

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".

Support:

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:

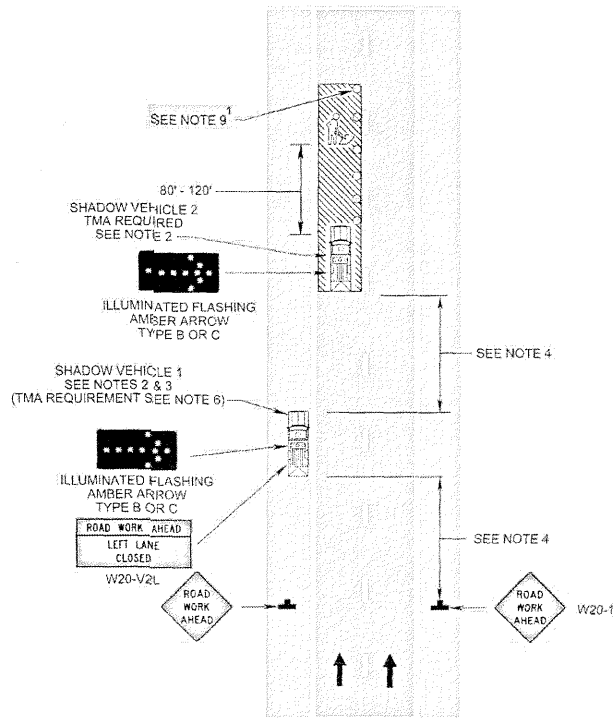
8. A short duration operation is defined as an operation that requires 16 minutes to 60 minutes to perform in the immediate area. (The immediate area is defined as a 1000' ± linear distance.)

Option:

9. The work area may be delineated 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)



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5 SHORT DURATION OPERATION ON A MULTI-LANE ROADWAY DETAIL  
SCALE: N.T.S.

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 = 1/2 L Minimum

Location	Channelizing Device Spacing	
	0-35	36+
Transition Spacing	20'	40'
Travelway Spacing	40'	80'
Construction Access*	80'	120'

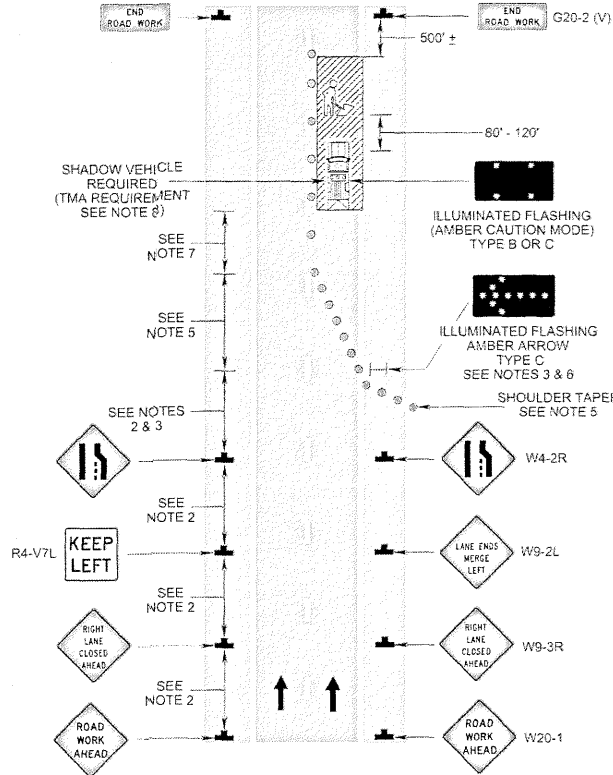
\* Spacing may be increased to this distance, but shall not exceed one access per 1/4 mile.

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.

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



6 OUTSIDE LANE CLOSURE OPERATION ON A FOUR-LANE ROADWAY DETAIL  
SCALE: N.T.S.

Typical Traffic Control

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

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 = 1/2 L Minimum

Location	Channelizing Device Spacing	
	0-35	36+
Transition Spacing	20'	40'
Travelway Spacing	40'	80'
Construction Access*	80'	120'

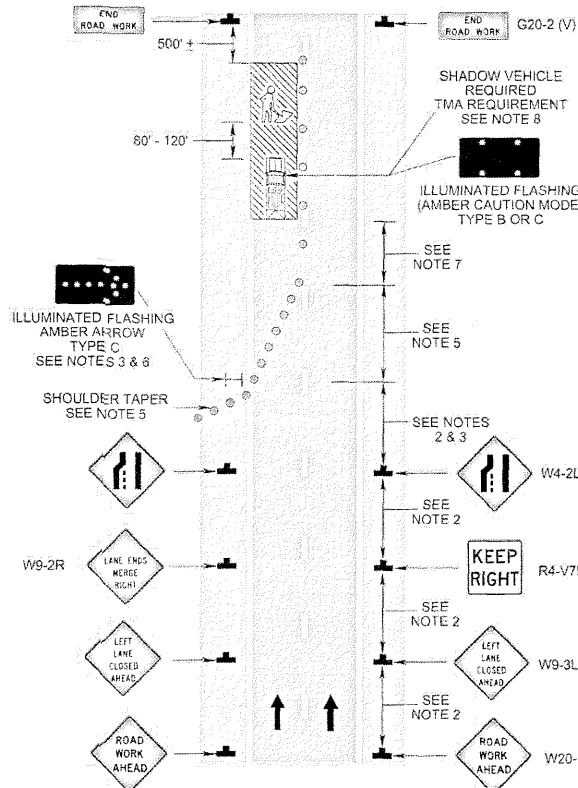
\* Spacing may be increased to this distance, but shall not exceed one access per 1/4 mile.

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

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



7 INSIDE LANE CLOSURE OPERATION ON A FOUR-LANE ROADWAY DETAIL  
SCALE: N.T.S.

Typical Traffic Control

Center Turn Lane Closure Operation  
(Figure TTC-21.1)

NOTES

Guidance:

1. The distance between signs and beginning of channelizing device transition should be a minimum of 500' and a maximum of 800'.
2. The buffer space length should be as shown in Table 6H-3 on Page 6H-5 for the posted speed limit.
3. For locations with a high volume of left turning movements, the graphic NO LEFT TURN (R3-2) signs should be used within the closed lane.

Option:

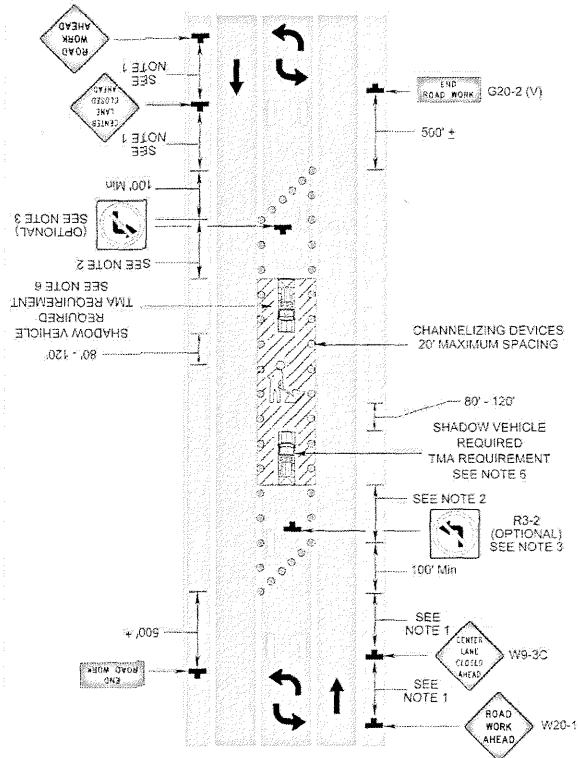
4. Where Right-of-Way or geometric conditions prevent use of 48" x 48" signs, 36" x 36" signs may be used.

Standard:

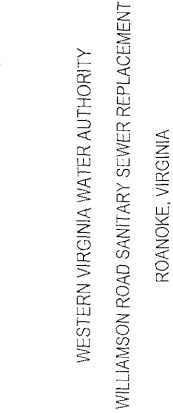
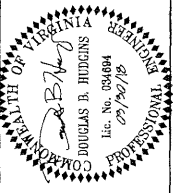
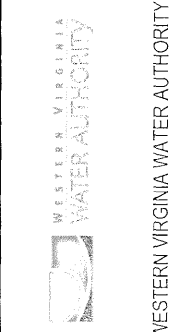
5. To prevent vehicles from entering into the work zone, channelizing device spacing shall be a maximum of 20' on center.
6. A shadow vehicle with either a Type B or C arrow board operating in the caution mode, or at least one rotating amber light or high intensity amber flashing or oscillating light shall be parked 80'-120' in advance of the work crew in both directions of travel. If multiple lanes are present (four or more lanes, excluding the center turn lane) and the posted speed limit is 45 mph or greater, the vehicles shall be equipped with a truck-mounted attenuator (TMA).
7. When a side road intersects the highway within the temporary traffic control zone, additional traffic control devices shall be placed as needed.

1: Revision 1 - 4/1/2015

Center Turn Lane Closure Operation  
(Figure TTC-21.1)



8 CENTER TURN LANE CLOSURE OPERATION DETAIL  
SCALE: N.T.S.



No.	Submittal / Revision	Date	By	Appr.	Notes
1	1	3/30/18	MBH		ISSUE
2	2	10/24/19	MBH		CONSTRUCTION ISSUE

TRAFFIC CONTROL DETAILS  
SHEET 2 OF 5

Designed By:	Drawn By:	Checked By:
MBH	MBH	JBH
Issue Date:	Project No:	Scale:
3-30-18	33338	AS SHOWN

Drawing No.:  
**C-602**