

## **PART 6. TEMPORARY TRAFFIC CONTROL**

### **Chapter 6J. Long Term**

#### **Temporary Traffic Control Zone Layouts**

##### **6J-1 General**

###### **SUPPORT:**

This section illustrates typical layouts which provide additional guidance for individuals with traffic engineering expertise.

###### **GUIDANCE:**



















These layouts should be used during the development of detailed traffic control plans. They should only be used under the direction of a traffic engineering professional. They should be combined with the principles and figures contained elsewhere in this manual.

###### **OPTION:**

Some of these layouts may be used on short term construction or maintenance projects.

###### **SUPPORT:**

The concepts shown in the following layouts are only intended to be guidelines.

<b>Symbols</b>	<b>Meaning</b>
	Flagger or Operator of Automated Flagging Assistance Device
 <b>AFAD</b>	Automated Flagging Assistance Device (AFAD)
	Flashing Arrow Board
	Portable Changeable Message Sign (PCMS)
	Portable Equipment - includes testing devices, detection, surveying, etc.
	Portable Traffic Signal
	360-Degree Yellow Flashing Vehicle Light(s)
	Longitudinal Channelizer
	Type III Barricade
	Traffic Control Sign
	Reboundable Sign Support
	Type A Flashing Warning Light
	Surface mounted delineator
	Channelizing Device.
	A combination of Type A and B channelizing devices
	Direction of Traffic
	See Note; i.e. See Note 6
	Work Space

**Figure 6J-1 Symbols Used in Typical Layouts**

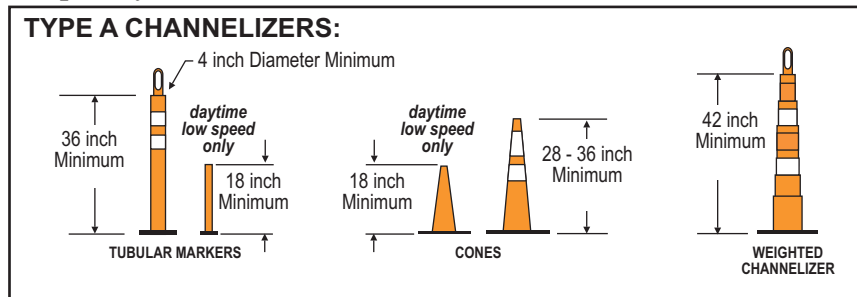
### Temporary Traffic Control Distance Charts

Posted Speed Limit Prior to Work Starting (mph)		Advance Warning Sign Spacing (A) feet	Decision Sight Distance (D) feet	Taper Length (12 ft lane) (L) feet	Shifting Taper (L/2) feet	Typical Shoulder Taper (L/3) feet
0 - 30	G = 25 ft	250	550	200	100	75
35 - 40		325	700	325	175	125
45 - 50	G = 50 ft	600	900	600	300	200
55		750	1200	700	350	250
60 - 65		1000	1400	800	400	275
70 - 75		1200	1600	900	450	300

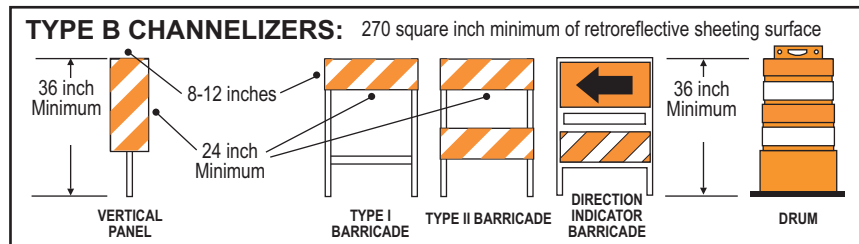
  

Posted Speed Limit Prior to Work Starting (mph)		Buffer Space (B) feet	Shadow Vehicle Following Distance (F) feet	Protection Vehicle Roll-Ahead Buffer Distance (with or without TMA) (R) feet	
				Moving (15 mph max)	Stopped
0 - 30	G = 25 ft	85	250 - 550	100	100
35 - 40		170	325 - 700	100	100
45 - 50	G = 50 ft	280	600 - 900	175	125
55		335	750 - 1200	175	125
60 - 65		485	1000 - 1400	225	175
70 - 75		670	1200 - 1600	225	175

Type A channelizing devices are typically used in attended temporary traffic control zones.\*



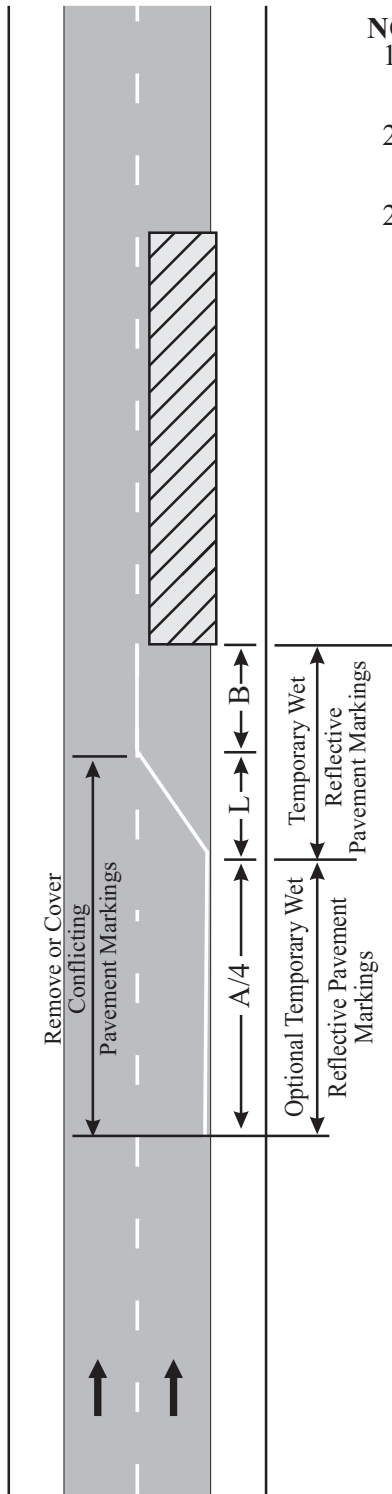
Type B channelizing devices shall be used if the temporary traffic control zone will be installed for more than 12 hours or if it is left unattended over night.\*



\* See the MN MUTCD, Part 6F for more details on application restrictions.

**Figure 6J-2 Temporary Traffic Control Devices & Distance Charts**

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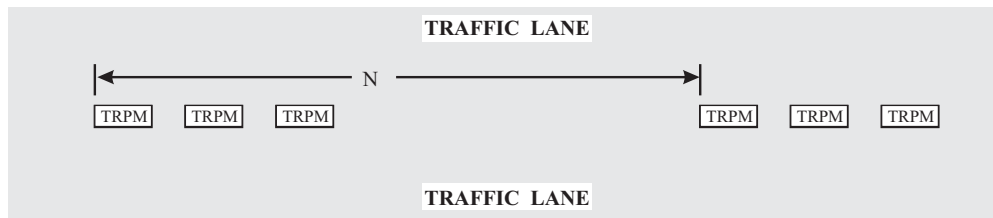
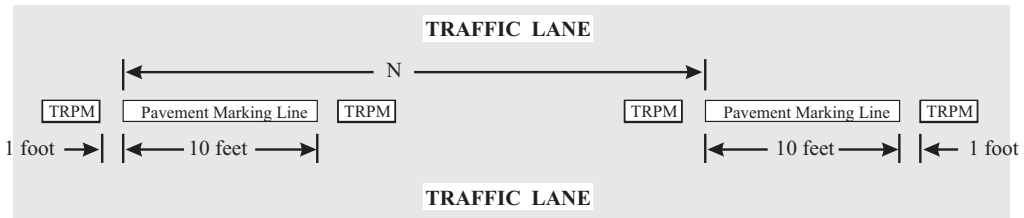
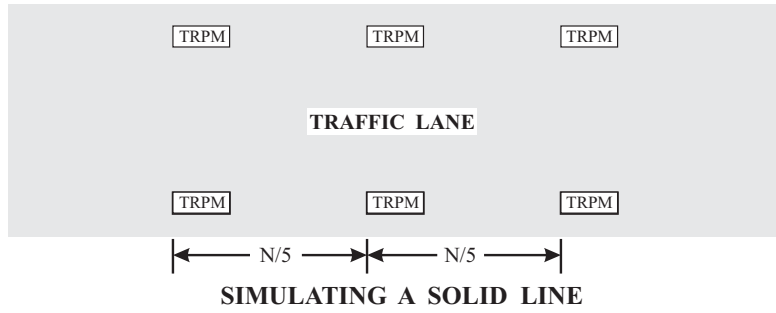
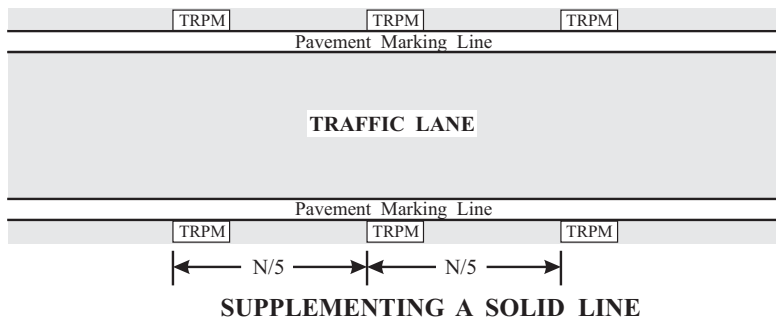
**NOTES:**

1. See page iii for Temporary Traffic Control Distance Charts.
2. Traffic control devices are not shown. Use appropriate lane closure.
2. Install wet reflective edgelines through the transition and alignment change areas including lane closure tapers, sharp curves, exits, shifts onto temporary roadways, etc.

**TYPICAL STRIPING AND STRIPE REMOVAL  
FOR LANE CLOSURE  
MULTILANE DIVIDED ROAD**

LONG TERM

LAYOUT 6J-1



N = the length of one line segment plus one gap

## PLACEMENT AND SPACING OF TEMPORARY RAISED PAVEMENT MARKERS (TRPMs)

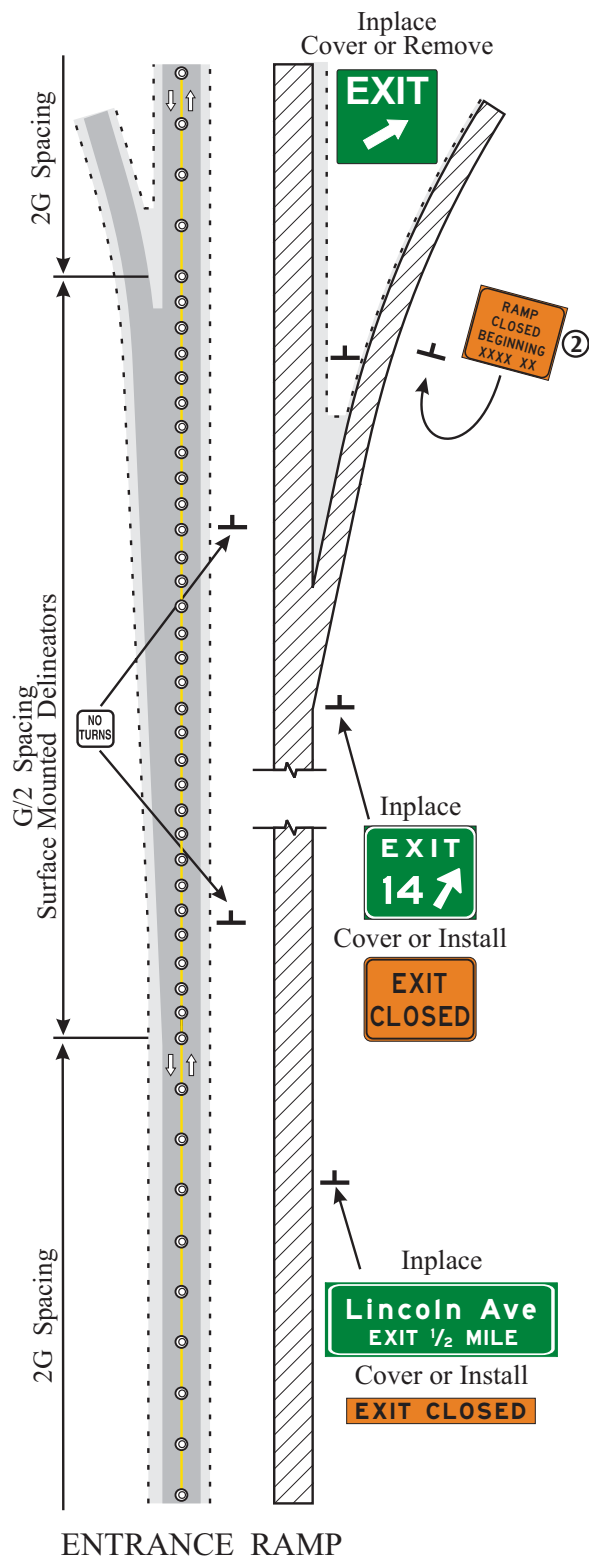
LONG TERM

LAYOUT 6J-2



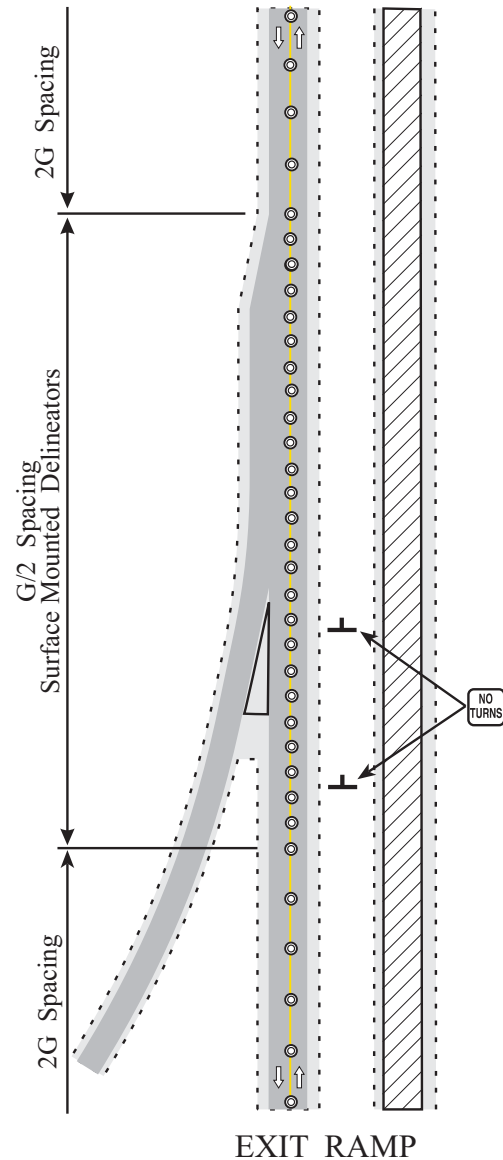






**NOTES:**

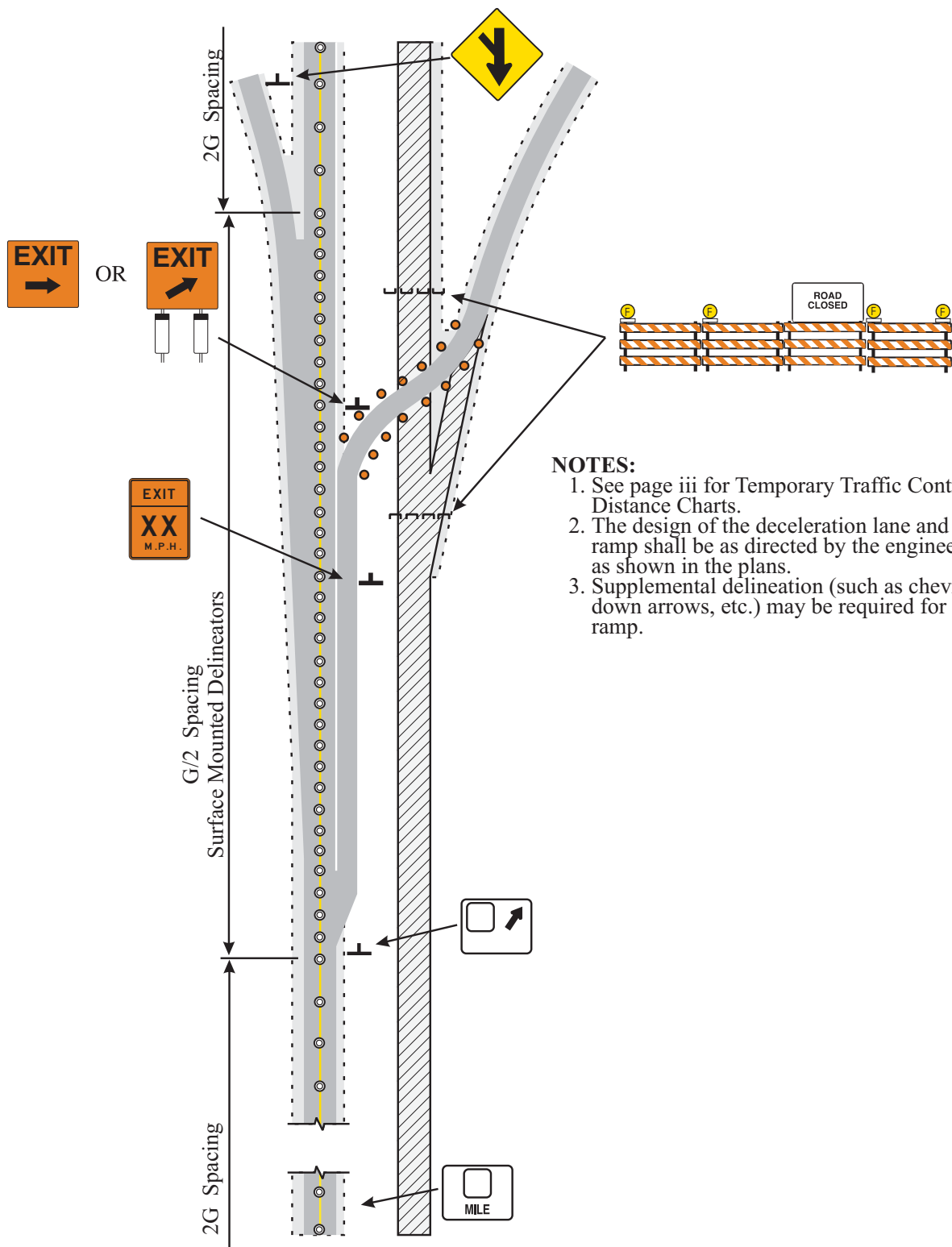
1. See page iii for Temporary Traffic Control Distance Charts.
2. Install at least 7 days prior to the start of work.



**TWO-LANE, TWO-WAY OPERATIONS  
AT RAMPS ON OPEN ROADWAY**

LONG TERM

LAYOUT 6J-6



**NOTES:**

1. See page iii for Temporary Traffic Control Distance Charts.
2. The design of the deceleration lane and exit ramp shall be as directed by the engineer or as shown in the plans.
3. Supplemental delineation (such as chevrons, down arrows, etc.) may be required for the ramp.

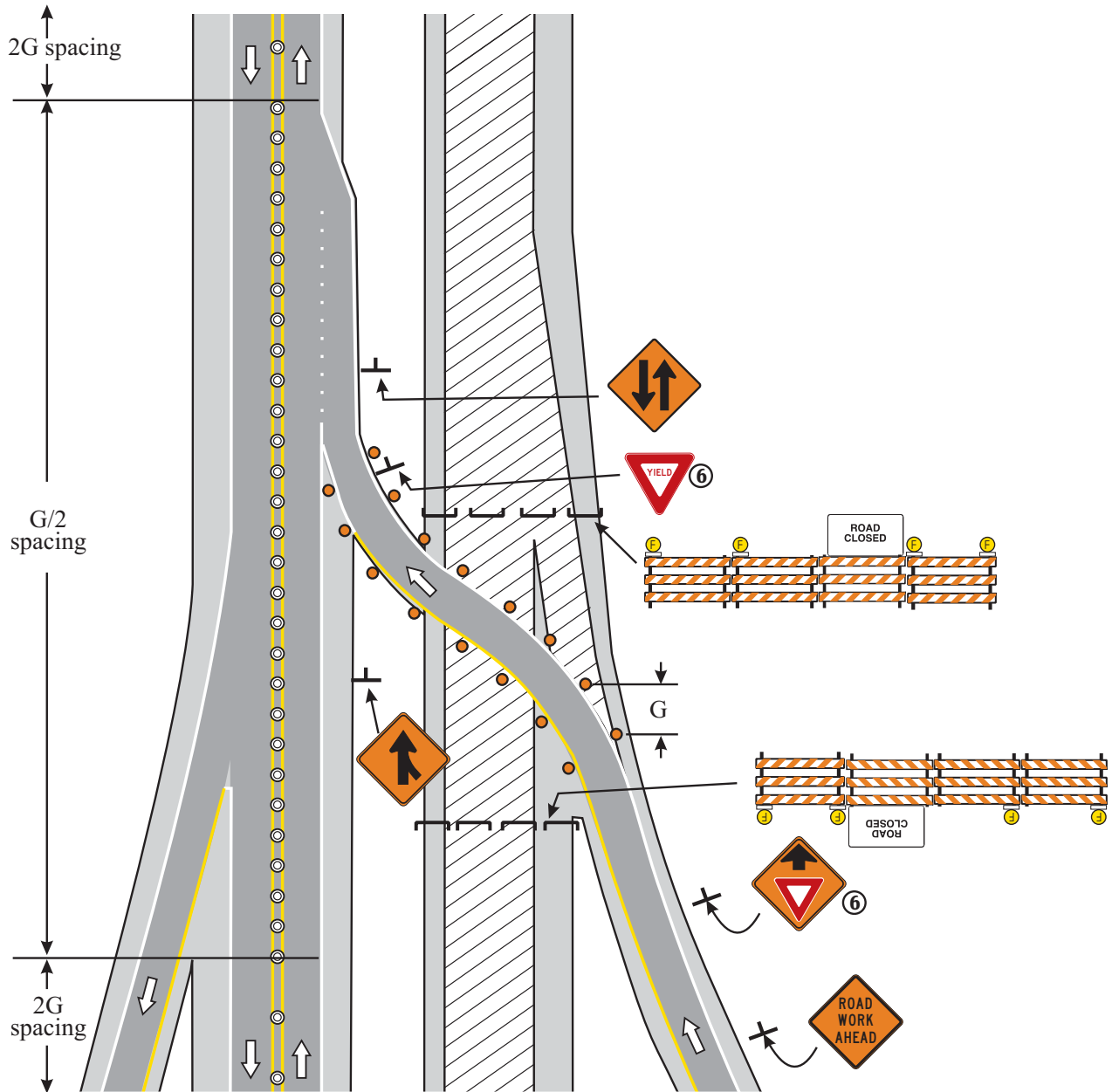
**TWO-LANE, TWO-WAY OPERATION  
AT EXIT RAMP ACROSS CLOSED ROADWAY**

LONG TERM

LAYOUT 6J-7

**NOTES:**

1. See page iii for Temporary Traffic Control Distance Charts.
2. The design of the acceleration lane and entrance ramp shall be as directed by the engineer or as shown in the plans.
3. Supplemental delineation (such as chevrons, down arrows, etc.) may be required for the ramp.
4. The advance warning sign spacing is dependent on the ramp length and the location of inplace signing. The spacing should be as long as is practical.
5. Remove conflicting pavement markings and install temporary markings (see Figure 6J-1).
6. When an adequate acceleration lane is provided, this sign should be omitted.



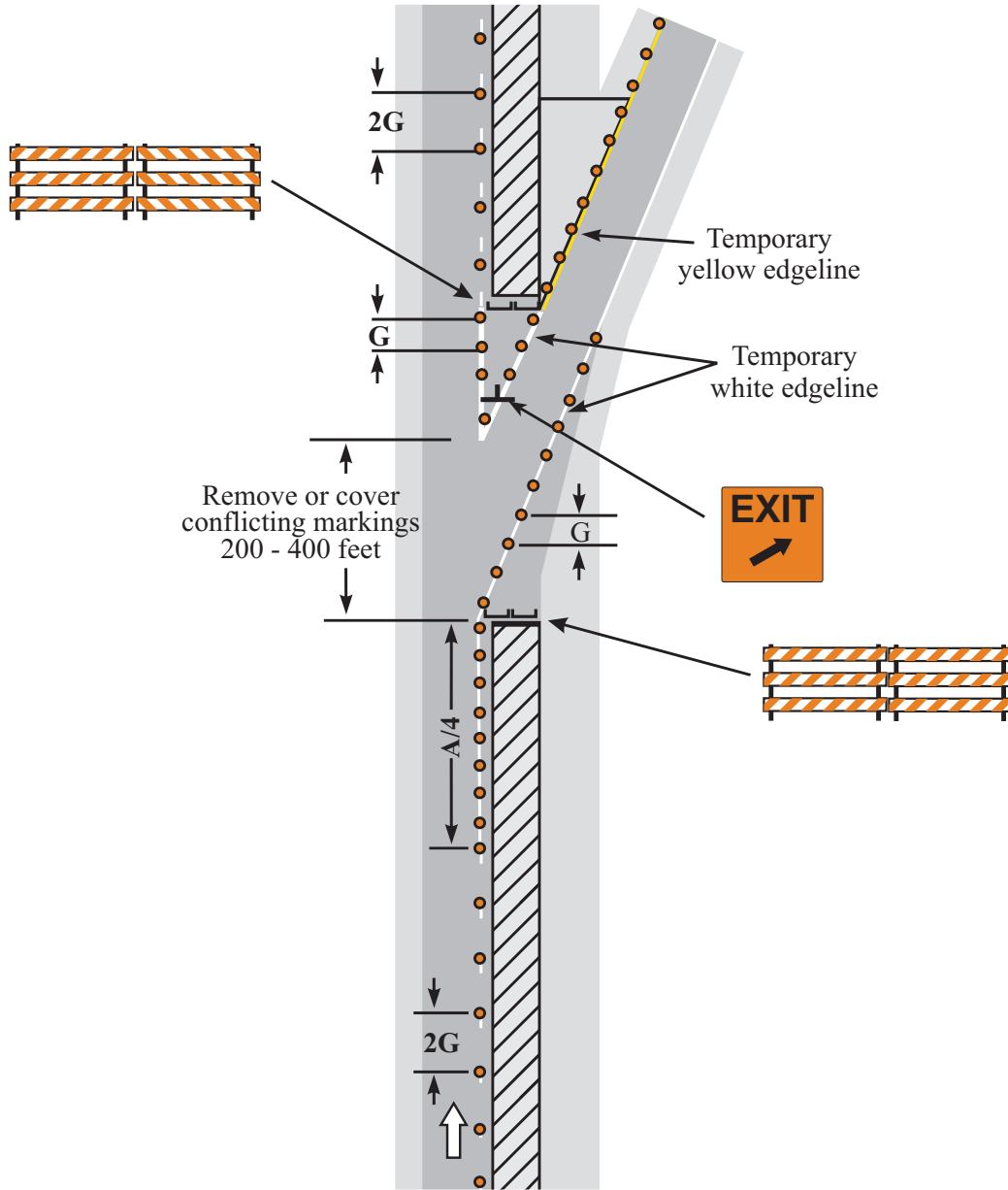
**TWO-LANE, TWO-WAY OPERATION  
AT ENTRANCE RAMP ACROSS CLOSED ROADWAY**

LONG TERM

LAYOUT 6J-8

**NOTES:**

1. See page iii for Temporary Traffic Control Distance Charts.
2. The design of the deceleration lane and the exit ramp shall be as directed by the engineer or as shown in the plans.
3. The advance warning sign spacing is dependent on the ramp length and the location of inplace signing. The spacing should be as long as is practical.



**Use appropriate devices and spacing for lane closure.**

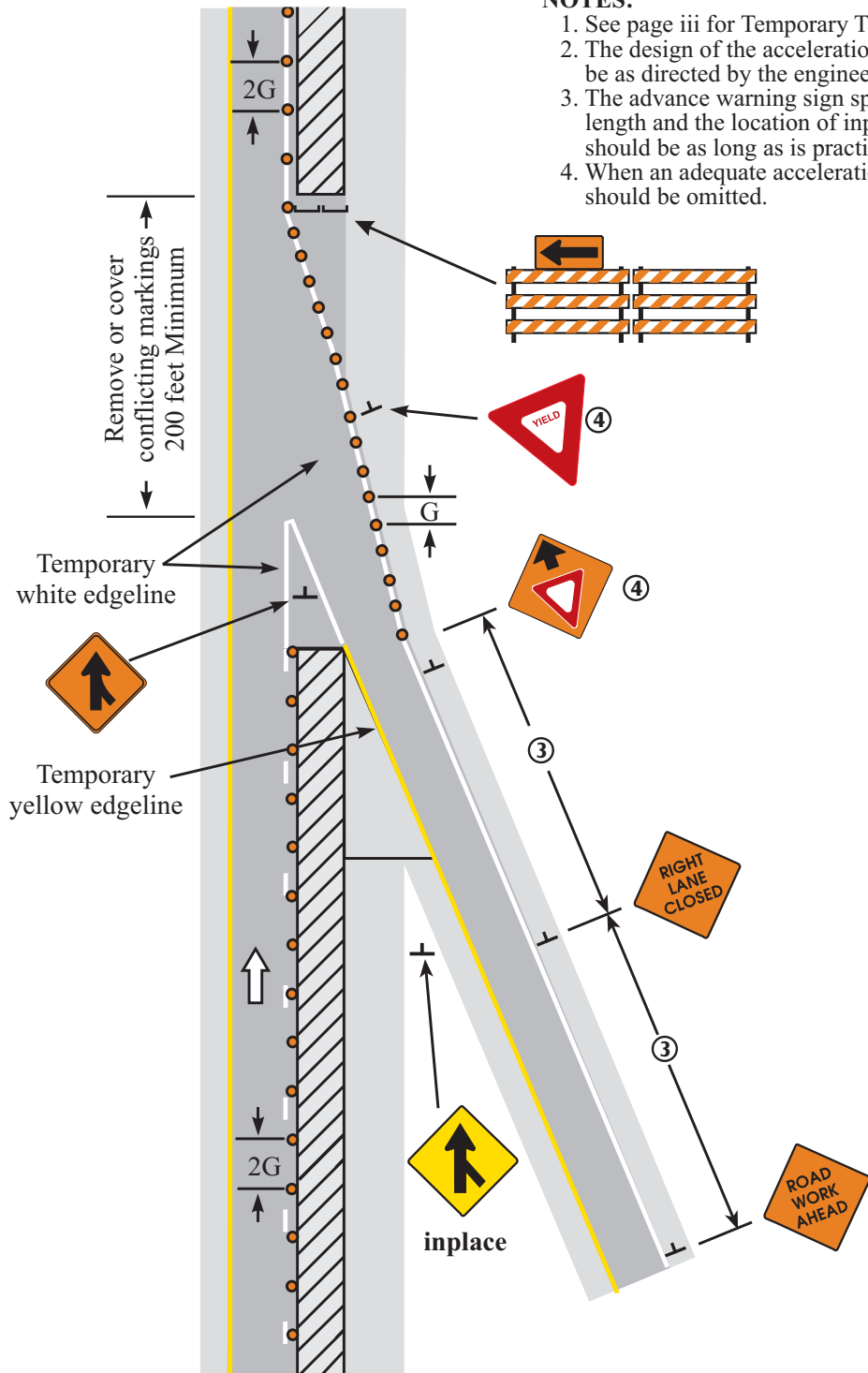
**MAINLINE RIGHT LANE CLOSED  
EXIT RAMP OPEN**

LONG TERM

LAYOUT 6J-9

**NOTES:**

1. See page iii for Temporary Traffic Control Distance Charts.
2. The design of the acceleration lane and the entrance ramp shall be as directed by the engineer or as shown in the plans.
3. The advance warning sign spacing is dependent on the ramp length and the location of inplace signing. The spacing should be as long as is practical.
4. When an adequate acceleration lane is provided, this sign should be omitted.

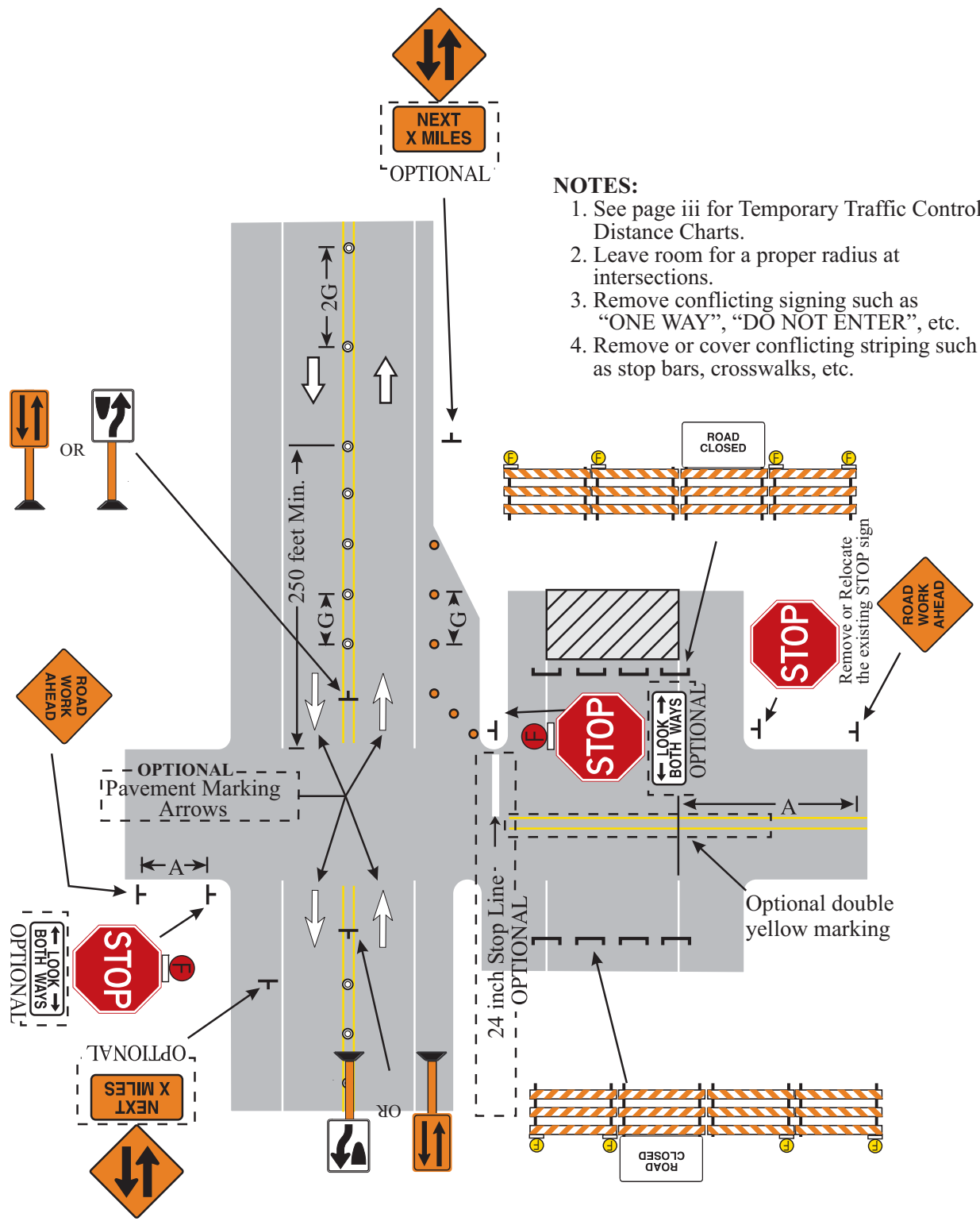


Use the appropriate devices and spacing for a lane closure.

**MAINLINE RIGHT LANE CLOSED  
ENTRANCE RAMP OPEN**

LONG TERM

LAYOUT 6J-10



- NOTES:**
1. See page iii for Temporary Traffic Control Distance Charts.
  2. Leave room for a proper radius at intersections.
  3. Remove conflicting signing such as "ONE WAY", "DO NOT ENTER", etc.
  4. Remove or cover conflicting striping such as stop bars, crosswalks, etc.

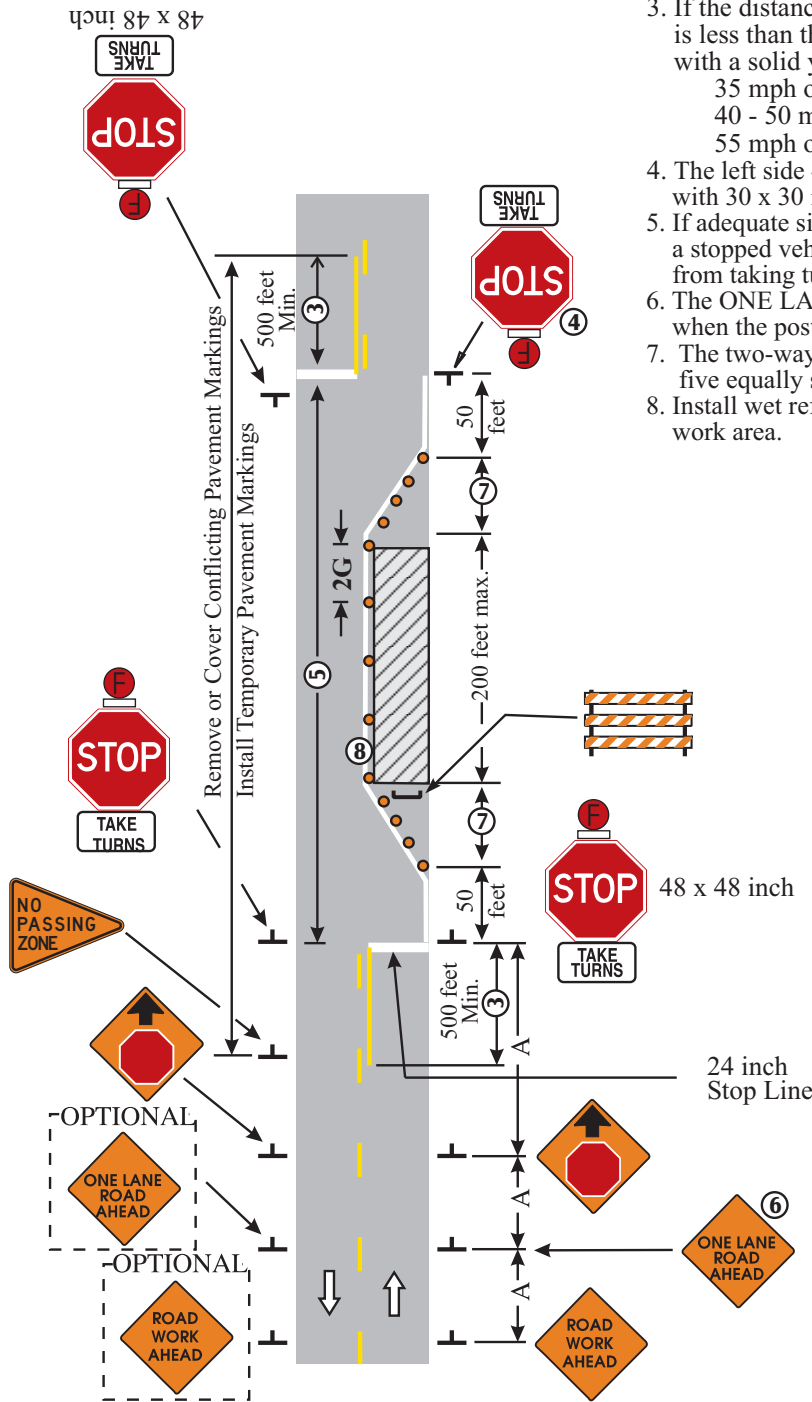
**TWO-LANE, TWO-WAY OPERATION THROUGH TYPICAL INTERSECTION**

LONG TERM

LAYOUT 6J-11

**NOTES:**

1. See page iii for Temporary Traffic Control Distance Charts.
2. Approach signs and marking is the same in both directions.
3. If the distance from an in-place "NO PASSING ZONE" is less than the following, the zones shall be connected with a solid yellow line:
  - 35 mph or less - 500 feet
  - 40 - 50 mph - 600 feet
  - 55 mph or greater - 800 feet
4. The left side 48 x 48 inch STOP signs may be replaced with 30 x 30 inch STOP signs.
5. If adequate sight distance is not available to recognize a stopped vehicle or traffic volume restricts vehicles from taking turns through the open lane, use Layout 6J-13.
6. The ONE LANE ROAD AHEAD sign may be omitted when the posted speed limit is 40 mph or less.
7. The two-way taper should be 50 feet in length using five equally spaced channelizing devices.
8. Install wet reflective edgeline through tapers and the work area.



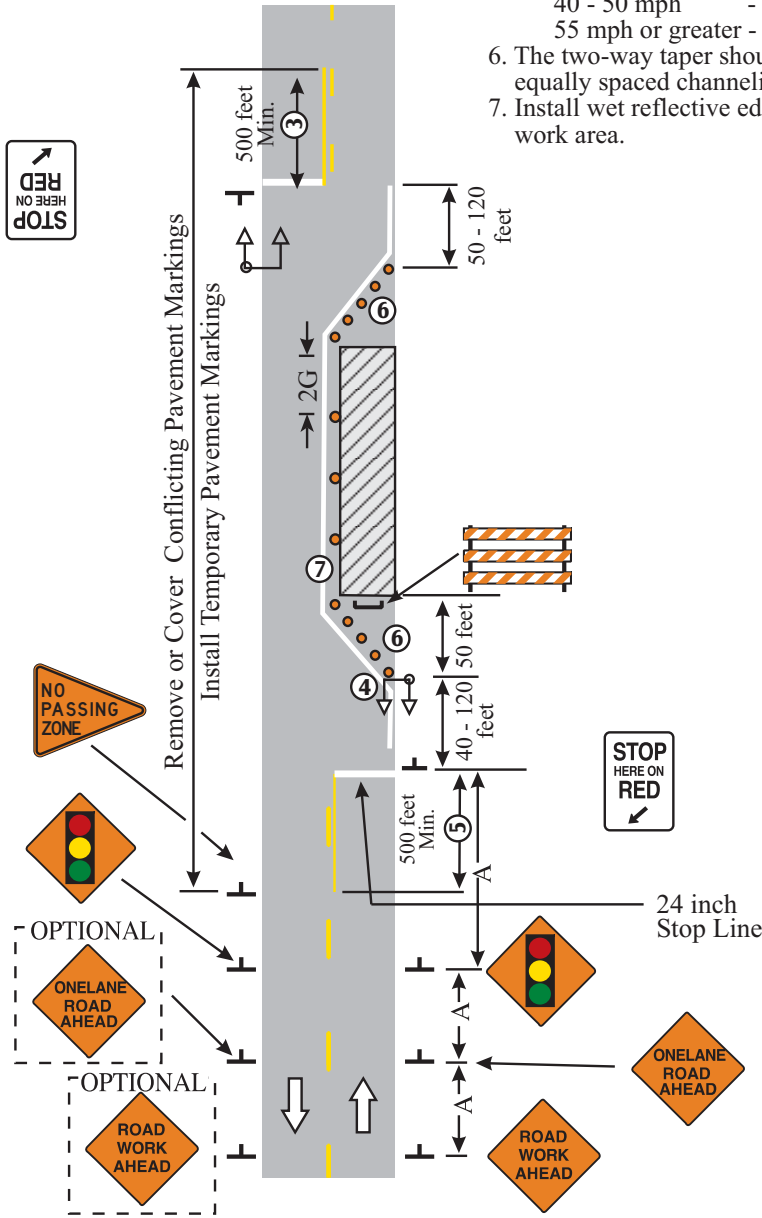
**LANE CLOSURE WITH STOP SIGNS  
TWO-LANE, TWO-WAY ROAD**

LONG TERM

LAYOUT 6J-12

**NOTES:**

1. See page iii for Temporary Traffic Control Distance Charts.
2. Approach signing and marking is the same in both directions.
3. Signal timing shall be established by qualified personnel.
4. Two signal heads shall be installed per approach. The first shall be installed on the right shoulder. The second signal head may be installed on either the left shoulder or mounted over head on the same structure as the first signal head.
5. If the distance from an in-place "NO PASSING ZONE" is less than the following, the zones shall be connected with a solid yellow line:
  - 35 mph or less - 500 feet
  - 40 - 50 mph - 600 feet
  - 55 mph or greater - 800 feet
6. The two-way taper should be 50 feet in length using five equally spaced channelizing devices.
7. Install wet reflective edgeline through tapers and the work area.



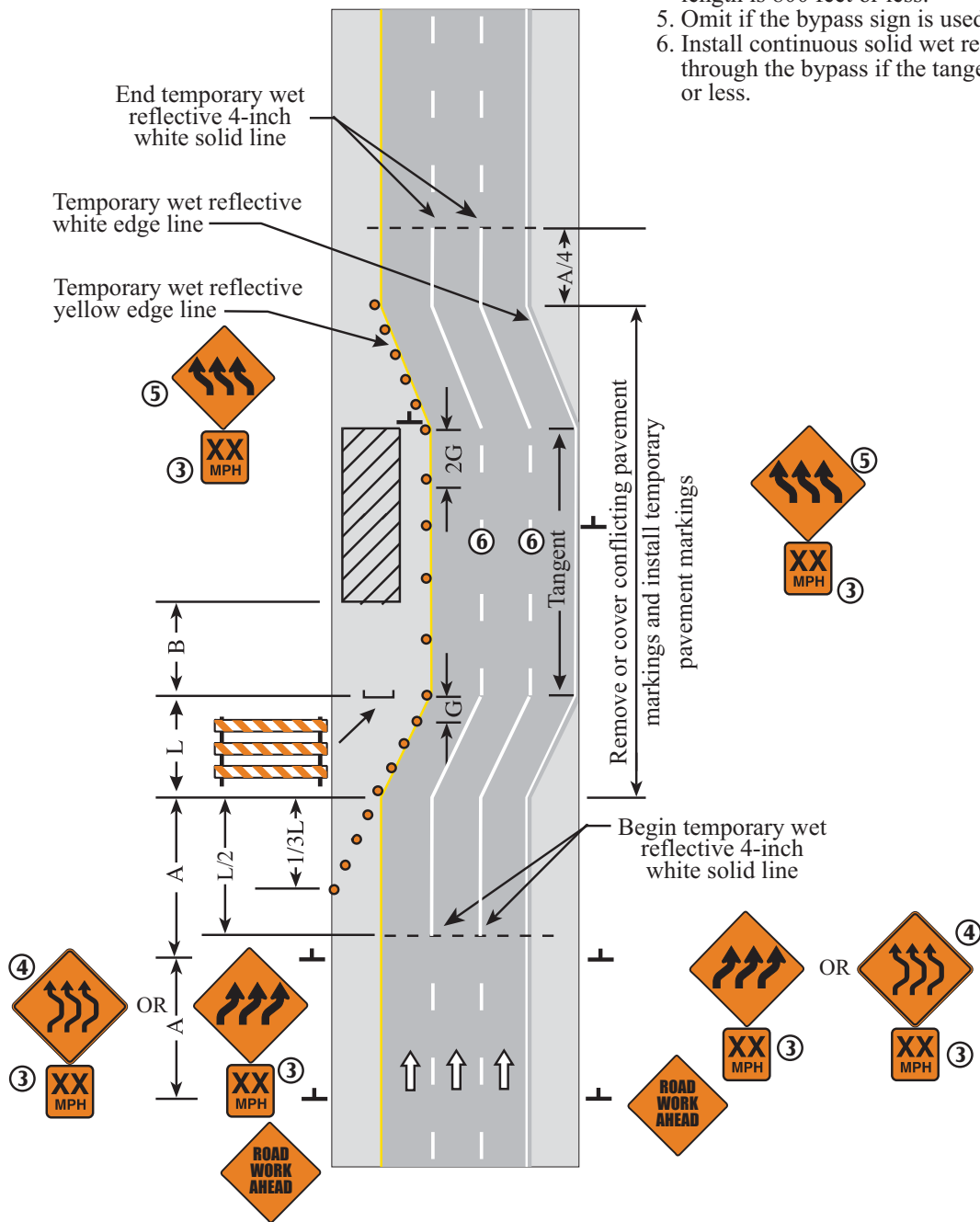
**LANE CLOSURE WITH SIGNALS  
TWO-LANE, TWO-WAY ROAD**

LONG TERM

LAYOUT 6J-13

**NOTES:**

1. See page iii for Temporary Traffic Control Distance Charts.
2. The minimum lane width shall be 10 feet.
3. The curve advisory speed will be determined by the Road Authority at the time of installation.
4. The bypass sign may be used when the tangent length is 800 feet or less.
5. Omit if the bypass sign is used.
6. Install continuous solid wet reflective lane lines through the bypass if the tangent is 800 feet or less.



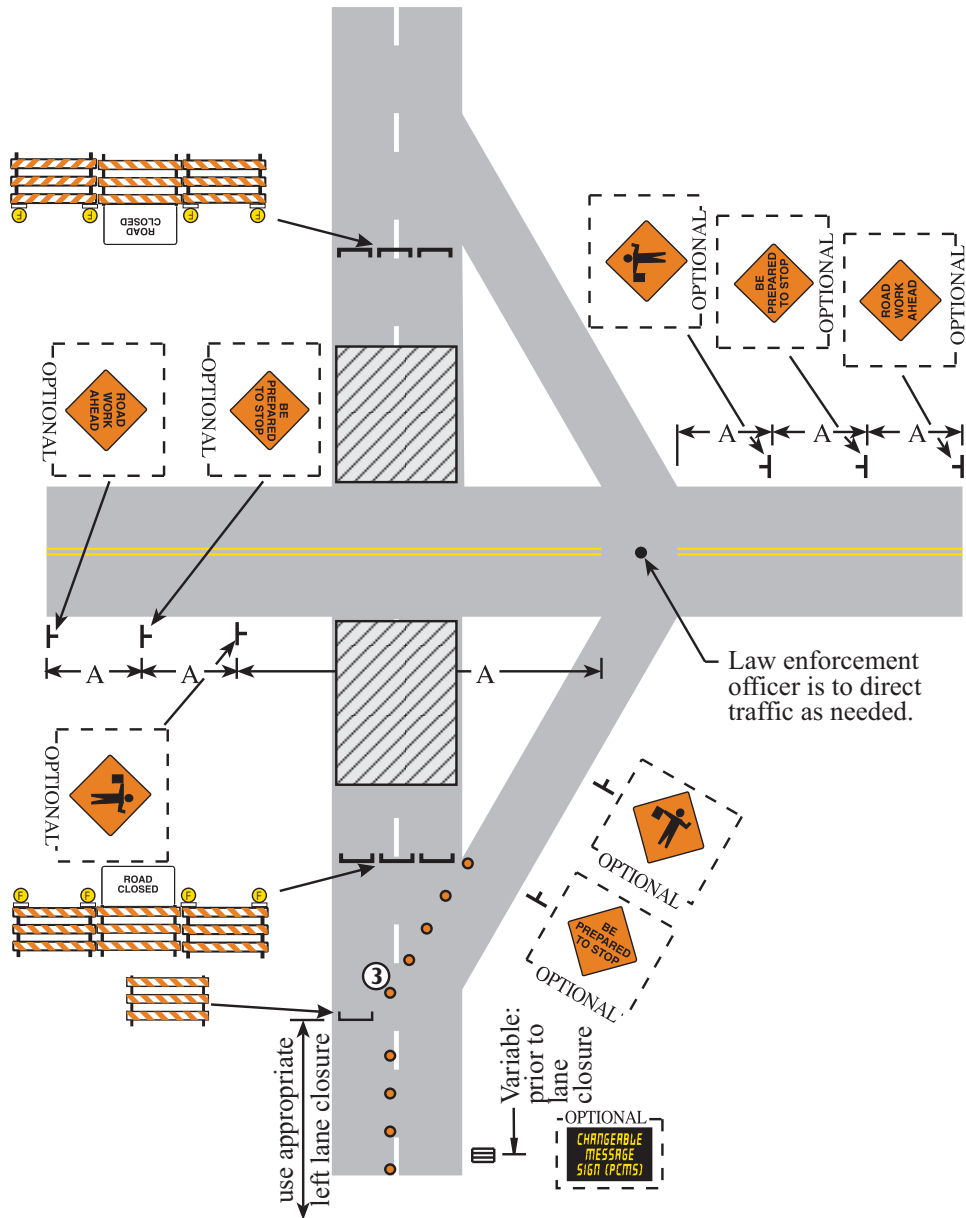
**MULTIPLE LANE SHIFT  
MULTILANE DIVIDED ROAD**

LONG TERM

LAYOUT 6J-14

**NOTES:**

1. See page iii for Temporary Traffic Control Distance Charts.
2. The closed road volume should be below 800-1000 vehicles per hour.
3. Supplemental delineation such as chevrons, down arrows, etc. may be required in the bypass.



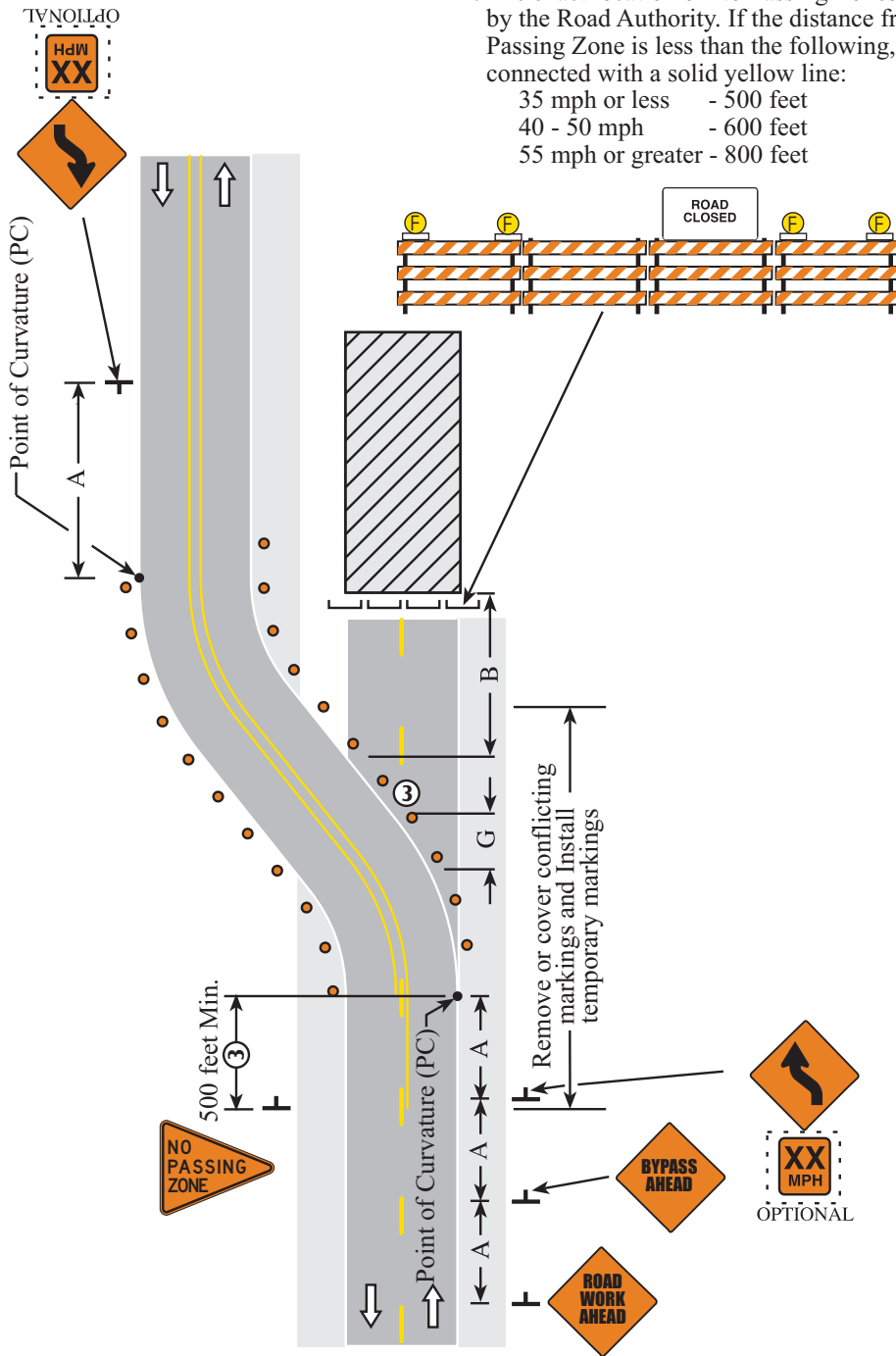
**ROAD CLOSURE AT INTERCHANGE**

SHORT TERM  
LONG TERM

LAYOUT 6J-15

**NOTES:**

1. See page iii for Temporary Traffic Control Distance Charts.
2. Typical traffic control is shown for one approach only.
3. Supplemental delineation (such as chevrons, down arrows, etc.) may be required on the bypass.
4. The exact location of No Passing Zones is to be determined by the Road Authority. If the distance from an in-place No Passing Zone is less than the following, the zones shall be connected with a solid yellow line:
  - 35 mph or less - 500 feet
  - 40 - 50 mph - 600 feet
  - 55 mph or greater - 800 feet



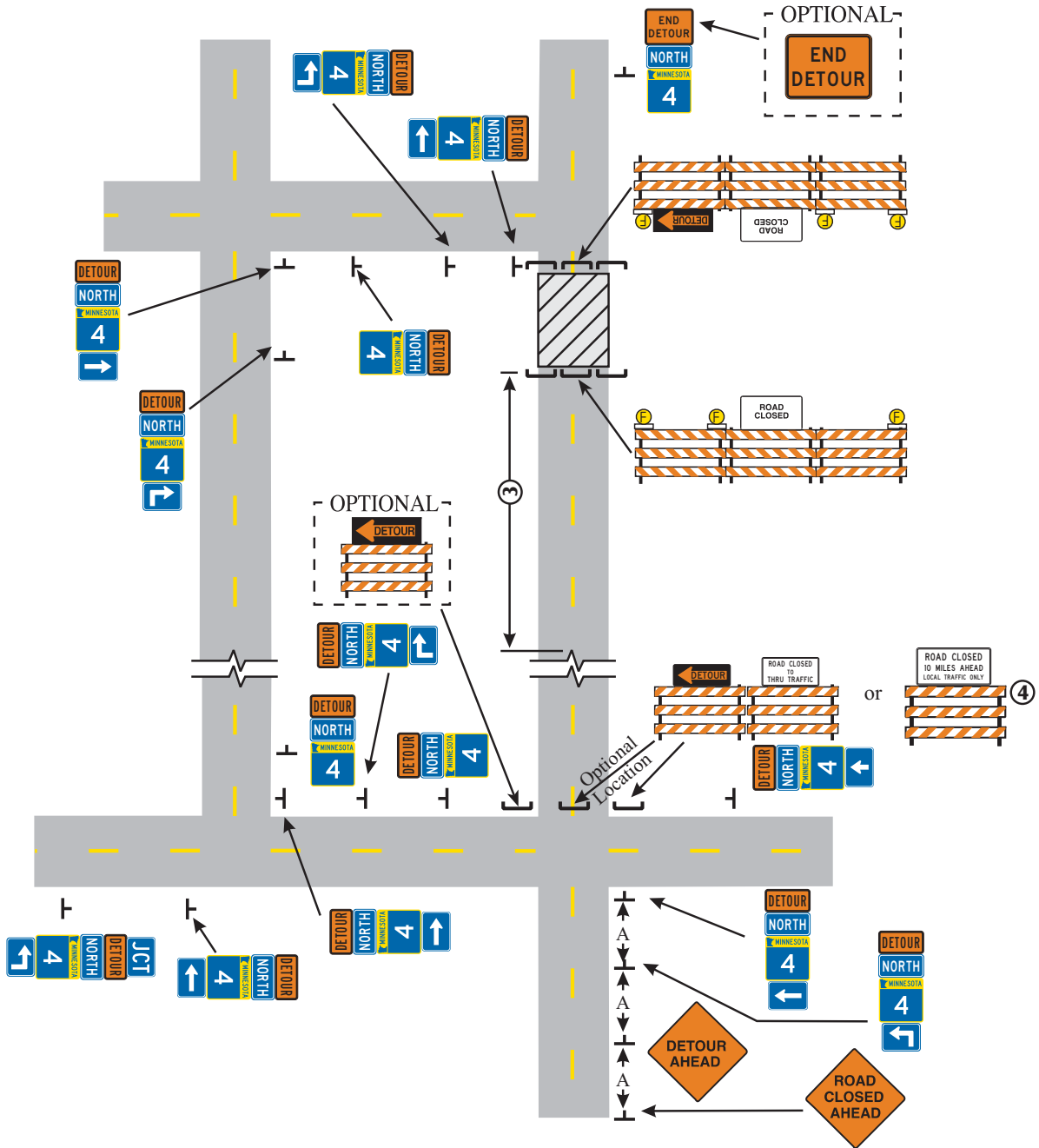
**ROAD CLOSURE WITH DIVERSION (BYPASS)  
TWO-LANE, TWO-WAY ROAD**

LONG TERM

LAYOUT 6J-16

**NOTES:**

1. See page iii for Temporary Traffic Control Distance Charts.
2. Detour signing shall be shown for one direction only. The other direction shall be similar.
3. See Long Term Layout 6J-20 for devices and spacing.
4. Use this sign when it is 2 mile or greater to the road closure.



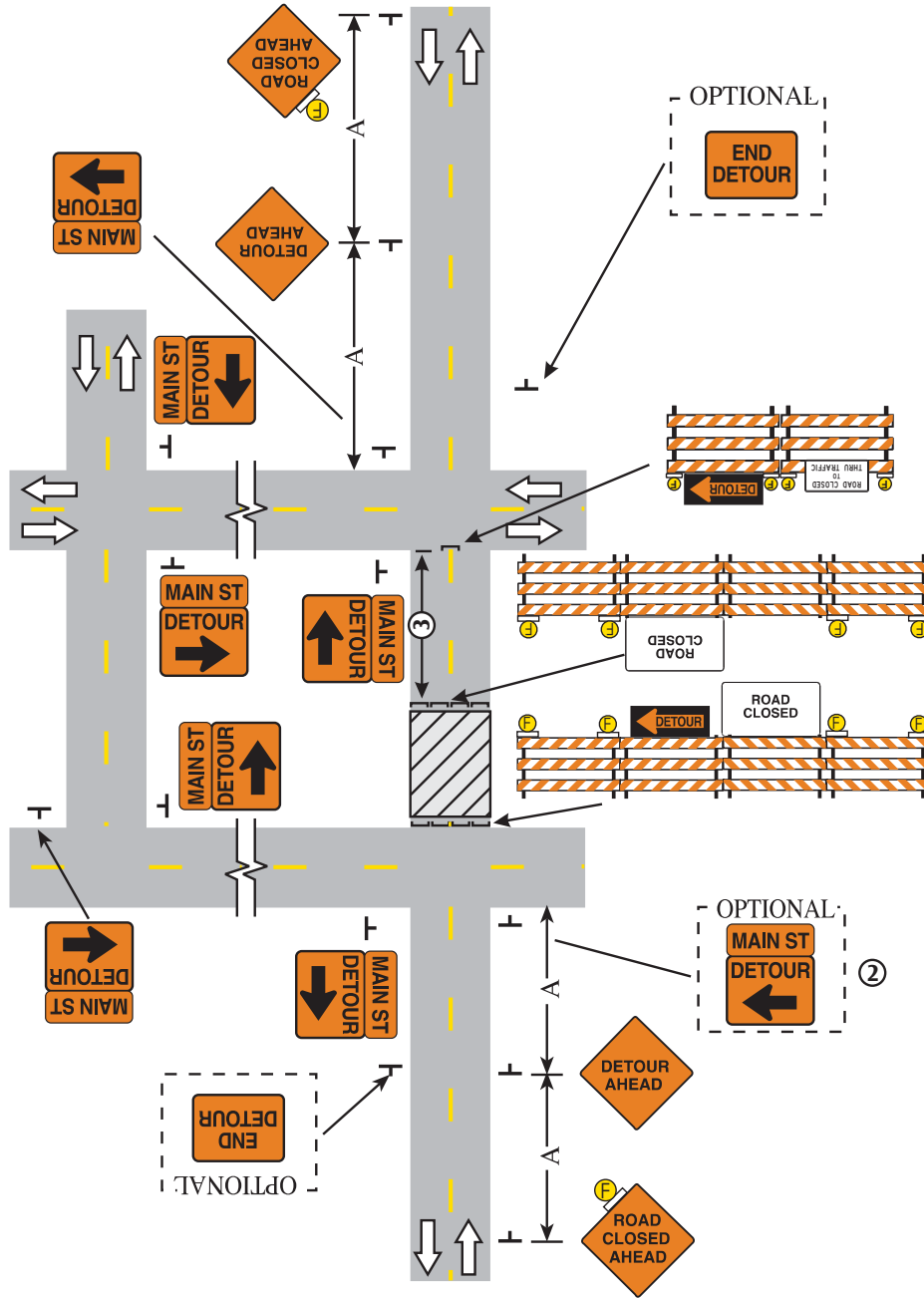
**ROAD CLOSURE WITH DETOUR**

LONG TERM

LAYOUT 6J-17

**NOTES:**

1. See page iii for Temporary Traffic Control Distance Charts.
2. A M4-9 Detour Sign with an advance turn arrow may be used in advance of a turn. On multi-lane streets, such signs should be used.
3. See Long Term Layout 6J-20 for devices and spacing.



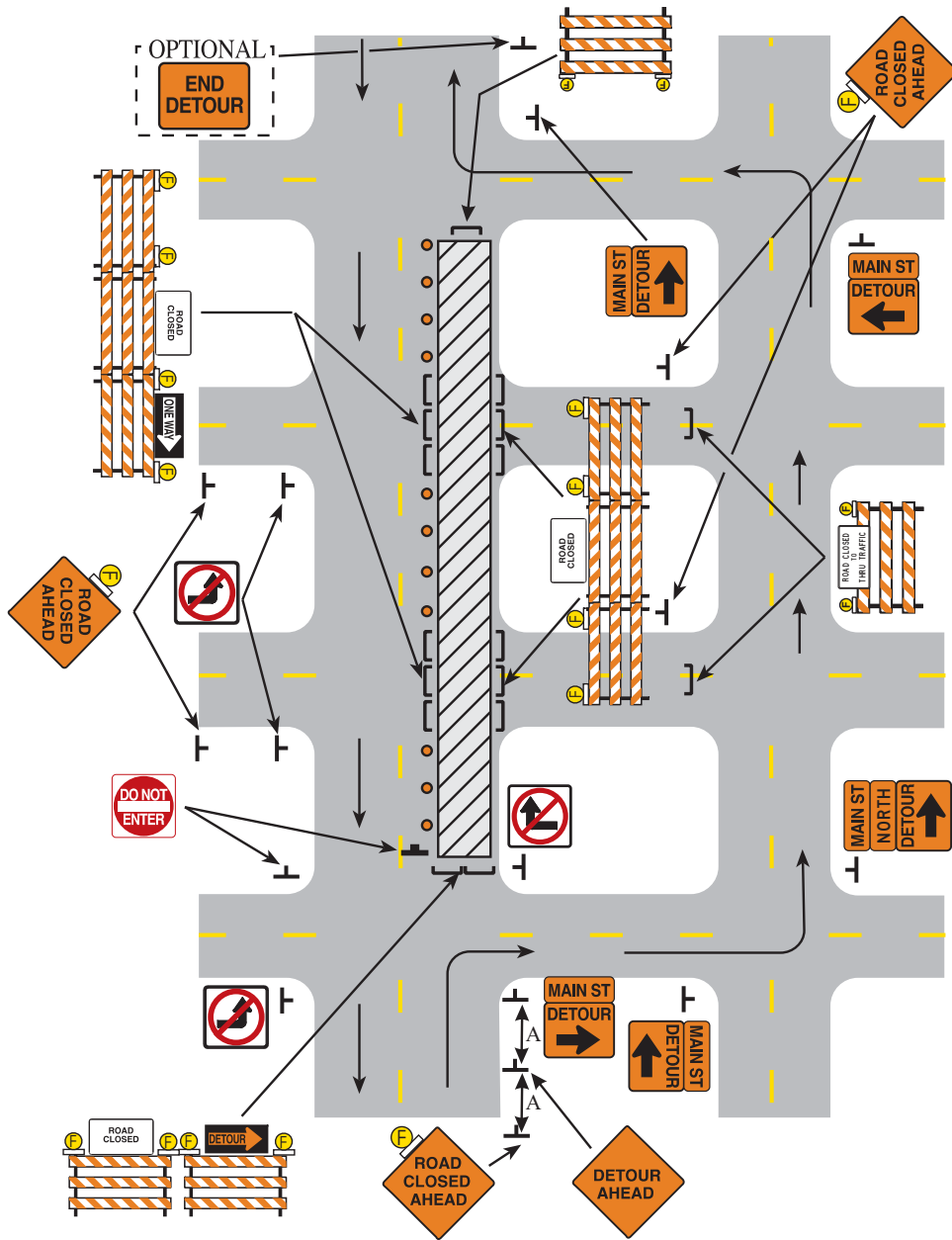
**DETOUR FOR CLOSED STREET**

LONG TERM

LAYOUT 6J-18

**NOTES:**

1. See page iii for Temporary Traffic Control Distance Charts.
2. Additional "DO NOT ENTER" signs may be desirable at intersections with intervening streets.
3. For sidewalk and crosswalk closures, see Layouts 6K-29 and 6K-30.
4. Additional side street signs may be required.



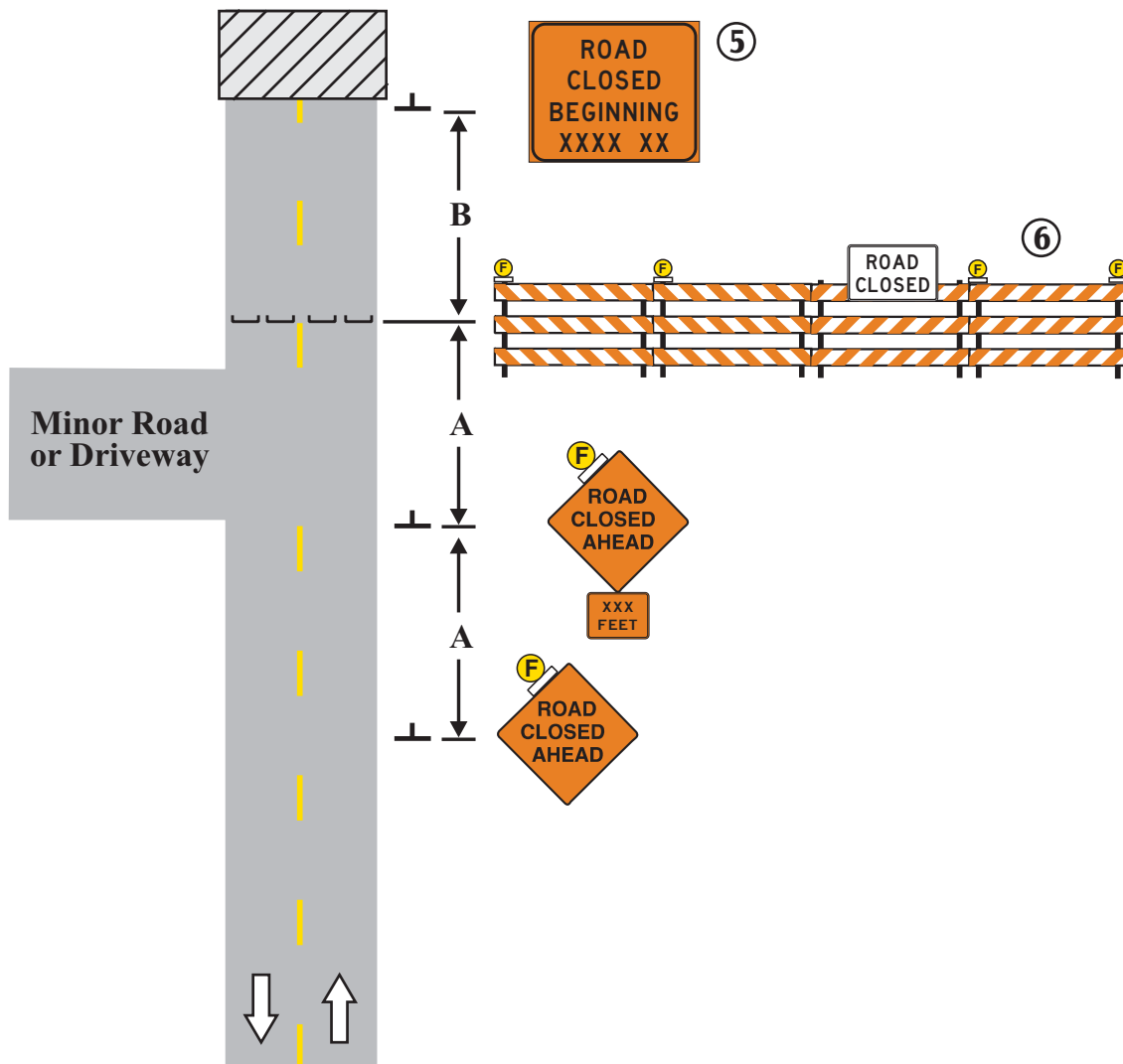
**DETOUR FOR ONE TRAVEL DIRECTION**

LONG TERM

LAYOUT 6J-19

**NOTES:**

1. See page iii for Temporary Traffic Control Distance Charts.
2. All devices are shown for one direction. Devices for the other direction should be similar.
3. The Road Authority will determine if a detour is required and specify the detour route.
4. Flashers are not required on signs and on Type III barricades for a daylight only closure.
5. Advance warning signs should be used seven days in advance of the closure.
6. Install at the last driveway or intersection beyond which there is no public access.



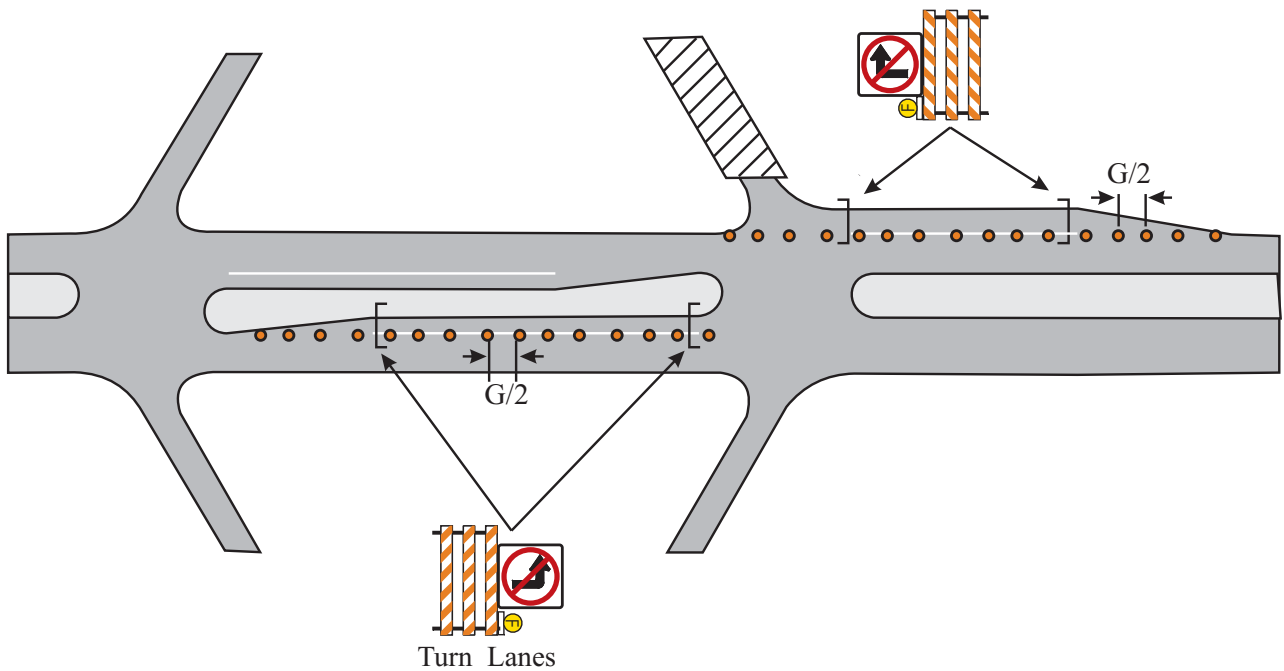
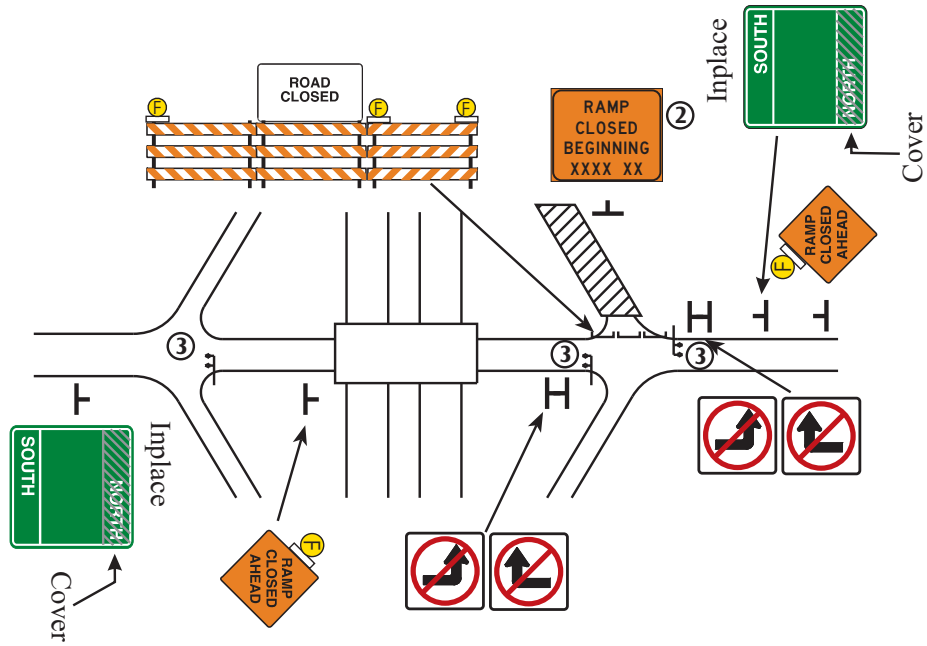
**TYPICAL SIGNING FOR ROAD CLOSURE**

LONG TERM

LAYOUT 6J-20

**NOTES:**

1. See page iii for Temporary Traffic Control Distance Charts.
2. Advance warning signs should be used seven days in advance of the closure.
3. Cover all directional signing for the closed ramp.



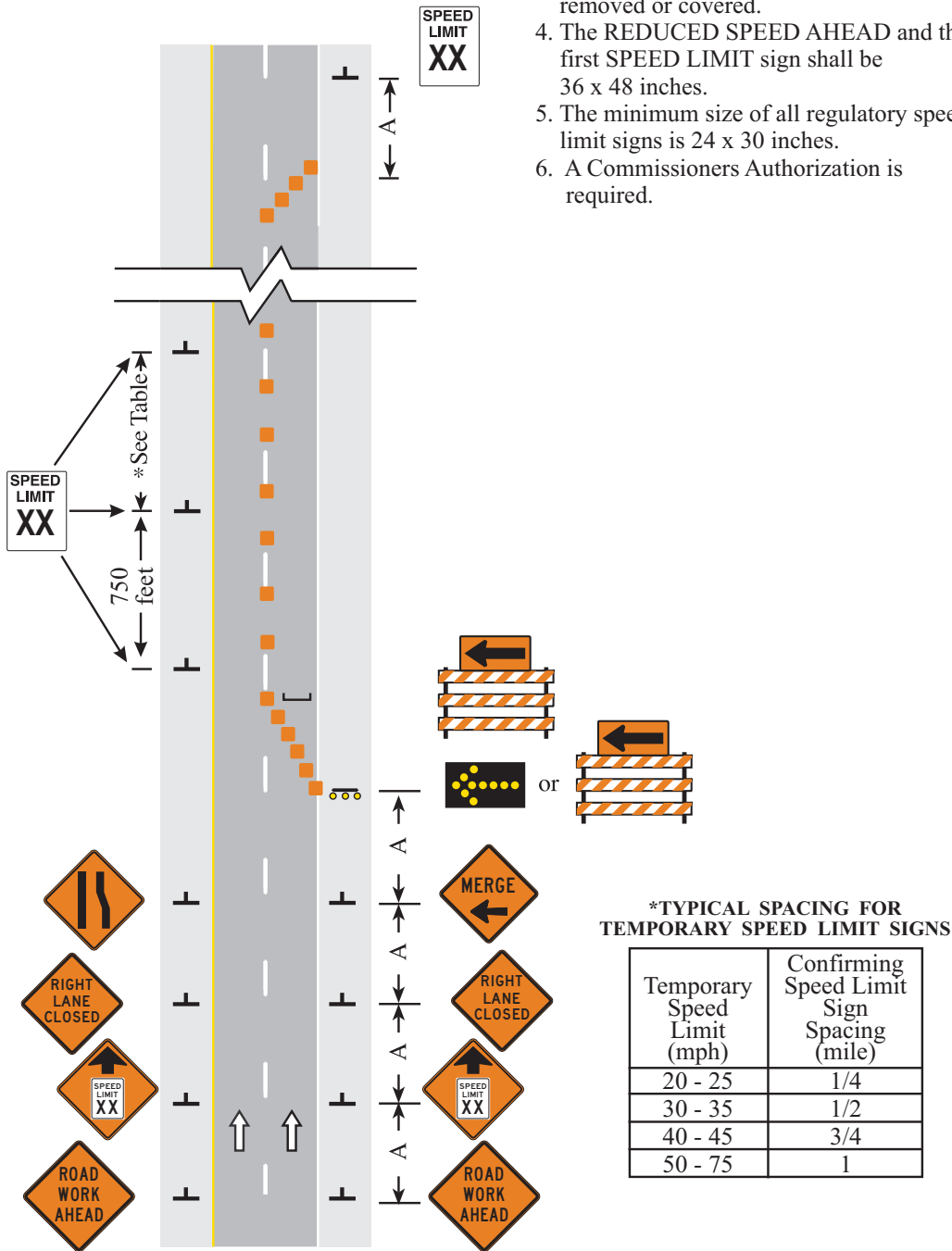
**ENTRANCE RAMP CLOSURES**

LONG TERM

LAYOUT 6J-21

**NOTES:**

1. See page iii for Temporary Traffic Control Distance Charts.
2. Use the appropriate layout for the advance signing and spacing.
3. All inplace Speed Limit signs shall be removed or covered.
4. The REDUCED SPEED AHEAD and the first SPEED LIMIT sign shall be 36 x 48 inches.
5. The minimum size of all regulatory speed limit signs is 24 x 30 inches.
6. A Commissioners Authorization is required.



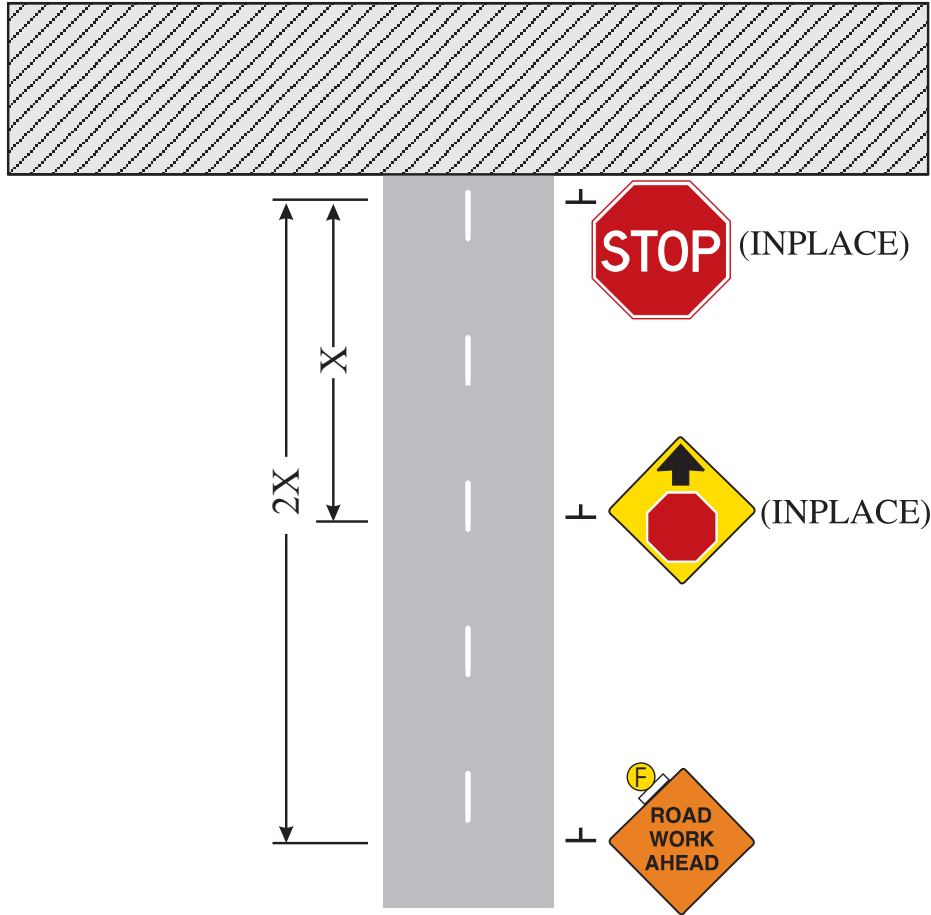
**TEMPORARY SPEED LIMIT ON MULTILANE DIVIDED ROAD**

LONG TERM

LAYOUT 6J-22

**NOTES:**

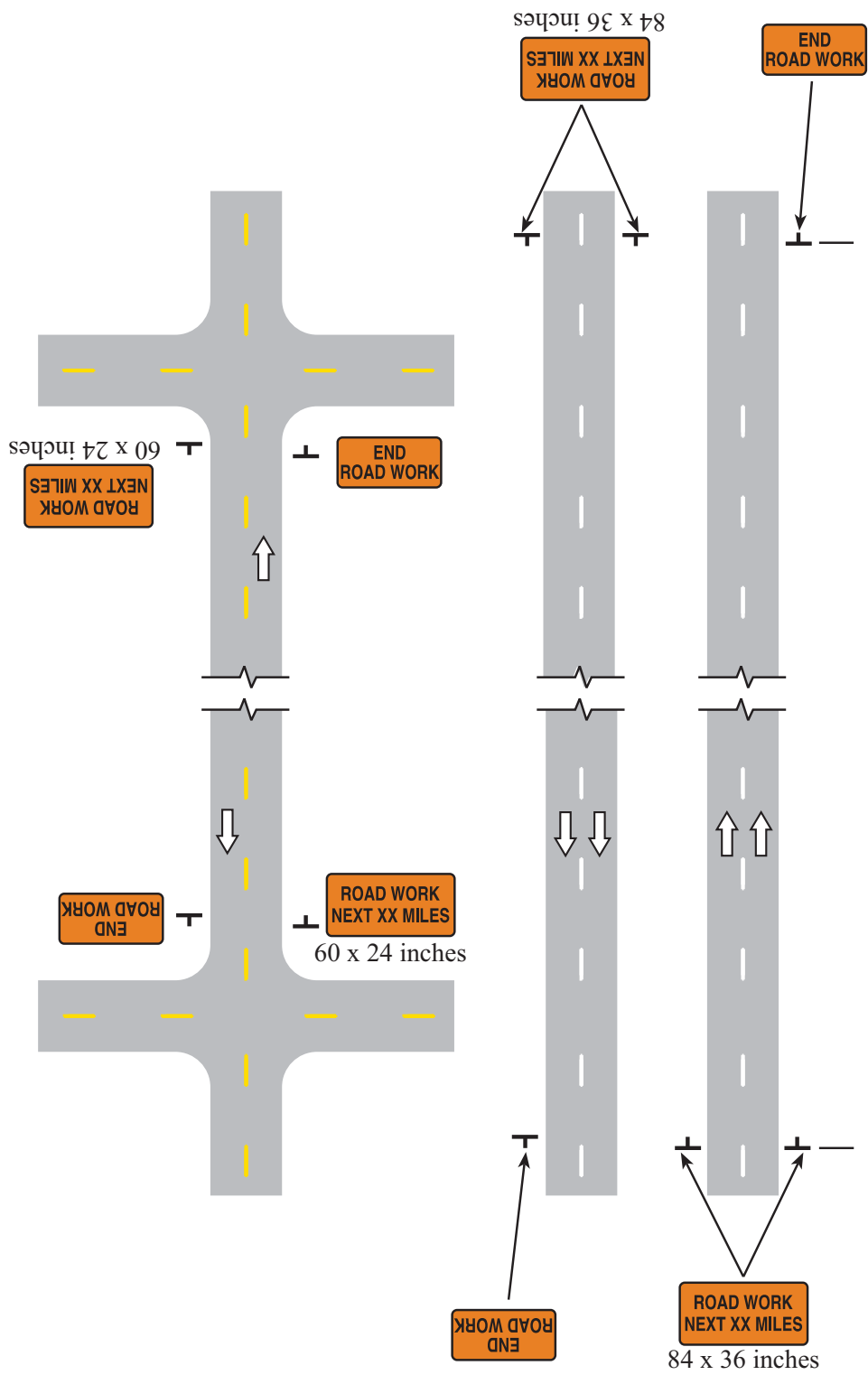
1. See page iii for Temporary Traffic Control Distance Charts.
2. If there is no STOP AHEAD sign, use the Advance Warning Sign Spacing A instead of the distance 2X.



**TYPICAL ADVANCE SIGNING  
FOR INTERSECTING ROADS**

LONG TERM

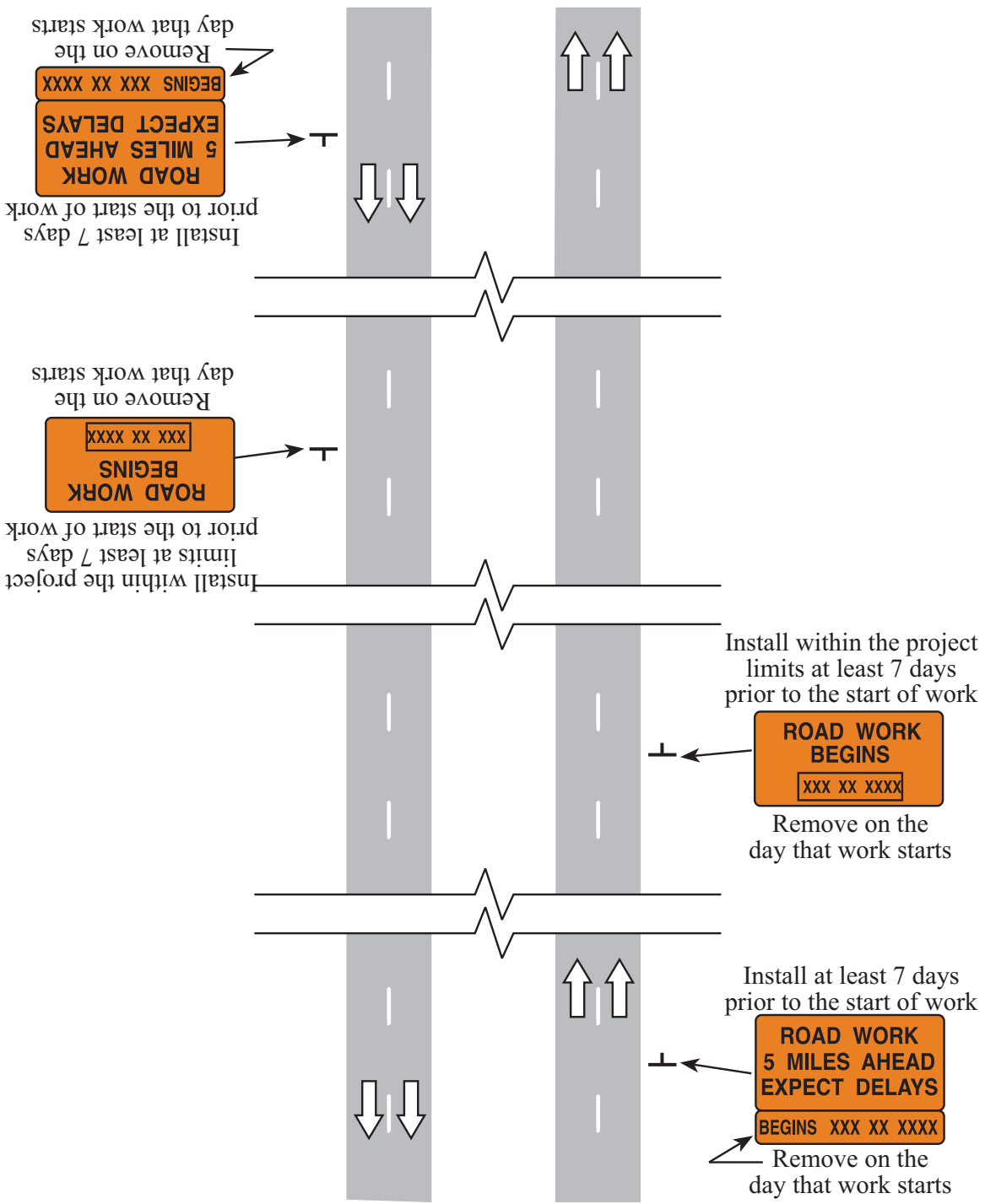
LAYOUT 6j-23



## TYPICAL TERMINI SIGNING

LONG TERM

LAYOUT 6J-24



## TYPICAL ADVANCE SIGNING

LONG TERM

LAYOUT 6J-25

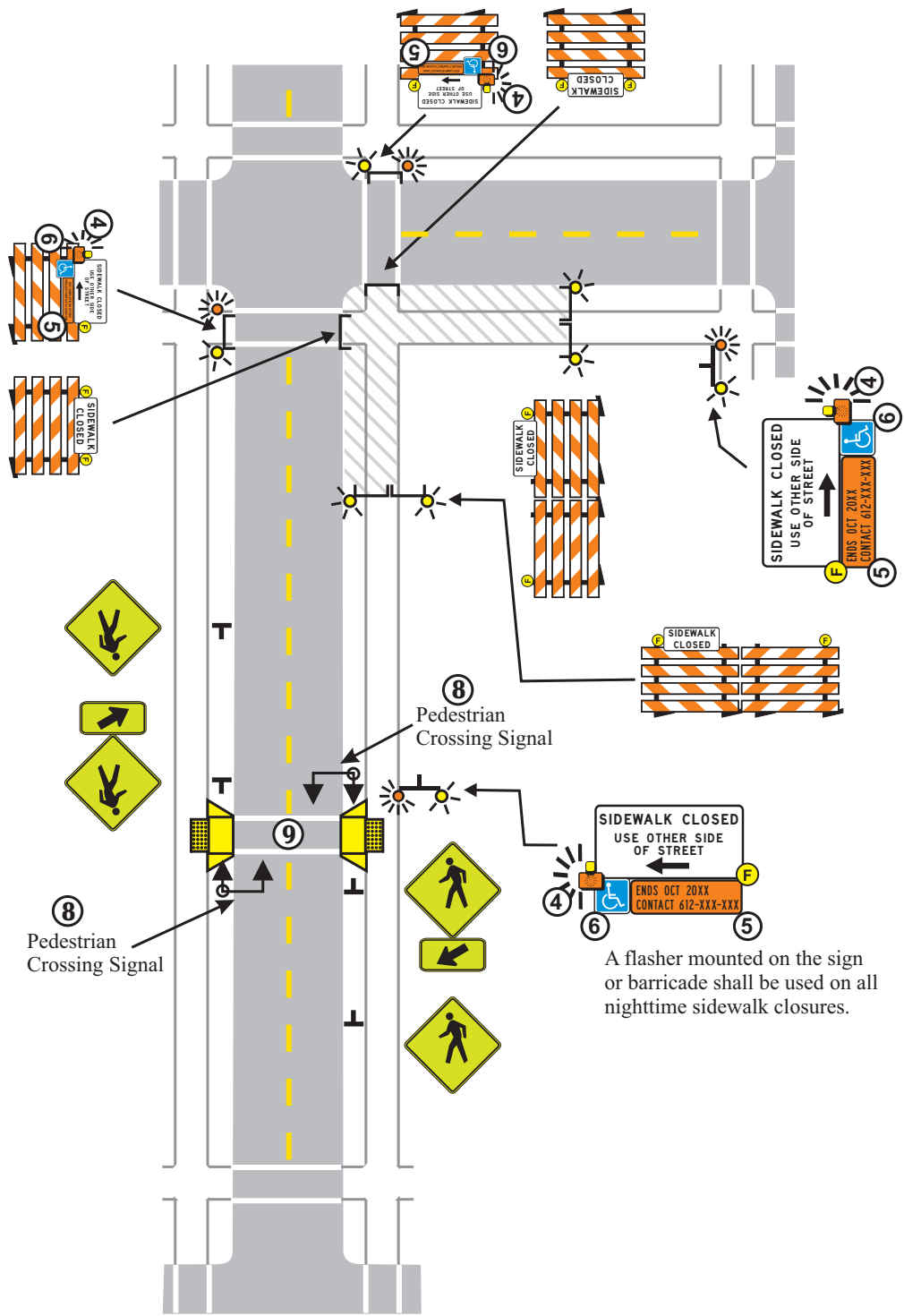
NOTES:

1. When crosswalks, sidewalks or other pedestrian facilities are blocked, closed or relocated, temporary facilities shall include accessibility features consistent with the features present in the existing pedestrian facility.
2. The examples show only key typical dimensions. Refer to the Mn/DOT "Temporary Pedestrian Access Route" (TPAR) website (<http://www.dot.state.mn.us/trafficeng/workzone/tpar.html>) for standards, guidance and options when blocking, closing, or relocating pedestrian facilities.
3. Only traffic control devices controlling pedestrian flows are shown. Other devices may be needed to control traffic on the streets.
4. An approved audible message device or tactile message should be provided for sight-impaired pedestrians. When used, a message device should provide a complete physical description of the temporary pedestrian detour including duration, length of (and/or distance to) the by-pass, any restrictions or hazards and project information as listed in note 5 below. The number and location of devices should be determined for each project prior to starting work. Devices may be placed prior to sidewalk work to warn regular users of the planned work.
5. Typical sign message for a temporary pedestrian detour should include information such as the duration of the walkway restrictions (beginning and/or end dates) and a project contact number for 24/7 questions or reporting hazards.
6. The International Symbol of Accessibility should be displayed when any walkway through a work zone has been determined to be TPAR compliant. The Symbol of Accessibility shall not be displayed if persons with disabilities should not use the primary temporary pedestrian detour. The reason for the non-compliance should be posted and an alternate route should be posted when the primary temporary pedestrian detour is non-complaint to TPAR standards.
7. Conditions that are beyond recommended standards should be documented. A walkway is non-compliant if it is missing key ADA elements such as curb ramp(s), truncated domes, and detectable edging. Other restrictions or hazards may include insufficient width or pinch-point widths, traffic conflicts, steep grades, non-continuous railings, tripping hazards, or uneven/rough/soft surface conditions, etc.
8. Pedestrian traffic signal displays controlling closed crosswalks shall be covered. Temporary pedestrian signals should be considered when creating a new crossing location.
9. Curb marking shall be prohibited for a minimum of 30 feet in advance of the mid-block pedestrian crossing. Crosswalk marking shall be installed and conflicting marking removed or covered. Curb ramps with detectable warnings shall be provided to transition from the sidewalk to the crosswalk.

## **CROSSWALK CLOSURES AND PEDESTRIAN DETOURS**

LONG TERM

LAYOUT 6J-26a



A flasher mounted on the sign or barricade shall be used on all nighttime sidewalk closures.

## CROSSWALK CLOSURES AND PEDESTRIAN DETOURS

LONG TERM

LAYOUT 6J-26b

NOTES:

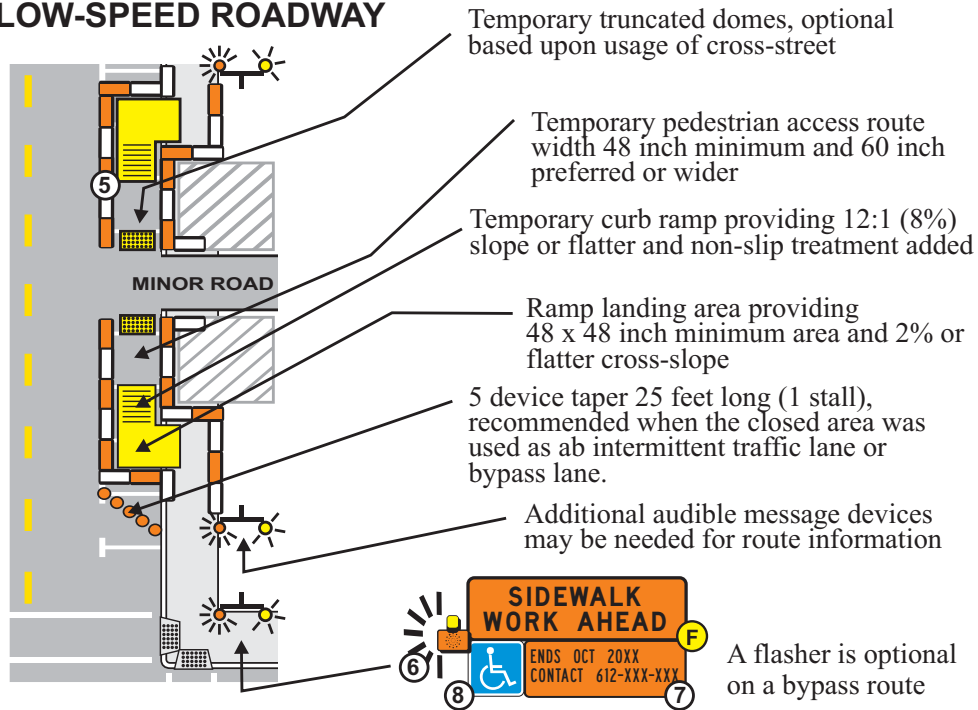
1. When crosswalks, sidewalks or other pedestrian facilities are blocked, closed or relocated, temporary facilities shall include accessibility features consistent with the features present in the existing pedestrian facility.
2. The examples show only key typical dimensions. Refer to the Mn/DOT "Temporary Pedestrian Access Route" (TPAR) website (<http://www.dot.state.mn.us/trafficeng/workzone/tpar.html>) for standards, guidance and options when blocking, closing, or relocating pedestrian facilities.
3. Where high speeds and/or high traffic volumes are anticipated, barrier should be used to separate the temporary pedestrian walkway from vehicular traffic. When used, barriers shall be installed as detailed in the MN MUTCD Part 6F.
4. Only traffic control devices controlling pedestrian flows are shown. Other devices may be needed to control traffic on the streets.
5. When both sides of a temporary pedestrian bypass require channelizing devices, then the devices should be a similar type (railing system, barricade, or fencing system), excluding when TTC barrier (such as concrete barrier) is used to protect pedestrians from an open traffic lane.
6. An approved audible message device or tactile message should be provided for sight-impaired pedestrians. When used, a message device should provide a complete physical description of the temporary pedestrian by-pass including duration, length of (and/or distance to) the bypass, any restrictions or hazards and project information as listed in note 7 below. The message device(s) may also describe an alternate route. The number and location of devices should be determined for each project prior to starting work. Devices may be placed prior to sidewalk work to warn regular users of the planned work.
7. Typical sign message for a temporary pedestrian bypass should include information such as the duration of the walkway restrictions (beginning and/or end dates) and a project contact number for 24/7 questions or reporting hazards.
8. The International Symbol of Accessibility should be displayed when any walkway through a work zone has been determined to be TPAR compliant. The Symbol of Accessibility shall not be displayed if persons with disabilities should not enter the temporary pedestrian by-pass. An alternate route should be posted when the temporary pedestrian bypass is non-complaint to TPAR standards.
9. Conditions that are beyond recommended standards should be documented. A walkway is non-compliant if it is missing key ADA elements such as curb ramp(s), truncated domes, and detectable edging. Other restrictions or hazards may include insufficient width or pinch-point widths, traffic conflicts, steep grades, non-continuous railings, tripping hazards, or uneven/rough/soft surface conditions, etc.
10. When a sidewalk is closed but workers are present who will provide assistance or directions to pedestrians, then the devices as shown are not required.

## **SIDEWALK BYPASS**

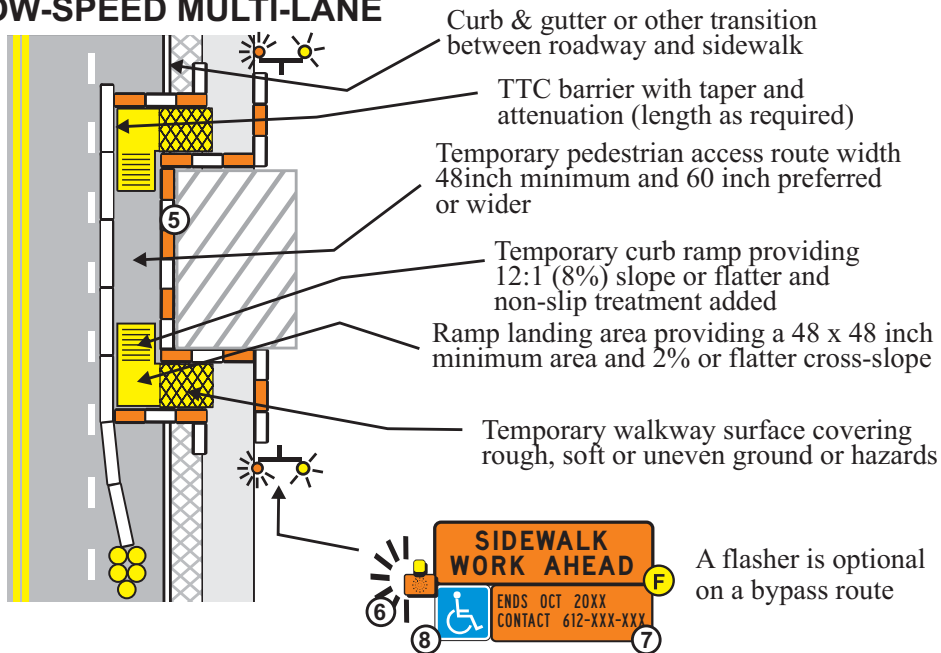
LONG TERM

LAYOUT 6J-27a

## LOW-SPEED ROADWAY



## HIGH-SPEED ROADWAY or LOW-SPEED MULTI-LANE



## SIDEWALK BYPASS

LONG TERM

LAYOUT 6J-27b