Miscellaneous Layouts

Layouts for Continuously Moving and Miscellaneous Operations.

**Drawings Not To Scale*

MISCELLANEOUS LAYOUTS

Refer to the layouts for roadway type, volume, or speed limit restrictions.

Miscellaneous Operations	
	Layout Number
Striping Operations - Two-Lane Roads	**76, 77**
Striping Operations - Multi-Lane Roads	**78, 79**
Off Road Operation	**10**
Motor Grader - Gravel Road Maintenance	**30**
Flagging Cross-Roads and Blind Curves	**19**
Flagging at Moving Work Spaces	**17**
Flagging Station Options	**23**
Surfacing Operation at Intersection	**66**
Lane Closure, Single Lane Roundabout	**84**
Left Lane Closure, 2 Lane Roundabout	**85**
Right Lane Closure, 2 Lane Roundabout	**86**
Typical Bump/Dip	**80**
Control Burn	**81**
Crossroad and Confirmation Signing	**35**
Advisory Dynamic Speed Display	**82**
Workers Present Speed Limit	**83**
Closures	
Layouts for closures or roadway, bicycle, or pedestrian facilities.	**Layout Number**
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Two-Lane, Two-Way Road Closure	**31, 32**
Multi-Lane Undivided Road Closure	**48, 32**
Multi-Lane Divided Closure	**55, 73, 32**
Bicycle Lane	**87**
Sidewalk Detour	**88**
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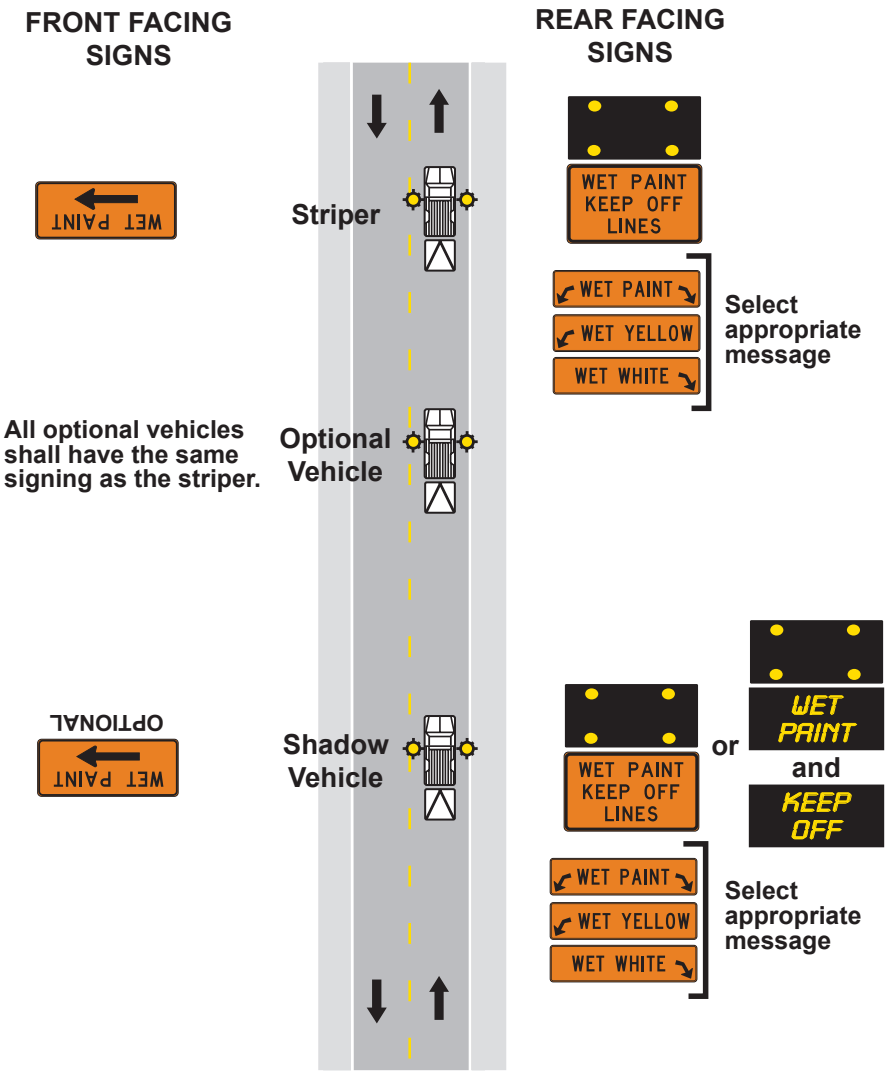
NOTES:

1. All vehicles shall display two 360-degree yellow flashing vehicle lights or strobes.
2. The separation distance between the Striper and the most upstream Shadow Vehicle should be determined by the track free time of the pavement marking material and/or traffic conditions.
3. Any vehicle(s) operated totally or partially in a **high speed** traffic lane should be equipped with a TMA.
4. If tracking of the wet paint is anticipated, the use of cones or stationary "WET PAINT" signs should be considered.

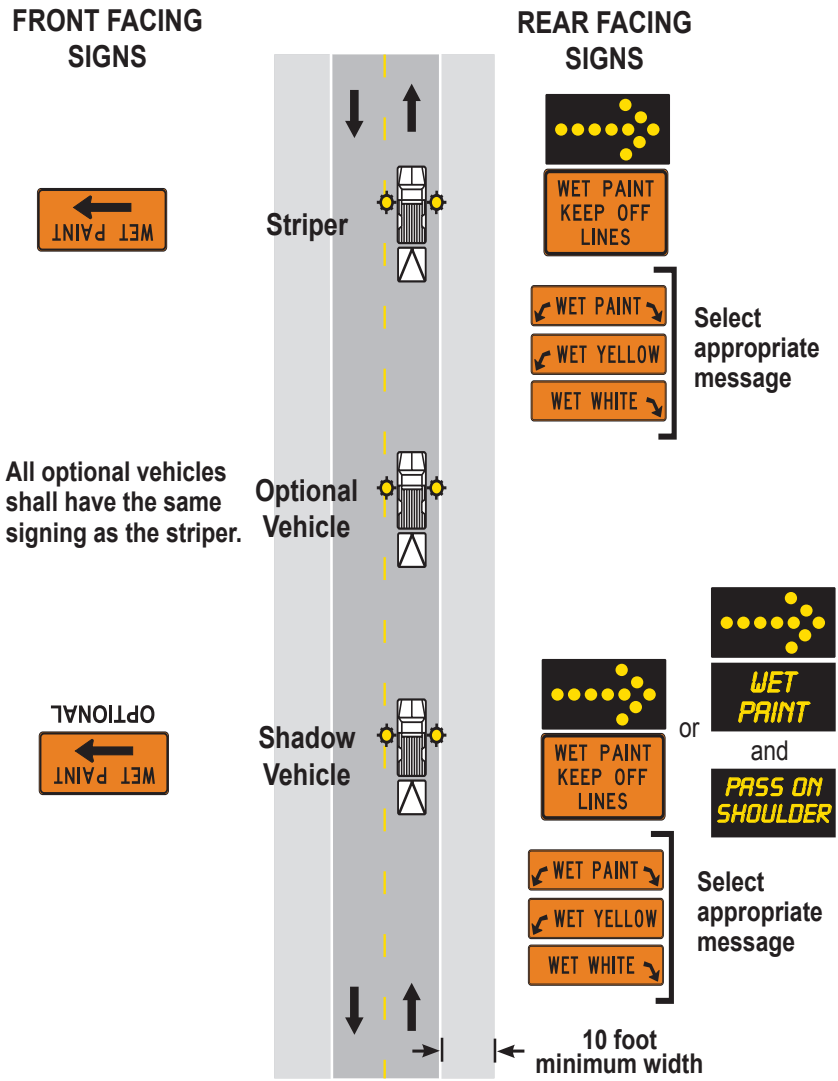


STRIPING OPERATIONS
TWO-LANE, TWO-WAY ROAD

15 MINUTES or LESS **LAYOUT 76**

NOTES:

1. All vehicles shall display two 360-degree yellow flashing vehicle lights or strobes.
2. The separation distance between the Striper and the most upstream Shadow Vehicle should be determined by the track free time of the pavement marking material and/or traffic conditions.
3. Any vehicle(s) operated totally or partially in a **high speed** traffic lane should be equipped with a TMA.
4. If tracking of the wet paint is anticipated, the use of cones or stationary "WET PAINT" signs should be considered.



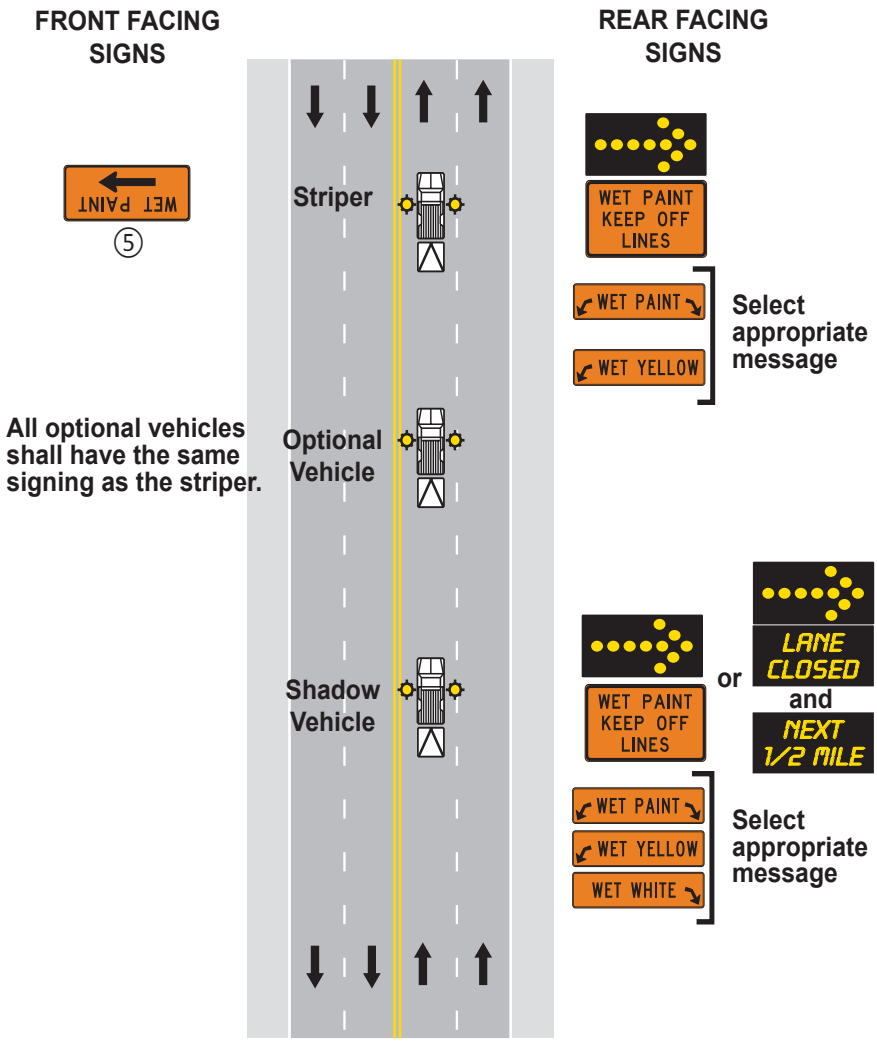
STRIPING OPERATIONS
Passing on Shoulder
TWO-LANE, TWO-WAY ROAD

15 MINUTES or LESS **LAYOUT 77**

NOTES:

1. All vehicles shall display two 360-degree yellow flashing vehicle lights or strobes.
2. The separation distance between the Striper and the most upstream Shadow Vehicle should be determined by the track free time of the pavement marking material and/or traffic conditions.
3. Any vehicle(s) operated totally or partially in a **high speed** traffic lane should be equipped with a TMA.
4. If tracking of the wet paint is anticipated, the use of cones or stationary "WET PAINT" signs should be considered.

⑤ Remove sign when operating the vehicle in the right lane.



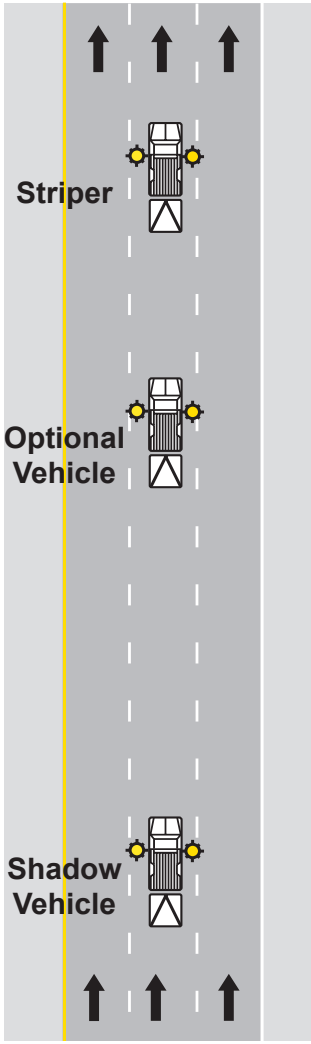
STRIPING OPERATIONS

Centerline - Lane Line - Edgeline Striping
FOUR-LANE UNDIVIDED ROAD

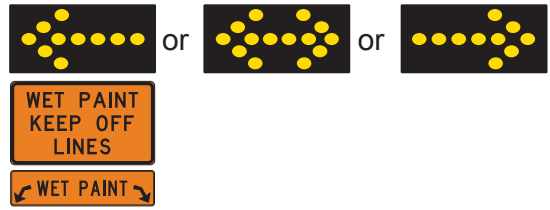
15 MINUTES or LESS **LAYOUT 78**

NOTES:

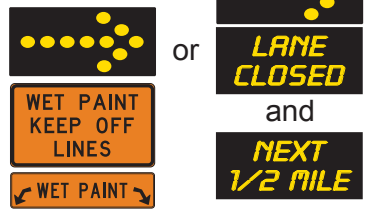
1. All vehicles shall display two 360-degree yellow flashing vehicle lights or strobes.
2. The separation distance between the Striper and the last Shadow Vehicle should be determined by the track free time of the pavement marking material.
3. Any vehicle(s) operated totally or partially in a **high speed** traffic lane should be equipped with a TMA.
4. If tracking of the wet paint is anticipated, the use of cones or stationary "WET Paint" signs should be considered.



REAR FACING SIGNS



All optional vehicles shall have the same signing as the striper.



STRIPING OPERATIONS

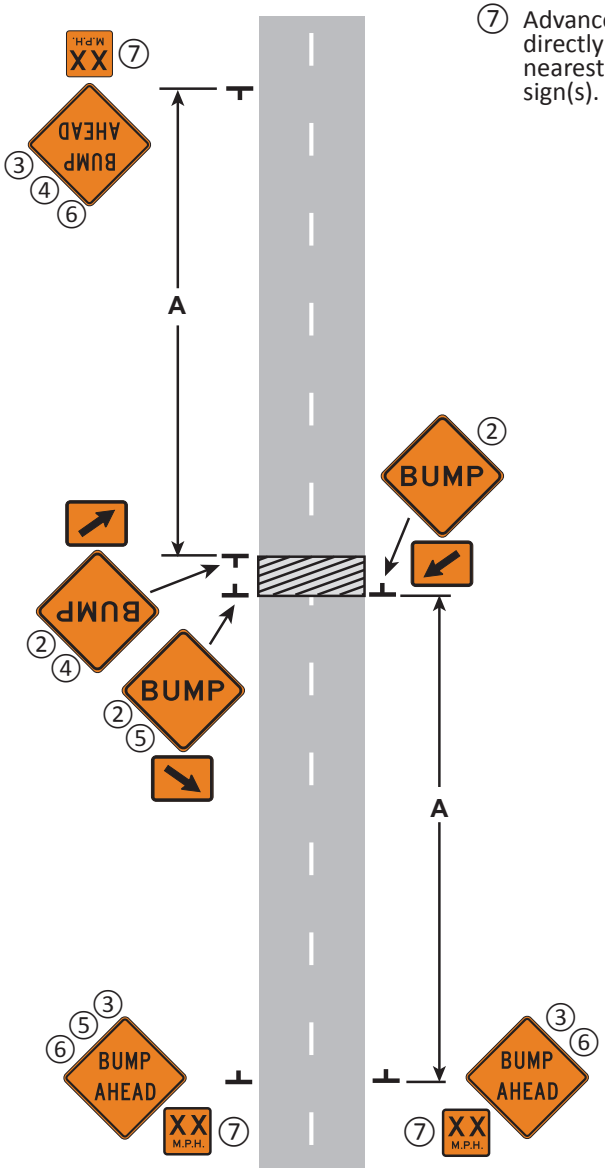
Lane Line Striping - Center Lane Operations

MULTI-LANE DIVIDED ROAD

15 MINUTES or LESS **LAYOUT 79**

NOTES:

1. Multiple bumps should use ROUGH ROAD sign.
2. When a dip, use DIP signs.
3. May use STEEL PLATE AHEAD sign when bump is caused by steel plate.
4. Use on two-lane, two-way roadways.
5. For multi-lane divided or one-way road only.
6. The BUMP AHEAD signs may be omitted if the posted advisory speed is 10 mph or less than the posted regulatory speed.
7. Advance plaques shall be placed directly below or on the lower side nearest traffic of the BUMP AHEAD sign(s).



TYPICAL BUMP/DIP SIGNING

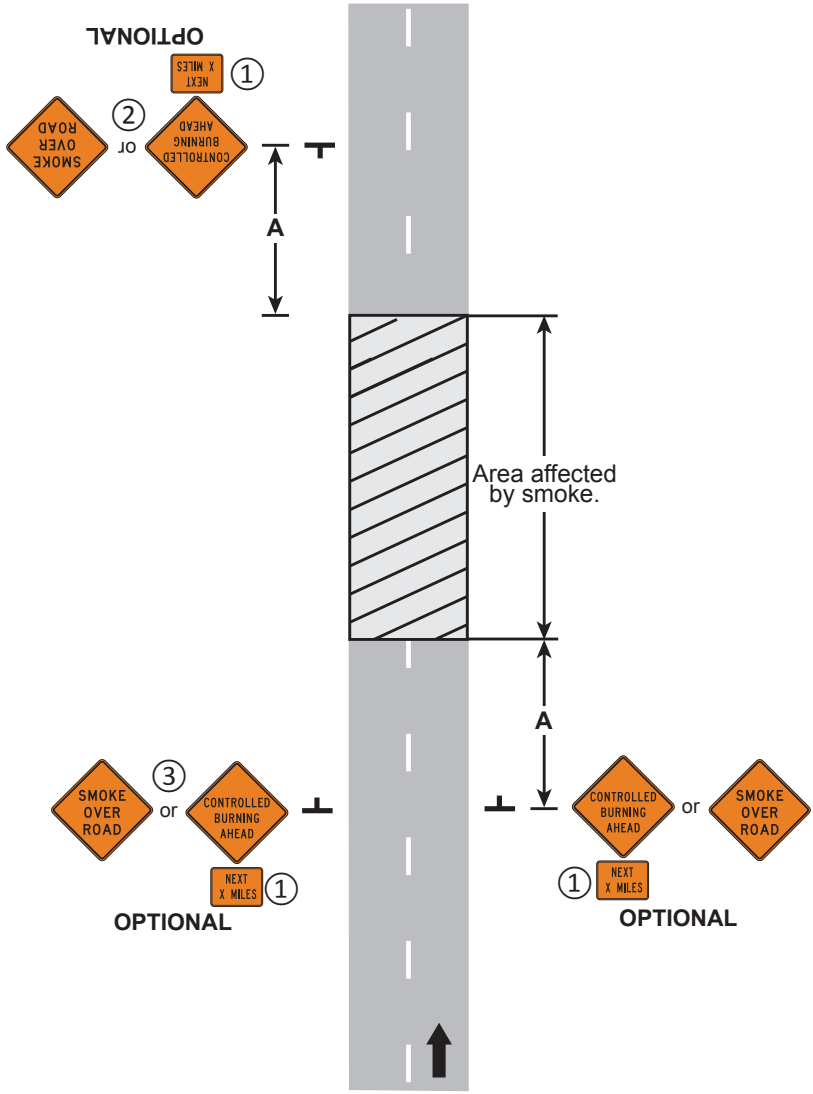
3 DAYS or LESS **LAYOUT 80**

NOTES:

① When the optional NEXT X MILES plaque(s) is used, it shall be placed directly below or on the lower side nearest traffic of the appropriate warning sign(s).

② Use on two-lane, two-way roads.

③ For multi-lane divided or one-way roadways.



CONTROLLED BURN

12 HOURS or LESS **LAYOUT 81**

NOTES:

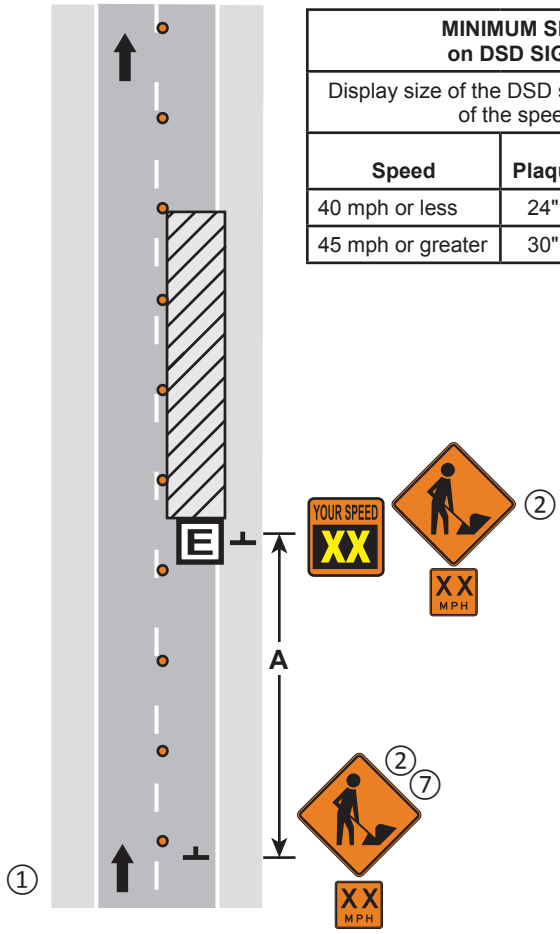
① Use the appropriate layout for channelizing, advance signing, and spacing.

② The XX MPH advisory speed plaque shall be placed directly below or on the lower side nearest traffic of the appropriate warning sign. The sign assembly shall be removed when the conditions that required the sign are no longer present. Dynamic Speed Display (DSD) shall be black on orange.

3. The advisory speed value shall not be higher than any inplace regulatory speed limit.
4. An advance warning sign with an advisory speed plaque should not be placed near a regulatory speed sign. If necessary, consider covering the inplace regulatory speed signs.
5. Advisory speed assemblies may be placed in the buffer or work space as long as the assemblies are not blocked by vehicles or devices.
6. See "Speed Limits in Work Zones Guidelines" (https://www.dot.state.mn.us/speed/pdf/wzspeedlimitguideline.pdf) for more information on work zone speed limits.

⑦ The warning sign assembly may be omitted if the posted advisory speed is 10 mph or less than the posted regulatory speed limit.

MINIMUM SPECIFICATIONS on DSD SIGN EQUIPMENT		
Display size of the DSD sign is dependent on the size of the speed plaque used.		
Speed	**Plaque Size**	**DSD display MIN. Character Height**
40 mph or less	24" X 24"	10"
45 mph or greater	30" X 30"	14"



ADVISORY DYNAMIC SPEED DISPLAY

3 DAYS or LESS **LAYOUT 82**

NOTES:

1. Contact the road authority for requirements to implement a Workers Present Speed Limit.

② All inplace speed limit signs shall be covered when Workers Present Speed Limit is implemented.

3. Workers Present Speed Limit assemblies shall be removed, covered, or modified to the existing posted speed limit when workers are not present directly adjacent to traveled lanes.

4. Workers Present Speed Limit assemblies may be placed in the buffer or work space as long as the assemblies are not blocked by vehicles or devices.

5. As workers proceed through the work area, the assembly shall be no greater than 1 mile in advance of the work crew. For Workers Present Speed Limits where the posted speed limit is 40 mph or less, the assembly should be no greater than 1/2 mile in advance of the work crew.

⑥ The Reduced Speed Ahead sign shall be used when the Workers Present Speed Limit is more than 10 mph below the posted speed limit.

⑦ The Flashing Arrow Board shall be used where the posted speed limit is 45 mph or greater and placed on the shoulder. If there is no shoulder, or the shoulder is too narrow, place at the end of the taper in lieu of the Type III barricade assembly.

⑧ The LANE CLOSED and/or the Lane Ends sign may be omitted when the posted speed limit is 40 mph or less.

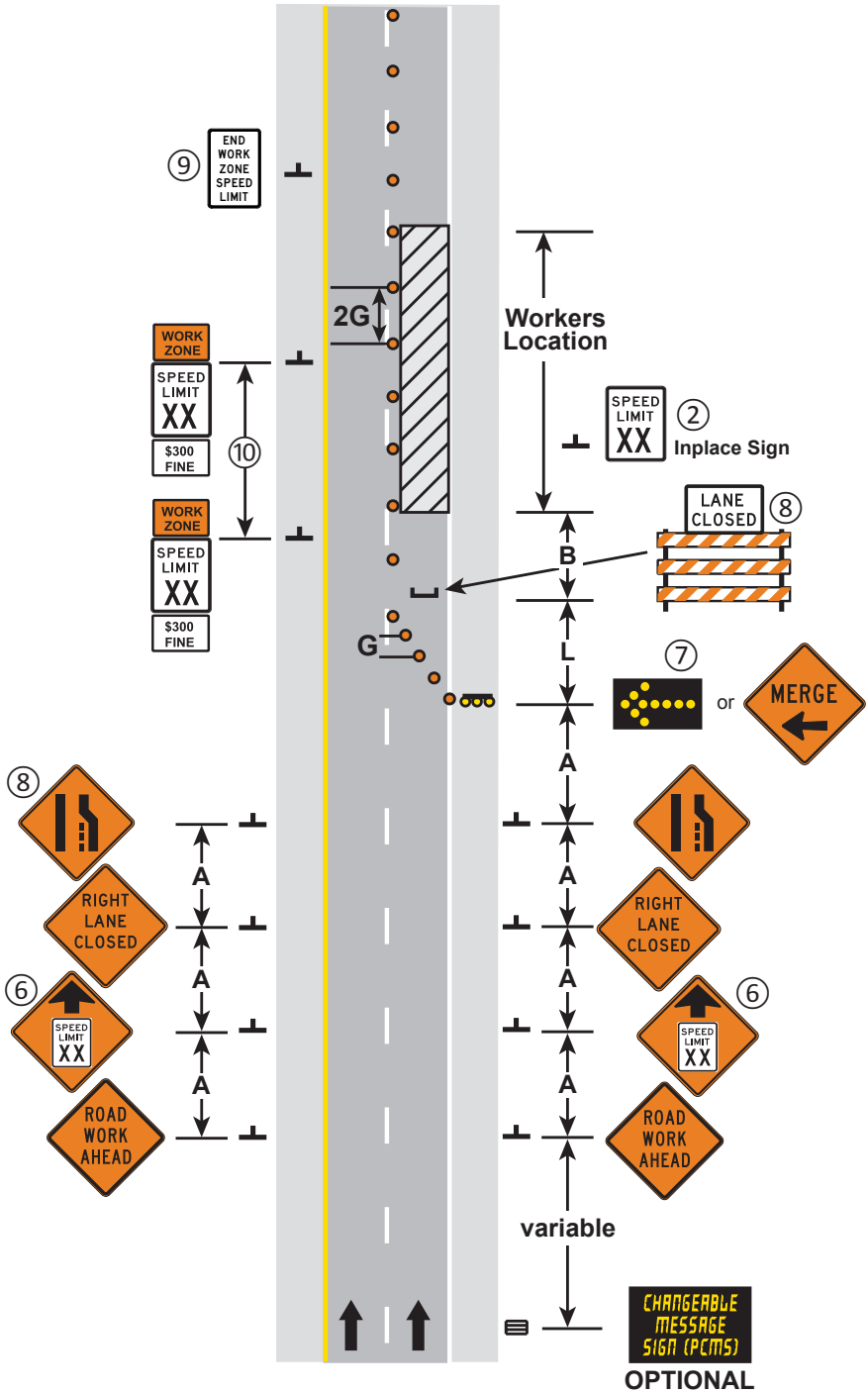
⑨ A black on white END WORK ZONE SPEED LIMIT sign (R2-12) shall be placed within a mile of the last work crew (within 1/2 mile if speed limit is 40 mph or less) to indicate the end of the higher fines area.

⑩ When workers are present adjacent to the traveled lanes throughout the work area, confirmatory Workers Present Speed Limit assemblies may be placed according to the spacing table below.

Typical Spacing for Workers Present Speed Limits	
Workers Present Speed Limit (mph)	**Assembly Spacing (mile)**
≤ 40	1/2
≥ 45	1

WORKERS PRESENT SPEED LIMIT
LAYOUT 83a

3 DAYS or LESS **LAYOUT 83a & b**



WORKERS PRESENT SPEED LIMIT
LAYOUT 83b

3 DAYS or LESS **LAYOUT 83a & b**

NOTES:

1. **Each roundabout is unique and traffic control shall be developed to meet the specific conditions of the location and the work operation.** A detour could better serve traffic movement and shall be considered as an alternative to the flagger operation.

2. Flagging operations may not be necessary when working on the shoulders or in the island of the roundabout. If a driving lane(s) width of at least 10 feet (or more) can be maintained while shoulder work on an approach is being performed, the driving lane(s) may remain open to traffic.

③ Approach signs are the same in all directions.

4. Flaggers shall control traffic flow on all approaches of the one-lane roundabout.

5. A lead flagger shall be designated and radio communication shall be used by the flaggers.

6. Only one approach of traffic shall be released at a time.

7. At night, flagger stations shall be illuminated. Street lights and vehicle headlights shall not be used to illuminate the flagger station.

8. Type B channelizers may be used.

9. A PCMS should be considered as part of this operation to provide clear guidance to motorists on all approaches of the roundabout, especially approaches that must reverse traffic flow.

⑩ The two-way taper should be 50 feet using 5 equally spaced channelizing devices.

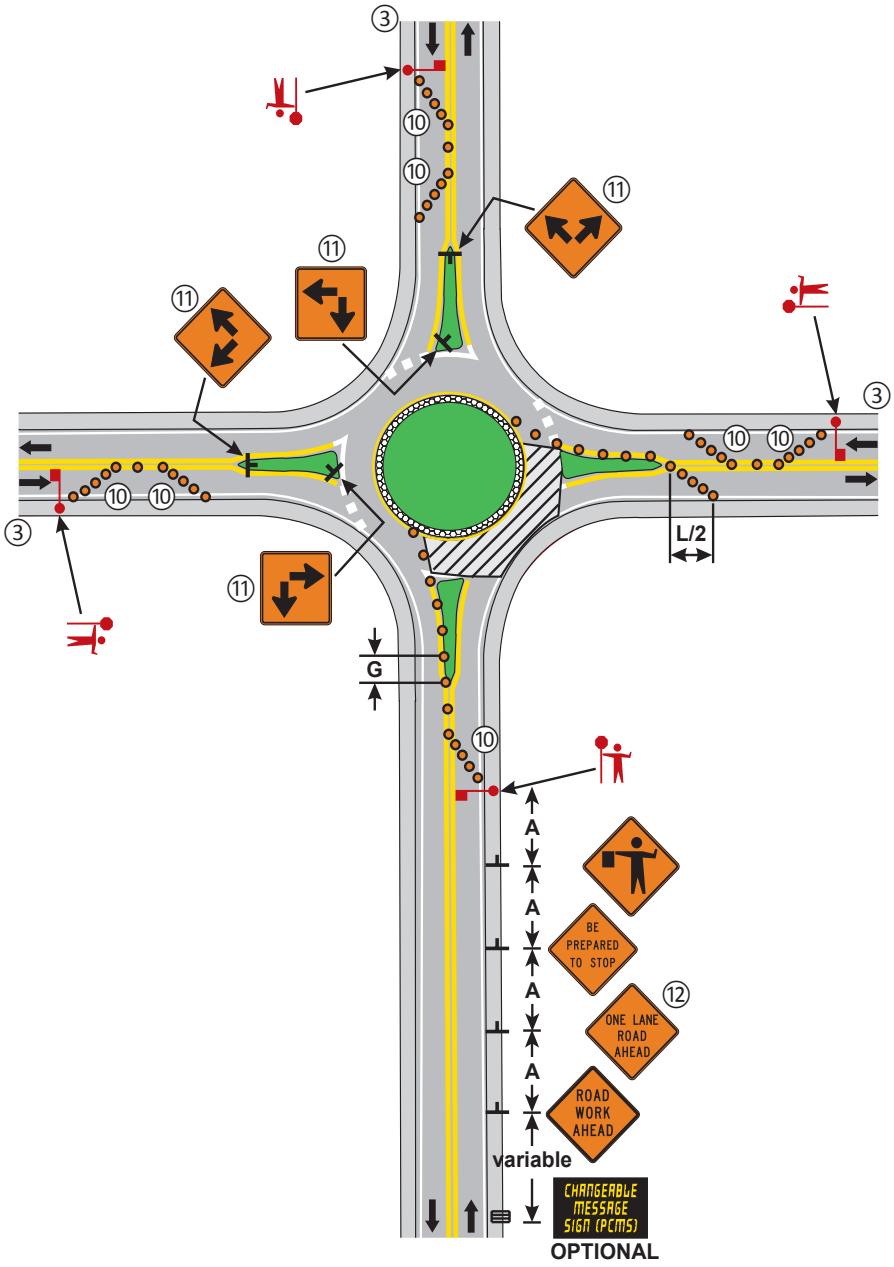
⑪ The Double Arrow sign may be replaced with destination signing.

⑫ The ONE LANE ROAD AHEAD sign may be omitted at 45 mph or less.

LANE CLOSURE IN ROUNDABOUT

Single Lane Roundabout

3 DAYS or LESS **LAYOUT 84a** **LAYOUT 84a & b**



LANE CLOSURE IN ROUNDABOUT

Single Lane Roundabout

LAYOUT 84b

3 DAYS or LESS **LAYOUT 84a & b**

NOTES:

1. **Each roundabout is unique and traffic control shall be developed to meet the specific conditions of the location and the work operation.** A detour could better serve traffic movement and shall be considered as an alternative to the flagger operation.

(2) Traffic control on all approaches are the same.

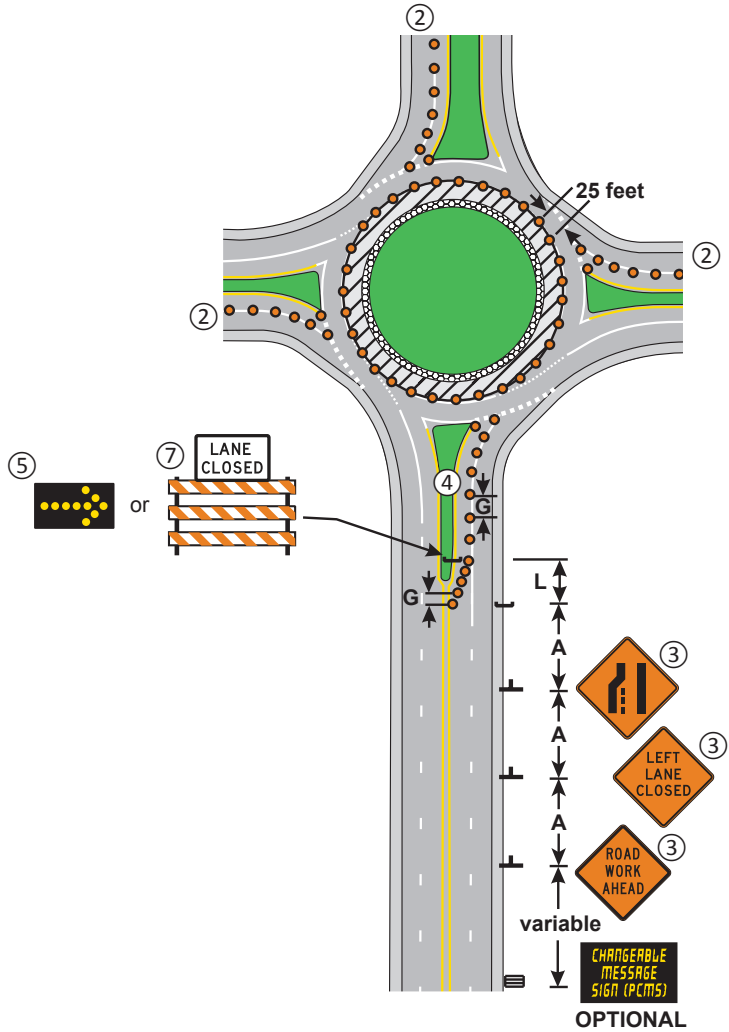
(3) On divided highways having a median wider than 8 feet, right and left sign assemblies shall be required.

(4) Type B channelizers may be used.

(5) The Flashing Arrow Board shall be used when the posted speed limit is 45 mph or greater.

6. Consideration should be given to truck/bus traffic.

(7) The LANE CLOSED sign is optional at 40 mph or less.



LEFT LANE CLOSURE IN ROUNDABOUT

Two-Lane Roundabout

3 DAYS or LESS **LAYOUT 85**

NOTES:

1. **Each roundabout is unique and traffic control shall be developed to meet the specific conditions of the location and the work operation.** A detour could better serve traffic movement and shall be considered as an alternative to the flagger operation.

(2) Traffic control on all approaches are the same.

(3) On divided highways having a median wider than 8 feet, right and left sign assemblies shall be required.

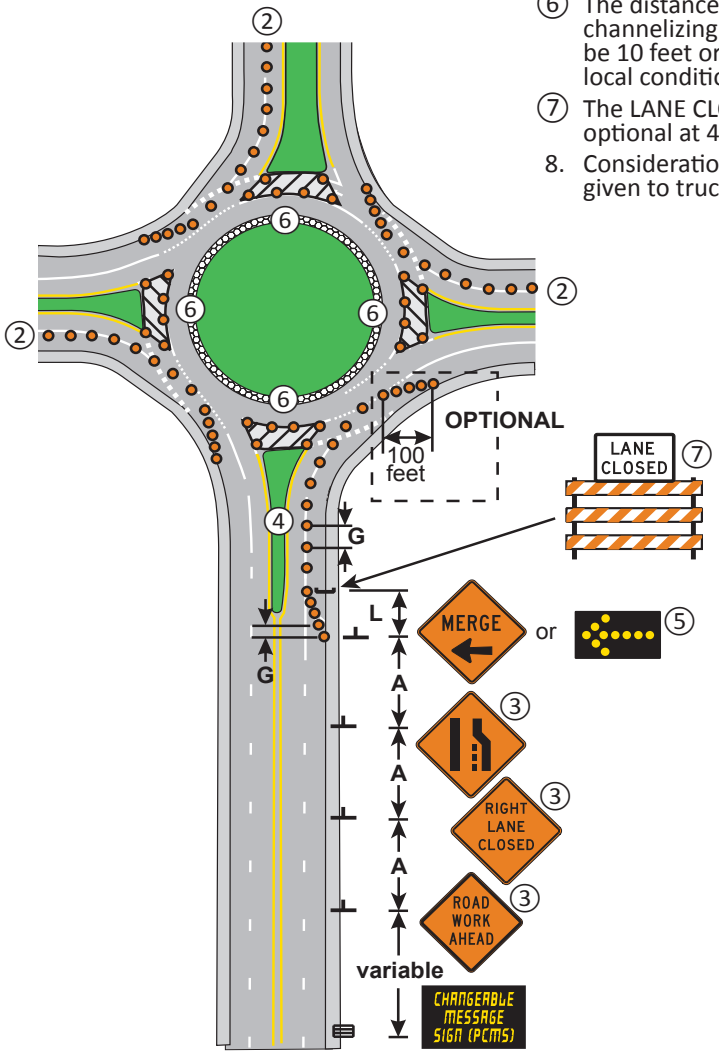
(4) Type B channelizers may be used.

(5) The Flashing Arrow Board shall be used where the posted speed limit is 45 mph or greater and placed on the shoulder when possible. If there is no shoulder, or the shoulder is too narrow, place at the end of the taper in lieu of the Type III barricade assembly.

(6) The distance between channelizing devices should be 10 feet or adjusted for local conditions

(7) The LANE CLOSED sign is optional at 40 mph or less.

8. Consideration should be given to truck/bus traffic.



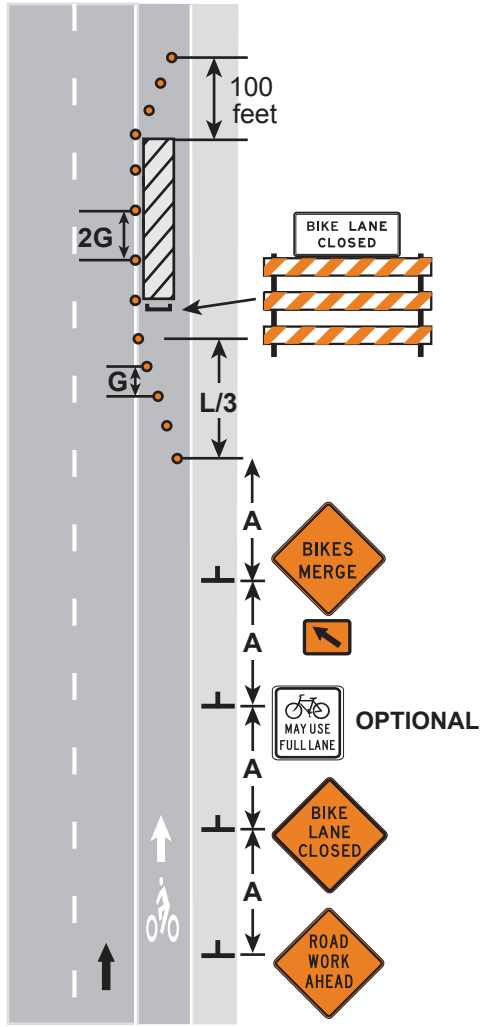
RIGHT LANE CLOSURE IN ROUNDABOUT

Two-Lane Roundabout

3 DAYS or LESS **LAYOUT 86**

NOTES:

1. Use this layout when work is occurring in the bicycle lane or traffic is to be diverted into the bicycle lane downstream.
2. The road authority shall be contacted prior to closure and may provide requirements related to detours and/or additional temporary traffic control.
3. A designated bicycle lane should be maintained through the work zone if possible.
4. On multi-lane roads with bicycle lanes or bikeable shoulders, one or more travel lanes may be closed or narrowed to maintain space for the bicycle lane.
5. On-road bicyclists should not be directed onto a path or sidewalk except where such a path or sidewalk is a shared-use path or there is no practical alternative.
6. Avoid shoulder rumble strips when placing taper (except when continuous rumble strips are present).



BICYCLE LANE CLOSURE

3 DAYS or LESS **LAYOUT 87**

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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. When a sidewalk is closed but workers are present to halt operations and provide safe passage through the work site, the devices shown are not required. Pedestrians may be delayed for a short period of time for project personnel to move equipment and material to facilitate passage. Project personnel may also assist pedestrians in navigating the work zone.

3. The examples show only key typical dimensions. Refer to the MnDOT Pedestrian Accommodations Through Work Zones website (http://www.dot.state.mn.us/trafficeng/workzone/apr.html) for standards, guidance, and options when blocking, closing, or relocating pedestrian facilities.

4. Only traffic control devices controlling pedestrian flows are shown. Other devices may be needed to control traffic on the streets.

⑤ 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. 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.

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 the detour is not fully accessible.

7. Pedestrian traffic signal displays controlling closed crosswalks shall be covered.

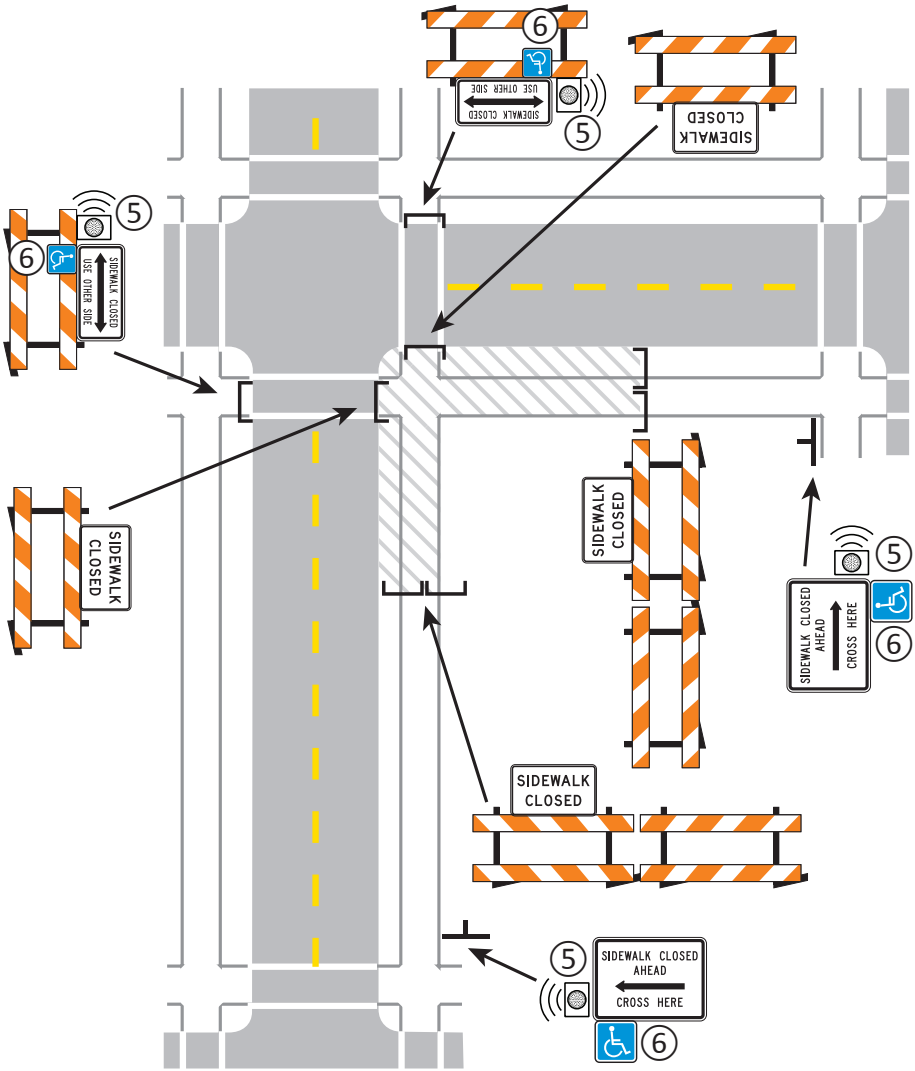
8. Pedestrian detour trailblazing signs should be used if the pedestrian detour is located someplace other than across the street from the sidewalk closure.

9. Place signs and barricades in such a way as to minimize hazard to pedestrians from walking into signs. If not possible, protect with detectable edges and/or channelizing devices.

ALTERNATE PEDESTRIAN ROUTE
CROSSWALK CLOSURES AND PEDESTRIAN DETOURS
LAYOUT 88a

3 DAYS or LESS

LAYOUT 88a & b



ALTERNATE PEDESTRIAN ROUTE
CROSSWALK CLOSURES AND PEDESTRIAN DETOURS

3 DAYS or LESS **LAYOUT 88b** **LAYOUT 88a & b**

6K-88b

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. When a sidewalk is closed but workers are present to halt operations and provide safe passage through the work site, the devices shown are not required. Pedestrians may be delayed for a short period of time for project personnel to move equipment and material to facilitate passage. Project personnel may also assist pedestrians in navigating the work zone.

3. The examples show only key typical dimensions. Refer to the MnDOT Pedestrian Accommodations Through Work Zones website (http://www.dot.state.mn.us/trafficeng/workzone/apr.html) for standards, guidance and options when blocking, closing, or relocating pedestrian facilities.

4. 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.

5. Only traffic control devices controlling pedestrian flows are shown. Other devices may be needed to control traffic on the streets.

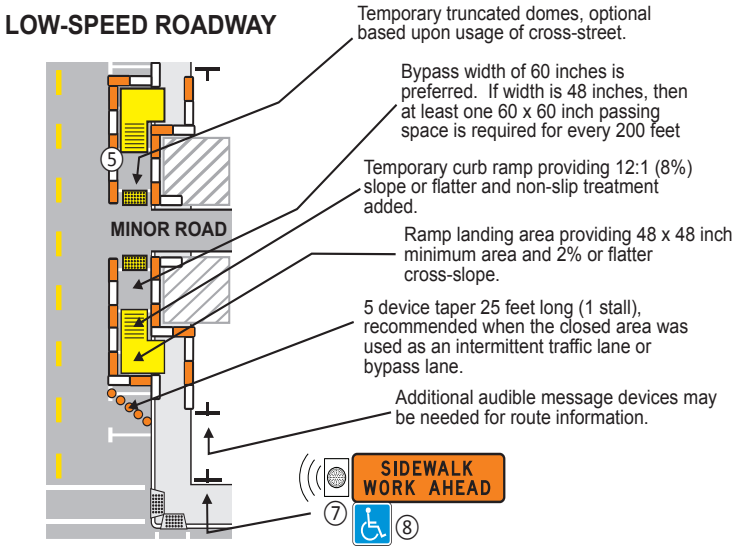
6. When both sides of a temporary pedestrian bypass require channelizing devices, the devices should be a similar type (railing system, barricade, or fencing system), excluding when a barrier (such as concrete barrier) is used to protect pedestrians from an open traffic lane.

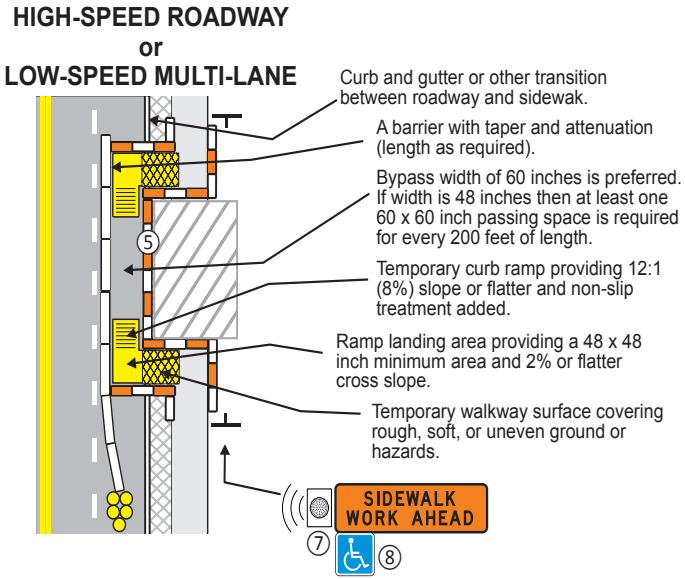
⑦ An approved audible message device or tactile message may be provided for sight-impaired pedestrians. When used, a message device should provide a complete physical description of the temporary pedestrian by-pass including duration, length of (and/or distance to) the bypass, any restrictions or hazards, and project information. 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.

⑧ The International Symbol of Accessibility should be displayed when any walkway through a work zone has been determined to be fully accessible. The Symbol of Accessibility shall not be displayed if persons with disabilities should not enter the temporary pedestrian by-pass.

ALTERNATE PEDESTRIAN ROUTE
SIDEWALK BY-PASS

3 DAYS or LESS **LAYOUT 89a** **LAYOUT 89a & b**





ALTERNATE PEDESTRIAN ROUTE
SIDEWALK BY-PASS
LAYOUT 89b

3 DAYS or LESS

6K-89b

LAYOUT 89a & b