These conditions and treatments can be applied only in work areas that fall within a properly signed work zone.
2. When drop-offs occur within the clear zone due to construction or maintenance activities, protection devices are required (See Table 8). 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).
3. Drop-offs may be mitigated by placement of slopes with 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, LS. 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.
4. For Setback Distance, refer to the Index or Approved Products List (APL) drawing of the selected barrier.
5. For Conditions 1 and 3 provided in Table 8, any drop-off condition that is created and restored within the same work period will not be subject to use of temporary barriers; however, channelizing devices will be required.
6. When permanent curb heights are  $\geq 6"$ , no channelizing device will be required. For curb heights  $< 6"$ , see Table 8.



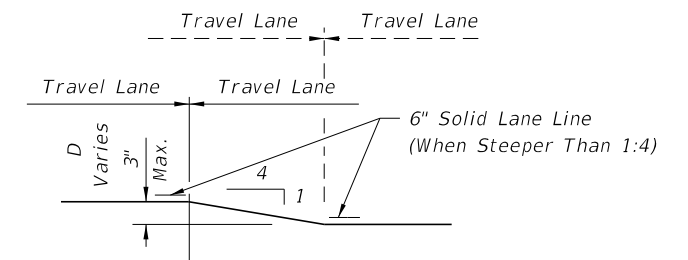
**DROP-OFF CONDITION DETAIL**

**Table 8  
Drop-off Protection Requirements**

Condition	X (ft)	D (in.)	Device Required
1	0-12	> 3	Temporary Barrier
2	> 12-CZ	> 3 to $\leq 5$	Channelizing Device
3	0-CZ	> 5	Temporary Barrier
4	Removal of Bridge or Retaining Wall Barrier		Temporary Barrier
5	Removal of portions of Bridge Deck		Temporary Barrier

**TRAVEL LANE TREATMENT FOR MILLING OR RESURFACING NOTES**

1. This treatment applies to resurfacing or milling operations between adjacent travel lanes.
2. Whenever there is a difference in elevation between adjacent travel lanes, the W8-11 sign with "UNEVEN LANES" is required at intervals of 1/2 mile maximum.
3. If D is 1 1/2" or less, no treatment is required.
4. Treatment allowed only when D is 3" or less.
5. If the slope is steeper than 1:4 (not to be steeper than 1:1), the R4-1 and MOT-1-06 signs shall be used as a supplement to the W8-11; this condition should never exceed 3 miles in length.



**TRAVEL LANE TREATMENT FOR MILLING OR RESURFACING DETAIL**

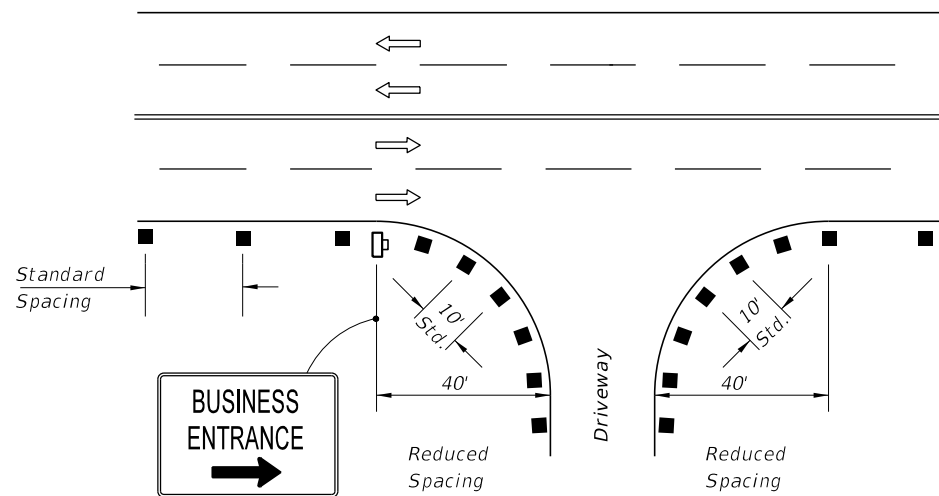
**PEDESTRIAN WAY DROP-OFF CONDITION NOTES**

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

**DROP-OFFS IN WORK ZONES**

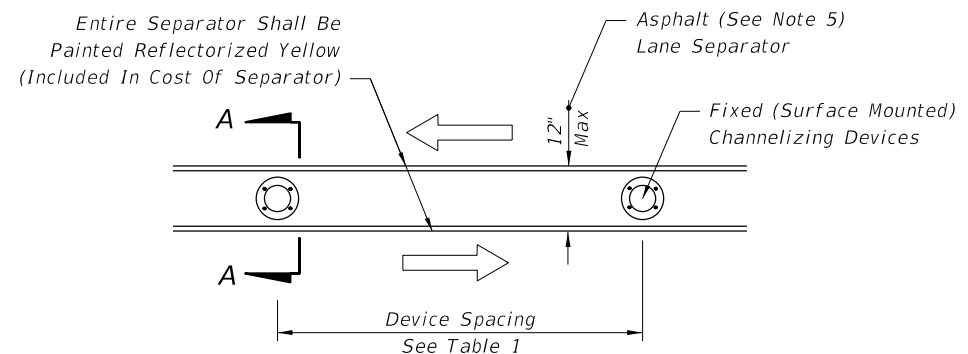
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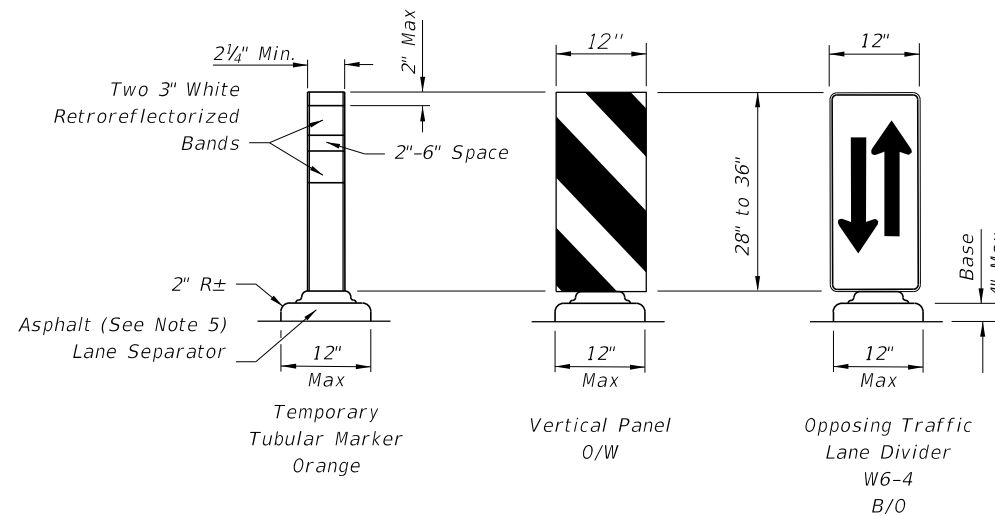


1. For single business entrances, place one 24" x 36" business sign for each driveway entrance affected. Signs shall show specific business names. Logos may be provided by business owners. Standard BUSINESS ENTRANCE sign in Index 700-102 may be used when approved by the Engineer.
2. When several businesses share a common driveway entrance, place one 24" x 36" standard BUSINESS ENTRANCE sign in accordance with Index 700-102 at the common driveway entrance.
3. Channelizing devices shall be placed at a reduced spacing on each side of the driveway entrance, but shall not restrict sight distance for the driveway users.
4. Business entrance signs are intended to guide motorist to business entrances moved/modified or disturbed during construction projects. Business entrance signs are not required where there is minimal disruption to business driveways which is often the case with resurfacing type projects.

**PLACEMENT OF BUSINESS ENTRANCE SIGNS AND CHANNELIZING DEVICES AT BUSINESS ENTRANCE**



**PLAN**



**FIXED (SURFACE MOUNTED) CHANNELIZING DEVICES**

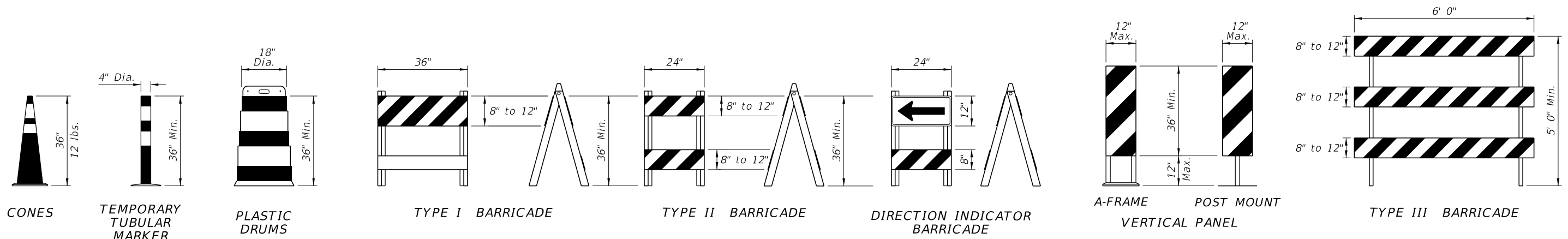
**SECTION AA**

1. Temporary lane separators shall be supplemented with any of the following approved fixed (surface mounted) channelizing devices: temporary tubular markers, vertical panels, or opposing traffic lane divider panels. Opposing traffic lane divider panels (W6-4) shall only be used as center lane dividers to separate opposing vehicular traffic on a two-lane, two-way operation. Temporary Tubular Markers, Vertical Panels and Opposing Traffic Lane Divider panels shall not be intermixed within the limits where the temporary lane separator is used. The connection between the channelizing device and the temporary lane separator curb shall hold the channelizing device in a vertical position.
2. ReflectORIZED materials shall have a smooth sealed outer surface which will display the same approximate color day and night. Furnish channelizing devices having retroreflective sheeting meeting the requirements of Section 990.
3. 12" openings for drainage shall be constructed in the asphalt and portable temporary lane separator at a maximum spacing of 25' in areas with grades of 1% or less or 50' in areas with grades over 1% as directed by the Engineer.
4. Tapered ends shall be used at the beginning and end of each run of the temporary lane separator to form a gradual increase in height from the pavement level to the top of the temporary lane separator.
5. The Contractor has the option of using portable temporary lane separators containing fixed channelizing devices in lieu of the temporary asphalt separator and channelizing devices detailed on this sheet. The portable temporary lane separator shall come in portable sections that can be connected to maintain continuous alignment between the separate curb sections. Each temporary lane separator section shall be 36 inches to 48 inches in total length. Portable temporary lane separators shall duplicate the color of the pavement marking. Portable temporary lane separators shall be one of those listed on the Approved Products List.

**TEMPORARY LANE SEPARATOR**

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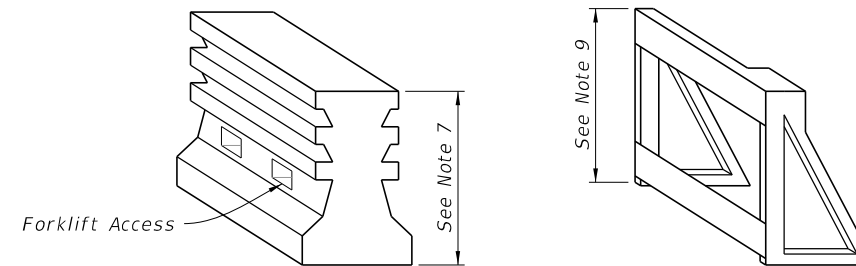
LAST REVISION 11/01/20	REVISION	DESCRIPTION:		<b>FY 2022-23 STANDARD PLANS</b>	<b>GENERAL INFORMATION FOR TRAFFIC CONTROL THROUGH WORK ZONES</b>	INDEX 102-600	SHEET 9 of 11
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**CHANNELIZING DEVICES**

**CHANNELIZING DEVICE NOTES:**

- The details shown on this sheet are for the following purposes:
  - For ease of identification and
  - To provide information that supplements or supersedes that provided by the MUTCD.
- The Type III Barricade shall have a unit length of 6'-0" only. When barricades of greater lengths are required those lengths shall be in multiples of the 6'-0" unit.
- No sign panel should be mounted on any channelizing device unless the channelizing device/sign combination was found to be crashworthy and the sign panel is mounted in accordance with the vendor drawing for the channelizing device shown on the Approved Products List (APL).
- Ballast shall not be placed on top rails or any striped rails or higher than 13" above the driving surface.
- The direction indicator barricade may be used in tapers and transitions where specific directional guidance to drivers is necessary. If used, direction indicator barricades shall be used in series to direct the driver through the transition and into the intended travel lane.
- The splicing of sheeting is not permitted on channelizing devices or MOT signs.
- For rails less than 3'-0" long, 4" stripes shall be used.
- Cones shall:
  - Be used only in active work zones where workers are present.
  - Be reflectorized as per the MUTCD with Department-approved reflective collars when used at night.
- For pedestrian longitudinal channelizing devices, the device shall have a minimum of 8" continuous detectable edging above the walkway. A gap not exceeding a height of 2" is allowed to facilitate drainage. The top surface of the device shall be a minimum height of 32" and have a 1/8" or less difference in any plane at all connection points between the devices to facilitate hand trailing. The bottom and the top surface of the device shall be in the same vertical plane. If pedestrian drop-off protection is required, the device shall have a footprint or offset of at least 2', otherwise the device must be at least 42" in height above the walkway and be anchored or ballasted to withstand a 200 lb lateral point load at the top of the device.



**PEDESTRIAN LONGITUDINAL CHANNELIZING DEVICES**

**TEMPORARY BARRIER NOTES:**

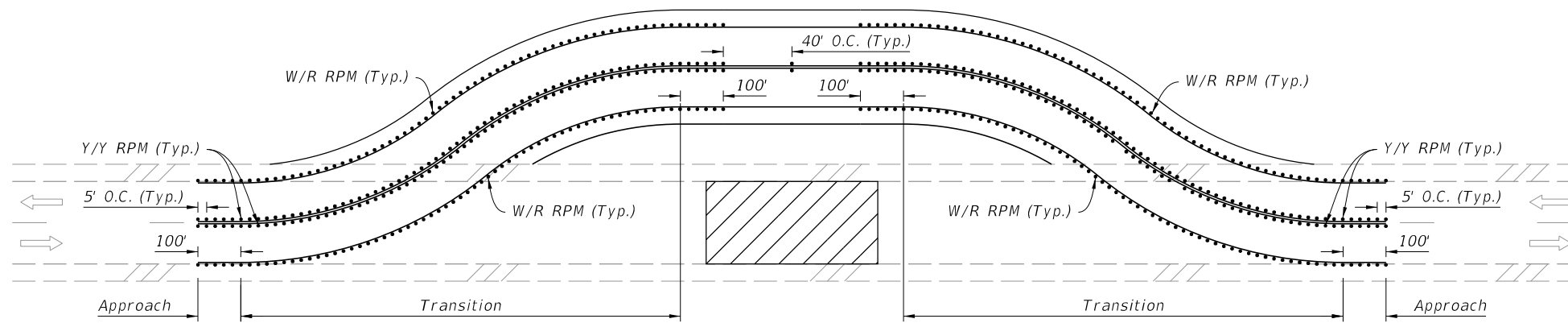
- Where a barrier is specified, any of the types below may be used in accordance with the applicable Index:

Index	Description
102-100	Temporary Barrier
102-120	Low Profile Barrier
536-001	Guardrail

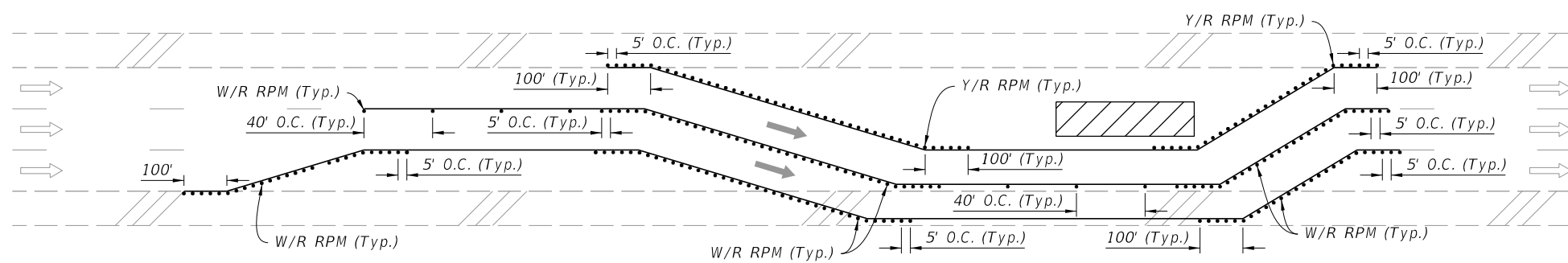
- Trailer Mounted Barriers may be used to provide positive protection for workers within the work areas. APL drawings may be used as a guide to develop project specific Temporary Traffic Control Plans that are signed and sealed by the Contractor's Engineer.

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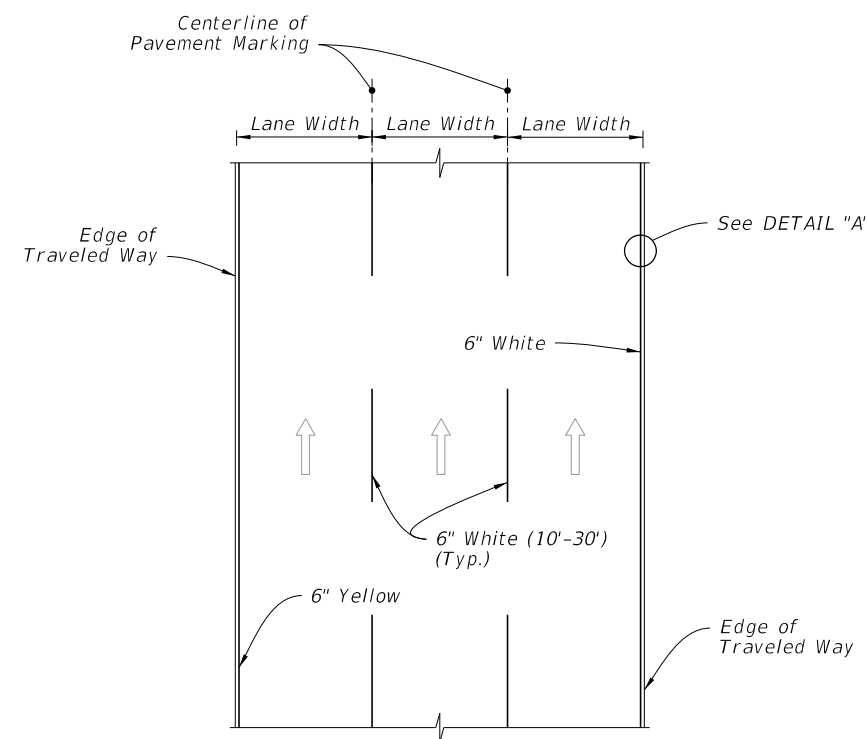
LAST REVISION 11/01/20	REVISION	DESCRIPTION:	 FY 2022-23 STANDARD PLANS	GENERAL INFORMATION FOR TRAFFIC CONTROL THROUGH WORK ZONES	INDEX 102-600	SHEET 10 of 11
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RPM PLACEMENT ON TWO-LANE ROADWAYS



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



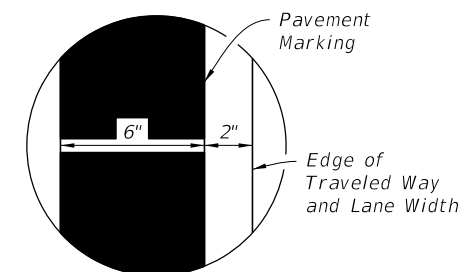
PLAN VIEW

**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 Area
- Lane Identification and Direction of Traffic



DETAIL "A"

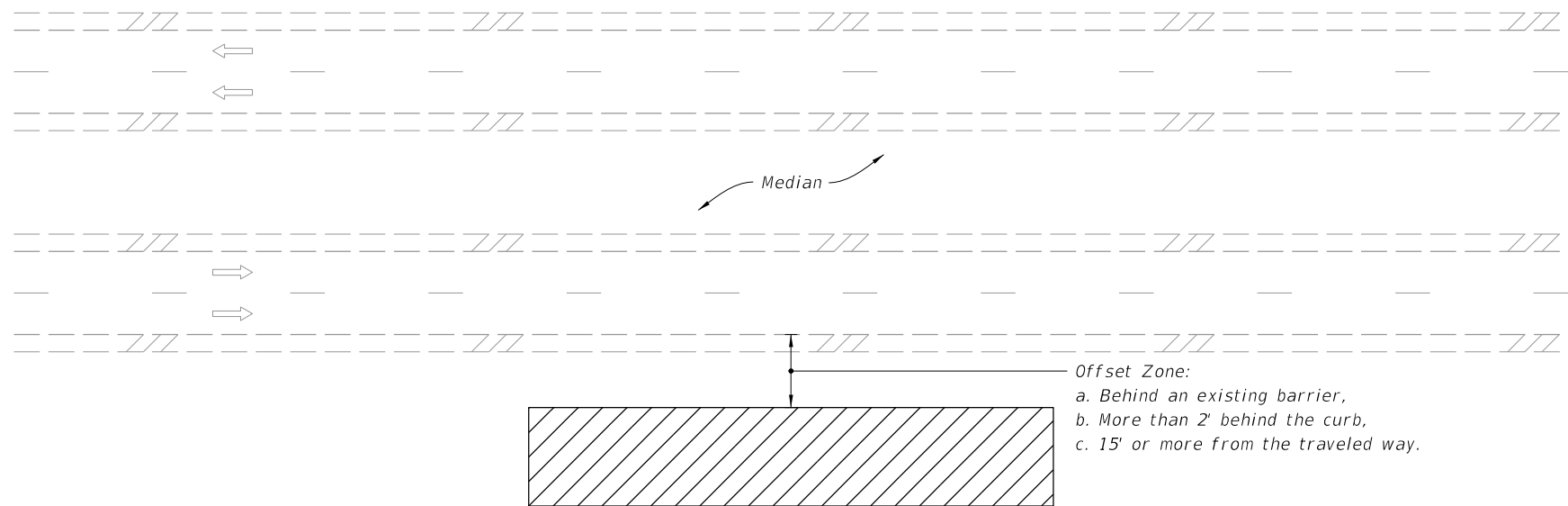
RPM PLACEMENT IN WORK ZONES

PAVEMENT MARKINGS PLACEMENT

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**WORK ZONE PAVEMENT MARKINGS**





=====**MULTILANE ROADWAY SHOWN, TWO-LANE ROADWAY SIMILAR**=====

**NOTES:**

1. This Index applies to Two-Lane, Two-Way and Multilane Roadways, including Medians of divided roadways, with work beyond the shoulder.
2. Use Index 102-602 when the work operation (excluding establishing and terminating the work area) requires that two or more work vehicles cross the Offset Zone in any one hour period.
3. Use Index 102-660 when Work Area encroaches a Sidewalk.

**SYMBOLS:**

-  Work Area
-  Lane Identification and Direction of Traffic





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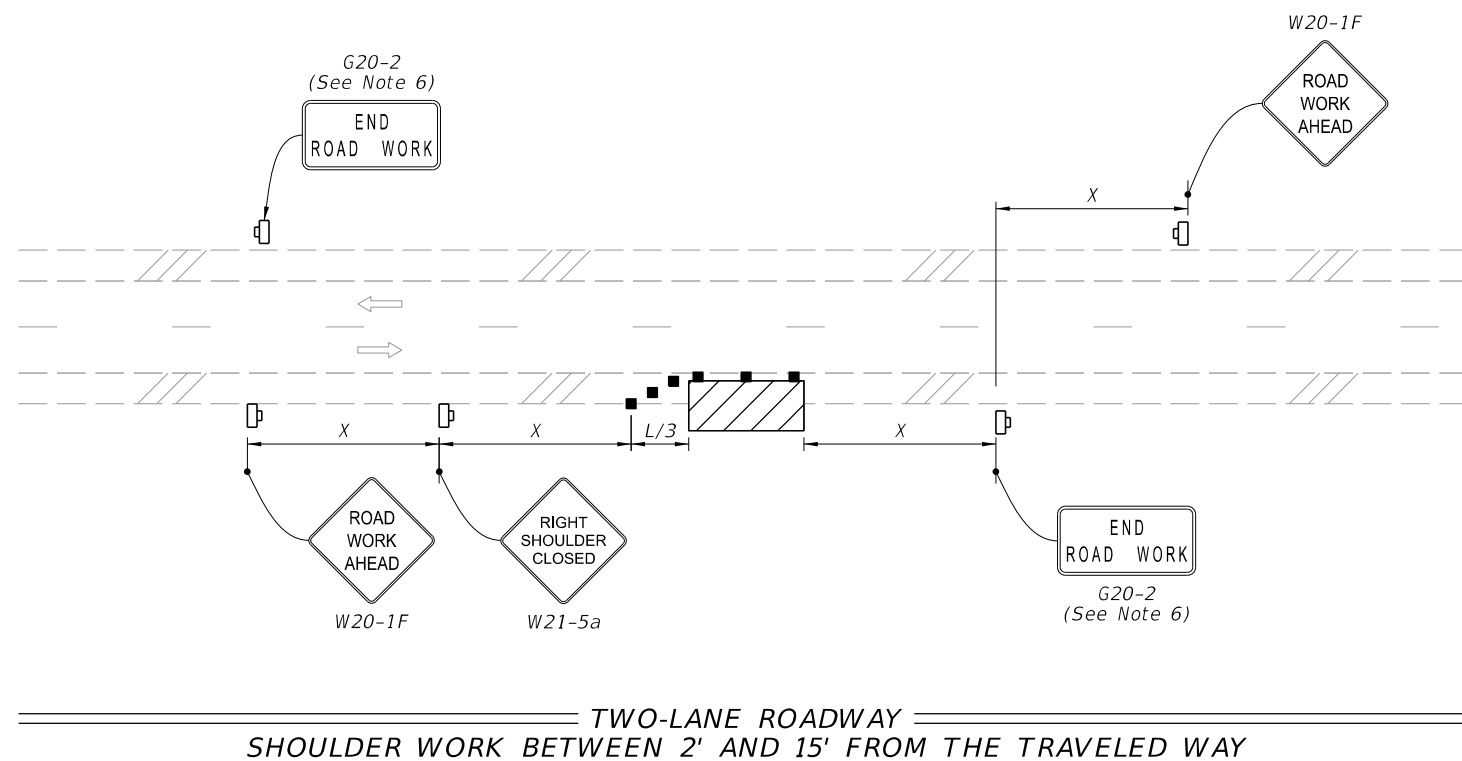
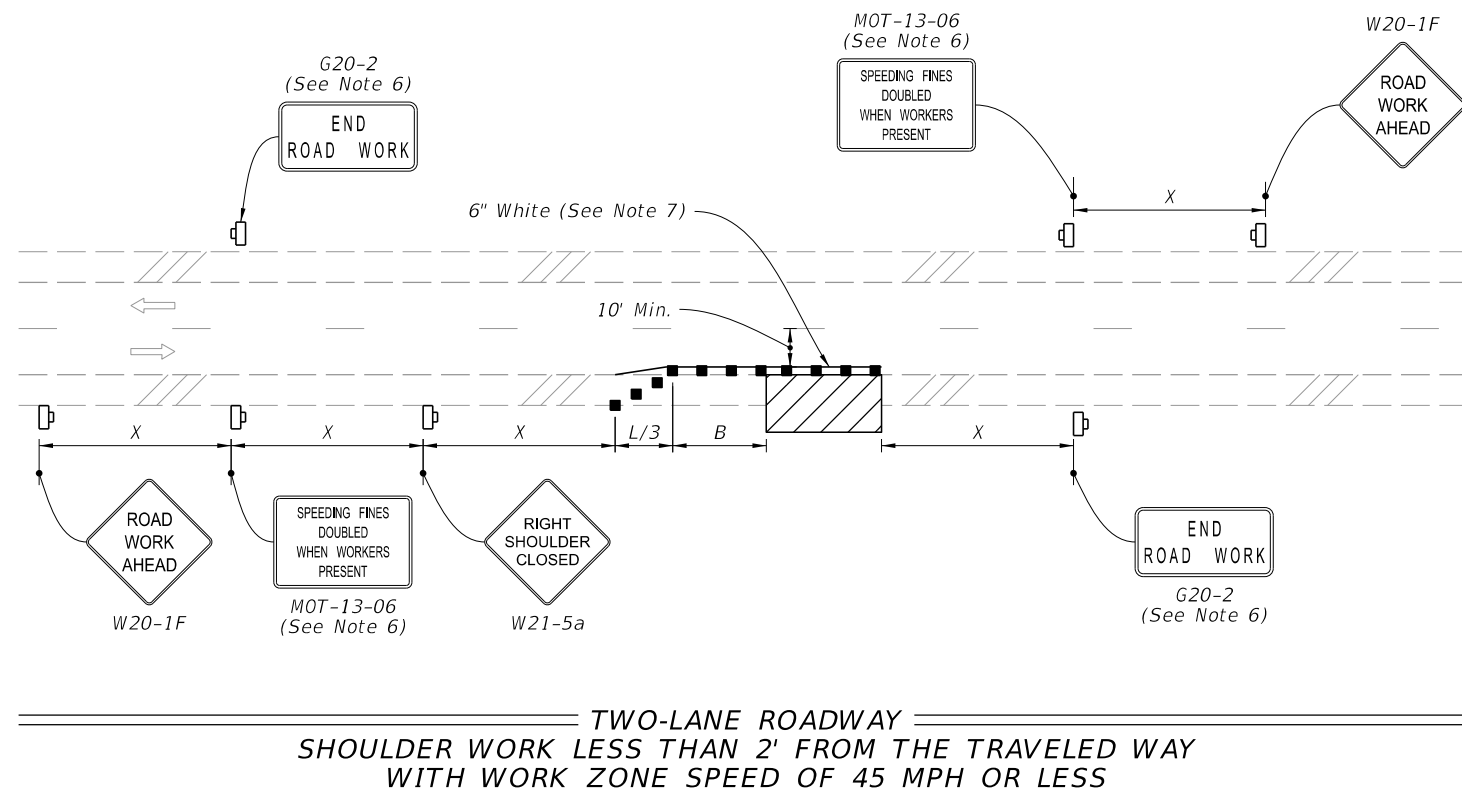
LAST REVISION 11/01/20	REVISION	DESCRIPTION:		FY 2022-23 <b>STANDARD PLANS</b>	<b>TWO-LANE AND MULTILANE ROADWAY,          WORK BEYOND THE SHOULDER</b>	INDEX <b>102-601</b>	SHEET <b>1 of 1</b>
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**NOTE:**


1. This Index applies to Two-Lane, Two-Way and Multilane Roadways, including Medians of divided roadways, with work on the shoulder.
2.  $L$  = Taper Length  
 $X$  = Work Zone Sign Spacing  
 $B$  = Buffer Length  
 See Index 102-600 for "L", "X", "B", and channelizing device spacing values.
3. Where work activities are between 2' and 15' from the edge of traveled way, the Engineer may omit signs and channelizing devices for work operations 60 minutes or less.
4. When four or more work vehicles enter the through traffic lanes in a one hour period (excluding establishing and terminating the work area), use a flagger or lane closure to accommodate work vehicle ingress and egress.
5. For work less than 2' from the traveled way and work zone speed is greater than 45 MPH, use a lane closure.
6. The "Speeding Fines Doubled When Workers Present" signs (MOT-13-06) and "End Road Work" Signs (G20-2) along with the associated work zone sign spacing distances may be omitted when the work operation is in place for 24 hours or less.
7. Temporary pavement markings may be omitted when the work operation is in place for 3 days or less.
8. Omit "Shoulder Closed" signs (W21-5a) along with associated work zone sign spacing distances for work on the median.
9. When there is no paved shoulder, the "Worker" sign (W21-1) may be used instead of the "Shoulder Closed" sign (W21-5a).

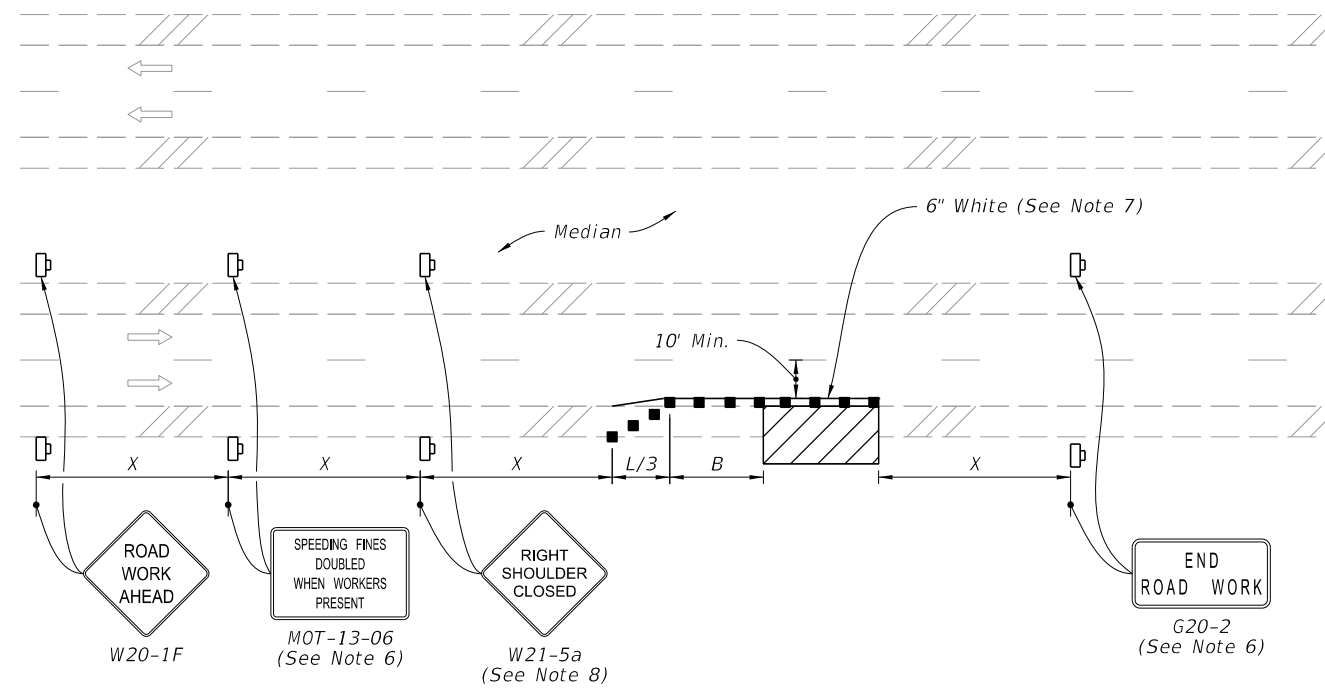
**SYMBOLS:**

-  Work Area
-  Channelizing Device (See Index 102-600)
-  Work Zone Sign
-  Lane Identification and Direction of Traffic

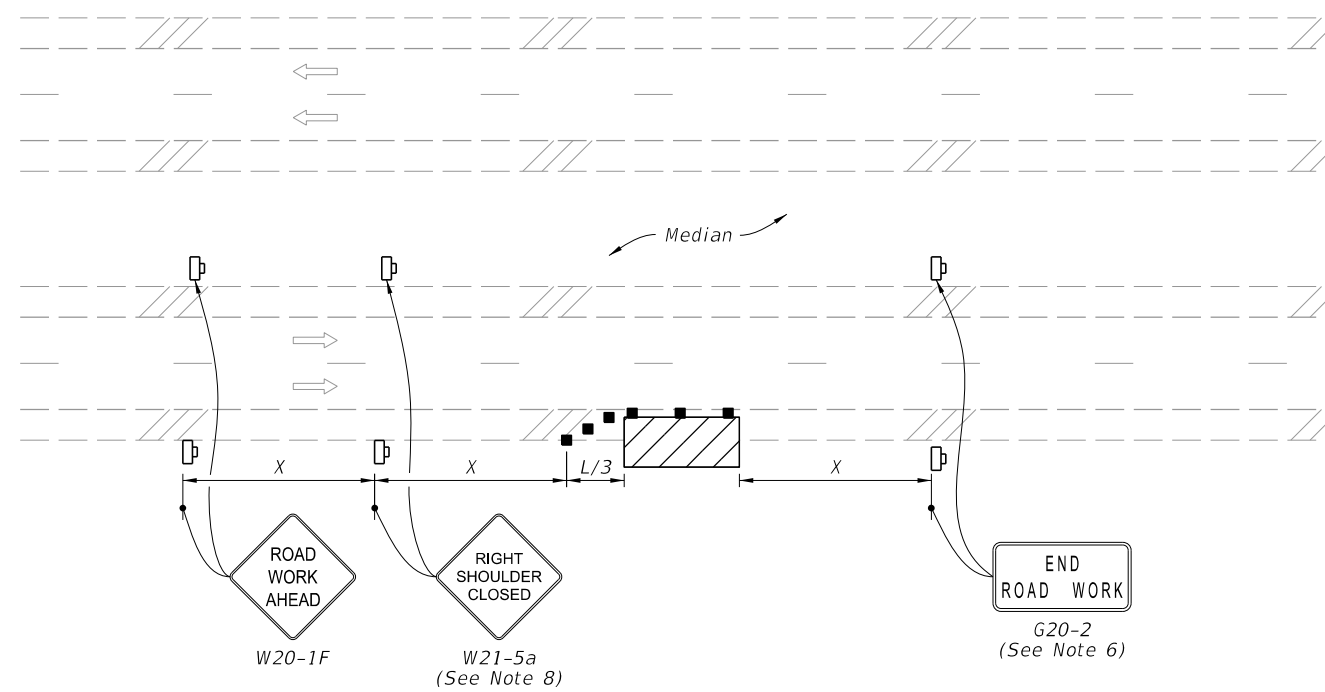


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LAST REVISION 11/01/21	REVISION	DESCRIPTION:	 FY 2022-23 STANDARD PLANS	TWO-LANE AND MULTILANE, WORK ON SHOULDER	INDEX 102-602	SHEET 1 of 2
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





MULTILANE ROADWAY  
 SHOULDER WORK LESS THAN 2' FROM THE TRAVELED WAY  
 WITH WORK ZONE SPEED OF 45 MPH OR LESS



MULTILANE ROADWAY  
 SHOULDER WORK BETWEEN 2' AND 15' FROM THE TRAVELED WAY

**SYMBOLS:**

-  Work Area
-  Channelizing Device (See Index 102-600)
-  Work Zone Sign
-  Lane Identification and Direction of Traffic

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LAST REVISION 11/01/20	REVISION	DESCRIPTION:
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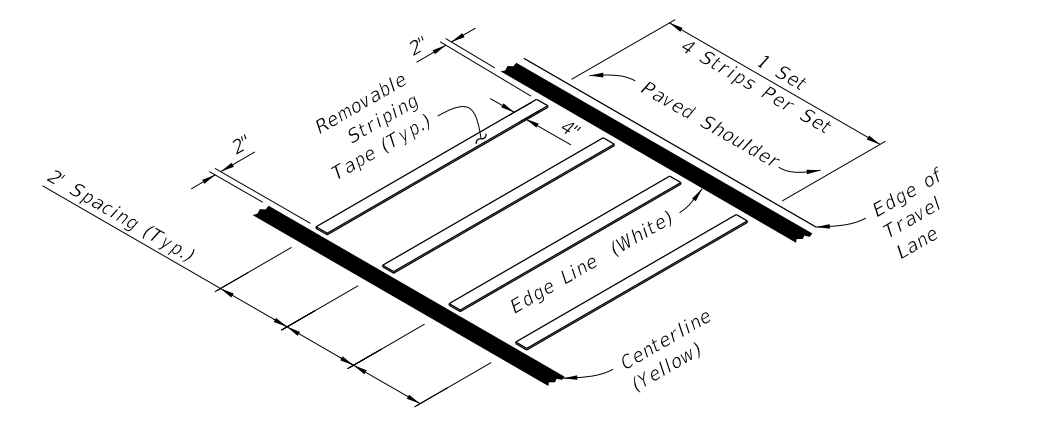
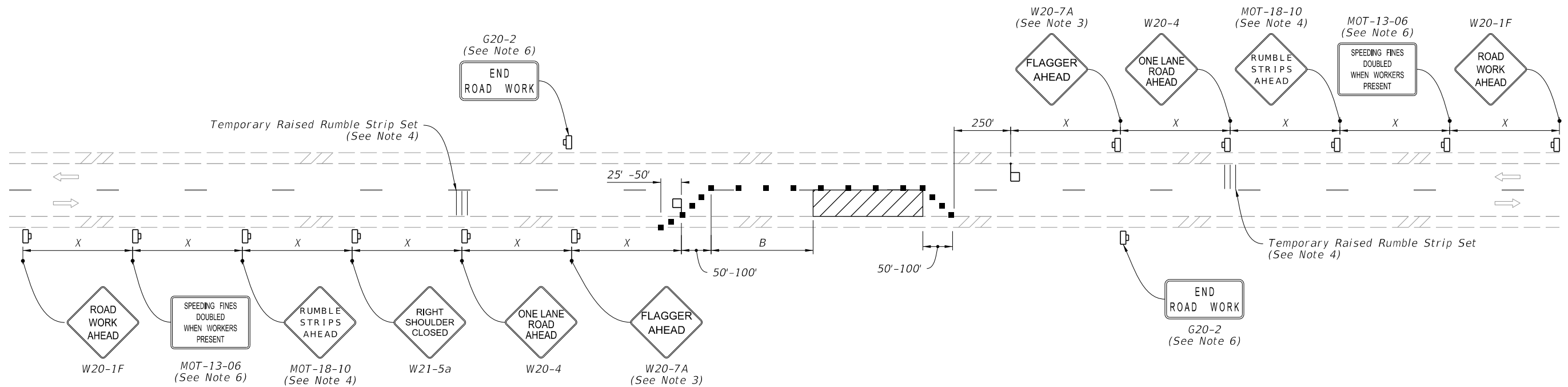


FY 2022-23  
 STANDARD PLANS

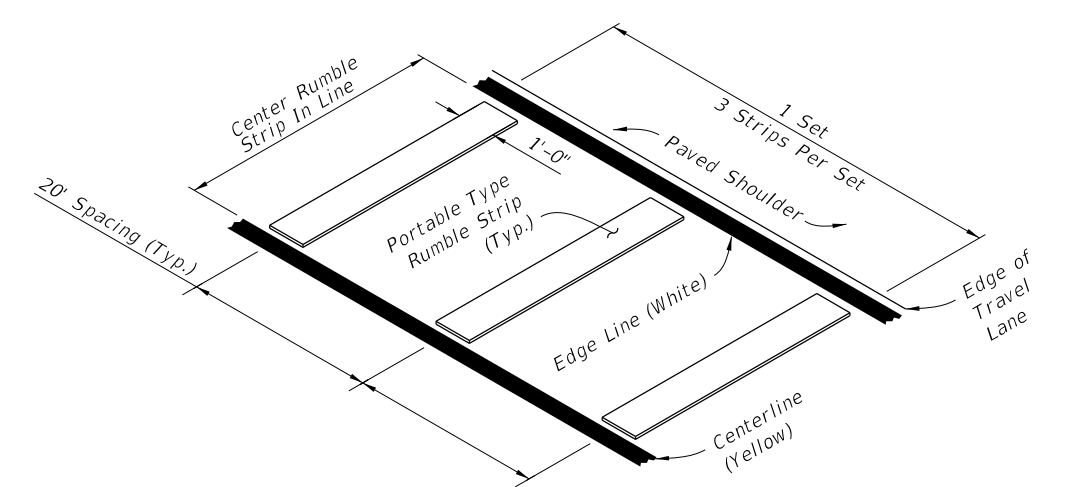
TWO-LANE AND MULTILANE, WORK ON SHOULDER

INDEX  
 102-602

SHEET  
 2 of 2



OPTION - 1  
REMOVABLE STRIPING TYPE



OPTION - 2  
PORTABLE TYPE

RUMBLE STRIP SETS

NOTES:

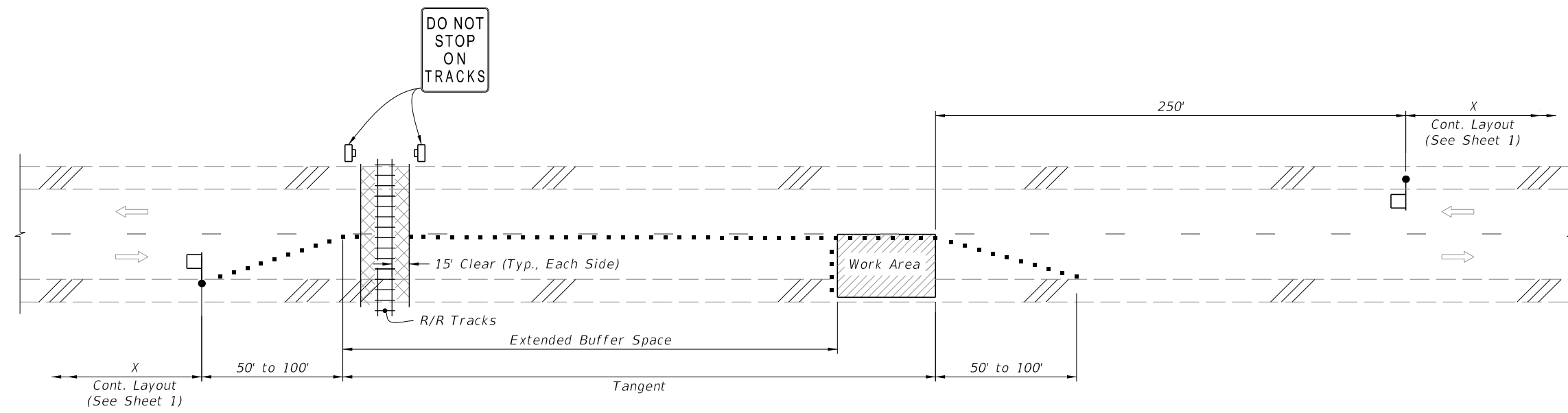
- This Index applies to Two-Lane, Two-Way Roadways with work within the traveled way.
- L = Taper Length  
B = Buffer Length  
X = Work Zone Sign Spacing  
See Index 102-600 for "L", "B", "X" and channelizing device spacing values.
- Optionally, use "Flagger Ahead" sign with symbol (W20-7) instead of "Flagger Ahead" sign with text (W20-7A).
- Use temporary raised rumble strips when the existing posted speed is 55 mph or greater and the work duration is greater than 60 minutes. If temporary raised rumble strips are not used, omit "Rumble Strips Ahead" signs (MOT-18-10) and associated work zone sign spacing.
- Additional one-way control may be provided by the following means:
  - Flag-carrying vehicle
  - Official vehicle
  - Pilot vehicles
  - Traffic signals
- The "Speeding Fines Doubled When Workers Present" signs (MOT-13-06) and "End Road Work" signs (G20-2), along with associated work zone sign spacing, may be omitted when the work operation will be in place for 24 hours or less.
- Automated Flagger Assistance Devices (AFADs) may be used in accordance with Specification Sections 102, 990 and the APL vendor drawings.
- Railroad Crossings:
  - If an active railroad crossing is located closer to the Work Area than the queue length plus 300 feet, extend the Buffer Space as shown on Sheet 2.
  - If the queuing of vehicles across an active railroad crossing cannot be avoided, provide a uniformed traffic control officer or flagger at the highway-rail grade crossing to prevent vehicles from stopping within the highway-rail grade crossing, even if automatic train warning devices are in place.

SYMBOLS:

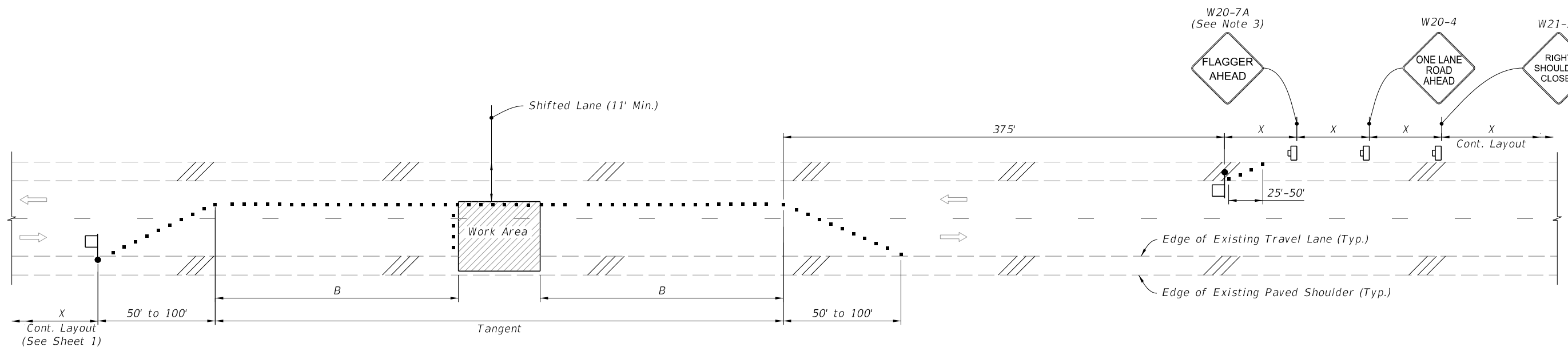
- Work Area
- Channelizing Device (See Index 102-600)
- Work Zone Sign
- Flagger
- Lane Identification and Direction of Traffic

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TEMPORARY RAILROAD CROSSING BUFFER SPACE EXTENSION



TEMPORARY LANE SHIFT TO SHOULDER WHEN WORK AREA ENCROACHES ON THE CENTERLINE  
(For Work Operations In place 24 Hours or Less)

- SYMBOLS:**
- Work Area
  - Channelizing Device (See Index 102-600)
  - Work Zone Sign
  - Flagger
  - Lane Identification and Direction of Traffic

**SPECIAL CONDITIONS**

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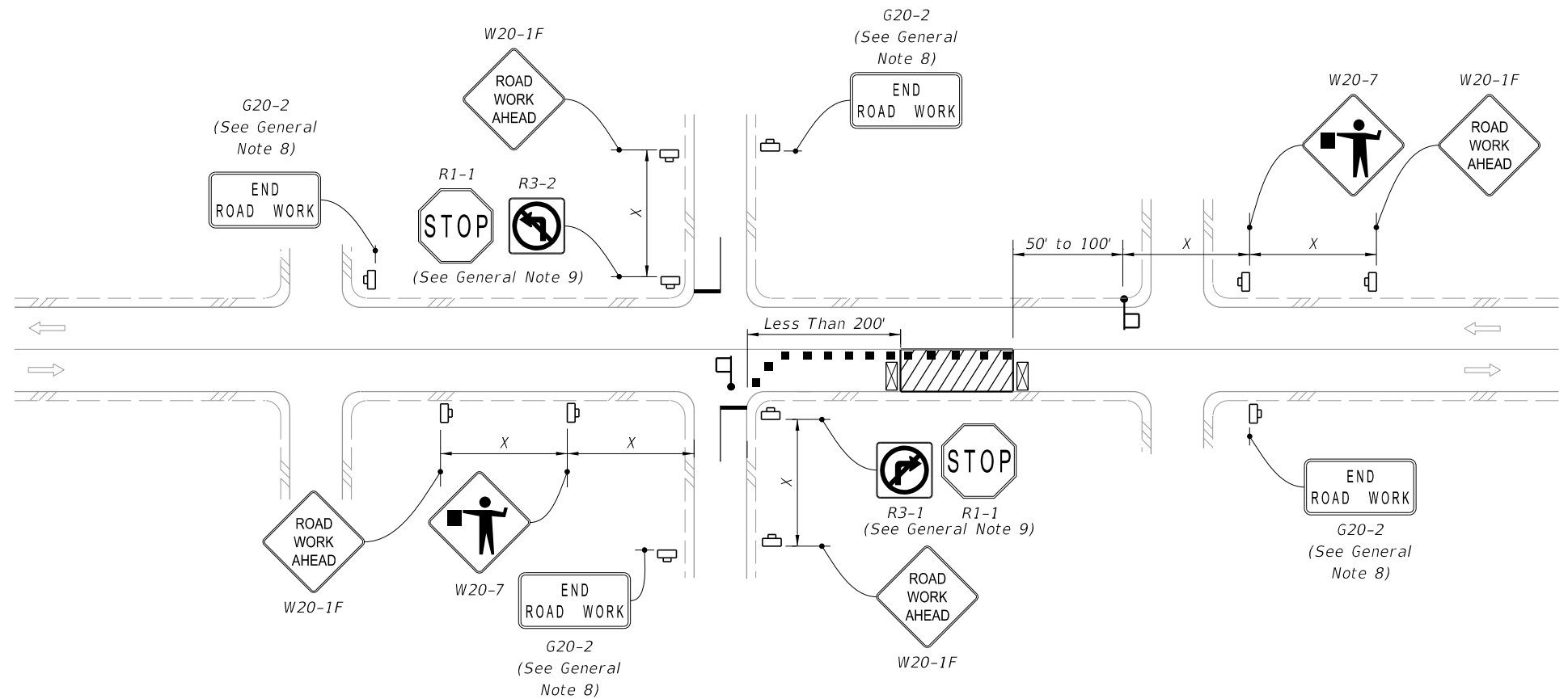


**GENERAL NOTES:**

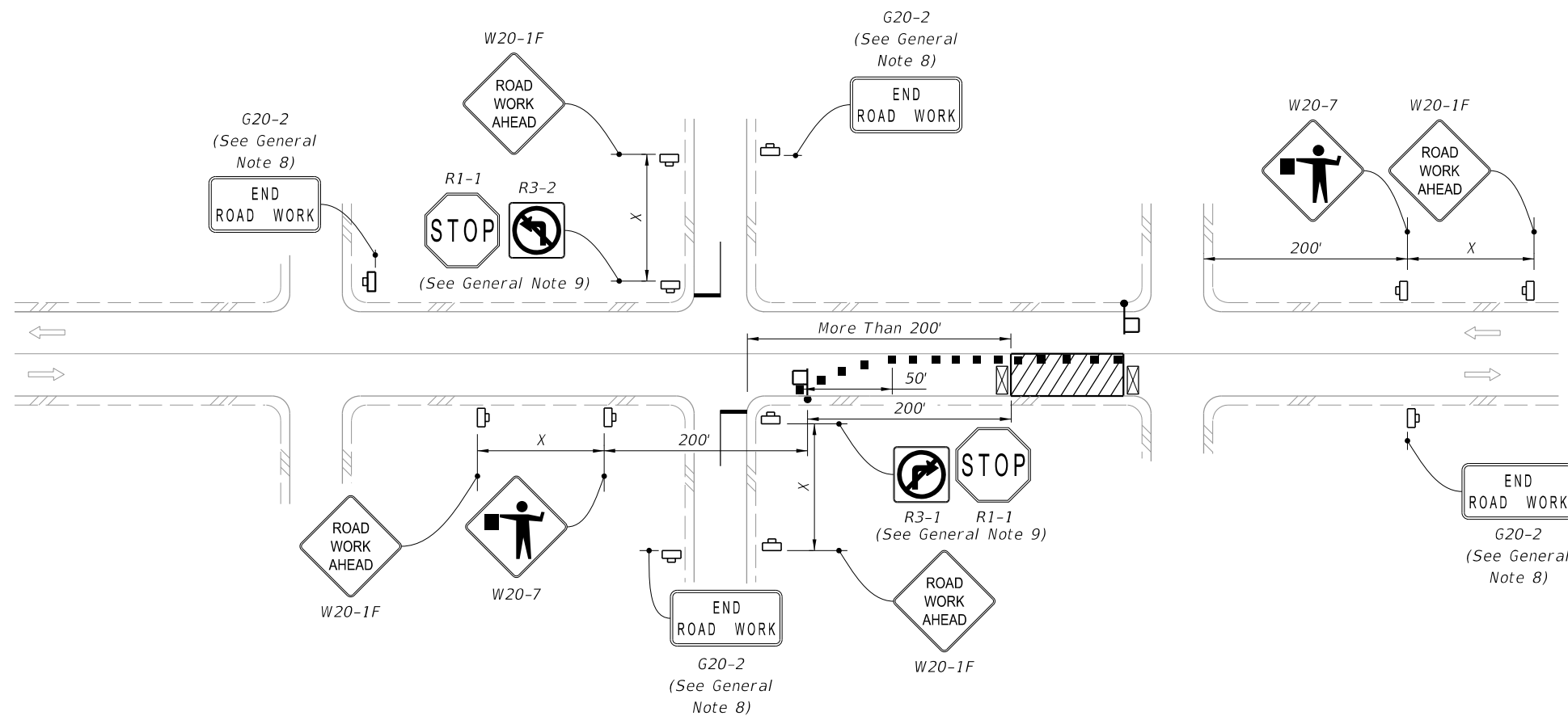
1. This Index applies to two-lane, two-way roadways with work within or near the intersection.
2. X = Work Zone Sign Spacing  
See Index 102-600 for "X" and channelizing device spacing values.
3. Optionally, use "Flagger Ahead" sign with text (W20-7A) instead of "Flagger Ahead" sign with symbol (W20-7).
4. If vehicles in a parking zone block the line of sight to TCZ signs, locate and post mount signs in accordance with Index 700-101.
5. If the work area extends across a crosswalk, close the crosswalk in accordance with Index 102-660.
6. District Traffic Operations Engineer must approve temporary signal phasing modifications prior to beginning of work
7. For unsignalized intersections, use Temporary Raised Rumble Strips in accordance with Index 102-603. Placement of Rumble Strips and additional signs should begin at FLAGGER sign location.
8. The "End Road Work" signs (G20-2) along with the associated work zone sign distances may be omitted when the work zone will be in place for 24 hours or less.
9. As an option to the "STOP" sign (R1-1) and Restricted Left/Right Turning Movement sign (R3-1 or R3-2), the "SIDE ROAD INTERSECTING THE WORK ZONE" flagging operation from Index 102-600 may be used.

**SYMBOLS:**

-  Work Area
-  Channelizing Device (See Index 102-600)
-  Work Zone Sign
-  Type III Barricade
-  Stop Bar
-  Flagger
-  Lane Identification and Direction of Traffic




LANE CLOSURE FOR WORK LESS THAN 200' FROM INTERSECTION

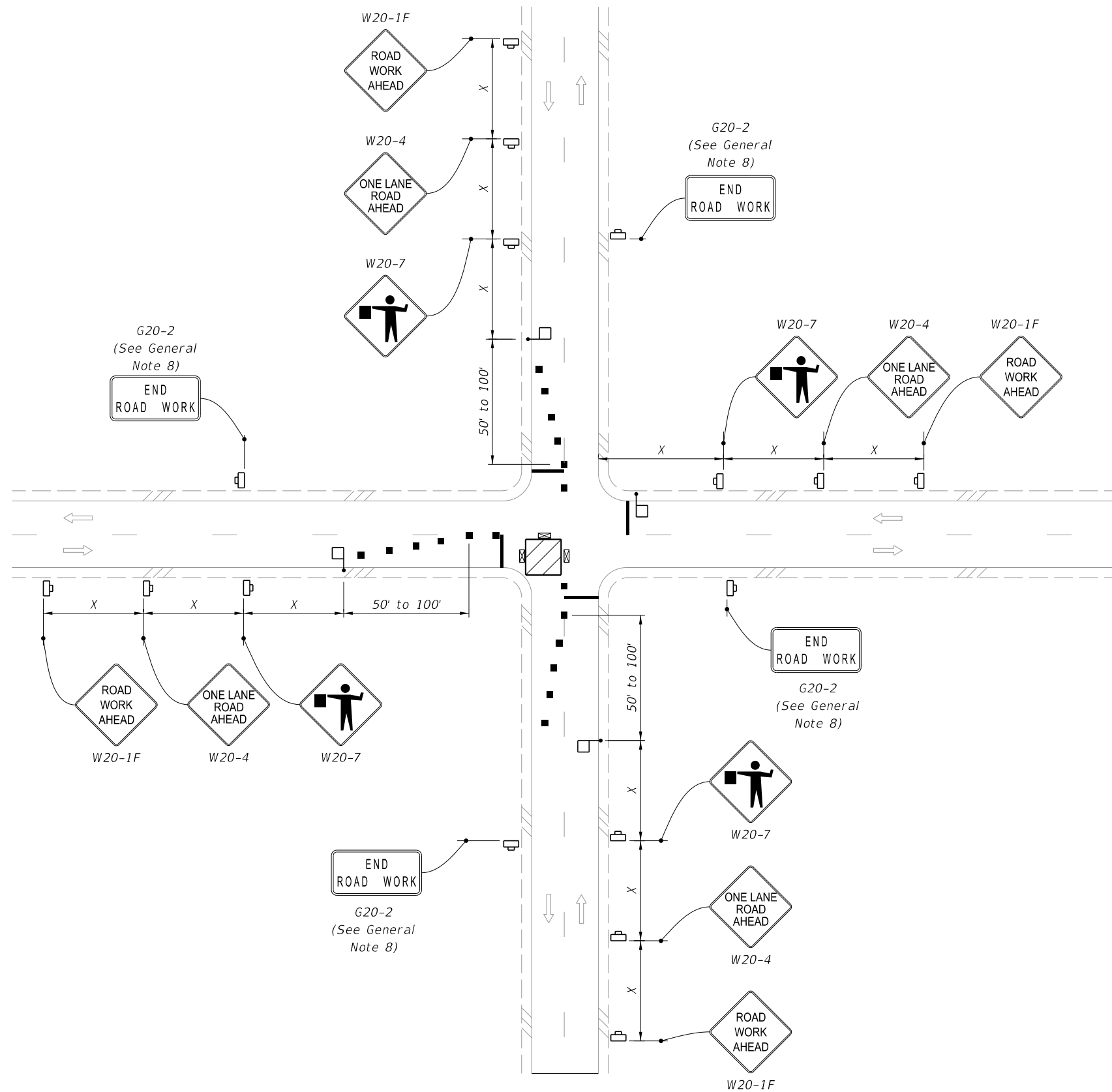


LANE CLOSURE FOR WORK MORE THAN 200' FROM INTERSECTION

9/23/2021 2:46:13 PM

LAST REVISION 11/01/21	REVISION	DESCRIPTION:	 FY 2022-23 STANDARD PLANS	TWO-LANE, TWO-WAY, INTERSECTION WORK	INDEX 102-604	SHEET 1 of 2
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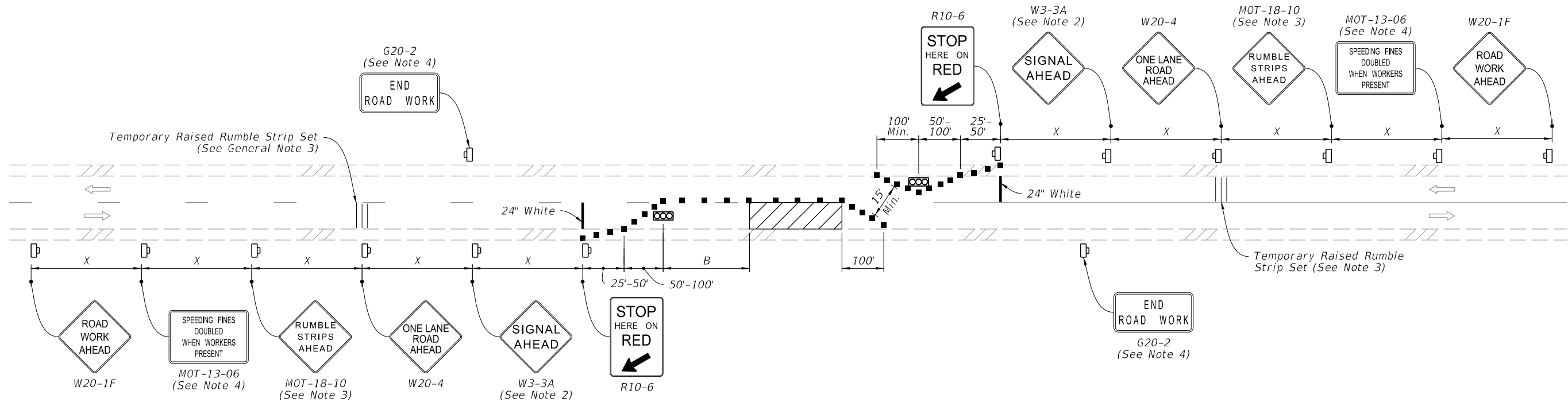


**SYMBOLS:**

- Work Area
- Channelizing Device (See Index 102-600)
- Work Zone Sign
- Type III Barricade
- Stop Bar
- Flagger
- Lane Identification and Direction of Traffic

WORK IN INTERSECTION OF TWO-LANE ROADWAY

LAST REVISION 11/01/21	DESCRIPTION:
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**NOTES:**

1. L = Taper Length  
B = Buffer Length  
X = Work Zone Sign Distance  
See Index 102-600 for "L", "B", "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 Index 102-603.

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 operation 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:**

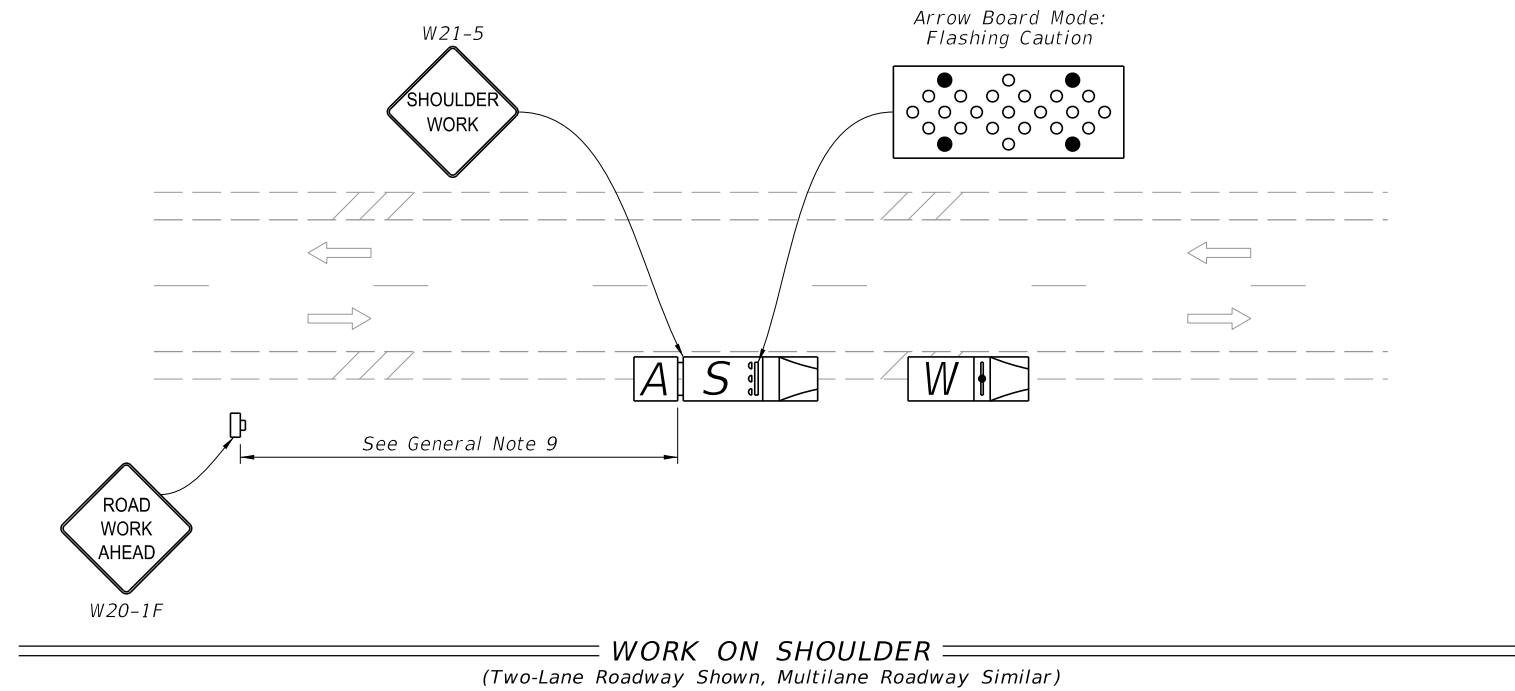
- Work Area
- Channelizing Device (See Index 102-600)
- Work Zone Sign
- Temporary Traffic Signal
- Lane Identification and Direction of Traffic

7/13/2022 7:05:52 AM

LAST REVISION 11/01/22	REVISION	DESCRIPTION:		FY 2022-23 STANDARD PLANS	TWO-LANE ROADWAY, LANE CLOSURE USING TEMPORARY TRAFFIC SIGNALS	INDEX 102-606	SHEET 1 of 1
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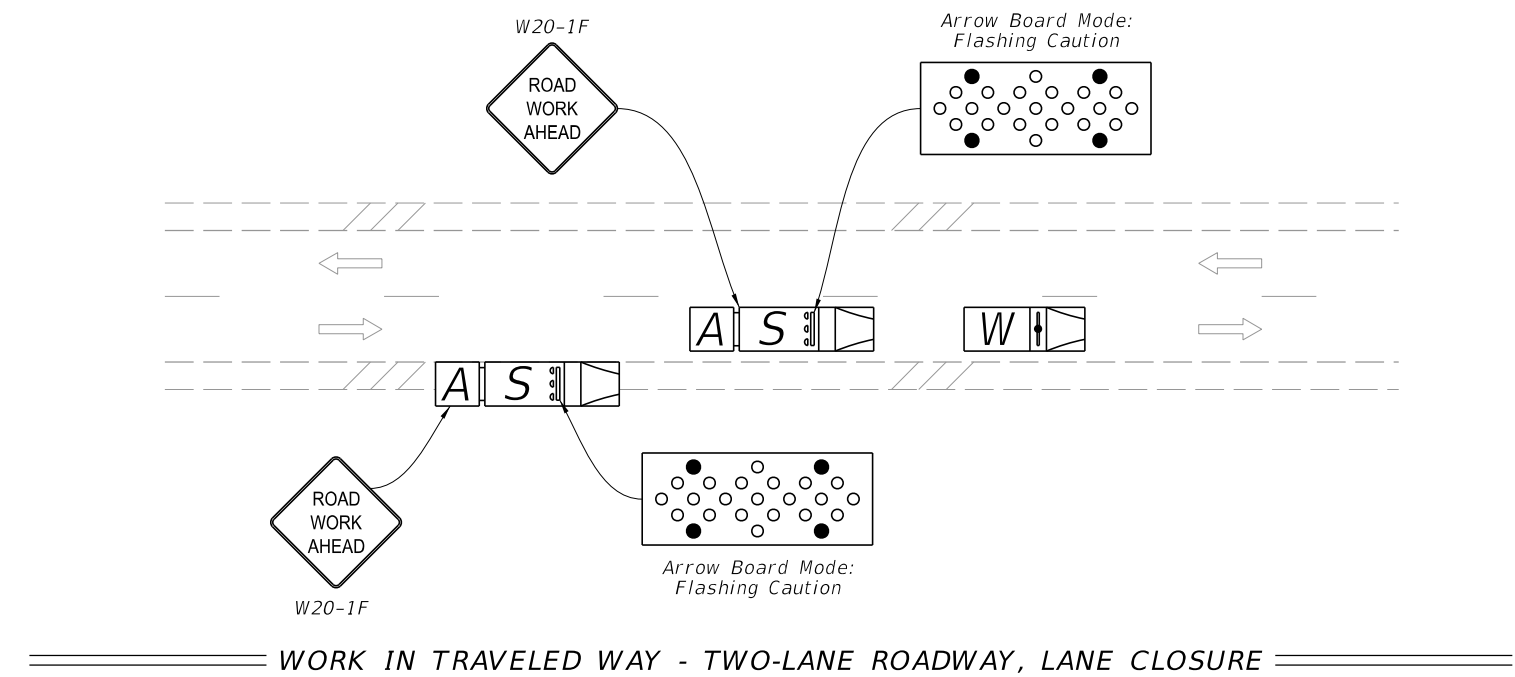
**GENERAL NOTES:**

1. This Index applies to two-lane, two-way and multilane roadways with work that requires a moving operation.
2. Mount vehicle-mounted signs 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 and arrow boards. Ensure changeable message signs flash alternately to read "Left or Right Lane" or "Two Left or Two Right Lanes", "Closed Ahead", and the arrow symbol. Do not use arrow boards in combination with truck mounted changeable message signs or obscure boards with equipment, supplies, signs, or enclosure. Cover or turn sign legends from view when work is not in progress.
3. 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.
4. Where work activities within 2' of the edge of travel way are incidental (i.e., Mowing, Litter Removal), the Engineer may omit requirements for signs and the Shadow vehicle on the shoulder.
5. Minimize the longitudinal spacing between vehicles to deter road users from driving in between.
6. Use inverted plan of the illustrations for work on left side of roadways.
7. Ensure that all vehicles in the mobile operation convoy have functional two-way communication.
8. If the speed of the mobile operation exceeds the existing posted minimum 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.
9. The distance between the advance warning sign and the work location should not exceed 5 miles.



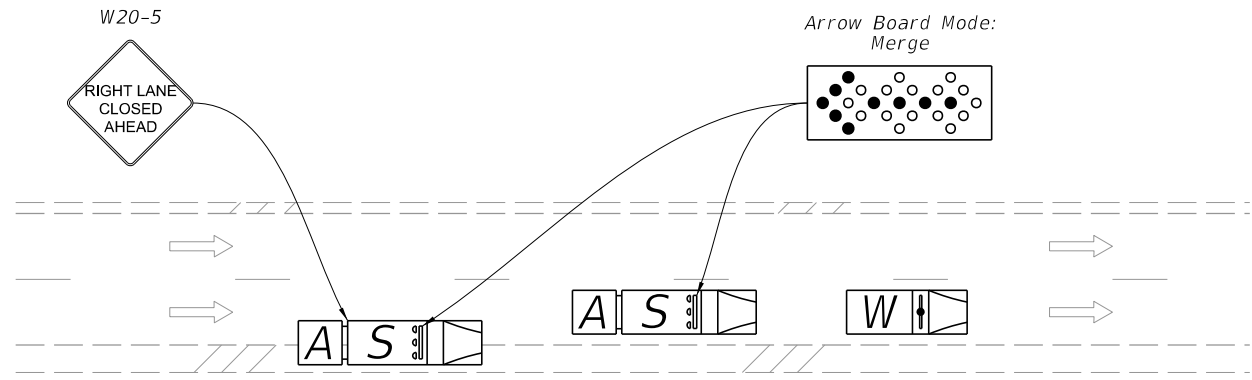
**SYMBOLS:**

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

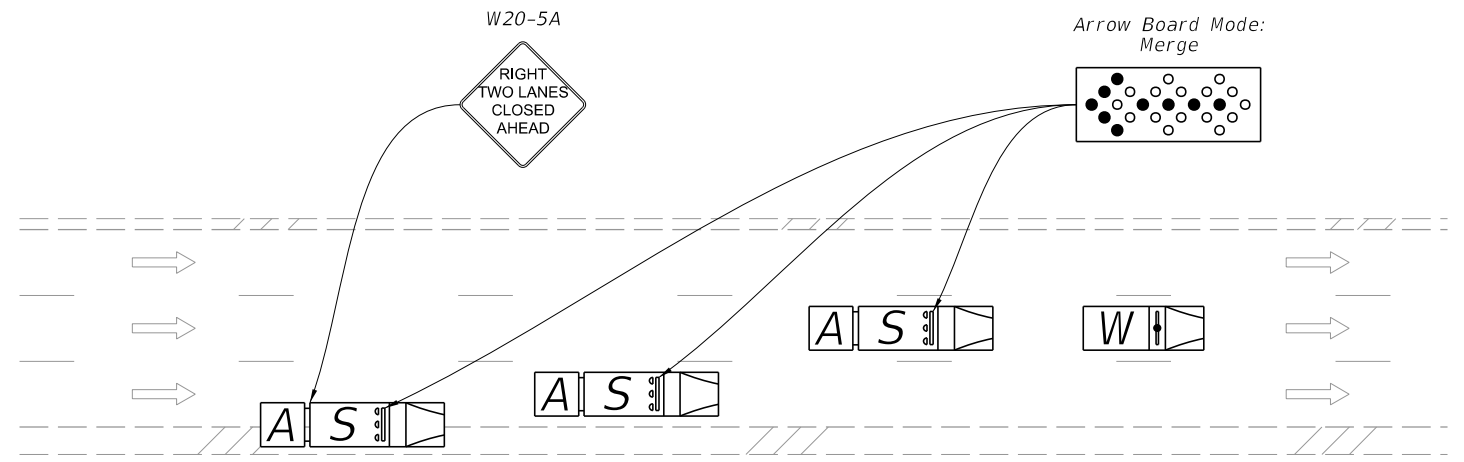


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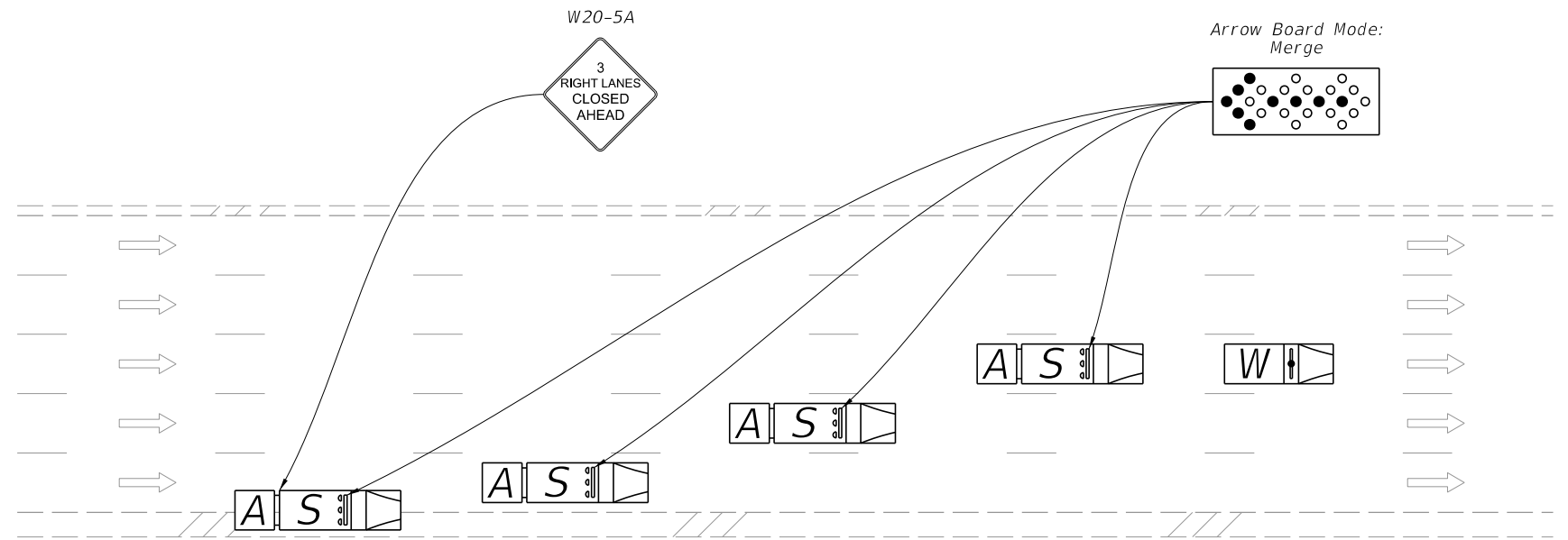
LAST REVISION 11/01/21	REVISION	DESCRIPTION:		FY 2022-23 STANDARD PLANS	MOBILE OPERATIONS	INDEX 102-607	SHEET 1 of 2
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WORK IN TRAVELED WAY - MULTILANE ROADWAY, SINGLE LANE CLOSURE







WORK IN TRAVELED WAY - MULTILANE ROADWAY, DOUBLE LANE CLOSURE




WORK IN TRAVELED WAY - MULTILANE ROADWAY, TRIPLE LANE CLOSURE

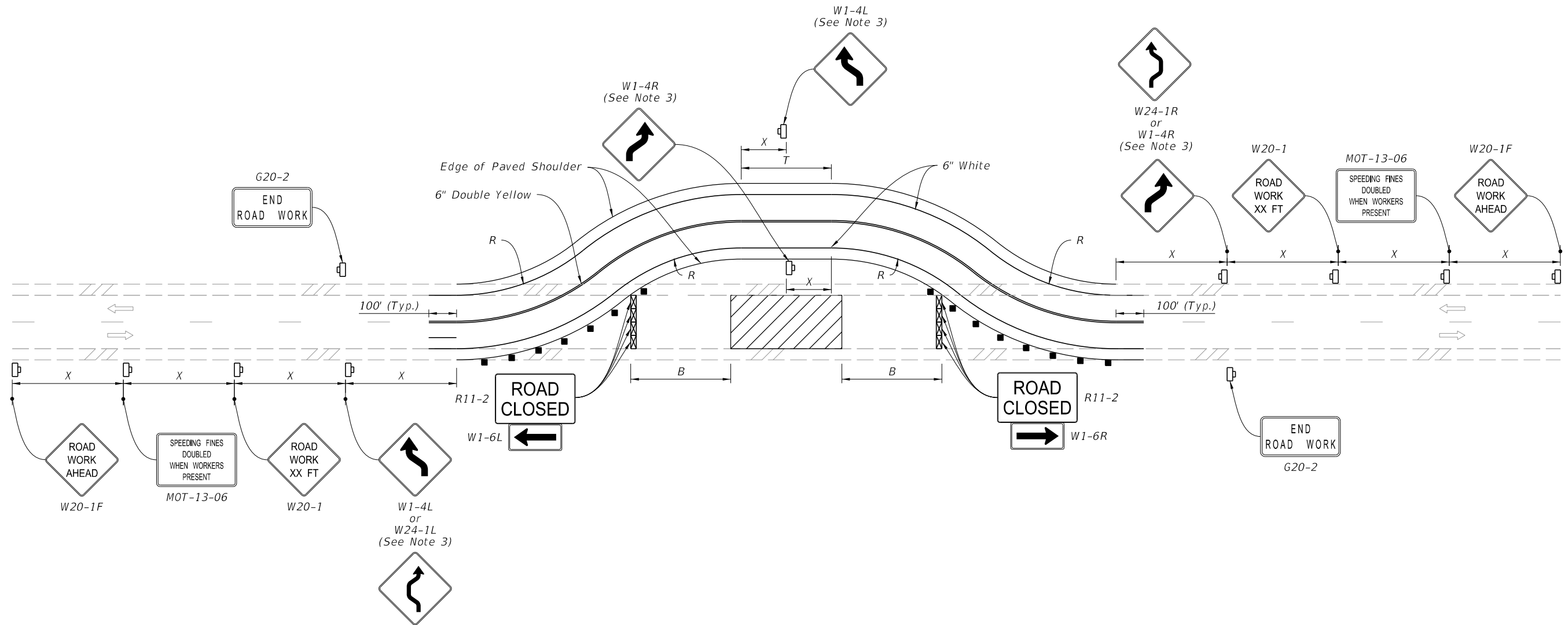
**SYMBOLS:**

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

9/23/2021 2:46:17 PM

LAST REVISION 11/01/20	REVISION	DESCRIPTION:		FY 2022-23 STANDARD PLANS	MOBILE OPERATIONS	INDEX 102-607	SHEET 2 of 2
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9/23/2021 2:46:17 PM



**SYMBOLS:**

- Work Area
- Channelizing Device (See Index 102-600)
- Work Zone Sign
- Type III Barricade
- Lane Identification and Direction of Traffic

**NOTES:**

1. This Index applies to Two-Lane, Two-Way Roadways with temporary diversions.
2. B = Buffer Length  
X = Work Zone Sign Distance  
R = Radius of Curve  
See Index 102-600 for "B", "X", and channelizing device spacing values.  
See Plans for "R" values.
3. If the tangent distance "T" is less than 600', 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.

LAST REVISION  
11/01/20

REVISION

DESCRIPTION:

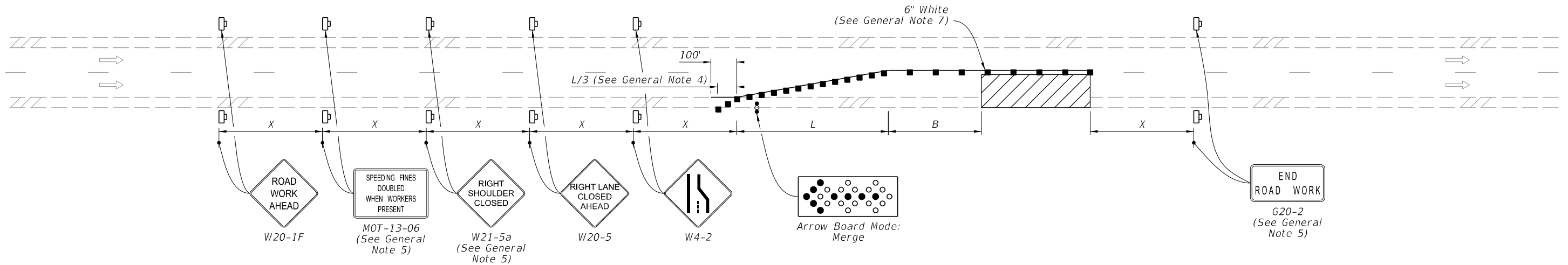


FY 2022-23  
STANDARD PLANS

TWO-LANE, TWO-WAY  
TEMPORARY DIVERSION CONNECTION






INDEX  
102-608

SHEET  
1 of 1



**SINGLE LANE CLOSURE**

**SYMBOLS:**

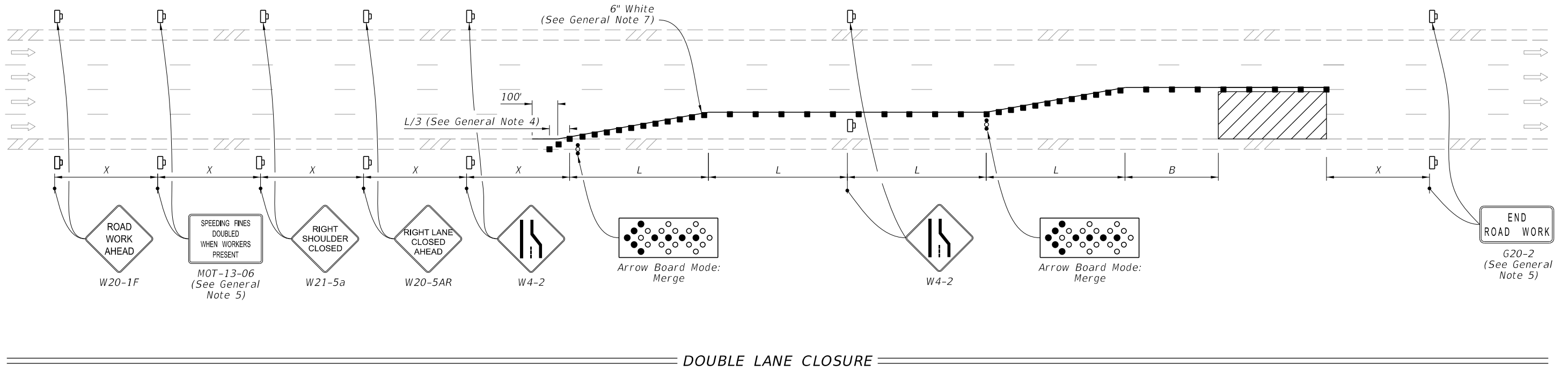
-  Work Area
-  Channelizing Device (See Index 102-600)
-  Work Zone Sign
-  Arrow Board
-  Lane Identification and Direction of Traffic

**GENERAL NOTE:**

1.  $L$  = Taper Length  
 $B$  = Buffer Length  
 $X$  = Work Zone Sign Distance  
 See Index 102-600 for " $L$ ", " $B$ ", " $X$ ", and channelizing device spacing values.
2. On undivided highways the median signs as shown are to be omitted.
3. On limited access facilities, omit "Right Shoulder Closed" signs (W21-5a) and associated work zone sign spacing distances.
4. If the paved shoulder is less than 4' in width, omit the 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) and "Right Shoulder Closed" (W21-5a), along with associated work zone sign distances, may be omitted when the work operation will be in place for 24 hours or less. For Single Lane Closures, arrow boards and buffer ( $B$ ) may also be omitted when the work operation will be in place for 60 minutes or less and the speed limit is 45 mph or less.
6. Use inverted plan of the illustrations for work on left side of roadways.
7. Temporary pavement markings may be omitted when the work operation is in place for 3 days or less.

12/16/2021 7:13:18 AM

LAST REVISION 11/01/21	REVISION	DESCRIPTION:		FY 2022-23 STANDARD PLANS	MULTILANE ROADWAY, LANE CLOSURES	INDEX 102-613	SHEET 1 of 5
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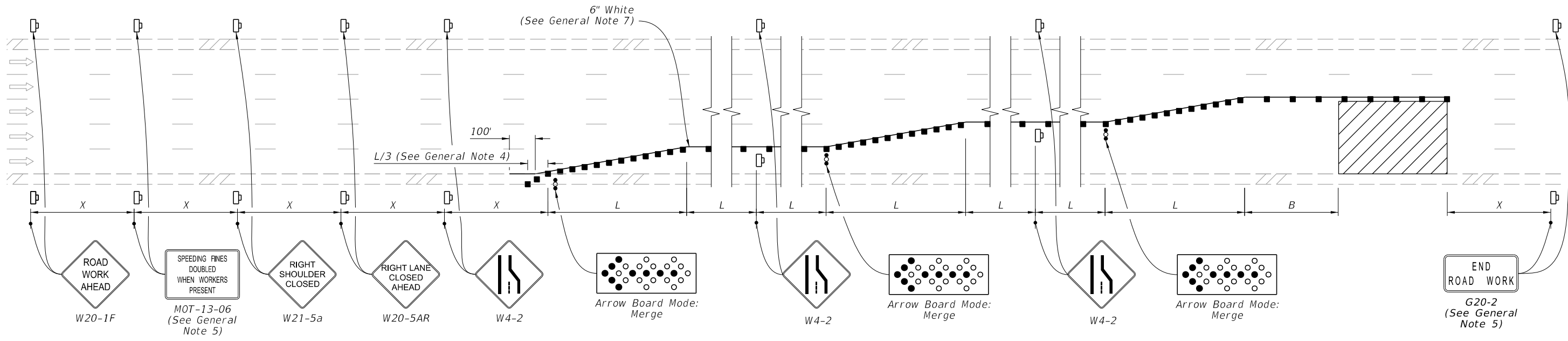
**SYMBOLS:**

- Work Area
- Channelizing Device (See Index 102-600)
- Work Zone Sign
- Arrow Board
- Lane Identification and Direction of Traffic

12/16/2021 7:13:19 AM






LAST REVISION 11/01/20	REVISION	DESCRIPTION:	 FY 2022-23 STANDARD PLANS	MULTILANE ROADWAY, LANE CLOSURES	INDEX 102-613	SHEET 2 of 5
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TRIPLE LANE CLOSURE

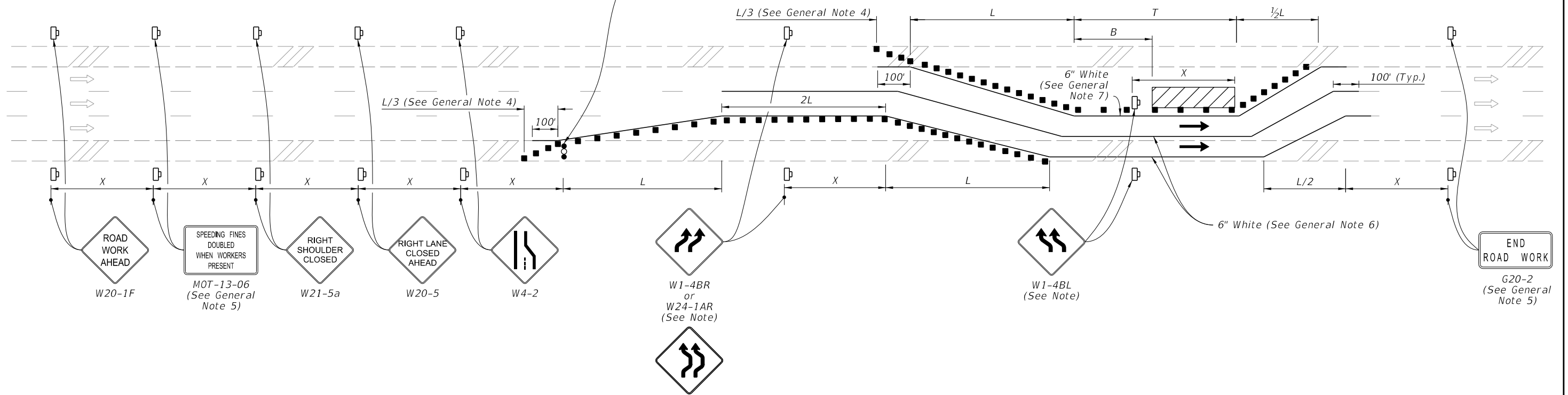
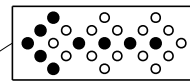
**SYMBOLS:**

-  Work Area
-  Channelizing Device (See Index 102-600)
-  Work Zone Sign
-  Arrow Board
-  Lane Identification and Direction of Traffic

12/16/2021 7:13:19 AM

LAST REVISION 11/01/20	REVISION	DESCRIPTION:	 FY 2022-23 STANDARD PLANS	MULTILANE ROADWAY, LANE CLOSURES	INDEX 102-613	SHEET 3 of 5
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Arrow Board Mode:  
Merge



LANE CLOSURE WITH LANE SHIFT

NOTE:

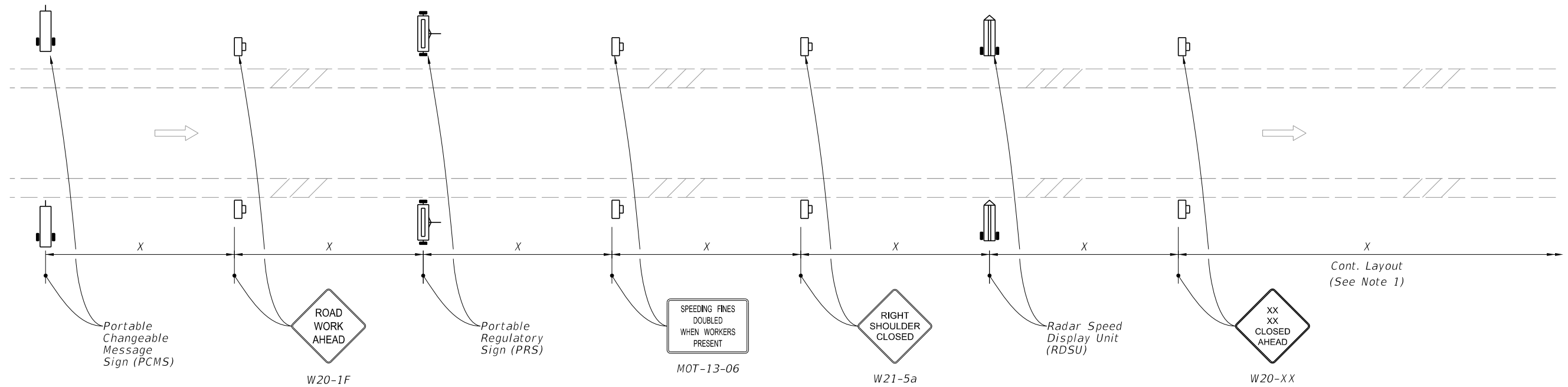
If the tangent distance "T" is less than 600', then use "Double Reverse Curve" signs (W24-1A) instead of the first pair of "Reverse Curve" signs (W1-4B) and omit the second pair of "Reverse Curve" signs.

SYMBOLS:

- Work Area
- Channelizing Device (See Index 102-600)
- Work Zone Sign
- Arrow Board
- Lane Identification and Direction of Traffic






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LAST REVISION 11/01/20	REVISION	DESCRIPTION:		FY 2022-23 STANDARD PLANS	MULTILANE ROADWAY, LANE CLOSURES	INDEX 102-613	SHEET 4 of 5
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**MOTORIST AWARENESS SYSTEM**

**SYMBOLS:**

-  Work Zone Sign
-  (1) PCMS= Portable Changeable (Variable) Message Sign
-  (2) PRS= Portable Regulatory Sign-Speed Limit When Flashing
-  (2) RDSU= Radar Speed Display Unit
-  Lane Identification and Direction of Traffic


**NOTES:**

1. Use the Motorist Awareness System (MAS) for lane closures of at least 5 days (consecutive or not) on multilane divided facilities with a posted speed of 55 or greater when workers are present and not protected by a barrier.
2. Locate the Motorist MAS devices (i.e., PCMS, PRS, and RDSU) within the advance warning signs as shown. Continue with the remainder of the work zone signs and devices in accordance with the Plans or Standard Plans after the appropriate "Lane Closed Ahead" (W20-XX) sign.
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. For areas outside of the lane closure, use the 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






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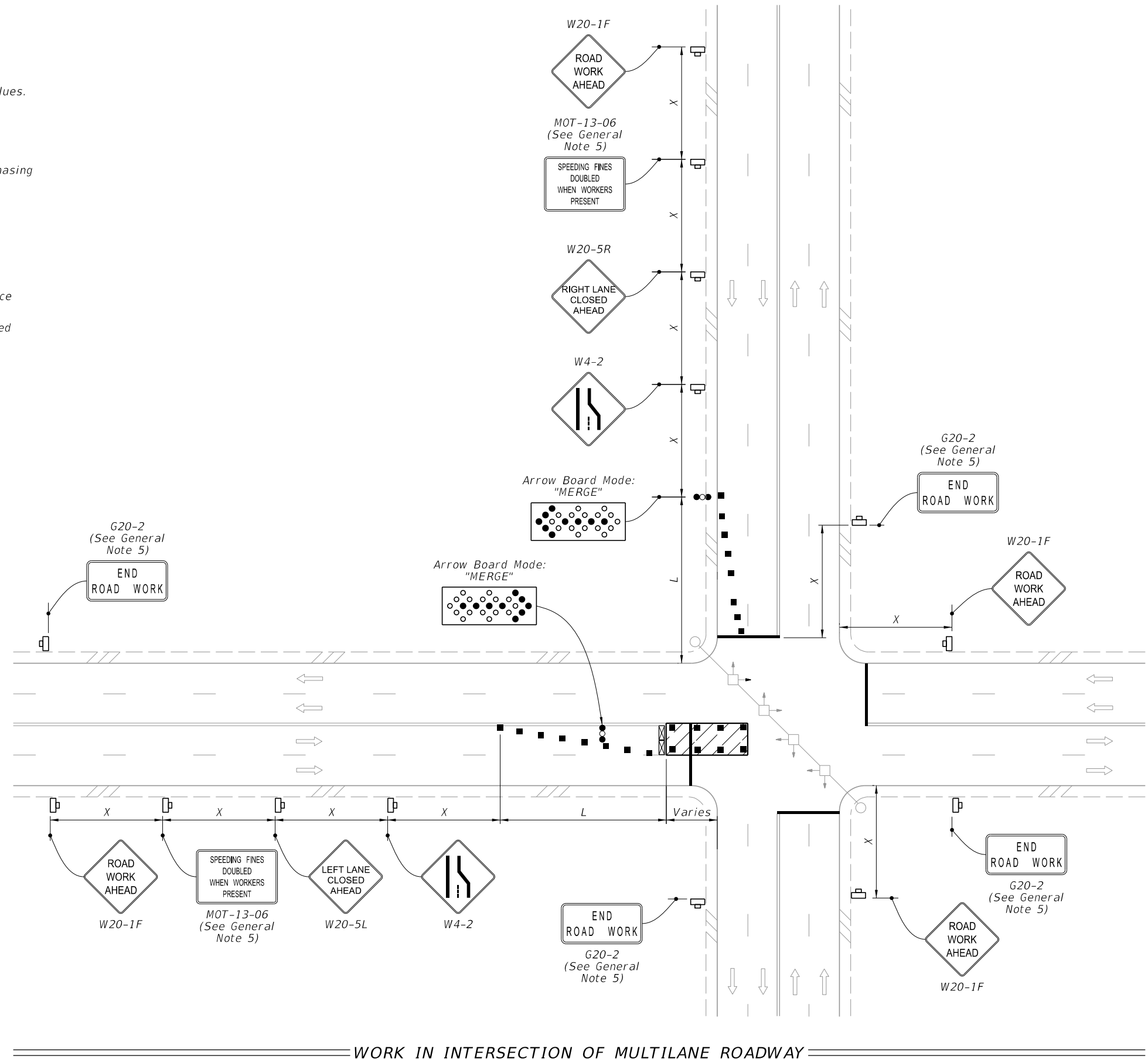
LAST REVISION 11/01/21	REVISION	DESCRIPTION:		FY 2022-23 STANDARD PLANS	MULTILANE ROADWAY, LANE CLOSURES	INDEX 102-613	SHEET 5 of 5
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**GENERAL NOTES:**

1. L = Taper Length  
B = Buffer Length  
X = Work Zone Sign Distance  
See Index 102-600 for "L", "B", "X", and channelizing device spacing values.
2. If vehicles in a parking zone block the line of sight to TCZ signs, locate and post mount signs in accordance with Index 700-101.
3. District Traffic Operations Engineer must approve temporary signal phasing modifications prior to beginning of work.
4. Use temporary "STOP" sign (R1-1) where the existing stop bar is more than 30' from the taper, remove or cover existing sign.
5. The "Speeding Fines Doubled When Workers Present" sign (MOT-13-06) and "End Road Work" Sign (G20-2), along with associated Work Zone Sign Sign Distances, may be omitted when the work operation will be in place for 24 hours or less. Additionally, arrow boards may be omitted when the work operation will be in place for 60 minutes or less and the speed limit is 45 mph or less.
6. If the work area extends across a crosswalk, close the crosswalk in accordance with Index 102-660.
7. Dual signs are required for divided roadways.


**SYMBOLS:**

-  Work Area
-  Channelizing Device (See Index 102-600)
-  Work Zone Sign
-  Type III Barricade
-  Arrow Board
-  Stop Bar
-  Lane Identification and Direction of Traffic



WORK IN INTERSECTION OF MULTILANE ROADWAY

9/23/2021 2:46:21 PM

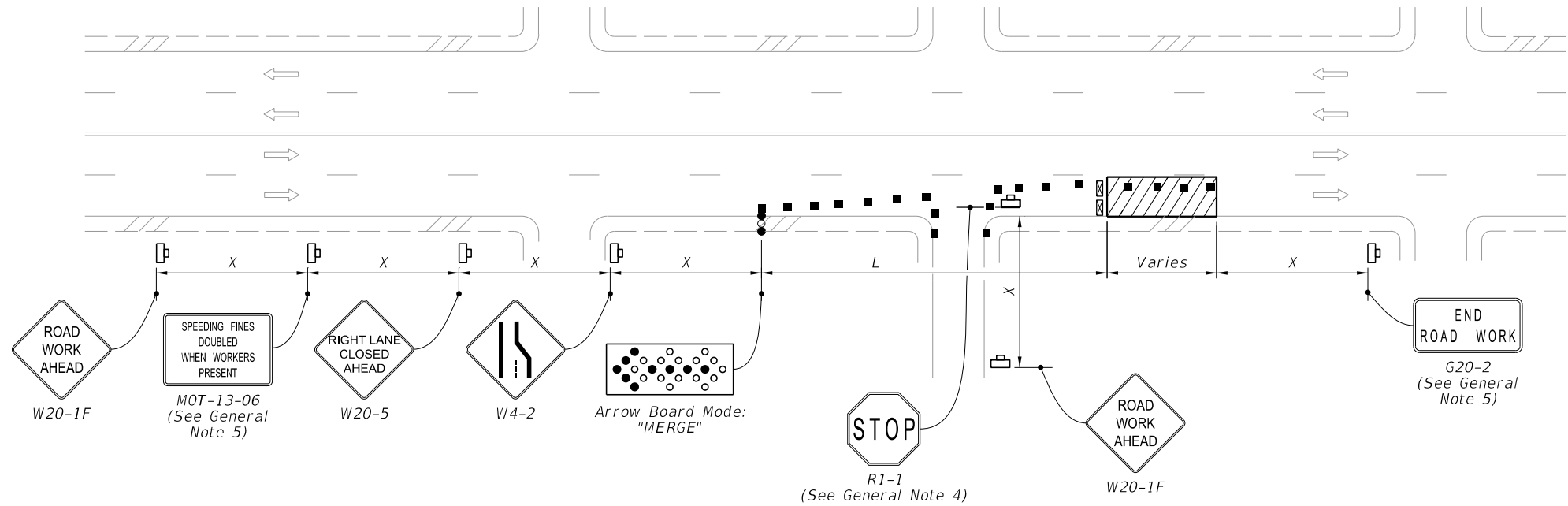
LAST REVISION 11/01/21	REVISION	DESCRIPTION:	 FY 2022-23 STANDARD PLANS	MULTILANE ROADWAY, INTERSECTION WORK	INDEX 102-615	SHEET 1 of 5
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**NOTES:**

Confine work operations to the following lane or lane combinations:

- a. Outside travel lane
- b. Outside auxiliary lane
- c. Outside travel lane and adjoining auxiliary lane
- d. Inside travel lane
- e. Inside auxiliary lane
- f. Inside travel lane and adjoining auxiliary lane

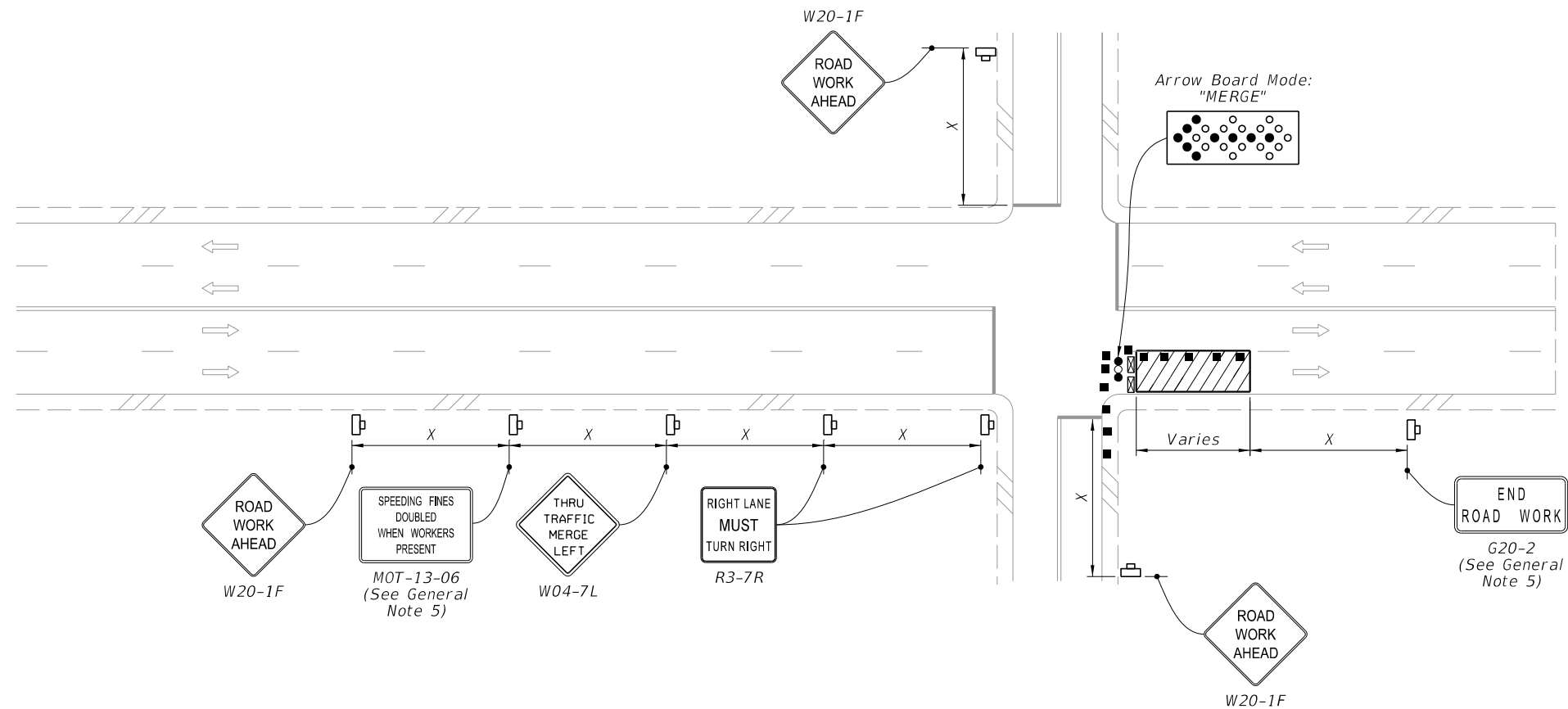
If the work area is confined to an auxiliary lane, the work area must be barricaded. Replace the RIGHT (LEFT) LANE CLOSED AHEAD signs with ROAD WORK AHEAD signs, and omit the merge symbol signs and arrow board.



RIGHT LANE CLOSED ON FAR SIDE OF MINOR SIDE STREET

**SYMBOLS:**

- Work Area
- Channelizing Device (See Index 102-600)
- Work Zone Sign
- Type III Barricade
- Arrow Board
- Stop Bar
- Lane Identification and Direction of Traffic



RIGHT LANE CLOSED ON FAR SIDE OF INTERSECTION WITH SIGNIFICANT RIGHT TURNING MOVEMENTS

11/19/2021 7:06:11 AM

LAST REVISION 11/01/20	REVISION	DESCRIPTION:	 FY 2022-23 STANDARD PLANS	MULTILANE ROADWAY, INTERSECTION WORK	INDEX 102-615	SHEET 2 of 5
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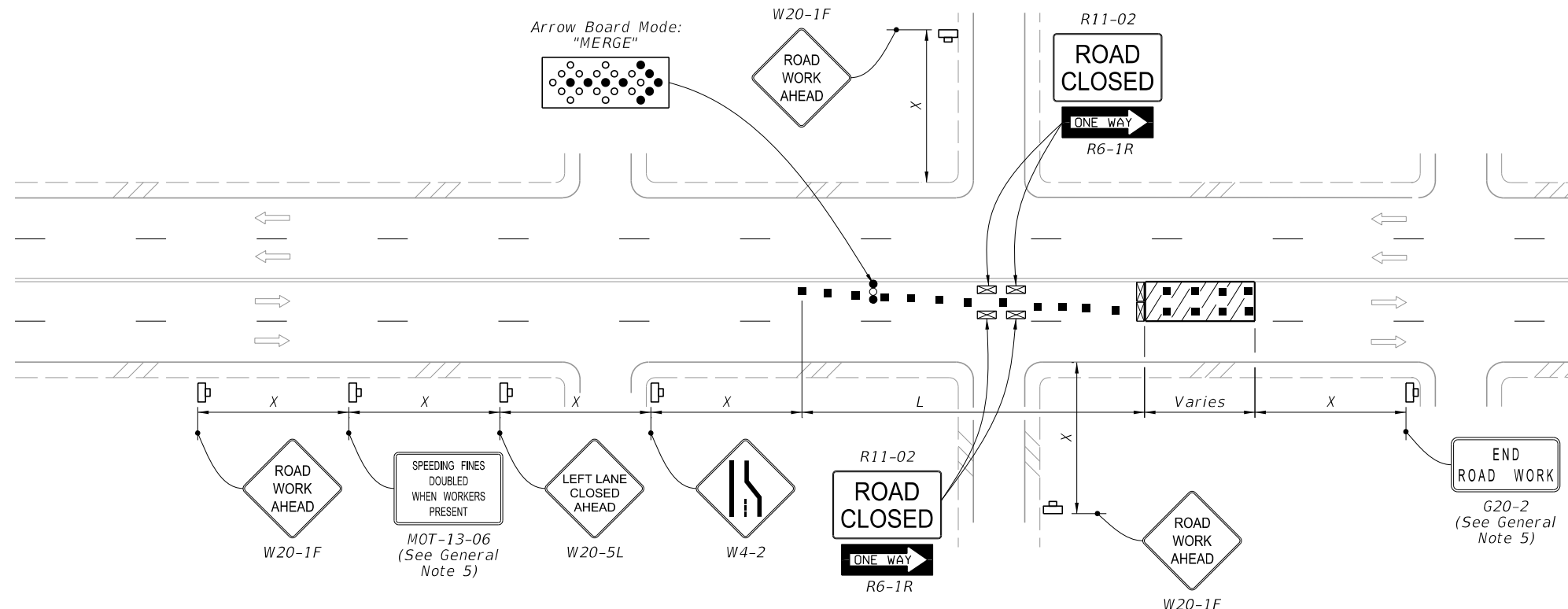
**NOTES:**

1. Confine work operations to the following lane or lane combinations:

- a. Outside travel lane
- b. Outside auxiliary lane
- c. Outside travel lane and adjoining auxiliary lane
- d. Inside travel lane
- e. Inside auxiliary lane
- f. Inside travel lane and adjoining auxiliary lane

If the work area is confined to an auxiliary lane, the work area must be barricaded. Replace the RIGHT (LEFT) LANE CLOSED AHEAD signs with ROAD WORK AHEAD signs, and omit the merge symbol signs and arrow board.

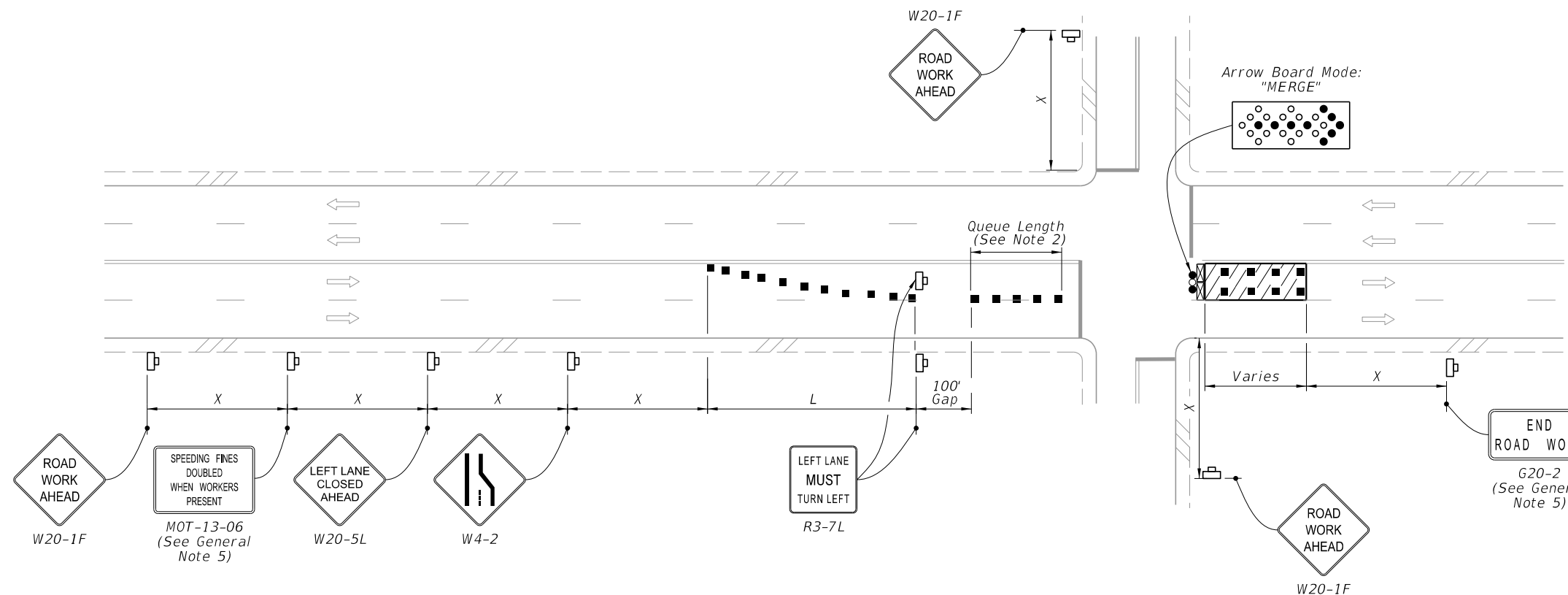
2. Provide sufficient Queue Length so that left-turning vehicles do not block through lanes.



LEFT LANE CLOSED ON FAR SIDE OF MINOR SIDE STREET - RESTRICTED TURNING MOVEMENTS

**SYMBOLS:**

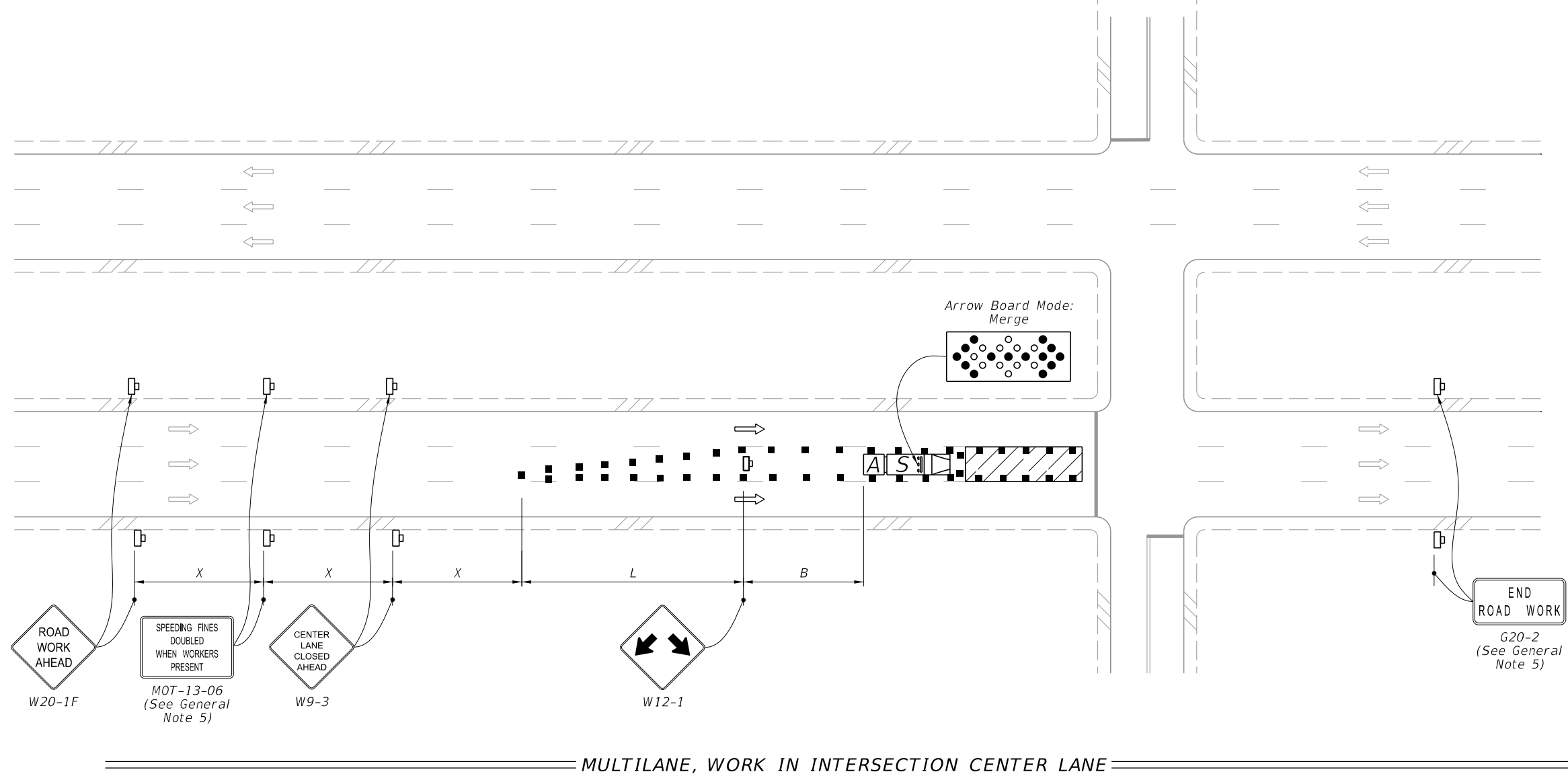
- Work Area
- Channelizing Device (See Index 102-600)
- Work Zone Sign
- Type III Barricade
- Arrow Board
- Stop Bar
- Lane Identification and Direction of Traffic



LEFT LANE CLOSED ON FAR SIDE OF INTERSECTION TURNING MOVEMENTS ALLOWED

1/4/2022 7:58:26 AM

LAST REVISION 11/01/20	REVISION	DESCRIPTION:	 FY 2022-23 STANDARD PLANS	MULTILANE ROADWAY, INTERSECTION WORK	INDEX 102-615	SHEET 3 of 5
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**NOTES:**

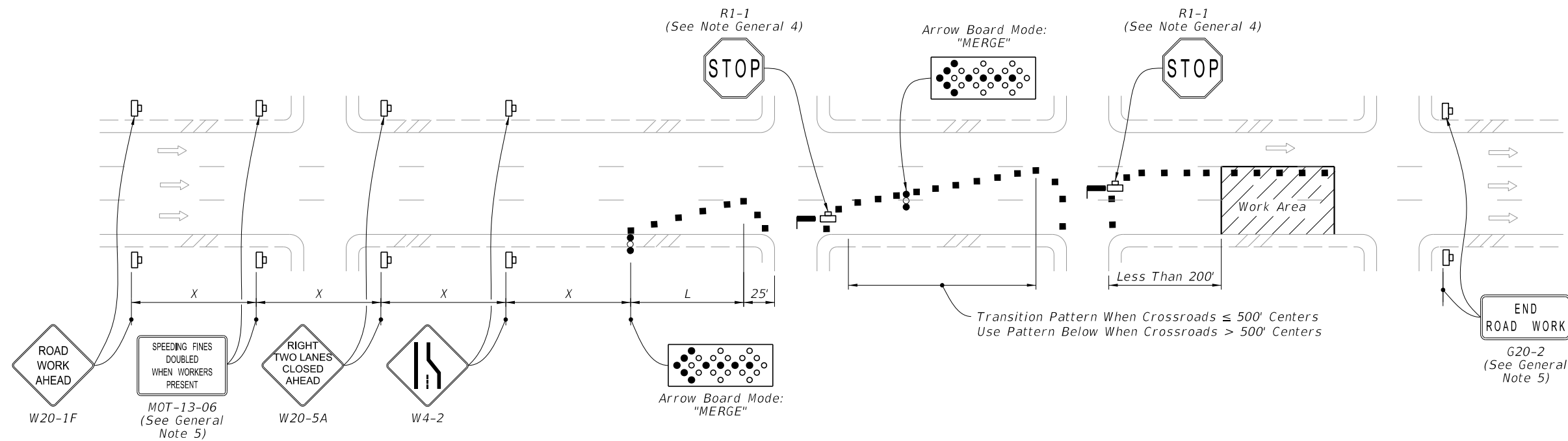
1. Confine work operations to one center travel lane and leave the adjacent travel lanes open to traffic.
2. Ensure that the merging taper only directs vehicular traffic into either the right or left lane.

**SYMBOLS:**

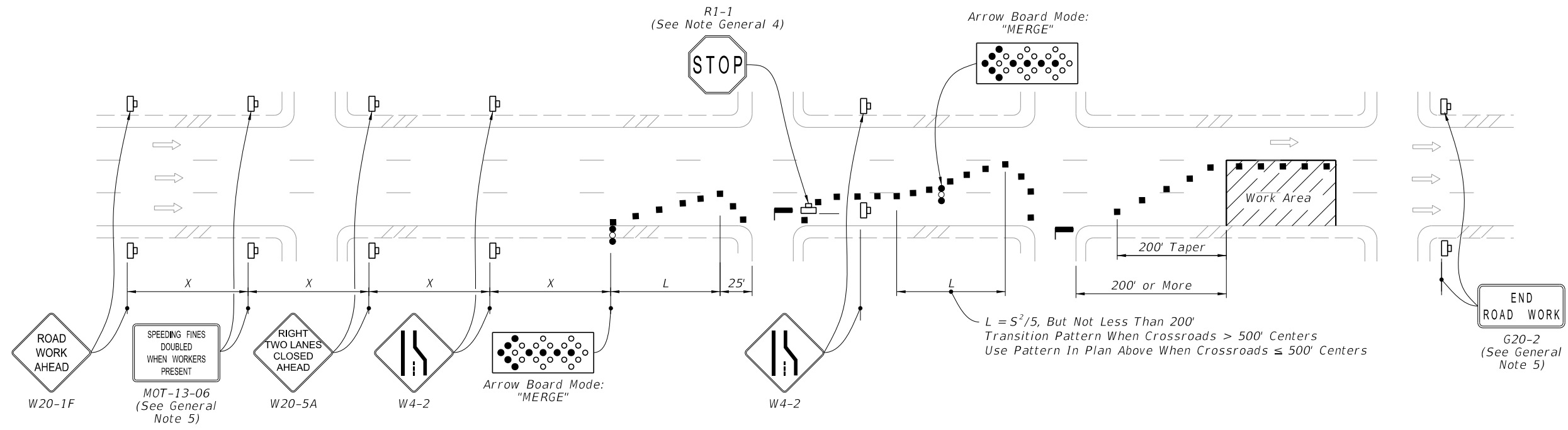
- Work Area
- Channelizing Device (See Index 102-600)
- Work Zone Sign
- Type III Barricade
- Arrow Board
- Stop Bar
- Shadow (S) Vehicle With Warning Lights And Arrow Board
- Truck/Trailer Mounted Attenuator (TMA)
- Lane Identification and Direction of Traffic

9/23/2021 2:46:23 PM

LAST REVISION 11/01/21	REVISION	DESCRIPTION:		FY 2022-23 <b>STANDARD PLANS</b>	<b>MULTILANE ROADWAY, INTERSECTION WORK</b>	INDEX <b>102-615</b>	SHEET <b>4 of 5</b>
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DOUBLE LANE CLOSURE FOR WORK LESS THAN 200' FROM INTERSECTION



SYMBOLS: (See General Note 5)

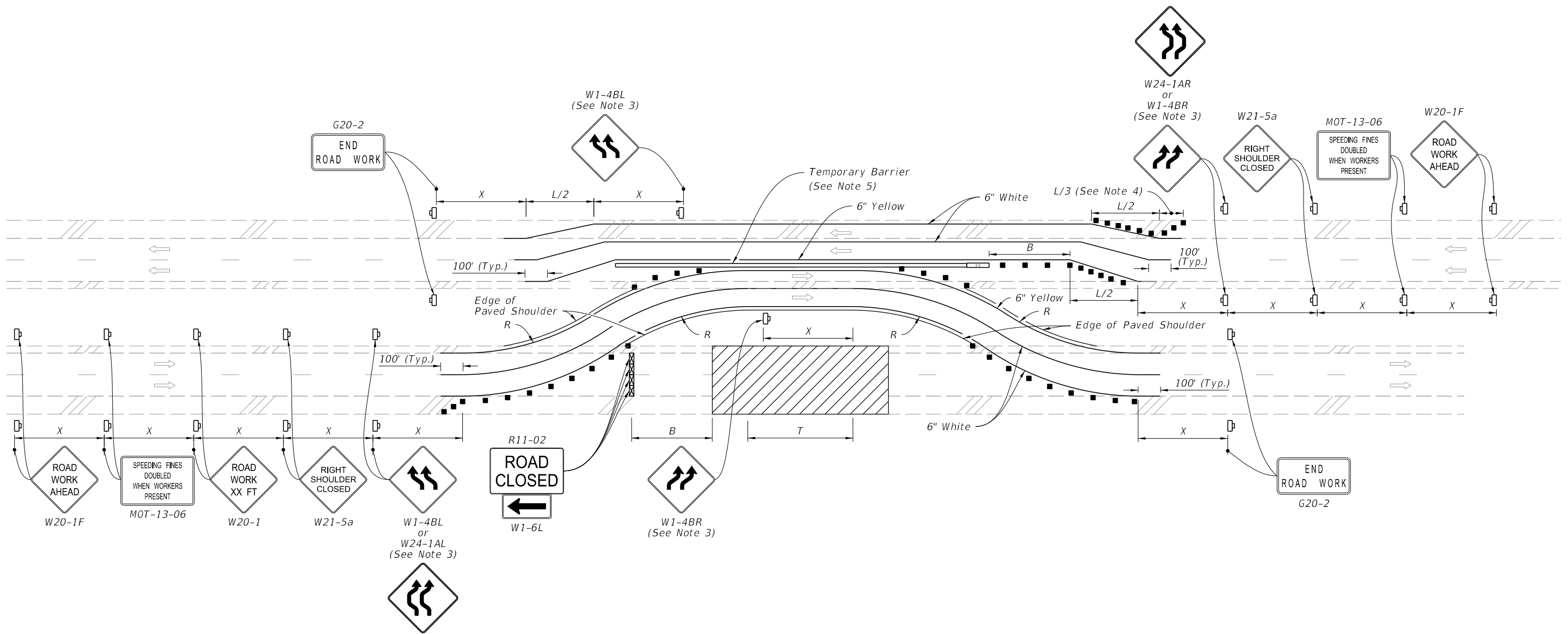
- Work Area
- Channelizing Device (See Index 102-600)
- Work Zone Sign
- Arrow Board
- Stop Bar
- Lane Identification and Direction of Traffic

DOUBLE LANE CLOSURE FOR WORK MORE THAN 200' FROM INTERSECTION

9/23/2021 2:46:23 PM

LAST REVISION 11/01/20	REVISION	DESCRIPTION:	 FY 2022-23 STANDARD PLANS	MULTILANE ROADWAY, INTERSECTION WORK	INDEX 102-615	SHEET 5 of 5
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**TEMPORARY DIVERSION FOR DIVIDED ROADWAYS**

**SYMBOLS:**

- Work Area
- Channelizing Device (See Index 102-600)
- Work Zone Sign
- Type III Barricade
- Crash Cushion
- Lane Identification and Direction of Traffic

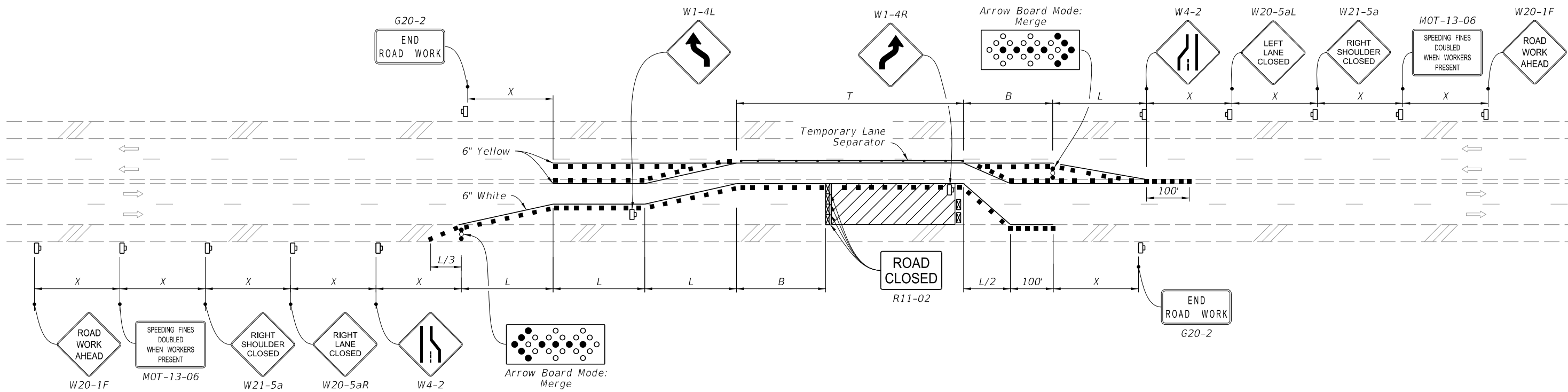
**NOTES:**

1. This Index applies to multilane roadways, except with undivided roadways with 6 or more lanes, where the work requires the closure of the lanes in one direction and diversion is provided to convert the opposing traffic lanes to temporary two-way travel.
2.  $L$  = Taper Length  
 $B$  = Buffer Length  
 $X$  = Work Zone Sign Distance  
 $R$  = Radius of Curve  
 See Index 102-600 for "L", "B", "X", channelizing device spacing values. See Plans for "R" values.
3. For undivided roadways with a tangent distance "T" less than 600', 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.
4. If the paved shoulder is less than 4' in width, omit the taper and channelizing devices shown on the paved shoulder.
5. Temporary Lane Separator may be used in lieu of Temporary Barrier for speed limits of 45 mph or less.

1/18/2022 8:11:41 AM

LAST REVISION 11/01/21	REVISION	DESCRIPTION:		FY 2023-24 <b>STANDARD PLANS</b>	<b>MULTILANE ROADWAY, TEMPORARY DIVERSION</b>	INDEX <b>102-620</b>	SHEET <b>1 of 2</b>
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9/23/2021 2:46:25 PM

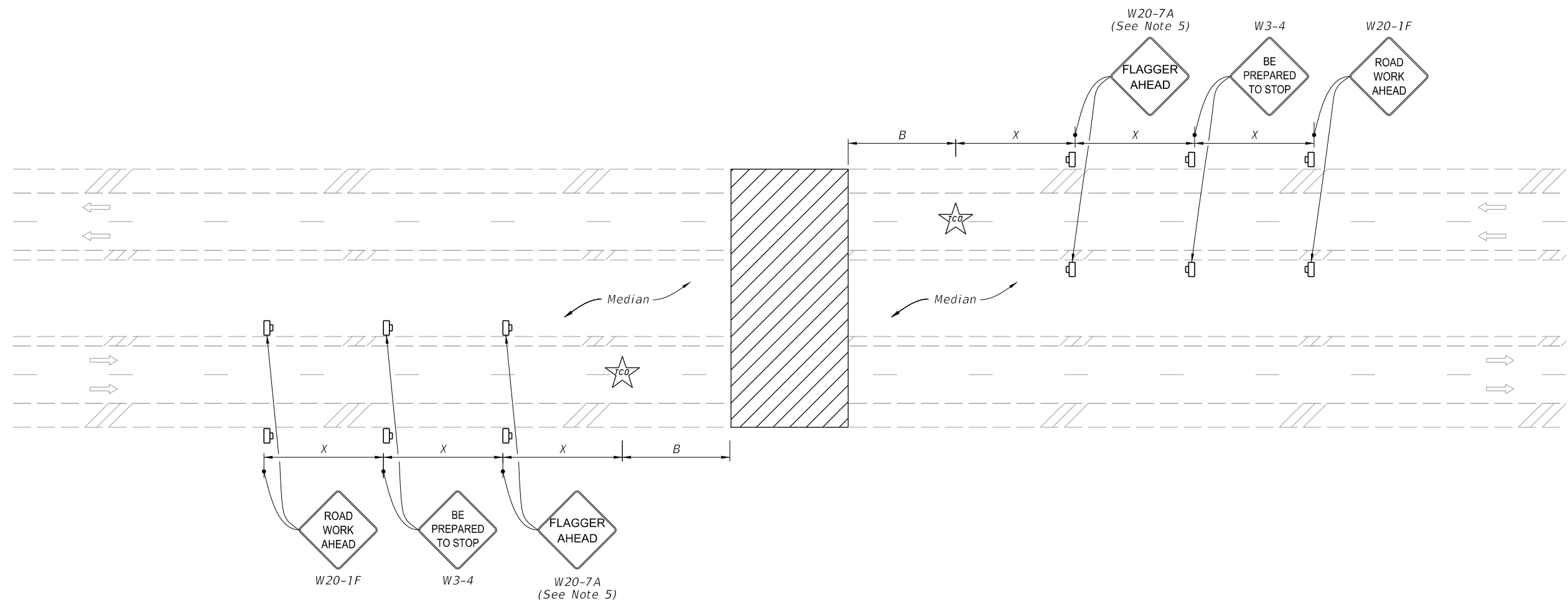


TEMPORARY DIVERSION FOR UNDIVIDED ROADWAYS

**NOTE:**  
 Temporary pavement markings may be omitted when the work operation is in place for 3 days or less.





- SYMBOLS:**
- Work Area
  - Channelizing Device (See Index 102-600)
  - Work Zone Sign
  - Type III Barricade
  - Crash Cushion
  - Lane Identification and Direction of Traffic

LAST REVISION 11/01/21	REVISION	DESCRIPTION:		FY 2022-23 STANDARD PLANS	MULTILANE ROADWAY, TEMPORARY DIVERSION	INDEX 102-620	SHEET 2 of 2
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(Multilane Roadway Shown, Two-Lane Roadway Similar)


**SYMBOLS:**

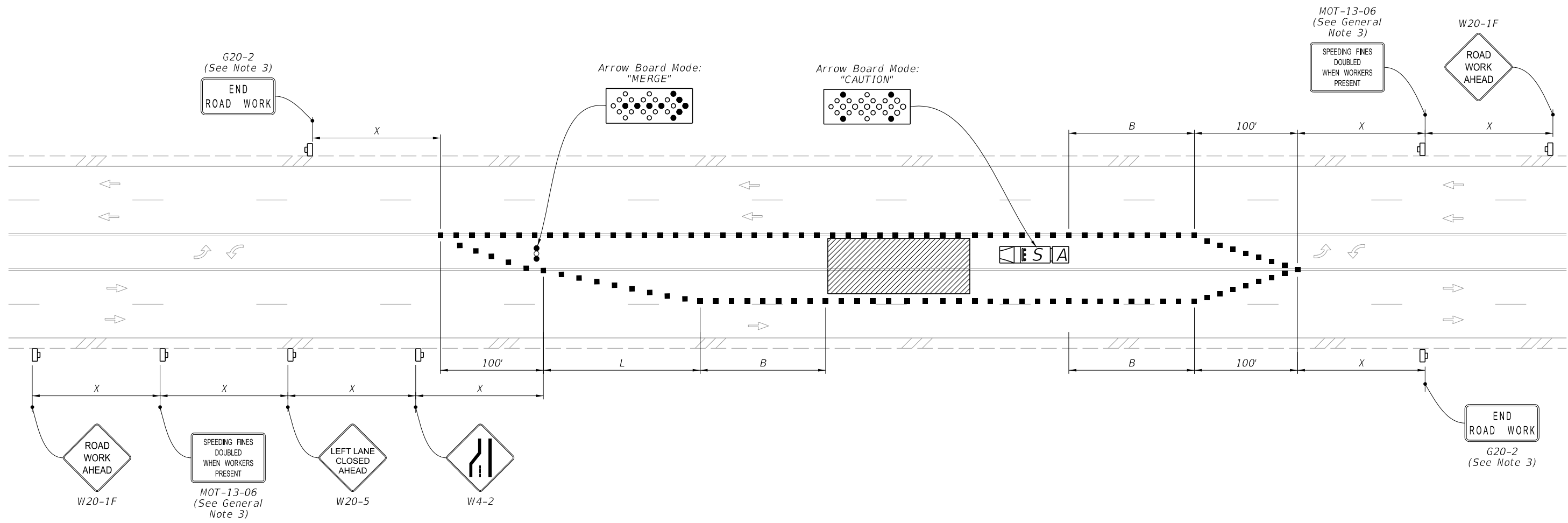
-  Work Area
-  Work Zone Sign
-  Traffic Control Officer
-  Lane Identification and Direction of Traffic

**NOTES:**

1. This Index applies to two-lane, two-way and multilane roadways, except limited access facilities, with temporary daytime roadway closures of 5 minutes or less.
2. B = Buffer Length  
X = Work Zone Sign Distance  
See Index 102-600 for "B" and "X" values.
3. For Two-Lane Roadways, a Flagger may substitute the traffic control office with approval of the Engineer.
4. Traffic volume or complexity of the roadway may dictate additional signs, devices or traffic control officers.
5. Optionally, use "Flagger Ahead" sign with symbol (W20-7) instead of "Flagger Ahead" sign with text (W20-7A).
6. Dual Signs are required for divided roadways only.

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LAST REVISION 11/01/20	REVISION	DESCRIPTION:	 FY 2022-23 STANDARD PLANS	TEMPORARY ROADWAY CLOSURE	INDEX 102-625	SHEET 1 of 1
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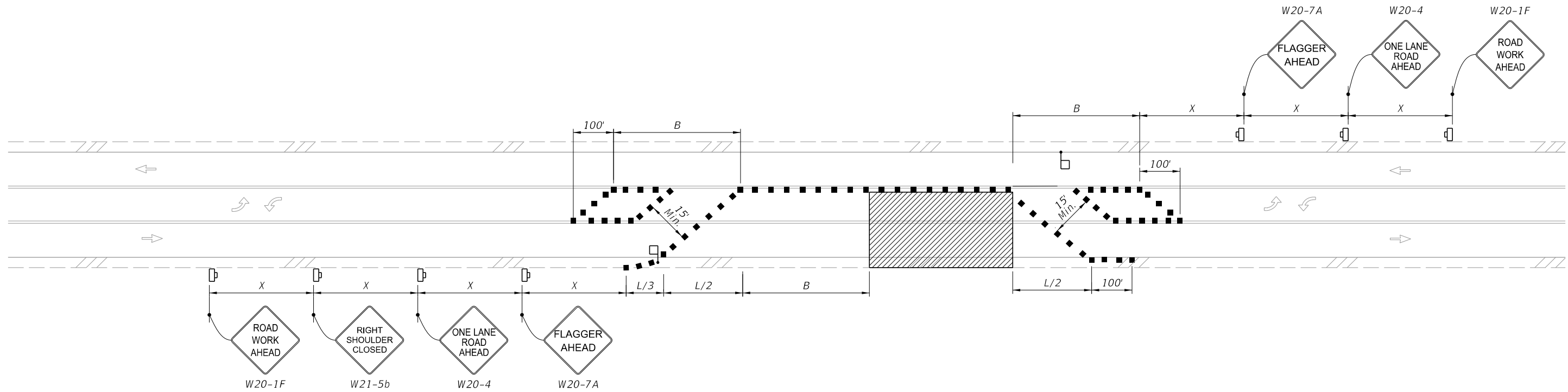
**TEMPORARY MULTILANE, TWO-WAY LEFT-TURN LANE, TURN LANE CLOSURE**  
 (Closure of One Inside Lane Shown, Closure of both Similar)

- SYMBOLS:**
- Work Area
  - Channelizing Device (See Index 102-600)
  - Work Zone Sign
  - Arrow Board
  - Shadow (S) Vehicle With Warning Lights And Arrow Board
  - Truck/Trailer Mounted Attenuator (TMA)
  - Lane Identification and Direction of Traffic

- GENERAL NOTES:**
1. This Index applies to roadways with work in the two-way left-turn lane.
  2. L = Taper Length  
 X = Work Zone Sign Distance  
 B = Buffer Length  
 See Index 102-600 for "L", "X", "B", and channelizing device spacing values.
  3. The "Speeding Fines Doubled When Workers Present" signs (MOT-13-06) and "End Road Work" Sign (G20-2), along with associated Work Zone Sign Distances, may be omitted when the work operation will be in place for 24 hours or less.
  4. If closure of both inside lanes on multilane roadways is needed, duplicate lane closure and merge; signs, channelizing devices, taper, and arrow board, for both directions


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LAST REVISION 11/01/21	REVISION	DESCRIPTION:	 FY 2022-23 STANDARD PLANS	TWO-WAY LEFT-TURN LANES	INDEX 102-628	SHEET 1 of 3
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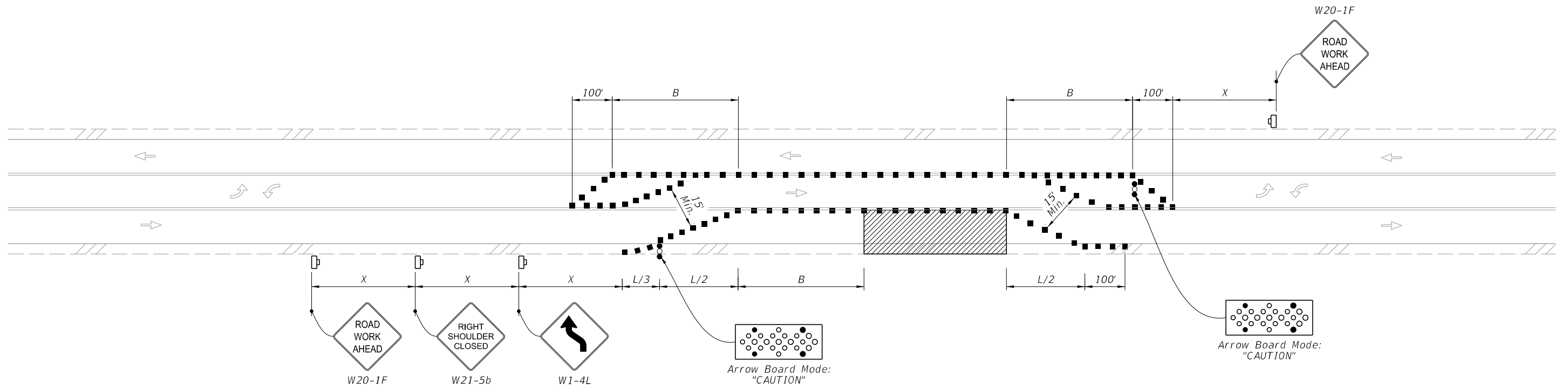
TEMPORARY TWO-WAY LEFT-TURN LANE CLOSURE, TWO-LANE, TWO-WAY ROADWAY, WORK WITHIN THE TRAVELED WAY WITH LANE CLOSURES OF 24 HRS OR LESS AND WORK ZONE SPEED OF 45 MPH OR LESS

**SYMBOLS:**

-  Work Area
-  Channelizing Device (See Index 102-600)
-  Work Zone Sign
-  Flagger
-  Lane Identification and Direction of Traffic

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LAST REVISION 11/01/20	REVISION	DESCRIPTION:	 FY 2022-23 STANDARD PLANS	TWO-WAY LEFT-TURN LANES	INDEX 102-628	SHEET 2 of 3
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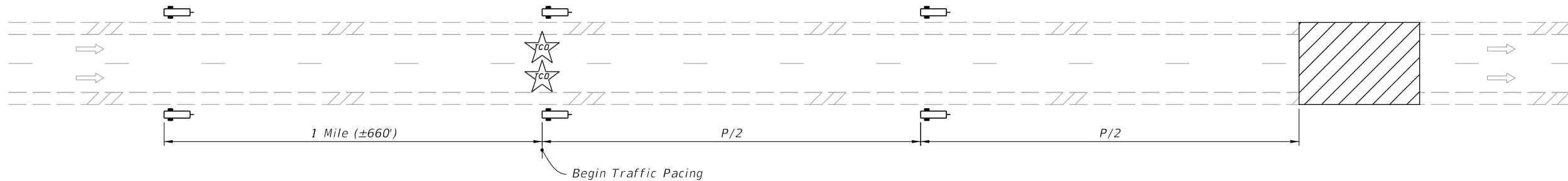
TEMPORARY SHIFT TO TWO-WAY LEFT-TURN LANE, WORK WITHIN THE TRAVELED WAY  
 WITH LANE CLOSURES OF 24 HRS OR LESS AND WORK ZONE SPEED OF 45 MPH OR LESS

**SYMBOLS:**

- Work Area
- Channelizing Device (See Index 102-600)
- Work Zone Sign
- Arrow Board
- Flagger
- Lane Identification and Direction of Traffic

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LAST REVISION 11/01/21	REVISION	DESCRIPTION:		FY 2022-23 STANDARD PLANS	TWO-WAY LEFT-TURN LANES	INDEX 102-628	SHEET 3 of 3
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**TYPICAL PCMS DISPLAY:**

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

One week prior to pacing operation (Optional):  
 Message 1: EXPECT DELAYS ON  
 Message 2: (Month Day Time)

**SYMBOLS:**

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

**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. Ensure traffic control officers are located at roadway access points in accordance with the pacing plan.
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. 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.
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. Maintain communications with all police vehicles throughout the traffic pacing.

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  





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

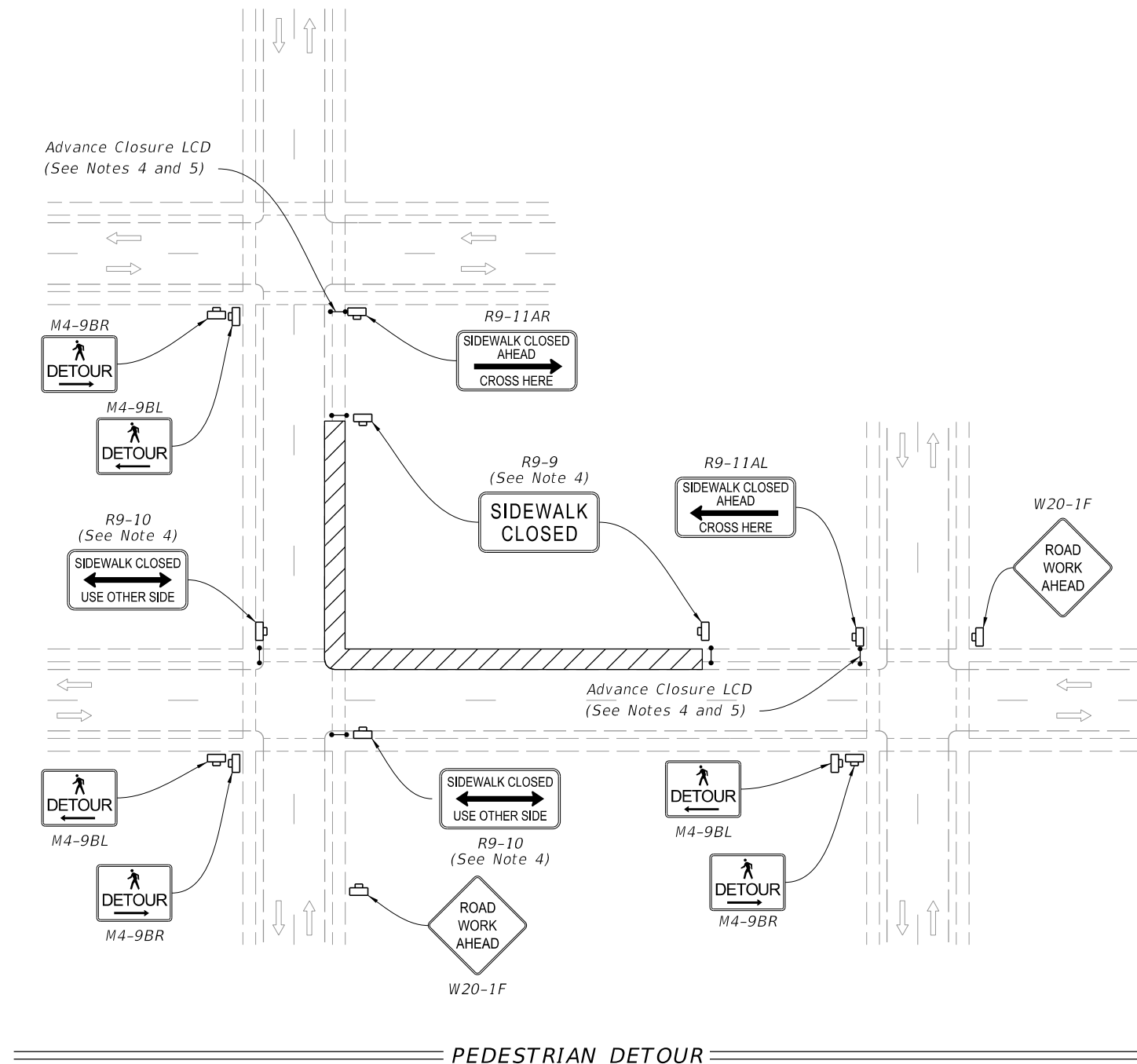
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**NOTES:**

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. For post mounted signs located near or adjacent to a sidewalk, maintain a minimum 7' clearance from the bottom of the sign panel to the surface of the sidewalk.
4. "Sidewalk Closed" signs (R9-XX) may be mounted on pedestrian LCDs in accordance with the manufacturer's instructions.
5. Omit the Advance Closure LCD if it blocks access to other pedestrian facilities (e.g., transit stops, residences, or business entrances).

**SYMBOLS:**

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

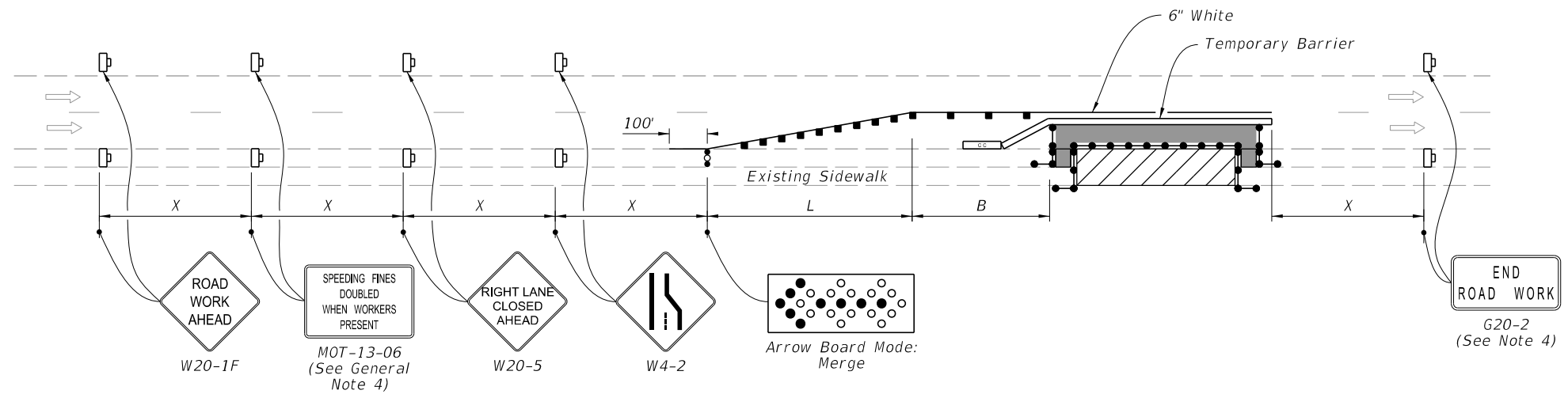


PEDESTRIAN DETOUR

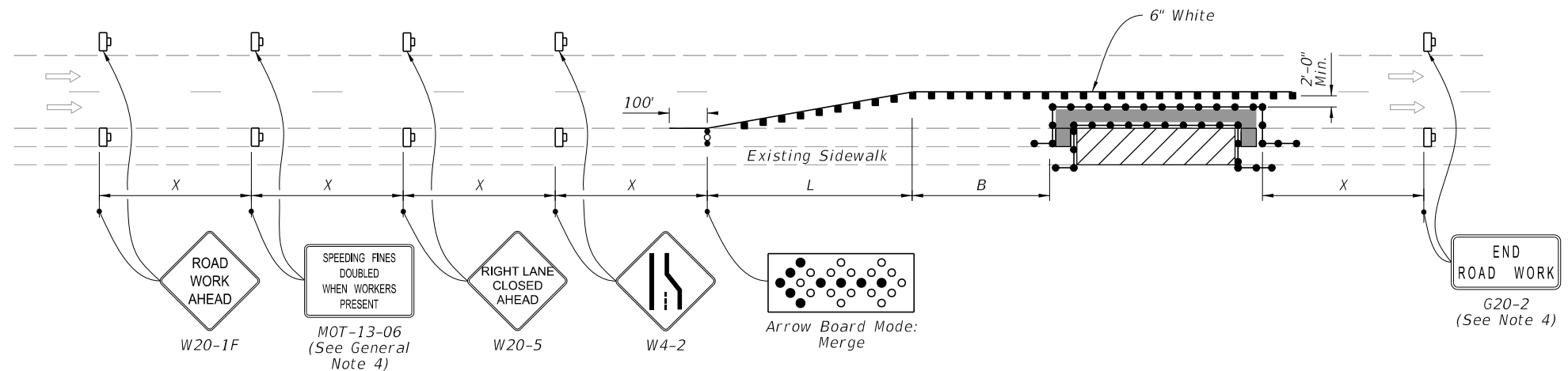
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LAST REVISION 11/01/20	REVISION	DESCRIPTION:	 FY 2022-23 STANDARD PLANS	SIDEWALK CLOSURE	INDEX 102-660	SHEET 1 of 2
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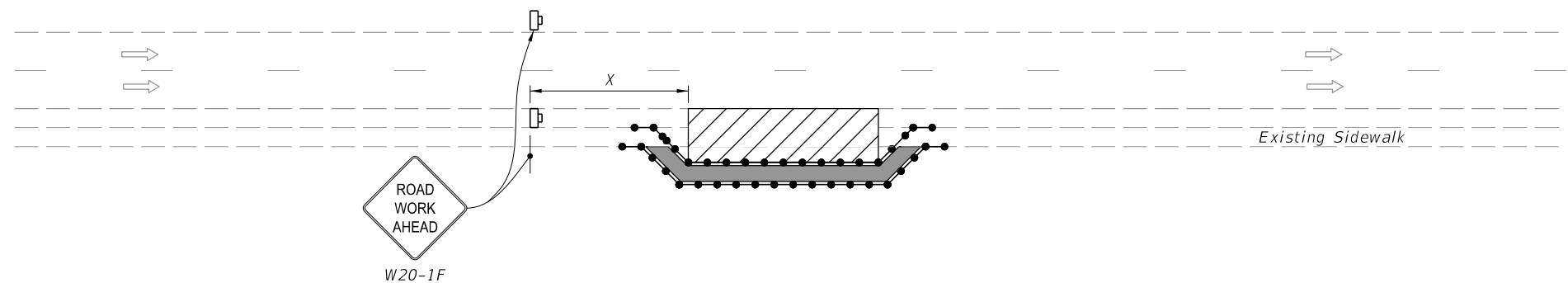




**PEDESTRIAN DIVERSION - OPTION 1**  
(Temporary Barrier Shown, Low Profile Barrier Similar)



**PEDESTRIAN DIVERSION - OPTION 2**  
(Work Zone Speed 35 mph or Less)



**PEDESTRIAN SPECIAL DETOUR**

**NOTES:**

1. L = Taper Length  
B = Buffer Length  
X = Work Zone Sign Distance  
See Index 102-600 for "L", "B", "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. 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 operation will be in place for 24 hours or less.
5. Pedestrian Diversion Option 2 may only be used when called for in the Plans or as approved by an Engineer.

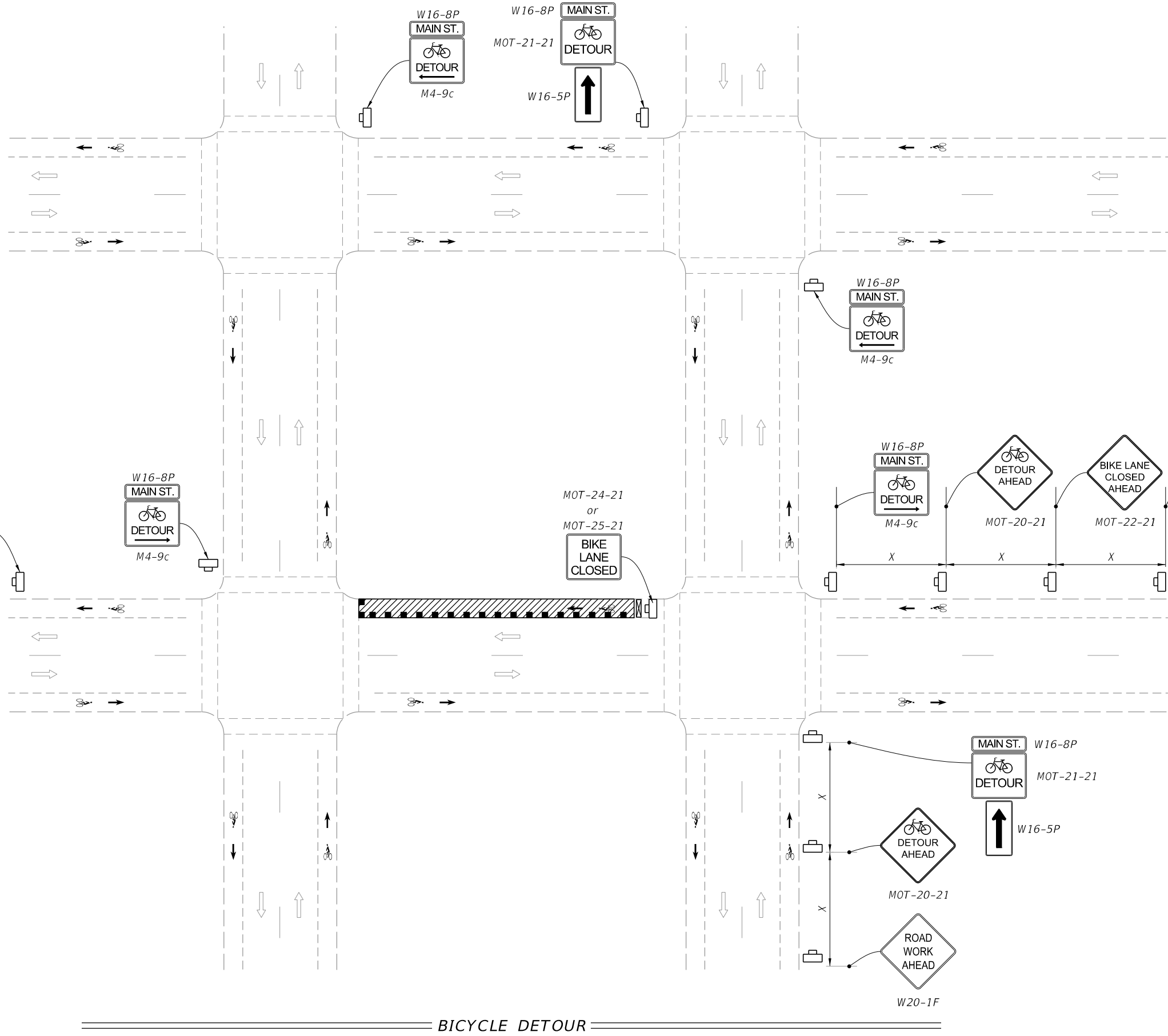
**SYMBOLS:**

- Work Area
- Temporary Pedestrian Way
- Channelizing Device (See Index 102-600)
- Pedestrian Longitudinal Channelizing Device (LCD)
- Work Zone Sign
- Arrow Board
- Crash Cushion
- Lane Identification and Direction of Traffic

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LAST REVISION 11/01/21	REVISION	DESCRIPTION:	 <b>FY 2022-23</b> <b>STANDARD PLANS</b>	<b>SIDEWALK CLOSURE</b>	INDEX <b>102-660</b>	SHEET <b>2 of 2</b>
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**GENERAL NOTES:**

1. Use this Index only when called for in the Plans.
2. L = Taper Length  
B = Buffer Length  
X = Work Zone Sign Distance  
See Index 102-600 for "L", "B", "X", channelizing device spacing values.
3. Provide a minimum 5'-0" wide bicycle path.
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 operation will be in place for 24 hours or less.
5. Include additional signage at intersections as required by the Engineer or shown in the Plans.

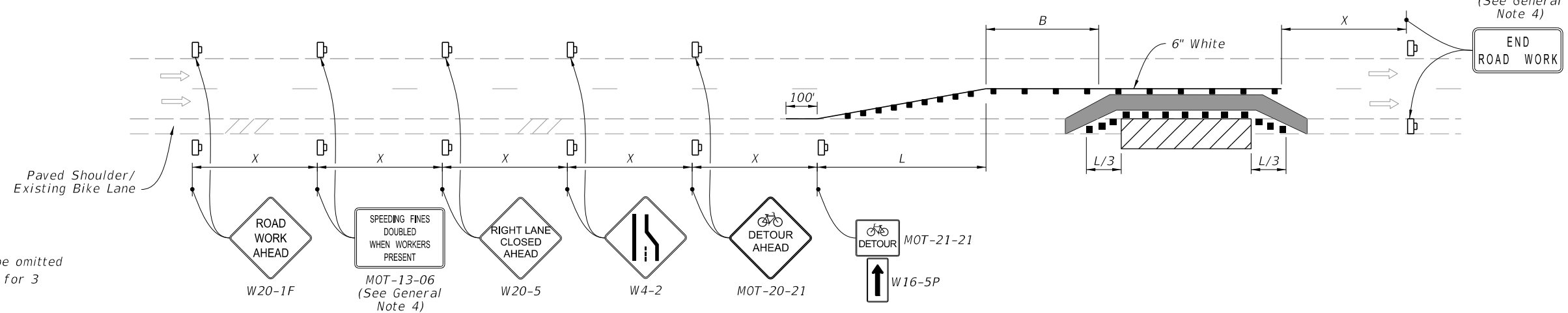
**SYMBOLS:**

- Work Area
- Channelizing Device (See Index 102-600)
- Work Zone Sign
- Type III Barricade
- Lane Identification and Direction of Traffic

**BICYCLE DETOUR**

LAST REVISION 11/01/21	DESCRIPTION:	 FY 2022-23 STANDARD PLANS	<b>BICYCLE FACILITY CLOSURES</b>	INDEX <b>102-661</b>	SHEET <b>1 of 2</b>
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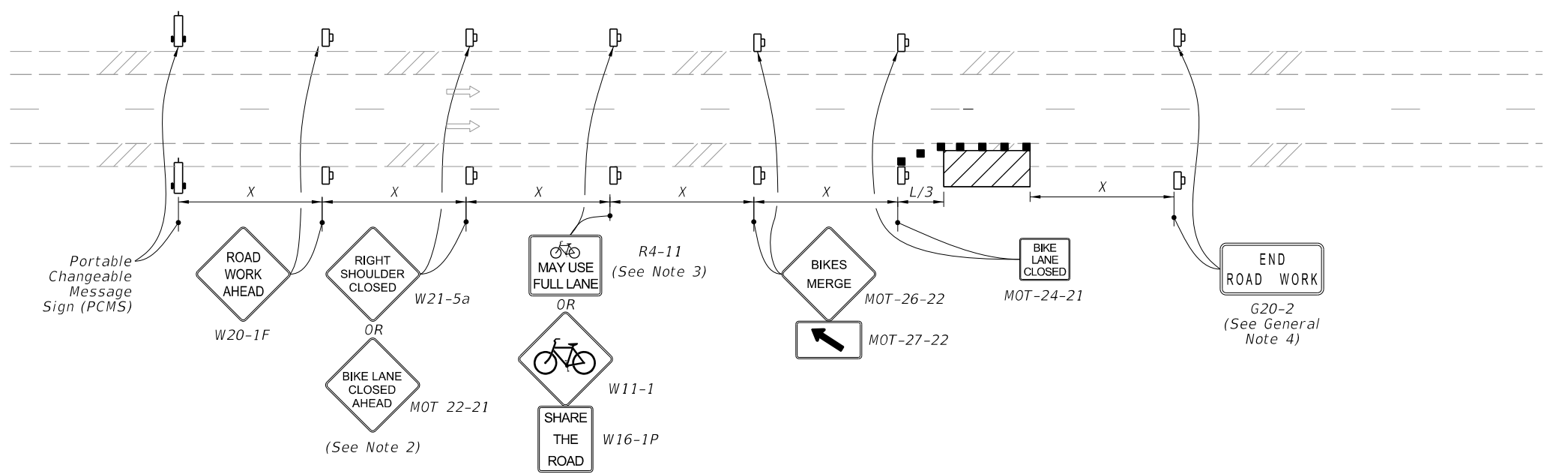
G20-2  
(See General  
Note 4)



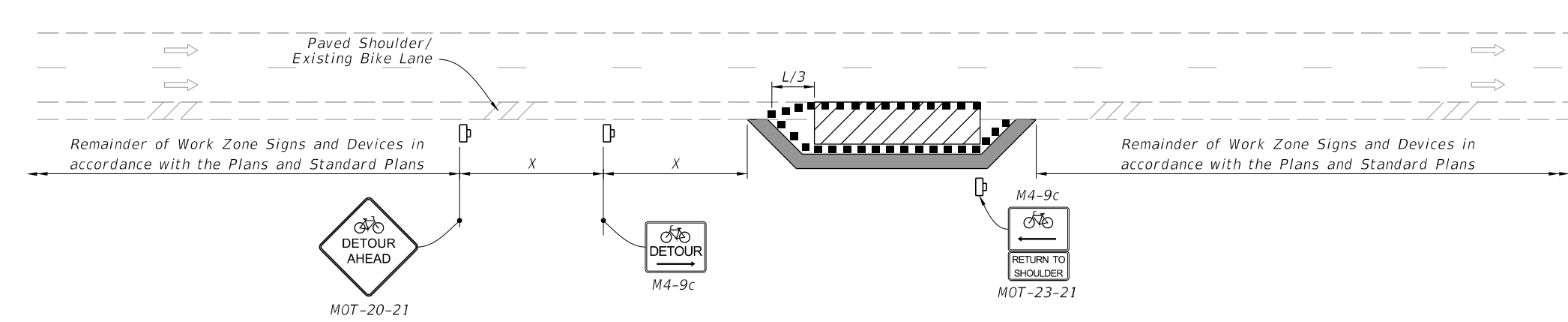
- NOTES:**
1. Temporary pavement markings may be omitted when the work operation is in place for 3 days or less.
  2. If the Closed Bicycle Facility is a marked bicycle lane, use sign MOT 22-21 instead of sign W21-5a.
  3. If the travel lane is less than 14' wide, use sign R4-11.

- SYMBOLS:**
- Work Area
  - Temporary Bicycle Way
  - Channelizing Device (See Index 102-600)
  - Work Zone Sign
  - Arrow Board
  - Lane Identification and Direction of Traffic
  - (1) PCMS=Portable Changeable (Variable) Message Sign

**BICYCLE FACILITY SHIFT  
(With Lane Closure)**



**BICYCLE FACILITY SHIFT  
(Work Zone Speed of 35 mph or Less)**

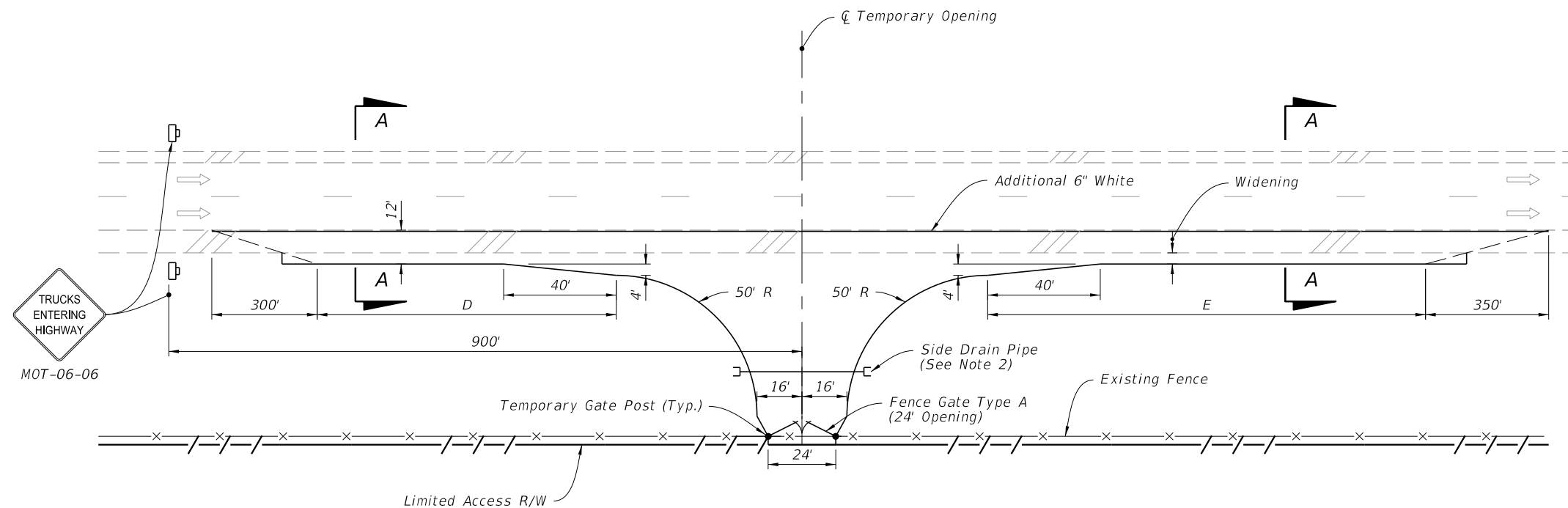


**BICYCLE SPECIAL DETOUR**

**TYPICAL PCMS DISPLAY:**  
 Message 1: BIKE FACILITY CLOSED  
 Message 2: BICYCLES ON ROAD

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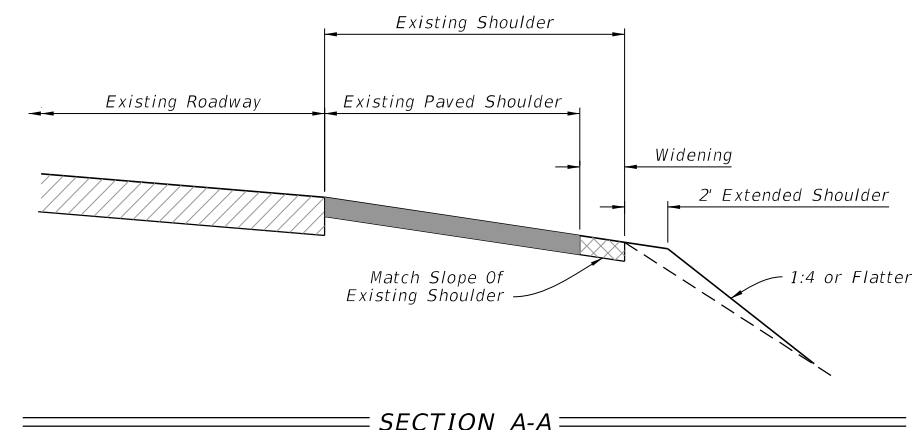


**NOTES:**

1. X = Work Zone Sign Distance, see Index 102-600 for "X" value.
2. Use mitered end sections for any end sections within the clear zone.
3. Match cross slope of existing shoulder for widening.
4. Provide 2' of unpaved shoulder outside of the widening.
5. No more than two (2) access openings will be allowed on each project.
6. Do not vary from the plan detail without approval of the Engineer.

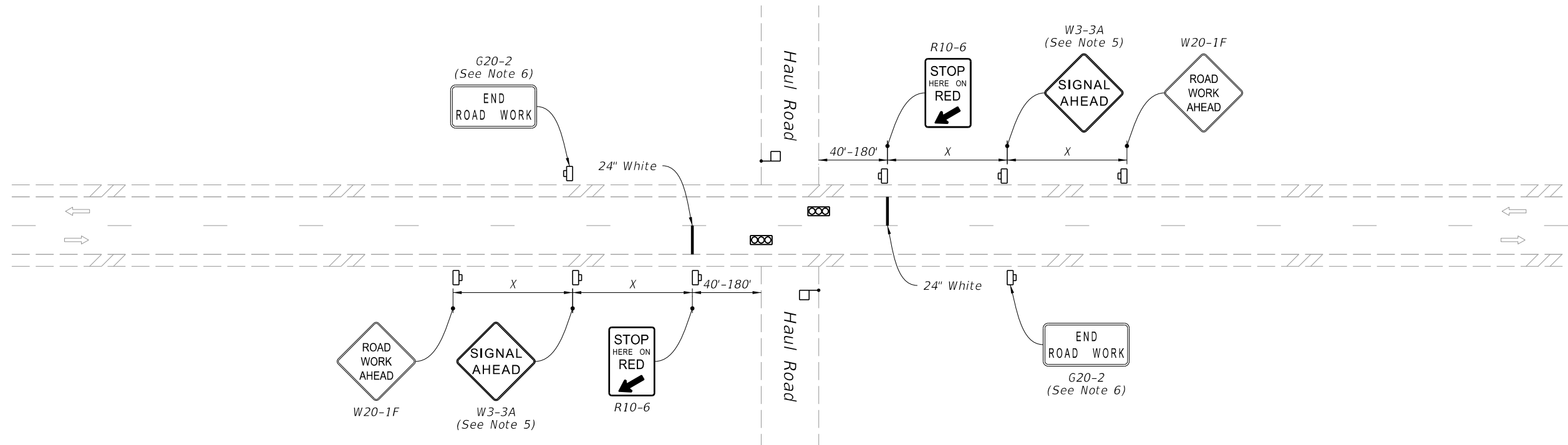
**SYMBOLS:**

- Work Zone Sign
- Lane Identification and Direction of Traffic



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

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(Two-Lane Roadway Shown, Multilane Roadway Similar)


**SYMBOLS:**

-  Work Zone Sign
-  Temporary Traffic Signal
-  Flagger
-  Lane Identification and Direction of Traffic

**NOTES:**

1. This Index is intended for two-way and multilane roadways, excluding limited access facilities, with haul roads that intersect the roadway.
2. District Traffic Operations Engineer must approve the installation and timing of temporary signals prior to beginning of work. Adjust timing based on changing field conditions as approved by the Worksite Traffic Supervisor. Obtain approval from the District Traffic Operations Engineer for any timing changes that are either reoccurring or last longer than 24 hours.
3. X=Work Zone Sign Distance, see Index 102-600 for "X" values.
4. Use Type III Barricades to block haul road access when the haul road is not in operation and a flagger/signal operator is not on duty, except when the haul road is an existing properly marked road.
5. Optionally, use "Signal Ahead" signs with symbols (W3-3) instead of "Signal Ahead" signs with text (W3-3A).
6. The "End Road Work" signs (G20-2) may be omitted when the work operation is in place for 24 hours or less.
7. Optionally, use temporary traffic signals for control of the haul road.

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LAST REVISION 11/01/21	REVISION	DESCRIPTION:	 <b>FY 2022-23 STANDARD PLANS</b>	<b>HAUL ROAD CROSSING</b>	INDEX <b>102-680</b>	SHEET <b>1 of 1</b>
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