Minnesota Field Manual UPDATE

2014 Edition of MN MUTCD Part 6K

Presented to the Statewide Work Zone Safety Committee – October 17, 2013

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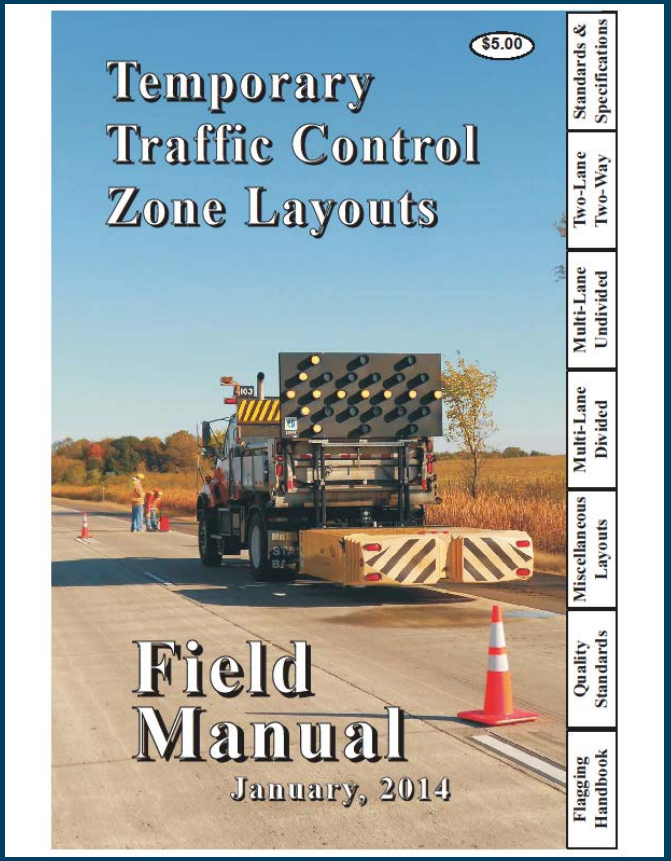
Your Destination...Our Priority

Update Highlights

- Cleaned up typos, corrected mistakes, and expanded definitions
- Included new reference material links
- Modified some layouts to reflect current practices
- Added new layouts:
    - Short duration layout for use up to 1 hour
    - Flagging cross-roads and blind curves
    - Flagger options-enhancements to flagger station
    - Roundabout lane closure

2014 Field Manual

- Some layouts have moved
- Some options have changed
- Confusing language was improved



2014 Field Manual

- Added the Full definition of Engineering Judgment
- Lane width is defined to be a minimum of 10’
- Roundabout and TPAR are defined
- Added definitions of Shall, Should, and May

2014 Field Manual

- Flashing warning lights will no longer be required on Road, Ramp, and Sidewalk closed signs
- Changed language from longitudinally perpendicular sign installation to perpendicular to the roadway and vertically plumb
- Added a link to our “CMS Manual of Practice”
- Added the table specifying panel type to the Flashing Arrow Board page

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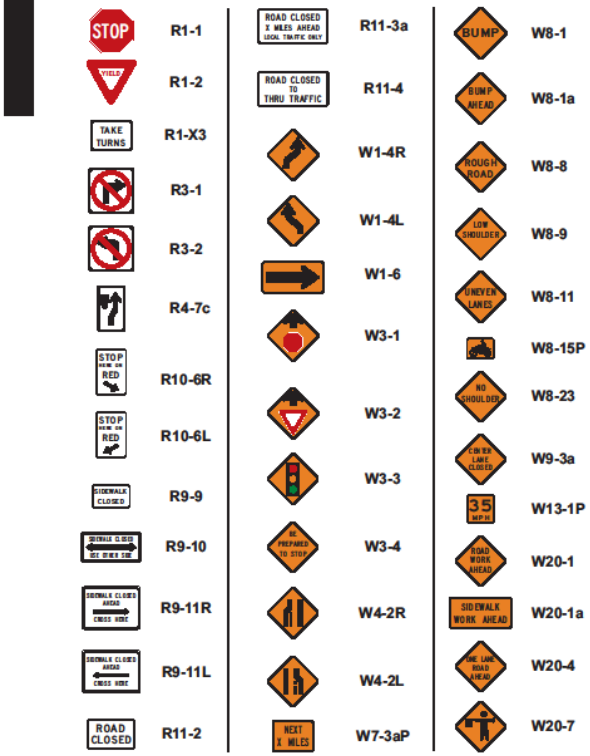

SIGN CODES QUICK REFERENCE

For additional signs and information on typical sizes and usage, see the Minnesota Manual on Uniform Traffic Control Devices
http://www.dot.state.mn.us/trafficeng/publ/mutcd/index.html

Figure 6K-8

6K-xxvi

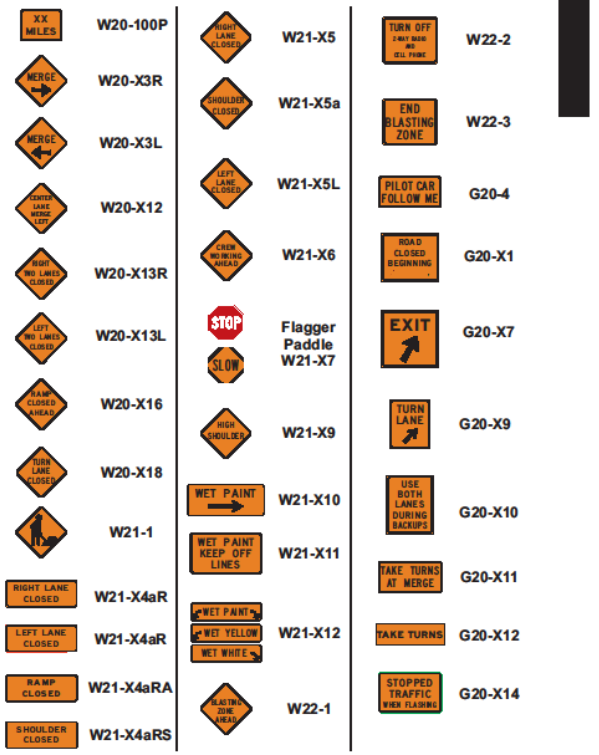

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Figure 6K-9

6K-xxvii

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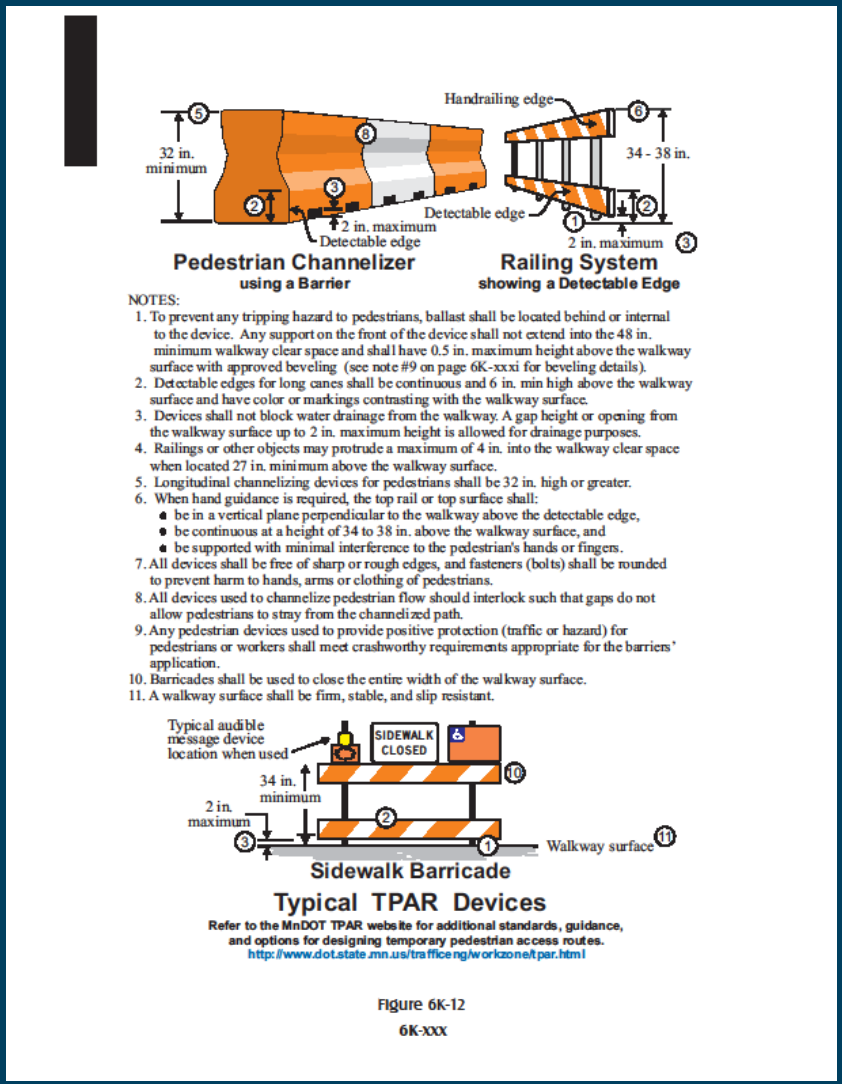
- Removed Type IV barricade
- Added a Sidewalk Barricade with a detectable edge
- Added Walkway surface description (Note 11)



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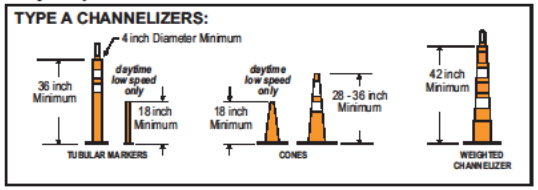
- Buffer "**B**" distance table increased to reflect current FHWA guidance
- Added vertical panel to Type B channelizers

Temporary Traffic Control Distance Charts

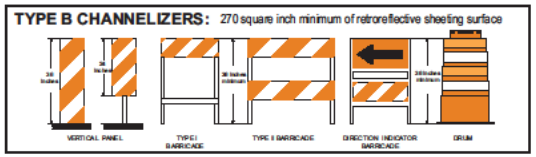
Posted Speed Limit Prior to Work Starting (mph)		Advance Warning Sign Spacing (A) feet	Decision Sight Distance (D) feet	Taper Length (12 ft lane) (L) feet	Shifting Taper (L/2) feet	Typical Shoulder Taper (L/3) feet
0 - 30	G = 25 ft	250	550	200	100	75
35 - 40		325	700	325	175	125
45 - 50	G = 50 ft	600	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) Moving (15 mph max) feet	(R) Stopped feet
0 - 30	G = 25 ft	200	250 - 550	100	100
35 - 40		305	325 - 700	100	100
45 - 50	G = 50 ft	425	600 - 900	175	125
55		500	750 - 1200	175	125
60 - 65		650	1000 - 1400	225	175
70 - 75		820	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. *



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

Figure 6K-15

6K-xxxIII

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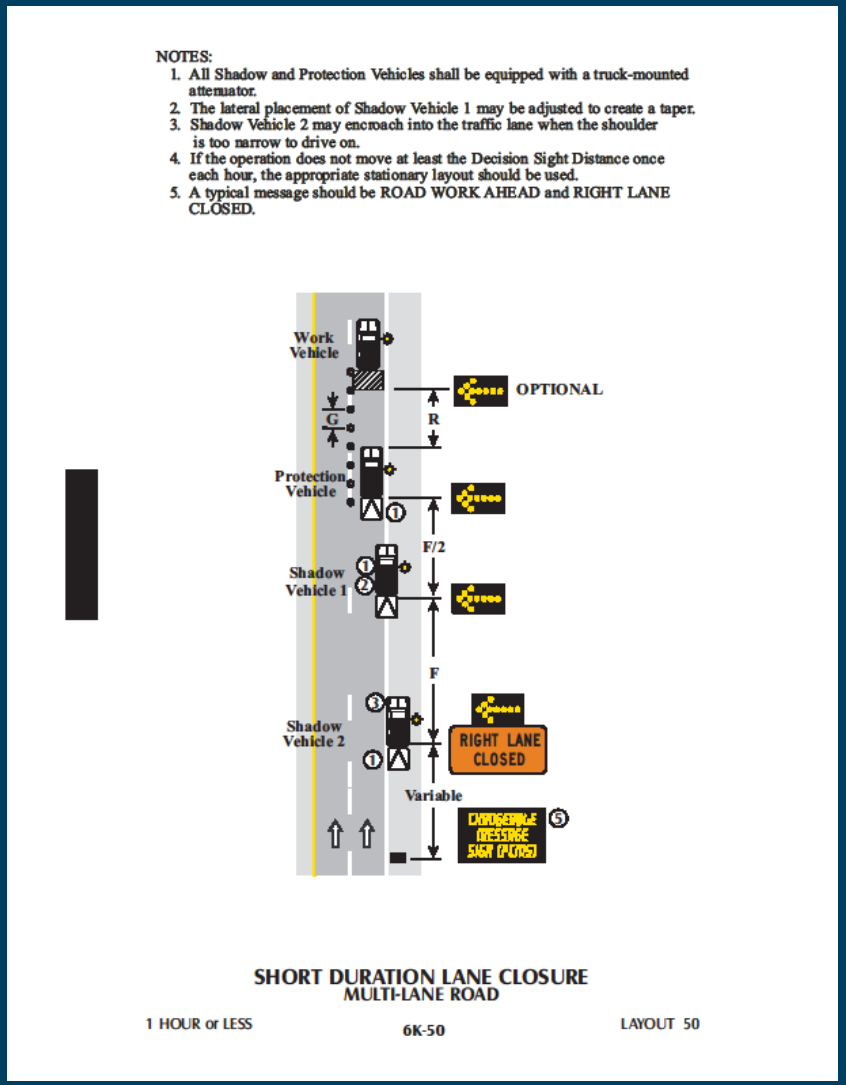
- Most Flagging layouts were changed from 12 hours or less to 3 days
- Restrictions on the AFAD layout were reduced to match the FHWA guidance
- Emphasised a note on the moving work spaces with Flagger control to indicate a Flagger station layout shall also be used

2014 Field Manual

- For use in WZ's up to 1 hour
- A CMS, FAB's and TMA's are required
- Channelizing devices at "G" spacing



NOTES:
1. All Shadow and Protection Vehicles shall be equipped with a truck-mounted attenuator.
2. The lateral placement of Shadow Vehicle 1 may be adjusted to create a taper.
3. Shadow Vehicle 2 may encroach into the traffic lane when the shoulder is too narrow to drive on.
4. If the operation does not move at least the Decision Sight Distance once each hour, the appropriate stationary layout should be used.
5. A typical message should be ROAD WORK AHEAD and RIGHT LANE CLOSED.

SHORT DURATION LANE CLOSURE
MULTI-LANE ROAD

1 HOUR or LESS | 6K-50 | LAYOUT 50

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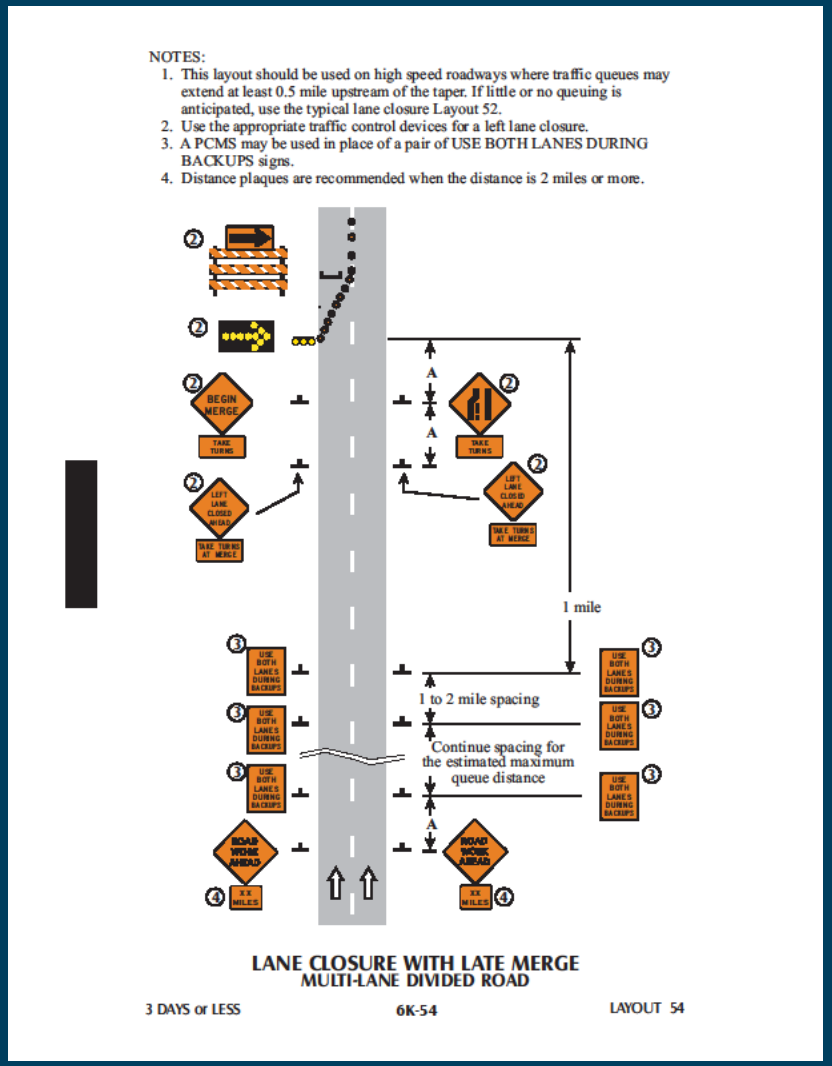
- New sign “Begin Merge” and “Take Turns” placque
- Better indicates merging location



NOTES:
1. This layout should be used on high speed roadways where traffic queues may extend at least 0.5 mile upstream of the taper. If little or no queuing is anticipated, use the typical lane closure Layout 52.
2. Use the appropriate traffic control devices for a left lane closure.
3. A PCMS may be used in place of a pair of USE BOTH LANES DURING BACKUPS signs.
4. Distance plaques are recommended when the distance is 2 miles or more.

LANE CLOSURE WITH LATE MERGE
MULTI-LANE DIVIDED ROAD

3 DAYS or LESS | 6K-54 | LAYOUT 54

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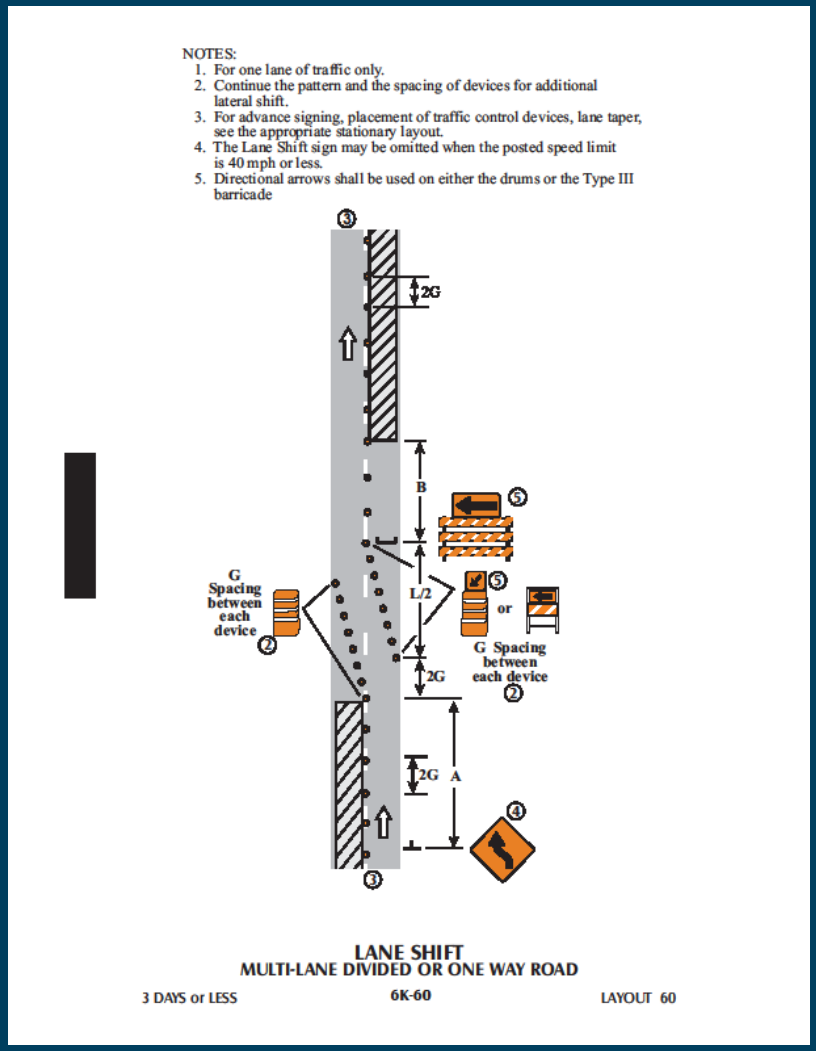
- Specifies that a directional arrow shall be used
- Arrows may be used on either the Type B channelizer or the Type III barricade



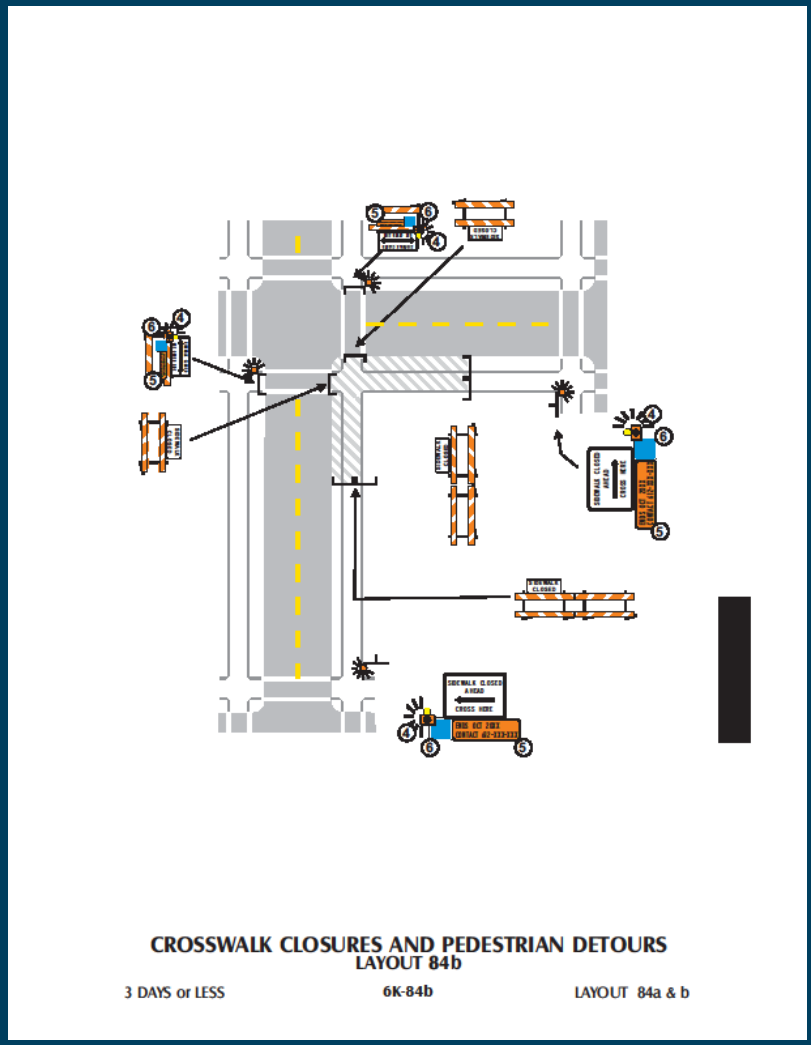
NOTES:
1. For one lane of traffic only.
2. Continue the pattern and the spacing of devices for additional lateral shift.
3. For advance signing, placement of traffic control devices, lane taper, see the appropriate stationary layout.
4. The Lane Shift sign may be omitted when the posted speed limit is 40 mph or less.
5. Directional arrows shall be used on either the drums or the Type III barricade

LANE SHIFT
MULTI-LANE DIVIDED OR ONE WAY ROAD

3 DAYS or LESS | 6K-60 | LAYOUT 60

2014 Field Manual

- Sidewalk Closure using sidewalk barricades
- Shows current sidewalk closure signs



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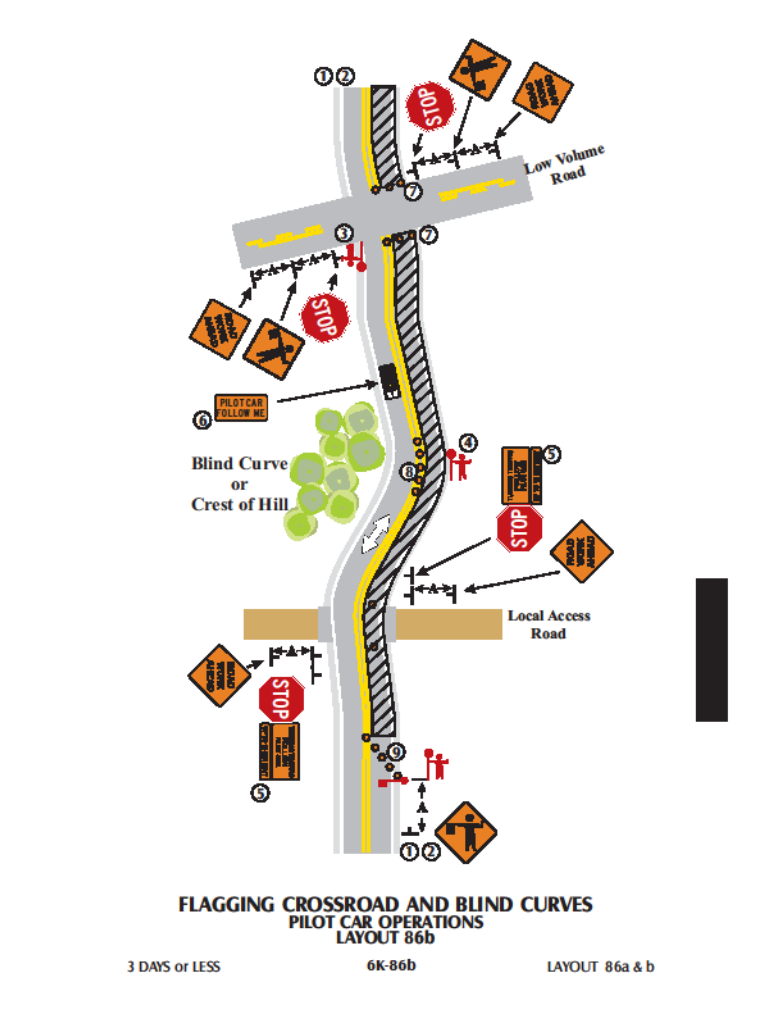
- Strategies for a lengthy pilot car operation with crossroads and blind curves



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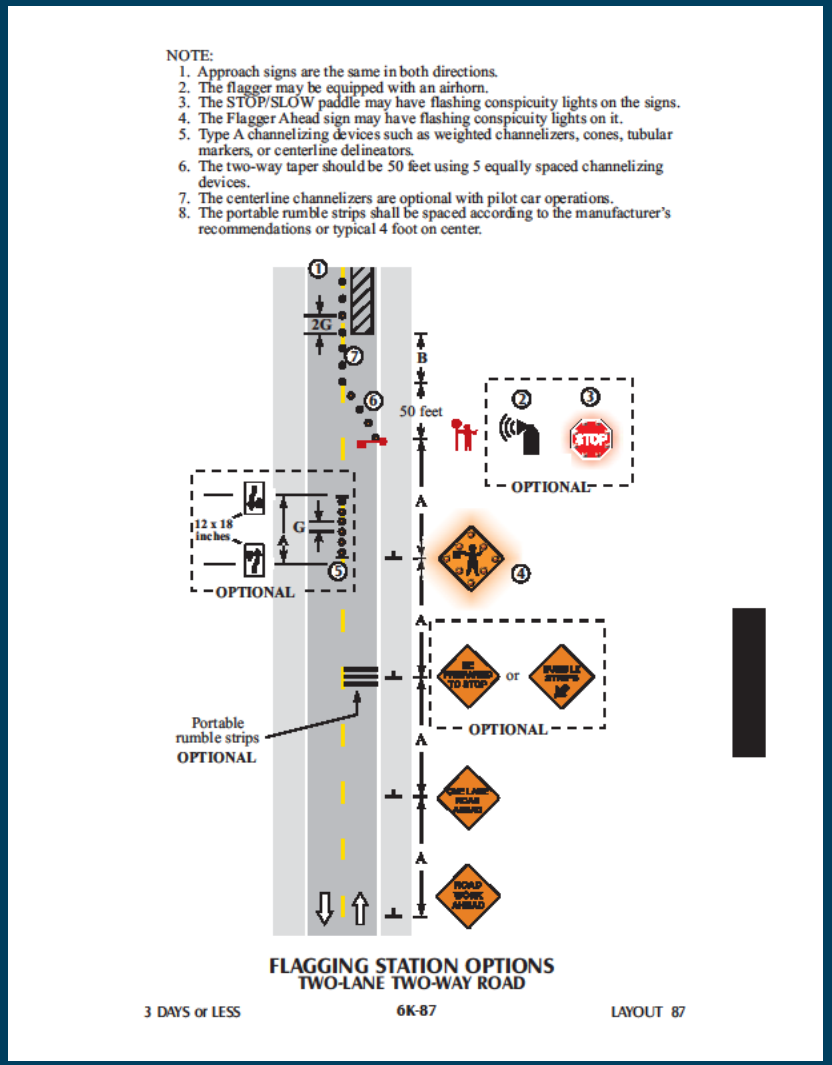
- Enhancements to the Flagger station to gain the attention of distracted drivers



NOTE:
1. Approach signs are the same in both directions.
2. The flagger may be equipped with an airhorn.
3. The STOP/SLOW paddle may have flashing conspicuity lights on the signs.
4. The Flagger Ahead sign may have flashing conspicuity lights on it.
5. Type A channelizing devices such as weighted channelizers, cones, tubular markers, or centerline delineators.
6. The two-way taper should be 50 feet using 5 equally spaced channelizing devices.
7. The centerline channelizers are optional with pilot car operations.
8. The portable rumble strips shall be spaced according to the manufacturer's recommendations or typical 4 foot on center.

FLAGGING STATION OPTIONS
TWO-LANE TWO-WAY ROAD

3 DAYS or LESS 6K-87 LAYOUT 87

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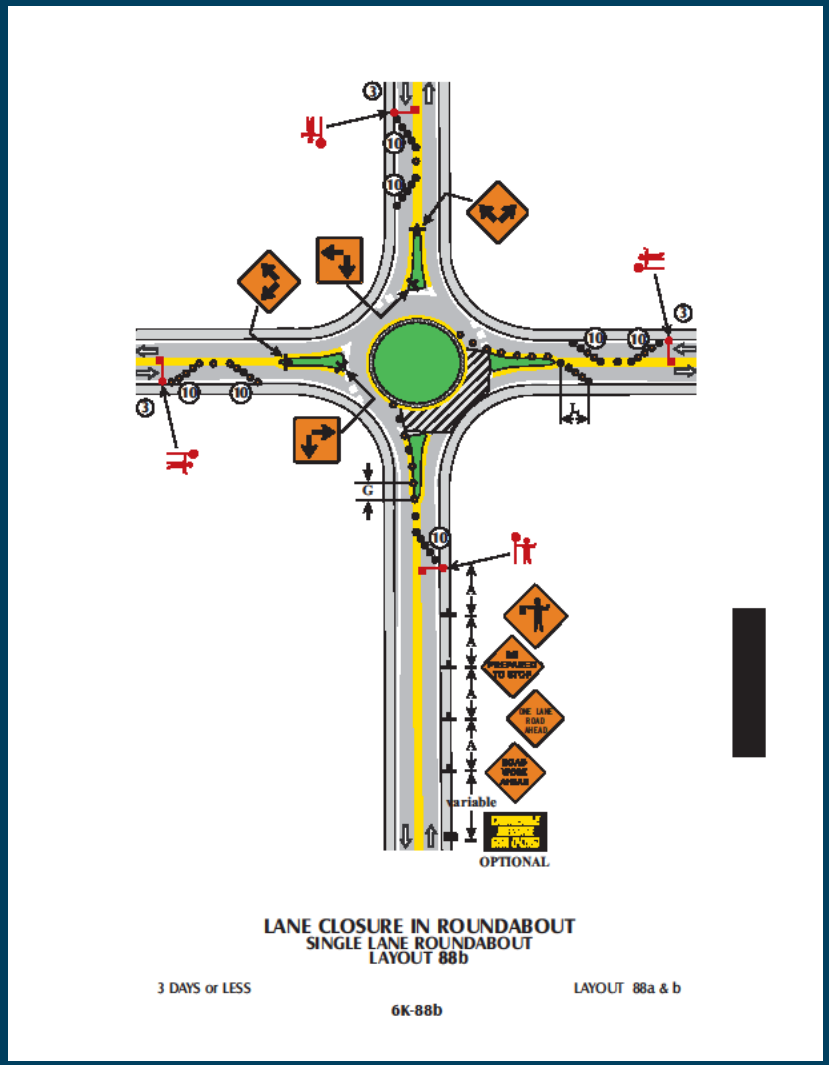
- Single lane roundabout using flagger control



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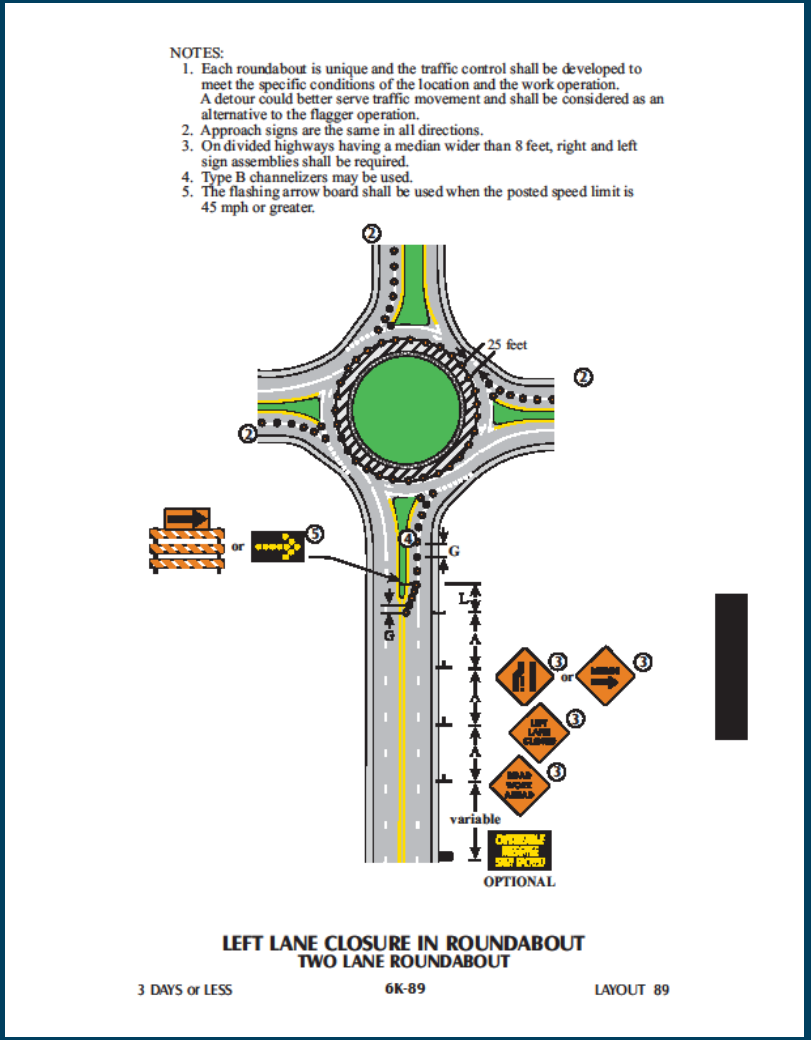
- Two lane roundabout with work zone in the inside lane



NOTES:
1. Each roundabout is unique and the 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. Approach signs are the same in all directions.
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.

LEFT LANE CLOSURE IN ROUNDABOUT
TWO LANE ROUNDABOUT

3 DAYS or LESS | 6K-89 | LAYOUT 89

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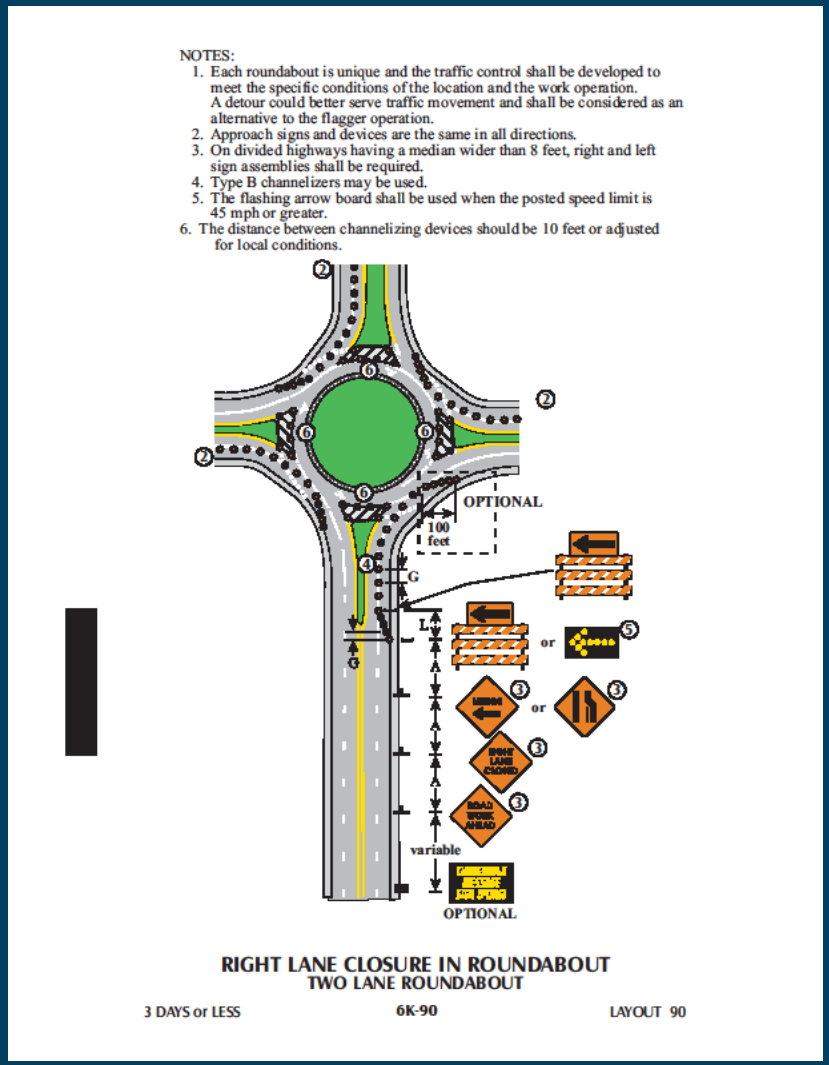
- Two lane roundabout with work zone in the outside lane



NOTES:
1. Each roundabout is unique and the 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. Approach signs and devices are the same in all directions.
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. The distance between channelizing devices should be 10 feet or adjusted for local conditions.

RIGHT LANE CLOSURE IN ROUNDABOUT
TWO LANE ROUNDABOUT

3 DAYS or LESS | 6K-90 | LAYOUT 90

2014 Field Manual

- No material changes, language was cleaned up and streamlined

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No major changes