

Typical Traffic Control
Shoulder Operation with Minor Encroachment
(Figure TTC-5.1)

NOTES

Standard

- For required sign assemblies for multi-lane roadways see Note 1, TTC-4.
- Sign spacing should be 1300'-1500' for Limited Access highways. For all other roadways, the sign spacing should be 500'-500' where the posted speed limit is greater than 45 mph, and 350'-500' where the posted speed limit is 45 mph or less.
- When work takes up part of a lane on a high volume roadway, vehicular traffic volumes, vehicle mix, speed and capacity should be analyzed to determine whether the affected lane should be closed. Unless the lane encroachment analysis permits a remaining lane width of 10 feet, the lane should be closed. If the closure operation is on a Limited Access highway, the minimum lane width is 11 feet.

Option:

- The ROAD WORK AHEAD (W20-1) sign on an intersecting roadway may be omitted where drivers entering from that roadway will encounter another advance warning sign prior to this activity area.

Standard:

- A shadow vehicle with either an 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.
- Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity amber rotating, flashing, or oscillating lights. Vehicle hazard warning signals can be used to supplement high-intensity amber rotating, flashing, or oscillating lights.
- Taper length (L) and channelizing device spacing shall be at the following:

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	660	715	780
70	630	700	770	840

Minimum taper lengths for Limited Access highways shall be 1000 feet.
Shoulder Taper = 1/2 L Minimum

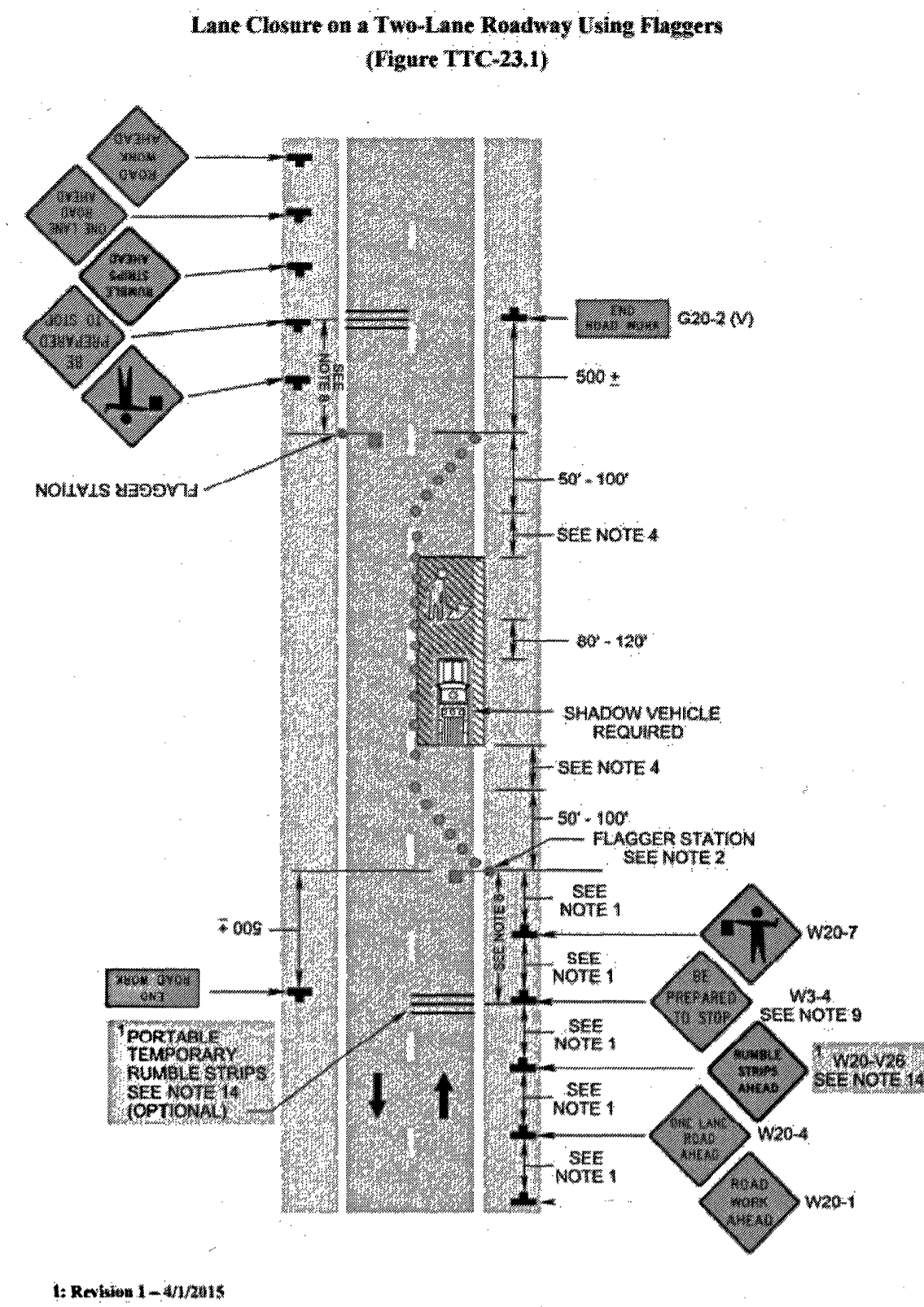
Location	Speed Limit (mph)	
	0 - 35	36 +
Transition Spacing	20'	40'
Travelway Spacing	40'	80'
Construction Access*	80'	120'

* Spacing may be increased to this distance, but shall not exceed one access per 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.

- The buffer space length shall be as shown in Table 611-3 on Page 611-5 for the posted speed limit.
- A truck-mounted attenuator (TMA) shall be used on Limited Access highways and multi-lane roadways with posted speed limit equal to or greater than 45 mph.
- 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



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

NOTES

Guidance:

- 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.
- 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 611-3. Generally speaking, motorists should have a clear line of sight from the graphic flagger symbol sign to the flagger.

Option:

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

Standard:

- 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 611-3 on Page 611-5).
- 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).
- Cone spacing shall be based on the posted speed and the values in Table 611-4 on Page 611-6.
- 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:

- 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:

- 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.
- 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:

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

Option:

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

- 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 (W20-126) sign shall also be utilized.

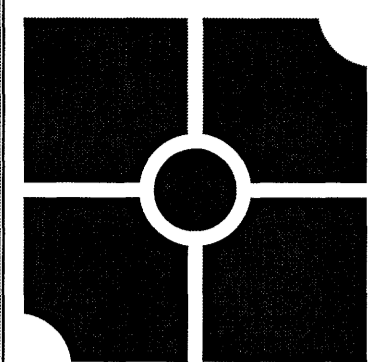
Posted Speed	0 - 35 mph	36 - 55 mph
PTRS Spacing (Center to Center)	5 Feet	8 Feet

1: Revision 1 - 4/1/2015

TRAFFIC MANAGEMENT NOTES:

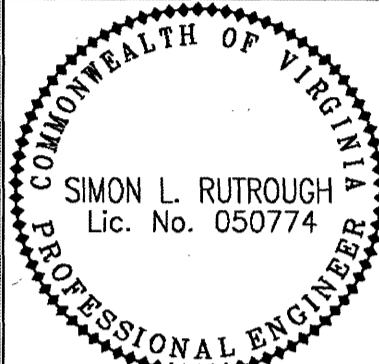
- IT IS NOT THE INTENT OF THIS PLAN TO ENUMERATE EVERY DETAIL WHICH MUST BE CONSIDERED IN THE CONSTRUCTION OF EACH WORK ZONE, BUT ONLY TO SHOW THE GENERAL FEATURES NECESSARY TO PROVIDE FOR PROPER HANDLING OF TRAFFIC. THE CONSTRUCTION TECHNIQUES ULTIMATELY EMPLOYED BY THE CONTRACTOR ARE TO BE APPROVED BY VDOT. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE FOR SAFE TRAVEL AROUND THE WORK ZONE.
- THE PROJECT CONSISTS/ ANTICIPATES FOUR WORK ZONES DESCRIBED AS:
WORK ZONE #1: LANE CLOSURE ON TWO-LANE ROADWAY ALONG JAE VALLEY ROAD. (TTC-23.1)
WORK ZONE #2: SHOULDER OPERATION WITH MINOR ENCROACHMENT ALONG JAE VALLEY ROAD. (TTC-5.1)
WORK ZONE #3: LANE CLOSURE ON TWO-LANE ROADWAY ALONG MOUNT PLEASANT BLVD. (TTC-23.1)
WORK ZONE #4: SHOULDER OPERATION WITH MINOR ENCROACHMENT ALONG MOUNT PLEASANT BLVD. (TTC-5.1)
- GENERAL CONTRACTOR SHALL CONTACT THE VDOT REPRESENTATIVE IN WRITING WITH A WORK SCHEDULE 2-WEEKS BEFORE STARTING WORK. THE VDOT REPRESENTATIVE WILL DETERMINE IF POLICE PATROL IS NECESSARY FOR TRAFFIC CONTROL.
- THE CONTRACTOR SHALL COORDINATE THE SEQUENCE OF CONSTRUCTION WITH VDOT.
- SIGN SPACING MAY BE ADJUSTED TO FIT FIELD CONDITIONS WITH VDOT APPROVAL.
- ALL PAVEMENT MARKINGS CONFLICTING WITH TRAFFIC PATTERNS SHALL BE ERADICATED AND RESTRIPTED AS NECESSARY.
- WHEN WORK IS NOT BEING PERFORMED, THE CLEAR ZONE OF THE ROADWAY SHALL BE FREE OF STORED MATERIALS AND PARKED EQUIPMENT.
- ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH THE MUTCD (LATEST EDITION), THE VIRGINIA WORK AREA PROTECTION MANUAL (LATEST EDITION), AND AS DIRECTED BY VDOT. WORK SHALL COMPLY WITH ALL REGULATIONS PROVIDED IN THE LAND USE PERMIT.
- THE POSTED SPEED LIMIT FOR JAE VALLEY ROAD (SR 116 - MINOR ARTERIAL) IS 35 MPH.
THE POSTED SPEED LIMIT FOR MOUNT PLEASANT BLVD (MINOR COLLECTOR) IS 25 MPH.
- CONSTRUCTION WORK AFTER DARK IS NOT ANTICIPATED FOR THIS PROJECT; HOWEVER, SHOULD CONSTRUCTION WORK AFTER DARK OCCUR, FLOODLIGHTS SHALL BE UTILIZED WHERE EXISTING LIGHT IS NOT ADEQUATE. THE FLOODLIGHTS SHALL NOT CREATE A DISTRACTING GLARE TO ADJACENT DRIVERS.
- ALL FLAGGERS SHALL BE STATE CERTIFIED AND HAVE THEIR CERTIFICATION CARD IN THEIR POSSESSION WHEN PERFORMING FLAGGING DUTIES.
- CHANNELIZING DEVICES SUCH AS CONES OR BARRELS SHALL BE UTILIZED WHERE REQUIRED AND FOLLOW THE WORK AREA PROTECTION MANUAL GUIDELINES.
- THE GENERAL CONTRACTOR SHALL MAINTAIN ALL EXISTING ROADWAY SIGNAGE DURING ALL PHASES OF THE PROJECT.
- PUBLIC COMMUNICATIONS CONTACTS
SALEM TRAFFIC OPERATIONS CENTER: (540) 378-5096
"THE TOC SHOULD BE NOTIFIED OF PROPOSED LANE CLOSURES AT THE BEGINNING AND END OF EACH WORK DAY."
ROANOKE COUNTY POLICE: (540) 777-8601
ROANOKE COUNTY FIRE & RESCUE: (540) 777-8701
ROANOKE COUNTY COMMUNICATION CENTER: (540) 562-3265
ROANOKE COUNTY SCHOOLS - DR. LORRAINE LANGE: (540) 562-3900
ROANOKE COUNTY BOARD OF SUPERVISORS ADMINISTRATOR OFFICE: (540) 772-2003
VIRGINIA STATE POLICE: (540) 375-9500

TRAFFIC CONTROL PLANS
REVIEWED BY CLAY GROGAN.
CERTIFICATION #030712011.



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JAE VALLEY WATERLINE PLAN
UTILITY EXTENSION PLAN
WESTERN VIRGINIA WATER AUTHORITY
ROANOKE COUNTY, VIRGINIA

REVISIONS:

NO.	DATE	DESCRIPTION

DESIGNED BY: JLK

DRAWN BY: JLK

CHECKED BY: SLR

PROJECT NOT APPROVED FOR CONSTRUCTION.
REVISIONS ANTICIPATED DUE TO AUTHORITY REVIEW.

DATE:
1 February, 2017

SHEET TITLE:
TRAFFIC MANAGEMENT PLAN

SCALE:
AS SHOWN
SHEET NO.

C02