

Typical Traffic Control
Short Duration Operation on a Multi-Lane Roadway
(Figure TTC-15.1)

NOTES

Standard:

1. This typical traffic control layout shall be used only during non-peak travel periods with the approval of the Regional Traffic Engineer. This typical traffic control layout shall not be used for Limited Access highways or two-lane roadways.
2. Each vehicle involved in the operation shall have either an arrow board operating in the caution mode, or at least one high-intensity amber rotating, ~~flashing, or~~ oscillating light. Vehicle hazard warning signals shall not be used instead of rotating, ~~flashing, or~~ oscillating lights, but as a supplement.
3. Vehicle-mounted signs shall be mounted with the bottom of the sign at a minimum height of 48 inches above the pavement.

Guidance:

4. The minimum distance between the sign/shadow vehicle and the truck-mounted attenuator (TMA) vehicle should be 500'-800' where the posted speed limit is greater than 45 mph, and 350'-500' where the posted speed limit is 45 mph or less.

Option:

5. The static warning sign and arrow board may be replaced with a vehicle-mounted CMS with a minimum character height of 10".

Standard:

6. If Shadow Vehicle 1 occupies any part of the travel lane, it shall be equipped with a TMA. A truck-mounted attenuator (TMA) shall be used on Shadow Vehicle 2 in the travelway regardless of the posted speed limit.

Guidance:

7. When using a CMS to replace the arrow board, each word message phase should be followed by the Type B arrow display.

Support:

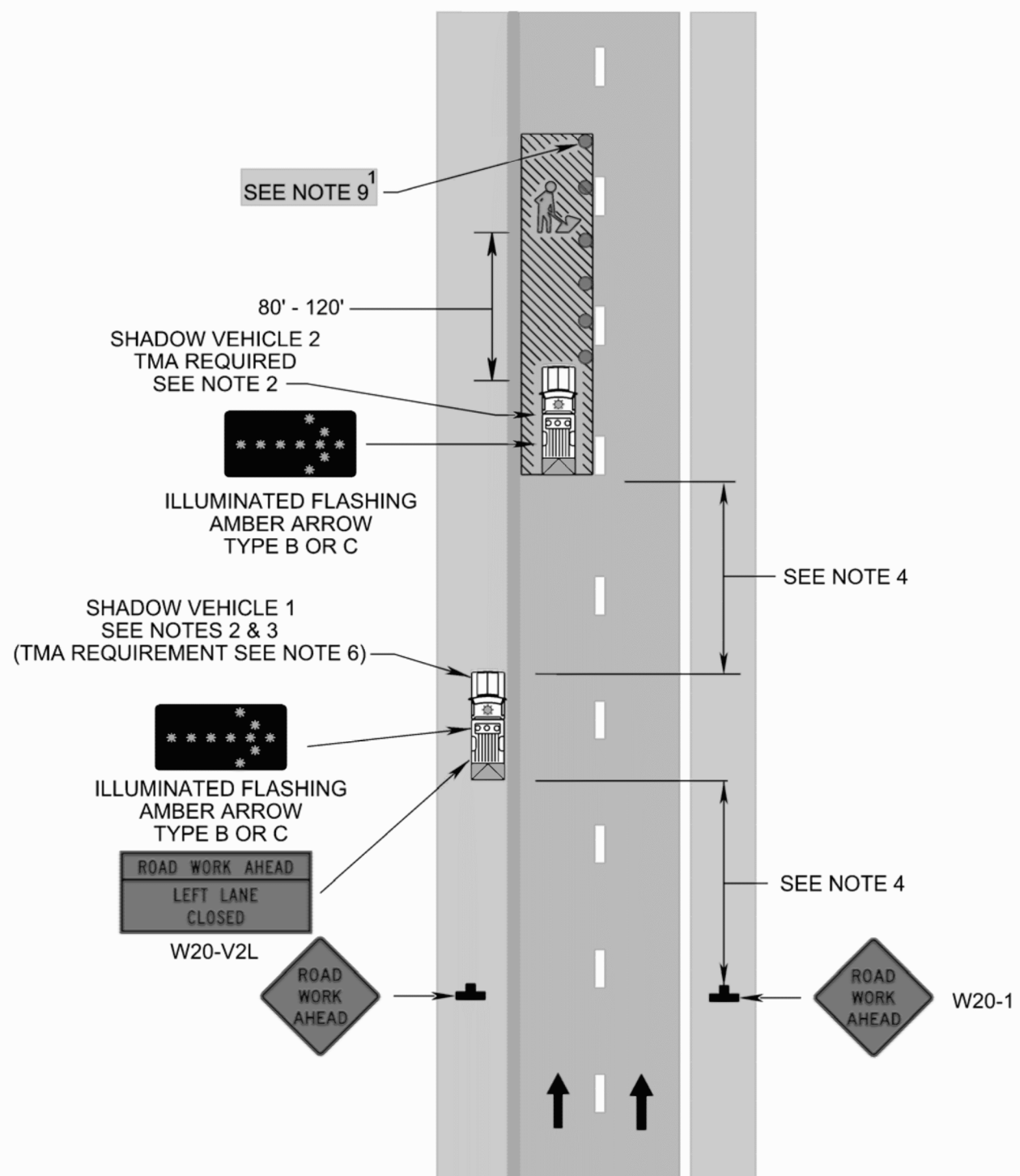
8. A short duration operation is defined as an operation that requires 16 minutes to 60 minutes to perform in the immediate area. (The immediate area is defined as a 1000' ± linear distance.)

Option:

9. The work area may be delineate by installing channelizing devices. The channelizing devices would start at the front of the shadow vehicle and extend through the work area. The spacing between channelizing devices may be reduced in the travelway to prevent motorists from entering the work area.

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Short Duration Operation on a Multi-Lane Roadway
(Figure TTC-15.1)



1: Revision 1 – 4/1/2015

Typical Traffic Control
Outside Lane Closure Operation on a Four-Lane Roadway
(Figure TTC-16.1)

NOTES

Standard:

1. On divided highways having a median wider than 8', right and left sign assemblies shall be required.
2. Sign spacing should be 1300'-1500' for Limited Access highways. For all other roadways, the sign spacing should be 500'-800' where the posted speed limit is greater than 45 mph, and 350'-500' where the posted speed limit is 45 mph or less.
3. Care should be exercised when establishing the limits of the work zone to insure maximum possible sight distance in advance of the transition, based on the posted speed limit and at least equal to or greater than the values in Table 6H-3. For Limited Access highways a minimum of 1000' is desired.
4. All vehicles, equipment, workers, and their activities should be restricted to one side of the pavement.

Standard:

5. Taper Length (L) and Channelizing Device Spacing shall be:

Speed Limit (mph)	Taper Length (L)			
	9	10	11	12
25	95	105	115	125
30	135	150	165	180
35	185	205	225	245
40	240	270	295	320
45	405	450	495	540
50	450	500	550	600
55	495	550	605	660
60	540	600	660	720
65	585	650	715	780
70	630	700	770	840
Minimum taper lengths for Limited Access highways shall be 1000 feet.				
Shoulder Taper = ½ L Minimum				

Location	Speed Limit (mph)	
	0 - 35	36 +
Transition Spacing	20'	40'
Travelway Spacing	40'	80'
Construction Access*	80'	120'
* Spacing may be increased to this distance, but shall not exceed one access per ¼ mile.		

On roadways with paved shoulders having a width of 8 feet or more, channelizing devices shall be used to close the shoulder in advance of the merging taper to direct vehicular traffic to remain within the traveled way.

6. An arrow board shall be used when a lane is closed. When more than one lane is closed, a separate arrow board shall be used for each closed lane (see Figure TTC-18).
7. The buffer space length shall be shown in Table 6H-3 on Page 6H-5 for the posted speed limit.
8. A shadow vehicle with either a Type B or C arrow board operating in the caution mode, or at least one high intensity amber rotating, ~~flashing, or~~ oscillating light shall be parked 80'-120' in advance of the first work crew. When the posted speed limit is 45 mph or greater, a truck-mounted attenuator shall be used.
9. Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity amber rotating, ~~flashing, or~~ oscillating lights but can be used to supplement the amber rotating, ~~flashing, or~~ oscillating lights.
10. When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed as needed.

1: Revision 1 – 4/1/2015

Typical Traffic Control
Lane Closure on a Two-Lane Roadway Using Flaggers
(Figure TTC-23.1)

NOTES

Guidance:

1. Sign spacing distance should be 350'-500' where the posted speed limit is 45 mph or less, and 500'-800' where the posted speed limit is greater than 45 mph.
2. Care should be exercised when establishing the limits of the work zone to insure maximum possible sight distance in advance of the flagger station and transition, based on the posted speed limit and at least equal to or greater than the values in Table 6H-3. Generally speaking, motorists should have a clear line of sight from the graphic flagger symbol sign to the flagger.

Option:

3. Where Right-of-Way or geometric conditions prevent the use of 48" x 48" signs, 36" x 36" signs may be used.

Standard:

4. Flagging stations shall be located far enough in advance of the work space to permit approaching traffic to reduce speed and/or stop before passing the work space and allow sufficient distance for departing traffic in the left lane to return to the right lane before reaching opposing traffic (see Table 6H-3 on Page 6H-5).
5. All flaggers shall be state certified and have their certification card in their possession when performing flagging duties (see Section 6E.01, Qualifications for Flaggers).
6. Cone spacing shall be based on the posted speed and the values in Table 6H-4 on Page 6H-6.
7. A shadow vehicle with at least one high intensity amber rotating, ~~flashing, or~~ oscillating light shall be parked 80'-120' in advance of the first work crew.

Option:

8. A supplemental flagger may be required in this area to give advance warning of the operation ahead by slowing approaching traffic prior to reaching the flagger station or queued traffic.

Guidance:

9. If the queue of traffic reaches the BE PREPARED TO STOP (W3-4) sign then the signs, and if used the portable temporary rumble strips (PTRS), should be readjusted at greater distances.
10. When a highway-rail crossing exists within or upstream of the transition area and it is anticipated that queues resulting from the lane closure might extend through the highway-rail grade crossing, the temporary traffic control zone should be extended so that the transition area precedes the highway-rail crossing (see Figure TTC-56 for additional information on highway-rail crossings).

Standard:

11. At night, flagger stations shall be illuminated, except in emergencies (see Section 6E.08).

Option:

12. Cones may be eliminated when using a pilot vehicle operation or when the total roadway width is 20 feet or less.

13. For low-volume situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger, positioned to be visible to road users approaching from both directions, may be used (see Chapter 6E).

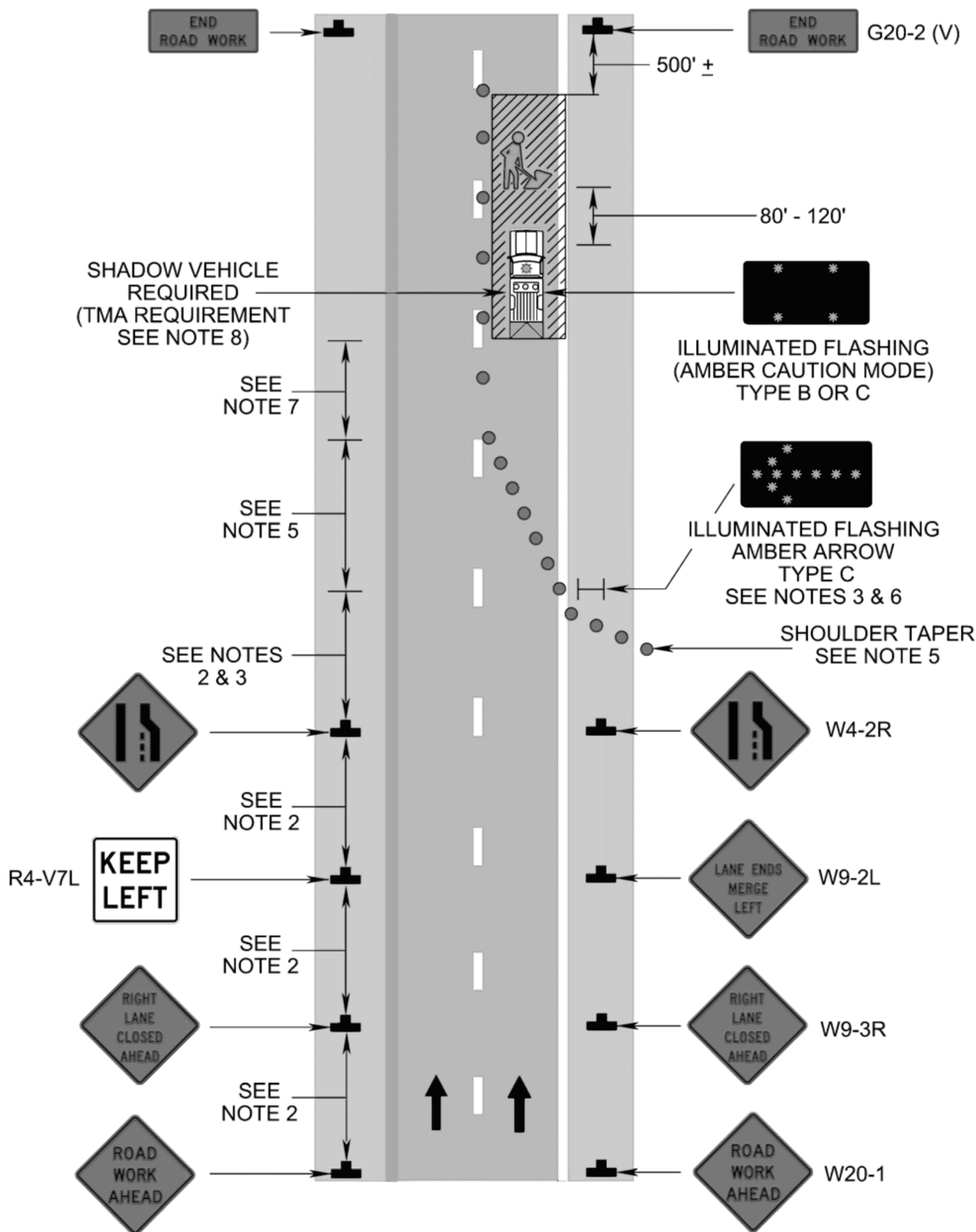
Standard:

14. When approved for use, three portable temporary rumble (PTRS) strips shall be installed across the entire travel lane adjacent to the BE PREPARED TO STOP (W3-4) sign. The portable temporary rumble strips shall be monitored and adjusted as necessary during the work shift to ensure proper placement on the roadway. When the PTRS are installed, the RUMBLE STRIPS AHEAD (W20-V26) sign shall also be utilized.

Posted Speed	0 - 35 mph	36 - 55 mph
PTRS Spacing (Center to Center)	5 Feet	8 Feet

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Outside Lane Closure Operation on a Four-Lane Roadway
(Figure TTC-16.1)



1: Revision 1 – 4/1/2015

Typical Traffic Control
Inside Lane Closure Operation on a Four-Lane Roadway
(Figure TTC-17.1)

NOTES

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3. Care should be exercised when establishing the limits of the work zone to insure maximum possible sight distance in advance of the transition, based on the posted speed limit and at least equal to or greater than the values in Table 6H-3. For Limited Access highways a minimum of 1000' is desired.
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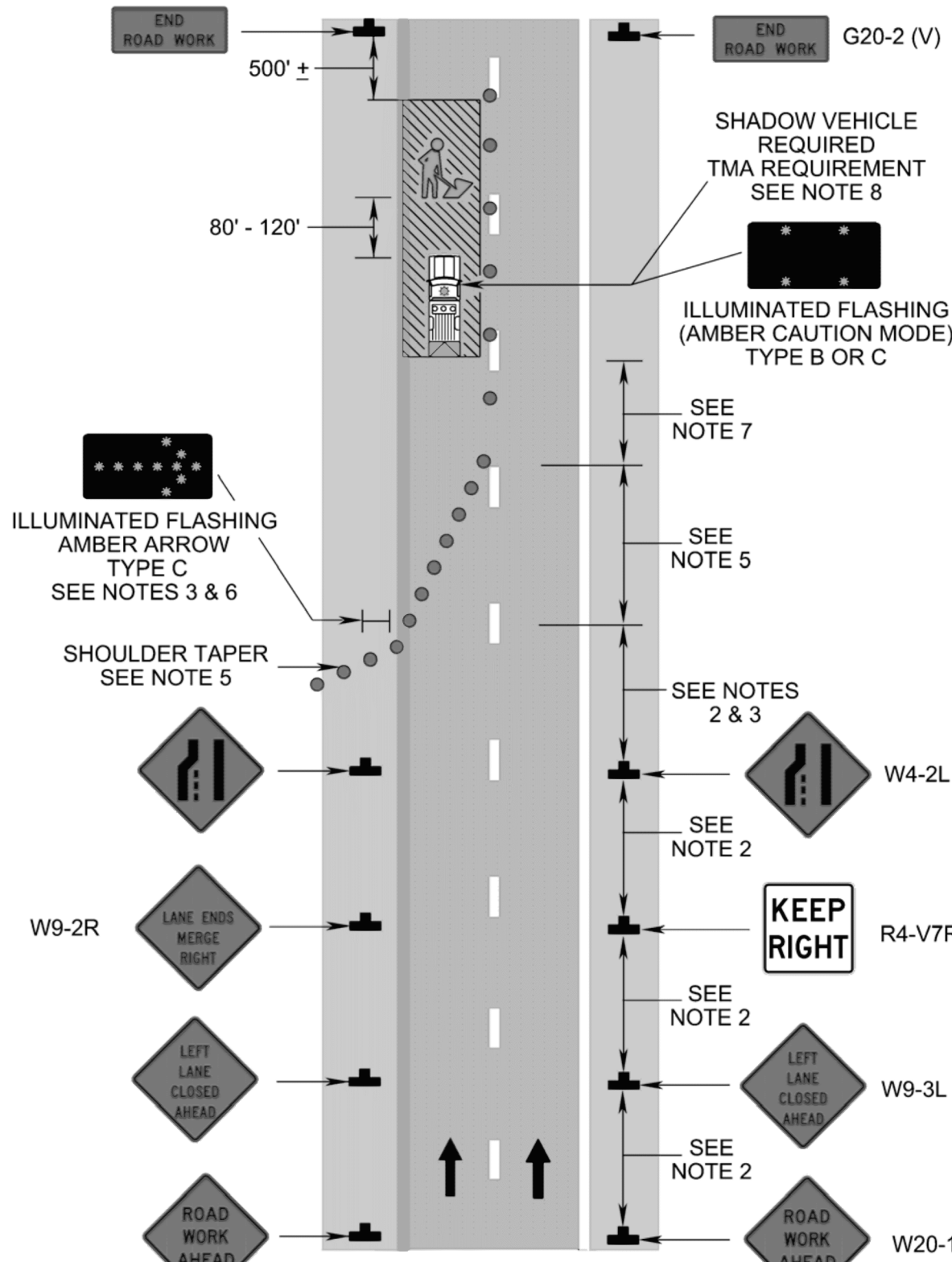
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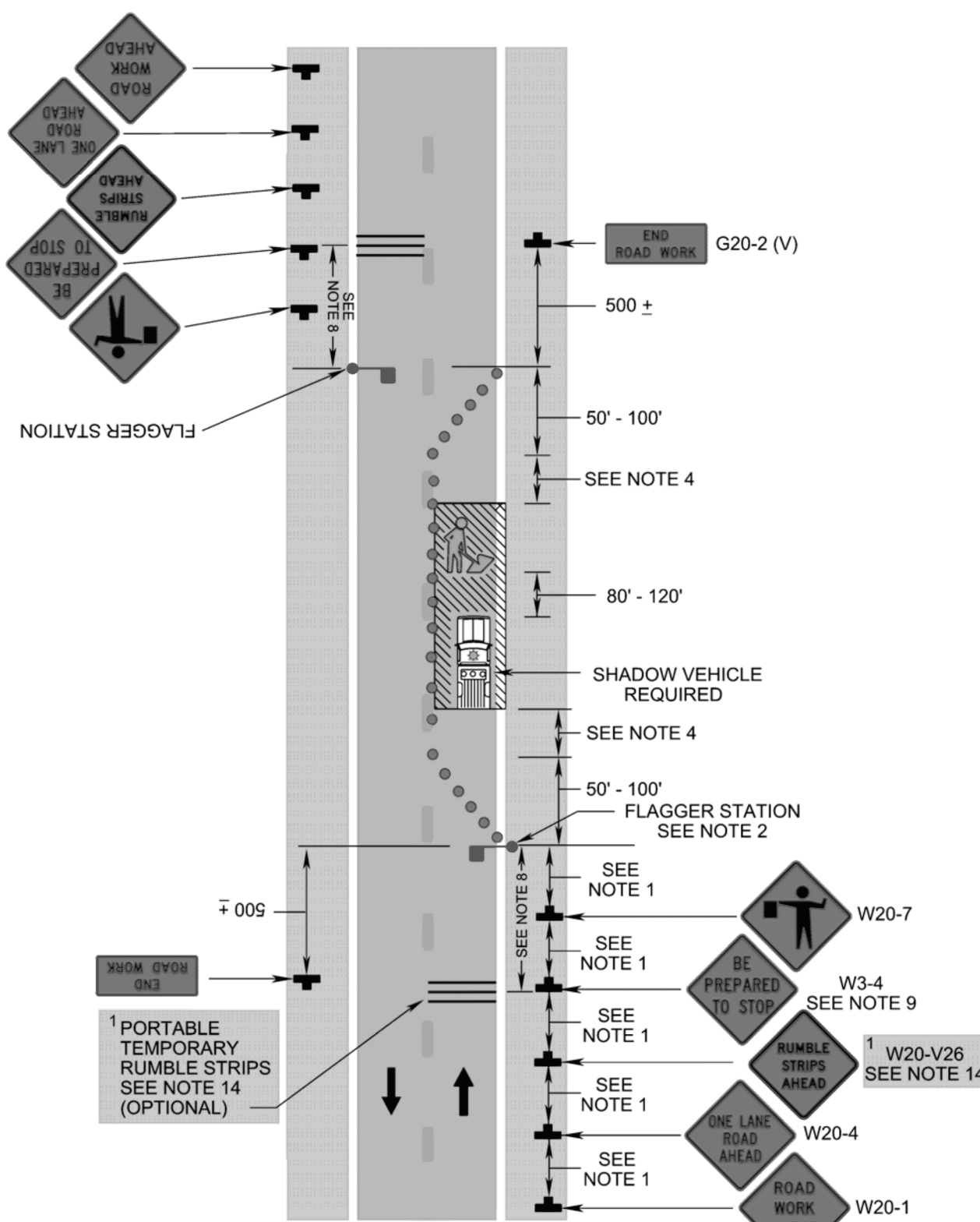
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10. When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed as needed.

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Inside Lane Closure Operation on a Four-Lane Roadway
(Figure TTC-17.1)



Lane Closure on a Two-Lane Roadway Using Flaggers
(Figure TTC-23.1)



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MAINTENANCE OF TRAFFIC PLAN

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