Typical Traffic Control
Turn Lane Closure Operation
(Figure TTC-29.1)
NOTES

Guidance:
1. *Sign spacing distance should be 350'-500' where the posted speed limit is 45 mph or less, 500'-800' where the posted speed limit is greater than 45 mph.*

Standard:
2. **On divided highways having a median wider than 8', right and left sign assemblies shall be required.**
3. **To prevent accidental intrusion into the work area, channelizing device spacing shall not exceed 20' on centers.**

Option:
4. This layout may be used for either right or left turn lane closures.
5. For a high volume of turning movements, additional traffic control devices, such as signs (graphic NO LEFT TURN (R3-2) or LEFT LANE MUST TURN LEFT (R3-7L)), channelizing devices and vehicles may be used

Standard:
6. **Taper Length (L) shall be:**

Speed Limit (mph)	Lane Width (Feet) 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
Shoulder Taper = ⅓ L Minimum				

7. **Buffer Space Length shall be:**

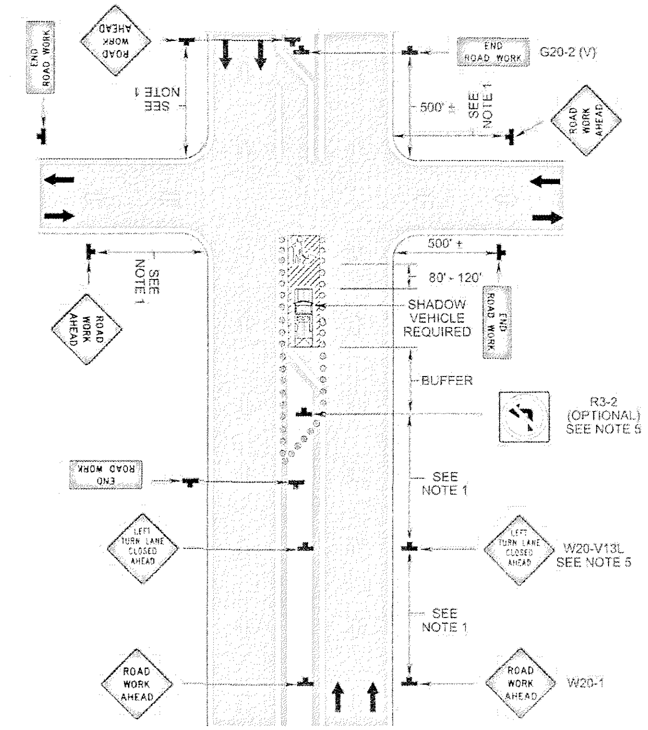
Posted Speed Limit (mph)	Distance (Feet)[1]
≤20	115 – 120
25	155 – 165
30	200 – 210
35	250 – 260
40	305 – 325
45	360 – 380
50	425 – 445
55	500 – 530
60	570 – 600
65	645 – 675
70	730 – 760

Guidance:
8. *If the work space extends across a crosswalk, the crosswalk should be closed using the information and devices shown in Figure TTC-36.*

Support:
9. Turns can be prohibited as required by vehicular traffic conditions. Unless the streets are wide, it might be physically impossible to make certain turns, especially for large vehicles.

1: Revision 1 – 4/1/2015

Turn Lane Closure Operation
(Figure TTC-29.1)



13 TURN LANE CLOSURE OPERATION DETAIL
SCALE: N.T.S.

Typical Traffic Control
Flagging Operation at a Signalized Intersection
(Figure TTC-30.1)
NOTES

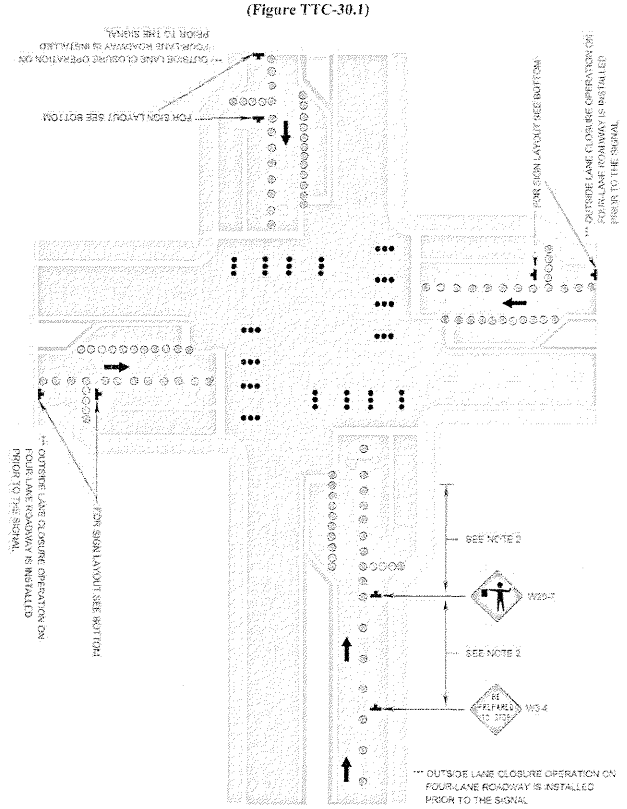
Guidance:
1. *The control of traffic through the intersection in order of preference should be:*
   a. *Obtain the services of law enforcement personnel.*
   b. *Divert the effective routes to other roads and streets as approved and directed by the Regional Traffic Engineer.*
   c. *Place a state certified flagger on each leg of the intersection with the approved signing as shown.*
2. *Sign spacing distance should be 350'-500' where the posted speed limit is 45 mph or less, 500'-800' where the posted speed limit is greater than 45 mph. For urban streets sign spacing distance should be 225'-275' where the posted speed limit is 30 to 35 mph, and 100' -200' where the posted speed is 25 mph or less .*

Standard:
3. **For flagging operations,[1] a stationary lane closure shall be installed in advance of the signalized intersection for all approaches with two or more lanes for through traffic.**
4. **For flagging operations,[1] all turn lanes at the intersection shall be closed.**
5. **Electrical power supply to signals shall be turned off while flaggers are controlling traffic through the intersection.**
6. **To prevent accidental intrusion into the flagger station, cone spacing shall not exceed 10' on centers from the graphic flagger sign to the flagger station. Cones shall be installed in the closed lane, perpendicular to traffic, prior to the flagging station.**
7. **A lead flagger shall be assigned to control all flagger operations. One flagger shall be stationed to control each approach of the intersection. Flaggers shall alternate right-of-way to traffic such that traffic moves through the intersection one approach at a time.**
8. **Flagger stations shall be illuminated during planned night time work operations with a minimum of horizontal luminance of 5-foot candles (50 lux) (see Section 6E.08).**
9. **On divided highways having a median wider than 8', right and left sign assemblies shall be required.**

Option:
10. RIGHT TURN LANE CLOSED AHEAD (W20-V13R) and/or LEFT TURN LANE CLOSED AHEAD (W20-V13L) sign(s) may be used when closing the turn lanes.
11. For a high volume of turning movements, additional traffic control devices, such as signs (graphic NO LEFT TURN (R3-2), NO RIGHT TURN (R3-1), RIGHT TURN LANE CLOSED AHEAD (W20-V13R) and/or LEFT TURN LANE CLOSED AHEAD (W20-V13L)), cones and vehicles may be used.
12. Traffic signals may be on the flash mode when traffic through the intersection when controlled by a law enforcement officer.[1]
13. Travel and turn lanes may remain open if a law enforcement officer is controlling traffic through the intersection.[1]

1: Revision 1 – 4/1/2015

Flagging Operation at a Signalized Intersection
(Figure TTC-30.1)



14 FLAGGING OPERATIONS AT A SIGNALIZED INTERSECTION DETAIL
SCALE: N.T.S.

Typical Traffic Control
Street Closure Operation with Detour
(Figure TTC-34.1)
NOTES

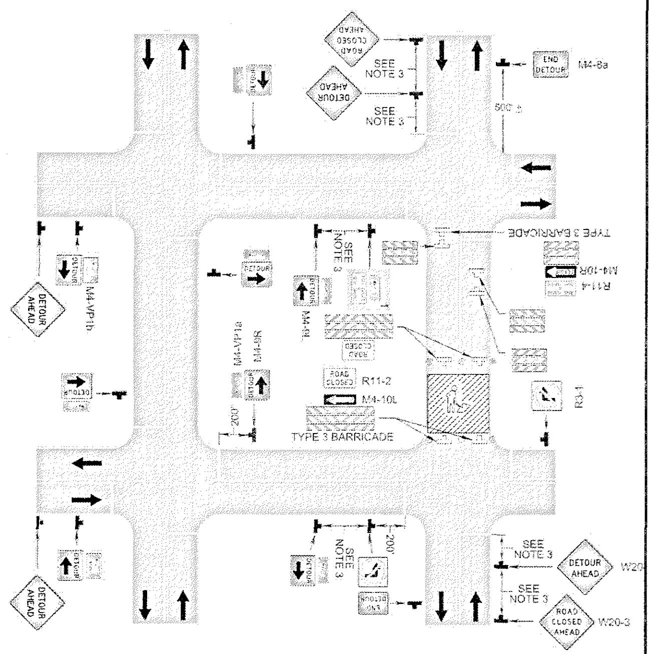
Guidance:
1. *This plan should be used for streets without posted route numbers.*
2. *On multi-lane streets, Detour signs with an Advance Turn Arrow should be used in advance of a turn.*
3. *Sign spacing distance should be 225'-275' where the posted speed limit is 30 to 35 mph, and 100'-200' where the posted speed is 25 mph or less.*
4. *If the road is opened for a significant distance beyond the intersection and/or there are significant origin/destination points beyond the intersection, the ROAD CLOSED (R11-2) and Detour Arrow (M4-10) signs on Type 3 Barricades should be located at the corners of intersecting closed roadway or the traveled way.*

Option:
5. Flashing warning lights and/or flags may be used to call attention to the advance warning signs.
6. Flashing warning lights may be used on Type 3 Barricades.
7. Detour signs may be located on the far side of intersections. A Detour sign with an advance arrow may be used in advance of a turn.
8. A Street Name (M4-VP1a) plaque may be mounted with the Detour sign. The Street Name plaque may be either white on green or black on orange.

Standard:
9. **When used, the Street Name plaque shall be placed above the Detour sign.**

Support:
10. See Chapter 6I for additional information on incident management traffic control.

Street Closure Operation with Detour
(Figure TTC-34.1)



1: Revision 1 – 4/1/2015

15 STREET CLOSURE OPERATIONS WITH DETOUR DETAIL
SCALE: N.T.S.

Typical Traffic Control
Sidewalk Closure and Bypass Sidewalk Operation
(Figure TTC-35.0)
NOTES

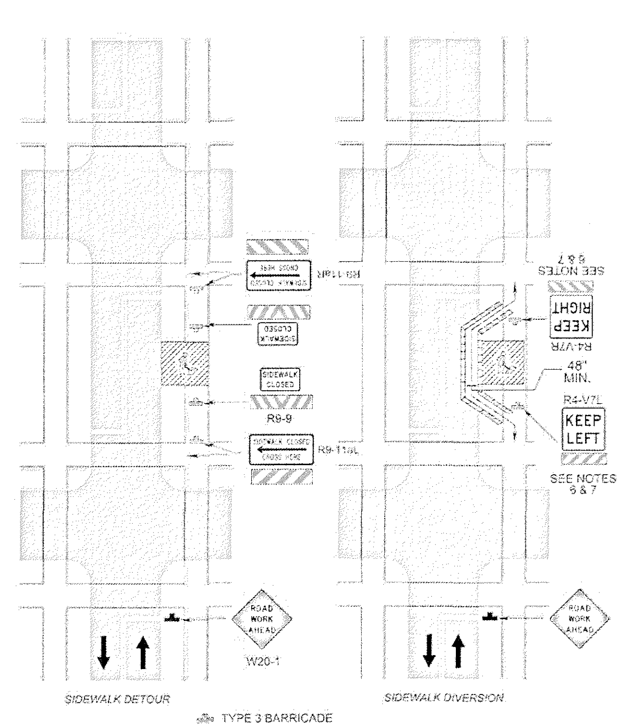
Standard:
1. **When crosswalks or other pedestrian facilities are closed or relocated, temporary facilities shall be detectable and shall include accessibility features consistent with the features present in the existing pedestrian facility.**

Guidance:
2. *Where high speeds are anticipated, a temporary traffic barrier and, if necessary, a crash cushion should be used to separate the temporary sidewalks from vehicular traffic.*
3. *Audible information devices should be considered where midblock closings and changed crosswalk areas cause inadequate communication to be provided to pedestrians who have visual disabilities.*
4. *Temporary markings should be considered for operations exceeding three days in duration.*

Option:
5. Only the TTC devices related to pedestrians are shown. Other devices, such as lane closure signing or ROAD NARROWS (W5-1) signs, may be used to control vehicular traffic.
6. For nighttime closures, Type A Flashing warning lights may be used on barricades that support signs and close sidewalks.
7. Signs, such as KEEP RIGHT (R4-V7R) and KEEP LEFT (R4-V7L), may be placed along a temporary sidewalk to guide or direct pedestrians.

Standard:
8. **All sidewalk closures shall be closed with Type 3 Barricades.**

Sidewalk Closure and Bypass Sidewalk Operation
(Figure TTC-35.0)



16 SIDEWALK CLOSURE AND BYPASS SIDEWALK OPERATION DETAIL
SCALE: N.T.S.

CHA

WESTERN VIRGINIA WATER AUTHORITY
ROANOKE, VIRGINIA

COMMONWEALTH OF VIRGINIA
DOUGLAS B. HUDGINS
Lic. No. 034694
PROFESSIONAL ENGINEER

WESTERN VIRGINIA WATER AUTHORITY
WILLIAMSON ROAD SANITARY SEWER REPLACEMENT
ROANOKE, VIRGINIA

No.	Submittal / Revision	App'd	By	Date
1	BID ISSUE	DBH	MBH	3-30-18
2	CONSTRUCTION ISSUE	DBH	MBH	01-21-19

TRAFFIC CONTROL DETAILS
SHEET 4 OF 5

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

Drawing No.:
C-604