PREFACE

Temporary Traffic Control Typicals for Traffic Counter Tube Work

June 2014

The purpose of this document is to provide guidance to field staff on establishing temporary traffic control for traffic counter tube work requiring less than one-hour to complete, day or night, during non-inclement weather. Typical applications are illustrated for shoulder-closure and lane-encroachment scenarios for various types of roadway facilities, including ramps. This document is a supplement to, and does not supersede criteria promulgated by, the most recent editions of the SHA Book of Standards or the Maryland Manual of Uniform Traffic Control Devices. For applications not addressed in this document, refer to the most recent edition of the SHA Book of Standards.

The Table of Contents contains three tables of hyperlinks to typical applications of temporary traffic control for traffic counter tube work, one table each for three ranges of posted speed limit, as follows: 1) 20, 25 or 30 mph; 2) 35 or 40 mph; and 3) 45, 50 or 55 mph. To navigate to a typical traffic control application, enter the table associated with the roadway’s posted speed limit and select the Plate Number (in blue text) associated with the roadway’s number of lanes, directionality, cross section, shoulder usage, and the number of work (i.e., shadow) vehicles that will be deployed to the site where the traffic counter tubes will be set.

The following provides additional guidance associated with implementing temporary traffic control for traffic counter tube work:

1. Traffic Cones. Where used, ensure that traffic cones meet current Maryland SHA specifications for a 36” reflectorized traffic cone.

2. Advanced Warning Signs. Where used, ensure that advance warning signs meet current Maryland SHA specifications for a 48” x 48” fabric sign mounted on a foldable, weighted base, deploying a W20-1(1) sign for “ROAD WORK AHEAD” and a W5-4 sign for “RAMP NARROWS,” as designated in the plates.

3. Work / Shadow Vehicles. At least one vehicle will be deployed to the site where the traffic counter tubes will be set; however, some field crews elect to deploy two vehicles. Each typical application designates the distance of the vehicle to the work site as well as the distance between vehicles when field crews elect to deploy two vehicles. Each vehicle must be equipped with a roof-mounted yellow flashing or revolving, high-intensity strobe light or light bar meeting current Maryland SHA specifications. Ensure that the company name and contact information is prominently displayed on each vehicle that is deployed. Once positioned, it is good practice to turn the front wheels of the stationary vehicle(s) away from travel lanes and engage the emergency brake.
4. **Vehicle Roof-Mounted Arrow Panel.** Some field crews elect to use a vehicle roof-mounted arrow panel as an integral part of their temporary traffic control setup. The advantage of using such a device is that it can be deployed and retracted automatically from within the cab of the vehicle and is typically visible to oncoming traffic 0.5 to 1 mile in advance of the work site. When used, ensure that the vehicle roof-mounted arrow panel meets current Maryland SHA specifications for a Type A 48" x 24" device, minimum, and that only the four-corner caution display mode is used for the typical applications addressed in this document.

5. **Field Crew.** Ensure that field crew staff have taken and passed a Maryland SHA-approved safety course prior to field deployment. Determine the number of field crew staff needed to install or remove traffic counter tubes and related equipment as follows: [Maximum Number of Staff Necessary to Perform the Work + One (1) Traffic Spotter]. For example, if a traffic counter tube set requires two people to physically set the tubes and equipment, then a field crew of three staff will be needed. This concept is to ensure the safety of the field crew in the traveled way who are focusing on the work, tubes and equipment, not the traffic. When the field crew is in the traveled way performing the work, the traffic spotter has one job – to look for and warn the field crew of oncoming traffic. When field staff are not in the travel lanes, the traffic spotter typically performs other duties. The traffic spotter is positioned with a clear view of oncoming traffic, is not a flagger, does not control traffic, nor uses hand-held devices such as red flags. It is good practice for a traffic spotter to use a reliable audible device such as a whistle and to not rely entirely on verbal commands, which may be misunderstood.

6. **Field Crew Safety Attire.** Ensure safety attire meet current Maryland SHA specifications. Wear Class 3 safety vests for work performed during daylight hours. For work performed during nighttime hours, wear Class 3 trousers and safety vests. To enhance safety, consider other devices such as Class 3 ball caps, arm-band flashing lights, and head-band work lights.

7. **Field Crew Work Preparation.** Complete all preparatory work (e.g., mapping, route planning, inventory checks, cutting tape and tubes) prior to field deployment. It is good practice to perform a pre-installation reconnaissance to ascertain potential problems with the traffic counter set location or traffic control. To enhance safety, select a traffic counter set location that is not obscured by sharp horizontal or crest vertical curvature.

8. **Traffic Exposure Considerations.** A daylight period has better visibility but generally more traffic, and a nighttime period generally has less traffic but limited visibility. The typical applications presented in this document are appropriate for traffic counter tube work that requires less than one-hour to complete, day or night, during non-inclement weather for either Traffic Condition A or Traffic Condition B, as described below.

   a. **Traffic Condition A – Low Volume:** DESIRABLE. Vehicles approach the work zone somewhat randomly and generally present minimal conflict. Typified by:

   - A rough estimate of traffic volume at less than 5 vehicles per lane per minute.
   - Significant gaps exist in traffic flow.
   - Few vehicles are visible at any given time.
   - Random platoons of vehicles exist.
   - Free flow traffic at the posted speed limit.
   - Near unrestricted access exists to the work area.
   - Safe walking pace conditions exist across the roadway.
b. **Traffic Condition B – Moderate Volume**: ACCEPTABLE. The frequency of vehicles increases and more care and vigilance are required by the field crew to ensure safe work operations. Typified by:

- A rough estimate of traffic volume at 12 vehicles per lane per minute.
- Gaps in traffic are present, but may be more consistent.
- Vehicles are generally present all the time.
- Traffic is constant but still flows freely.
- Generally free flow traffic speed at the posted limit.
- Good work area access, but vehicles are usually present.
- Safe walking pace conditions exist across the roadway, but may require waiting for a gap in traffic.

c. **Traffic Condition C – High Volume**: NOT RECOMMENDED. Vehicles are constantly present at this level. Typified by:

- A rough estimate of 20 vehicles per lane per minute.
- Minimal gaps exist in traffic.
- Constantly present vehicles.
- Restricted or unstable traffic flow.
- Reduced traffic speeds, as volume starts to approach road capacity.
- Unacceptable backups and delays.
- A safe walking condition across the roadway may not exist.

Where Traffic Condition C exists and cannot be mitigated by selecting a time period that exhibits conditions similar to Traffic Condition A or Traffic Condition B, give consideration to using non-intrusive data collection methods, lane closures, traffic drags, and/or police assistance.

9. **Ramp Considerations**. Do not stage the field crew, vehicles or equipment in the gore area of an exit ramp. As practicable, avoid setting traffic counter tubes along a ramp just beyond the gore area, which is a location known to be used as a recovery area for errant vehicles attempting to exit the roadway. Do not travel in reverse along ramps to avoid tolls or save time traveling to another set location.
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TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)
TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
2-LANE, 3-WAY / UNDIVIDED / NO OR NARROW SHOULDER
POSTED SPEED: 20, 25 OR 30 MPH
LANE ENCROACHMENT

Figure 1
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT ATOP VEHICLE

OPTIONAL

FACE OF CURB OR EDGE OF TRAVEL LANE

200' @ 35 MPH
280' @ 40 MPH

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
2-LANE, 3-WAY / UNDIVIDED / NO OR NARROW SHOULDER
POSTED SPEED: 35 OR 40 MPH
LANE ENGROACHMENT

Figure 1A
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT ATOP VEHICLE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
2-LANE, 3-WAY / UNDIVIDED / NO OR NARROW SHOULDER
POSTED SPEED: 45, 50 OR 55 MPH
LANE ENCOACHMENT

Figure 1B
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN.) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT / STOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)
TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
2-LANE, 3-WAY / UNDIVIDED / NO OR NARROW SHOULDER
POSTED SPEED: 20, 25 OR 30 MPH
LANE ENCROACHMENT

Figure 1C
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT ATOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
2-LANE, 2-WAY / UNDIVIDED / NO OR NARROW SHOULDER
POSTED SPEED: 35 OR 40 MPH
LANE ENCROACHMENT

Figure 1D
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

**KEY:**
- **Work Area / Lane Intrusion**
- 36" Traffic Cone
- Traffic Spotter
- Advanced Warning Sign
- Type A (Min.) Arrow Panel
- Use Caution-Mode Display on Arrow Panel
- Shadow Vehicle with High-Intensity Flashing or Rotating Light at Stop Vehicle

Optional Configuration with Two Shadow Vehicles.

**OPTIONAL ARROW PANEL**

7 Cones @ 40' Spacing = 240'

360' @ 45 MPH
440' @ 50 MPH
520' @ 55 MPH

360' @ 45 MPH
440' @ 50 MPH
520' @ 55 MPH

OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION

Figure 1E
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN.) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)
TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
2-LANE, 2-WAY / UNDIVIDED / USABLE SHOULDER
POSTED SPEED: 20, 25 OR 30 MPH
SHOULDER CLOSURE

Figure 2
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN.) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT ON TOP VEHICLE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
2-LANE, 2-WAY / UNDIVIDED / USABLE SHOULDER
POSTED SPEED: 35 OR 40 MPH
SHOULDER CLOSURE

Figure 2A
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:

- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
2-LANE, 2-WAY / UNDIVIDED / USABLE SHOULDER
POSTED SPEED: 45, 50 OR 55 MPH
SHOULDER CLOSURE

Figure 2B
Trafflc Counter Tube Work Typical Application

Key:
- Work Area / Lane Intrusion
- 36" Traffic Cone
- Traffic Spotter
- Advanced Warning Sign
- Type A (Mini) Arrow Panel
- Use Caution-Mode Display on Arrow Panel
- Shadow Vehicle with High-Intensity Flashing or Rotating Light atop Vehicle

Optional Configuration with Two Shadow Vehicles.

Maryland Department of Transportation
State Highway Administration
Office of Planning & Preliminary Engineering (OPPE)

Traffic Counter Tube Work
<1 Hour Duration / Day or Night
2-Lane, 2-Way / Undivided / Usable Shoulder
Posted Speed: 20, 25 or 30 MPH
Shoulder Closure

Figure 2C
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:

- Work Area / Lane Intrusion
- 36" Traffic Cone
- Traffic Spotter
- Advanced Warning Sign
- Type A (Min.) Arrow Panel
- Use Caution-Mode Display on Arrow Panel
- Shadow Vehicle with High-Intensity Flashing or Rotating Light Stop Vehicle

Optional Configuration with Two Shadow Vehicles.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 Hour Duration / Day or Night
2-Lane, 2-Way / Undivided / Usable Shoulder
Posted Speed: 35 or 40 MPH
Shoulder Closure

Figure 2D
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:

1. WORK AREA / LANE INTRUSION
2. 36" TRAFFIC CONE
3. TRAFFIC SPOTTER
4. ADVANCED WARNING SIGN
5. TYPE A (MINI) ARROW PANEL
6. USE CAUTION-MODE DISPLAY ON ARROW PANEL
7. SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT / STOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW Vehicles.

360° @ 45 MPH
440° @ 50 MPH
520° @ 55 MPH

7 CONES @ 40' SPACING = 240'

360° @ 45 MPH
440° @ 50 MPH
520° @ 55 MPH

7 CONES @ 40' SPACING = 240'

360° @ 45 MPH
440° @ 50 MPH
520° @ 55 MPH

7 CONES @ 40' SPACING = 240'

ROAD WORK AHEAD

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)
TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
2-LANE, 2-WAY / UNDIVIDED / USABLE SHOULDER
POSTED SPEED: 45, 50 OR 55 MPH
SHOULDER CLOSURE

Figure 2E
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- Work Area / Lane Intrusion
- 36" Traffic Cone
- Traffic Spotter
- Advanced Warning Sign
- Type A (5 Min) Arrow Panel
- Use Caution-Mode Display on Arrow Panel
- Shadow Vehicle with High-Intensity Flashing or Rotating Light atop Vehicle

OPTIONAL ARROW PANEL
- Face of curb or edge of travel lane

OPTIONAL

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)
TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
4-LANE, 2-WAY / UNDIVIDED / NO OR NARROW SHOULDER
POSTED SPEED: 20, 25 OR 30 MPH
LANE ENCROACHMENT

Figure 3
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN.) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)
TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
4-LANE, 2-WAY / UNDIVIDED / NO OR NARROW SHOULDER
POSTED SPEED: 35 OR 40 MPH
LANE ENCOACHMENT

Figure 3A
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

360' @ 45 MPH
440' @ 50 MPH
520' @ 55 MPH

5 CONES @ 40' SPACING = 160'
7 CONES @ 40' SPACING = 240'

360' @ 45 MPH
440' @ 50 MPH
520' @ 55 MPH

FACE OF CURB OR EDGE OF TRAVEL LANE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
4-LANE, 2-WAY / UNDIVIDED / NO OR NARROW SHOULDER
POSTED SPEED: 45, 50 OR 55 MPH
LANE ENTRANCE

Figure 3B
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

**KEY:**
- WORK AREA / LANE INTRUSION
- 36'' TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN.) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES:

**FACE OF CURB OR EDGE OF TRAVEL LANE**

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK

<1 HOUR DURATION / DAY OR NIGHT
4-LANE, 2-WAY / UNDIVIDED / NO OR NARROW SHOULDER
POSTED SPEED 20, 25 OR 30 MPH
LANE ENCROACHMENT

**Figure 3C**
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN.) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

360' @ 45 MPH
440' @ 50 MPH
520' @ 55 MPH

180'
50'

7 CONES @ 40' SPACING = 240'

360' @ 45 MPH
440' @ 50 MPH
520' @ 55 MPH

10' MIN.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION

OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
1 HOUR DURATION / DAY OR NIGHT
4-LANE, 2-WAY / UNDIVIDED / NO OR NARROW SHOULDER
POSTED SPEED 45, 50 OR 55 MPH
LANE ENCOACHMENT

Figure 3E
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A MINI ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

4-LANE, 2-WAY / UNDIVIDED / USABLE SHOULDER
POSTED SPEED: 20, 25 OR 30 MPH
SHOULDER CLOSURE

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STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
4-LANE, 2-WAY / UNDIVIDED / USABLE SHOULDER
POSTED SPEED: 20, 25 OR 30 MPH
SHOULDER CLOSURE

Figure 4
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
4-LANE, 2-WAY / UNDIVIDED / USABLE SHOULDER
POSTED SPEED: 35 OR 40 MPH
SHOULDER CLOSURE

Figure 4A
4B TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
1 HOUR DURATION / DAY OR NIGHT
4-LANE, 2-WAY / UNDIVIDED / USABLE SHOULDER
POSTED SPEED: 45, 50 OR 55 MPH
SHOULDER CLOSURE

360' @ 45 MPH
440' @ 50 MPH
520' @ 55 MPH
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT ATOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

40' @ 20 MPH
80' @ 25 MPH
160' @ 30 MPH

OPTIONAL ARROW PANEL

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STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)
TRAFFIC COUNTER TUBE WORK
1-HOUR DURATION / DAY OR NIGHT
4-LANE, 3-WAY / UNDIVIDED / USABLE SHOULDER
POSTED SPEED: 20, 25 OR 30 MPH
SHOULDER CLOSURE

Figure 4C
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A MINI ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT STOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

Maryland Department of Transportation
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OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
4-LANE, 2-WAY / UNDIVIDED / USABLE SHOULDER
POSTED SPEED: 35 OR 40 MPH
SHOULDER CLOSURE

Figure 4D
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT
- STOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

360' @ 45 MPH
440' @ 50 MPH
520' @ 55 MPH

ROAD WORK AHEAD

7 CONES @ 40' SPACING = 240'

7 CONES @ 40' SPACING = 240'

360' @ 45 MPH
440' @ 50 MPH
520' @ 55 MPH

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
1 HOUR DURATION / DAY OR NIGHT
4-LANE, 2-WAY / UNDIVIDED / USABLE SHOULDER
POSTED SPEED: 45, 50 OR 55 MPH
SHOULDER CLOSURE

Figure 4E
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT STOP VEHICLE

Figure 5

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)
TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
> 6-LANE, 2-WAY / UNDIVIDED / NO OR NARROW SHOULDER
POSTED SPEED: 20, 25 OR 30 MPH
LANE ENCROACHMENT
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN.) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)
TRAFFIC COUNTER TUBE WORK
< 1 HOUR DURATION / DAY OR NIGHT
> 6-LANE, 2-WAY / UNDIVIDED / NO OR NARROW SHOULDER
POSTED SPEED: 35 OR 40 MPH
LANE ENCROACHMENT

Figure 5A
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A MINI-ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT STOP VEHICLE

360' @ 45 MPH
440' @ 50 MPH
520' @ 55 MPH

FACE OF CURB OR EDGE OF TRAVEL LANE

5 CONES @ 40' SPACING = 160'

ROAD WORK AHEAD

7 CONES @ 40' SPACING = 240'

520' @ 55 MPH
440' @ 50 MPH
360' @ 45 MPH

MARYLAND DEPARTMENT OF TRANSPORTATION
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OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
> 6-LANE, 2-WAY / UNDIVIDED / NO OR NARROW SHOULDER
POSTED SPEED: 45, 50 OR 55 MPH
LANE ENCROACHMENT

Figure 5B
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- **WORK AREA / LANE INTRUSION**
- **36" TRAFFIC CONE**
- **TRAFFIC SPOTTER**
- **ADVANCED WARNING SIGN**
- **TYPE A (MIN.) ARROW PANEL**
- **ADVANCED WARNING DISPLAY ON ARROW PANEL**
- **SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT ATOP VEHICLE**

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

40' @ 20 MPH
80' @ 25 MPH
160' @ 30 MPH

MARYLAND DEPARTMENT OF TRANSPORTATION
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TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
> 6-LANE, 2-WAY / UNDIVIDED / NO OR NARROW SHOULDER
POSTED SPEED: 20, 25 OR 30 MPH
LANE INTRUSION

Figure 5C
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN.) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT ATOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION

OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
- < 1 HOUR DURATION / DAY OR NIGHT
- > 6-LANE, 2-WAY / UNDIVIDED / NO OR NARROW SHOULDER
- POSTED SPEED: 35 OR 40 MPH
- LANE ENCROACHMENT

Figure 5D
OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36' TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT-STOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
> 6-LANE, 2-WAY / UNDIVIDED / NO OR NARROW SHOULDER
POSTED SPEED: 45, 50 OR 55 MPH
LANE ENCROACHMENT

Figure 5E
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN.) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT ATOP VEHICLE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)
TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
> 6-LANE, 2-WAY / UNDIVIDED / USABLE SHOULDER
POSTED SPEED: 20, 25 OR 30 MPH
SHOULDER CLOSURE

Figure 6
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
> 4-LANE, 2-WAY / UNDIVIDED / USEABLE SHOULDER
POSTED SPEED: 35 OR 40 MPH
SHOULDER CLOSURE

Figure 6A
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A MINI ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

360' @ 45 MPH
440' @ 50 MPH
520' @ 55 MPH

5 CONES @ 40' SPACING = 160'
7 CONES @ 40' SPACING = 240'

520' @ 55 MPH
440' @ 50 MPH
360' @ 45 MPH

ROAD WORK AHEAD

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
> 6-LANE, 2-WAY / UNDIVIDED / USABLE SHOULDER
POSTED SPEED: 45, 50 OR 55 MPH
SHOULDER CLOSURE

Figure 6B
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT-STOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)
TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
> 6-LANE, 2-WAY / UNDIVIDED / USABLE SHOULDER
POSTED SPEED: 20, 25 OR 30 MPH
SHOULDER CLOSURE

Figure 6C
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN.) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT ATOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
> 6-LANE, 2-WAY / UNDIVIDED / USABLE SHOULDER
POSTED SPEED: 35 OR 40 MPH
SHOULDER CLOSURE

Figure 6D
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT - STOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
> 6-LANE, 2-WAY / UNDIVIDED / USABLE SHOULDER
POSTED SPEED: 45, 50 OR 55 MPH
SHOULDER CLOSURE

Figure 6E
RAISED MEDIAN
TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
4-LANE, 2-WAY / RAISED MEDIAN / NO OR NARROW SHOULDER
POSTED SPEED: 20, 25 OR 30 MPH
LANE ENCROACHMENT

MARYLAND DEPARTMENT OF TRANSPORTATION
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OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)
TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
4-LANE, 2-WAY / RAISED MEDIAN / NO OR NARROW SHOULDER
POSTED SPEED: 20, 25 OR 30 MPH
LANE ENCROACHMENT

Figure 7
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR RotATING LIGHT AT TOP VEHICLE

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TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
4-LANE, 2-WAY / RAISED MEDIAN / NO OR NARROW SHOULDER
POSTED SPEED: 35 OR 40 MPH
LANE ENCROACHMENT

Figure 7A
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
4-LANE, 2-WAY / RAISED MEDIAN / NO OR NARROW SHOULDER
POSTED SPEED: 45, 50 OR 55 MPH
LANE ENCOACHMENT

Figure 7B
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT / STOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION

OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
1 HOUR DURATION / DAY OR NIGHT
4-LANE, 2-WAY / RAISED MEDIAN / NO OR NARROW SHOULDER
POSTED SPEED: 20, 25 OR 30 MPH
LANE ENCROACHMENT

Figure 7C
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION

OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
4-LANE, 2-WAY / RAISED MEDIAN / NO OR NARROW SHOULDER
POSTED SPEED: 35 OR 40 MPH
LANE ENCROACHMENT

Figure 7D
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT ATOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

7 CONES @ 40' SPACING = 240'

CONES SPACED AT 40' TYP.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
4-LANE, 2-WAY / Raised Median / No Or Narrow Shoulder
POSTED SPEED: 45, 50 OR 55 MPH
LANE ENCROachment

Figure 7E
Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION

OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
4-LANE, 2-WAY / RAISED MEDIAN / USABLE SHOULDER
POSTED SPEED: 20, 25 OR 30 MPH
SHOULDER CLOSURE

Figure 8
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
4-LANE, 2-WAY / RAISED MEDIAN / USABLE SHOULDER
POSTED SPEED: 35 OR 40 MPH
SHOULDER CLOSURE

Figure 8A
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN.) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
4-LANE, 2-WAY / RAISED MEDIAN / USABLE SHOULDER
POSTED SPEED: 45, 50 OR 55 MPH
SHOULDER CLOSURE

Figure 8B
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- Work Area / Lane Intrusion
- 36" Traffic Cone
- Traffic Spotter
- Advanced Warning Sign
- Type A (MIN) Arrow Panel
- Use Caution-Mode Display on Arrow Panel
- Shadow Vehicle with High-Intensity Flashing or Rotating Light / Stop Vehicle

Optional Configuration with Two Shadow Vehicles.

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Office of Planning & Preliminary Engineering (OPPE)

Traffic Counter Tube Work
<1 Hour Duration / Day or Night
4-Lane, 2-Way / Raised Median / Usable Shoulder
Posted Speed: 20, 25 or 30 MPH
Shoulder Closure

Figure 8C
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- Work Area / Lane Intrusion
- 36" Traffic Cone
- Traffic Spotter
- Advanced Warning Sign
- Type A (Min.) Arrow Panel
- Use Caution Mode Display on Arrow Panel
- Shadow Vehicle with High-Intensity Flashing or Rotating Light Stop Vehicle

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
4-LANE, 2-WAY / RAISED MEDIAN / USABLE SHOULDER
POSTED SPEED: 35 OR 40 MPH
SHOULDER CLOSURE

Figure 8D
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN.) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT STOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

7 CONES @ 40' SPACING = 240'

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
4-LANE, 2-WAY / RAISED MEDIAN / USABLE SHOULDER
POSTED SPEED: 45, 50 OR 55 MPH
SHOULDER CLOSURE

Figure 8E
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN.) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP OF VEHICLE
- FACE OF CURB OR EDGE OF TRAVEL LANE

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TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
≥ 6-LANE, 2-WAY / RAISED MEDIAN / NO OR NARROW SHOULDER
POSTED SPEED: 20, 25 OR 30 MPH
LANE ENCOACHMENT

Figure 9
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE
- ROAD WORK AHEAD

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OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)
TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
≥ 6-LANE, 2-WAY / RAISED MEDIAN / NO OR NARROW SHOULDER
POSTED SPEED: 35 OR 40 MPH
LANE ENCROACHMENT

Figure 9A
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- Work Area / Lane Intrusion
- 36" Traffic Cone
- Traffic Spotter
- Advanced Warning Sign
- Type A (MIN.) Arrow Panel
- Use Caution-Mode Display on Arrow Panel
- Shadow Vehicle with High-Intensity Flashing or Rotating Light atop Vehicle

- Face of Curb or Edge of Travel Lane

Cones spaced at 40' typ.

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OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
≥ 6-LANE, 2-WAY / RAISED MEDIAN / NO OR NARROW SHOULDER
POSTED SPEED: 45, 50 OR 55 MPH
LANE ENCOACHMENT

Figure 9B
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN.) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION

OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
≥ 6-LANE, 2-WAY / RAISED MEDIAN / NO OR NARROW SHOULDER
POSTED SPEED 20, 25 OR 30 MPH
LANE ENCOACHMENT

Figure 9C
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

Maryland Department of Transportation
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OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
≥ 6-LANE, 2-WAY / RAISED MEDIAN / NO OR NARROW SHOULDER
POSTED SPEED: 35 OR 40 MPH
LANE ENCROACHMENT

Figure 9D
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT / STOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

7 CONES @ 40' SPACING = 240'

10' MIN.

ARROW PANEL OPTIONS

7 CONES @ 40' SPACING = 240'

360' @ 45 MPH
440' @ 50 MPH
520' @ 55 MPH

MARYLAND DEPARTMENT OF TRANSPORTATION
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OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
> 6-LANE, 2-WAY / RAISED MEDIAN / NO OR NARROW SHOULDER
POSTED SPEED: 40, 45 OR 55 MPH
LANE ENCROACHMENT

Figure 9E
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
--shadow vehicle with high-intensity flashing or rotating light atop vehicle

100'

ARROW PANEL OPTIONAL

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TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
≥ 6-LANE, 2-WAY / RAISED MEDIAN / USABLE SHOULDER
POSTED SPEED: 20, 25 OR 30 MPH
SHOULDER CLOSURE

Figure 10
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHER OR ROTATING LIGHT AT TOP VEHICLE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
≥ 6-LANE, 2-WAY / RAISED MEDIAN / USABLE SHOULDER
POSTED SPEED: 35 OR 40 MPH
SHOULDER CLOSURE

Figure 10A
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:

- Work Area / Lane Intrusion
- 36' Traffic Cone
- Traffic Spotter
- Advanced Warning Sign
- Type A (Mini) Arrow Panel
- Use Caution-Mode Display on Arrow Panel
- Shadow Vehicle with High-Intensity Flashing or Rotating Light / Stop Vehicle

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TRAFFIC COUNTER TUBE WORK

<1 HOUR DURATION / DAY OR NIGHT

> 6-LANE, 2-WAY / RAISED MEDIAN / USABLE SHOULDER

POSTED SPEED: 45, 50 OR 55 MPH

SHOULDER CLOSURE

Figure 10B
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:

- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP OF VEHICLE

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TRAFFIC COUNTER TUBE WORK
< 1 HOUR DURATION / DAY OR NIGHT
≥ 6-LANE, 2-WAY / RAISED MEDIAN / USABLE SHOULDER
POSTED SPEED: 20, 25 OR 30 MPH
SHOULDER CLOSURE

Figure 10C
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A MINI ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

Maryland Department of Transportation
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OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
≥ 6-LANE, 2-WAY / RAISED MEDIAN / USABLE SHOULDER
POSTED SPEED: 35 OR 40 MPH
SHOULDER CLOSURE

Figure 10D
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT ATOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

7 CONES @ 40' SPACING = 240'

ARROW PANEL - OPTIONAL

360' @ 45 MPH
440' @ 50 MPH
520' @ 55 MPH

OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

Maryland Department of Transportation
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TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
> 6-LANE, 2-WAY / RAISED MEDIAN / USABLE SHOULDER
POSTED SPEED: 45, 50 OR 55 MPH
SHOULDER CLOSURE

Figure 10E
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36' TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A MINI ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT ATOP VEHICLE

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TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
2-LANE, 1-WAY / NO OR NARROW SHOULDER
POSTED SPEED: 20, 25 OR 30 MPH
LANE ENCOACHMENT

Figure 11
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

Figure 11A

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TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
2-LANE, 1-WAY / NO OR NARROW SHOULDER
POSTED SPEED: 35 OR 40 MPH
LANE ENCORDMENT

Figure 11A
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

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TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
2-LANE, 1-WAY / NO OR NARROW SHOULDER
POSTED SPEED: 20, 25 OR 30 MPH
LANE ENCROACHMENT

Figure 11B
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
2-LANE 1-WAY / NO OR NARROW SHOULDER
POSTED SPEED: 35 OR 40 MPH
LANE ENCROACHMENT

Figure 11C
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

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TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
2-LANE, 1-WAY / USABLE PARKING LANE
POSTED SPEED: 20, 25 OR 30 MPH
PARKING LANE CLOSURE

Figure 12
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASING OR ROTATING LIGHT - STOP VEHICLE

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
2-LANE, 1-WAY / USABLE PARKING LANE
POSTED SPEED: 35 OR 40 MPH
PARKING LANE CLOSURE

Figure 12A
PARKING TRAFFIC COUNTER TUBE WORK

- 1 HOUR DURATION / DAY OR NIGHT
- 2-LANE, 1-WAY / USABLE PARKING LANE
- POSTED SPEED: 20, 25 OR 30 MPH
- PARKING LANE CLOSURE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

Figure 12B
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:

- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR RotATING LIGHT / STOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
2-LANE, 1-WAY / USABLE PARKING LANE
POSTED SPEED: 35 OR 40 MPH
PARKING LANE CLOSURE

Figure 12C
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT ATOP VEHICLE

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
≥ 3-LANE, 1-WAY / NO OR NARROW SHOULDER
POSTED SPEED: 20, 25 OR 30 MPH
LANE ENCROACHMENT

Figure 13
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN.) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP
- VEHICLE

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
≥ 3-LANE, 1-WAY / NO OR NARROW SHOULDER
POSTED SPEED: 35 OR 40 MPH
LANE ENCROACHMENT

Figure 13A
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN. ARROW PANEL)
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
≥ 3-LANE, 1-WAY / NO OR NARROW SHOULDER
POSTED SPEED 20, 25 OR 30 MPH
LANE ENCROACHMENT

Figure 13B
OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT - TOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
≥ 3-LANE, 1-WAY / NO OR NARROW SHOULDER
POSTED SPEED: 35 OR 40 MPH
LANE ENCROACHMENT

Figure 13C
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
3-LANE, 1-WAY / USABLE PARKING LANE
POSTED SPEED: 20, 25 OR 30 MPH
PARKING LANE CLOSURE

Figure 14
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN.) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

Figure 14A

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
3-LANE, 1-WAY / USABLE PARKING LANE
POSTED SPEED: 35 OR 40 MPH
PARKING LANE CLOSURE
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
3-LANE, 1-WAY / USABLE PARKING LANE
POSTED SPEED 20, 25 OR 30 MPH
PARKING LANE CLOSURE

Figure 14B
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN.) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
- <1 HOUR DURATION / DAY OR NIGHT
- 3-LANE, 1-WAY / USABLE PARKING LANE
- POSTED SPEED: 35 OR 40 MPH
- PARKING LANE CLOSURE

Figure 14C
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN.) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT STOP VEHICLE

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
4-LANE, 2-WAY / DIVIDED / USABLE SHOULDER
POSTED SPEED: 35 OR 40 MPH
SHOULDER CLOSURE

Figure 15
**TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION**

**KEY:**
- WORK AREA / LINE INTRUSION
- $36''$ TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A MINI ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

**Figure 15A**

**Maryland Department of Transportation**

**STATE HIGHWAY ADMINISTRATION**

**OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)**

**TRAFFIC COUNTER TUBE WORK**

- **<1 HOUR DURATION / DAY OR NIGHT**
- **4-LANE, 2-WAY / DIVIDED / USABLE SHOULDER**
- **POSTED SPEED: 45, 50 OR 55 MPH**
- **SHOULDER CLOSURE**

**CONE SPACED AT 40' TYP.**
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN.) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP OF VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
1 HOUR DURATION / DAY OR NIGHT
4-LANE, 2-WAY / DIVIDED / USABLE SHOULDER
POSTED SPEED: 35 OR 40 MPH
SHOULDER CLOSURE

Figure 15B
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT / STOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

CONES SPACED AT 40' TYP.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
4-LANE, 2-WAY / DIVIDED / USEABLE SHOULDER
POSTED SPEED: 45, 50 OR 55 MPH
SHOULDER CLOSURE

Figure 15C
Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

Figure 16
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

**KEY:**
- WORK AREA / LANE INTRUSION
- 36' TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR RotATING LIGHT AT TOP VEHICLE

**ROAD WORK AHEAD**

5 CONES @ 40' SPACING = 160'

7 CONES @ 40' SPACING = 240'

360' @ 45 MPH
440' @ 50 MPH
520' @ 55 MPH

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
> 4-LANE, 2-WAY / DIVIDED / USABLE SHOULDER
POSTED SPEED: 45, 50 OR 55 MPH
SHOULDER CLOSURE

Figure 16A

CONES SPACED AT 40' TYP.
1. **Traffic Counter Tube Work Typical Application**

2. **Key:**
   - **Work Area / Lane Intrusion**
   - **36" Traffic Cone**
   - **Traffic Spotter**
   - **Advanced Warning Sign**
   - **Type A (Min) Arrow Panel**
   - **Use Caution-Mode Display on Arrow Panel**
   - **Shadow Vehicle with High-Intensity Flashing or Rotating Light Stop Vehicle**

3. **Optional Configuration with Two Shadow Vehicles.**

4. **16B Traffic Counter Tube Work Typical Application**

5. **Office of Planning & Preliminary Engineering (OPPE)**

6. **Maryland Department of Transportation State Highway Administration**

7. **<1 Hour Duration / Day or Night**

8. **1-4 Lane, 2-Way / Divided / Usable Shoulder**

9. **6-Lane, 2-Way / Divided / Usable Shoulder**

10. **Postion Speed: 35 or 40 MPH**

11. **Shoulder Closure**

Figure 16B
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36'' TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

7 CONES @ 40' SPACING = 240'

ARROW PANEL OPTIONAL

7 CONES @ 40' SPACING = 240'

360' @ 45 MPH
440' @ 50 MPH
520' @ 55 MPH

ROAD WORK AHEAD

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
≥ 4-LANE, 2-WAY / DIVIDED / USABLE SHOULDER
POSTED SPEED: 45, 50 OR 55 MPH
SHOULDER CLOSURE

CONES SPACED AT 40' TYP.

Figure 16C
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
1-LANE, 1-WAY / RAMP / USABLE SHOULDER
POSTED SPEED: 35 OR 40 MPH
RAMP SHOULDER CLOSURE

Figure 17A
Figure 17B

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK

- 1 HOUR DURATION / DAY OR NIGHT
- 1-LANE, 1-WAY / RAMP / USABLE SHOULDER
- POSTED SPEED: 45, 50 OR 55 MPH
- RAMP SHOULDER CLOSURE

TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR RotATING LIGHT / STOP VEHICLE

CONES SPACED AT 40' TYP.

FACE OF CURB OR EDGE OF TRAVEL LANE

5 CONES @ 40' SPACING = 160'

360' @ 45 MPH
440' @ 50 MPH
520' @ 55 MPH

360' @ 45 MPH
440' @ 50 MPH
520' @ 55 MPH

7 CONES @ 40' SPACING = 240'

OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A MINI ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT / TOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
1-LANE, 1-WAY / RAMP / USABLE SHOULDER
POSTED SPEED 20, 25 OR 30 MPH
RAMP SHOULDER CLOSURE

Figure 17C
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A MINI ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT / STOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOURS DURATION / DAY OR NIGHT
1-LANE, 1-WAY / RAMP / USABLE SHOULDER
POSTED SPEED: 35 OR 40 MPH
RAMP SHOULDER CLOSURE

Figure 17D
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- Work Area / Lane Intrusion
- 36” Traffic Cone
- Traffic Spotter
- Advanced Warning Sign
- Type A (Min) Arrow Panel
- Use Caution-Mode Display on Arrow Panel
- Shadow Vehicle with High-Intensity Flashing or Rotating Light atop Vehicle

Optional Configuration with Two Shadow Vehicles.

OPTIONAL
Arrows Panel

FACE OF CURB OR EDGE OF TRAVEL LANE

7 Cones @ 40' Spacing = 240'

360' @ 45 MPH
440' @ 50 MPH
520' @ 55 MPH

Ramp Narrows

Maryland Department of Transportation
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OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 Hour Duration / Day or Night
1-Lane, 1-Way / Ramp / Usable Shoulder
Posted Speed: 45, 50 or 55 MPH
Ramp Shoulder Closure

Figure 17E
Figure 18

Maryland Department of Transportation
State Highway Administration
Office of Planning & Preliminary Engineering (OPPE)

1-LANE, 1-WAY / RAMP / USABLE SHOULDER
POSTED SPEED: 20, 25 OR 30 MPH
RAMP SHOULDER CLOSURE

TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:

36" TRAFFIC CONE
TRAFFIC SPOTTER
TYPE A (MIN.) ARROW PANEL
ADVANCED WARNING SIGN
SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING LIGHT AT TOP VEHICLE
SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING LIGHT AT TOP VEHICLE

OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A MINI ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT / TOP VEHICLE

5 CONES @ 40' SPACING = 160'
7 CONES @ 40' SPACING = 240'

Figure 18A
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:

- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A MINI ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY Flashing or Rotating LIGHT AT TOP VEHICLE

5 CONES @ 40' SPACING = 160'
7 CONES @ 40' SPACING = 240'

360' @ 45 MPH
440' @ 50 MPH
520' @ 55 MPH

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)
TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
1-LANE, 1-WAY / RAMP / USABLE SHOULDER
POSTED SPEED 45, 50 OR 55 MPH
RAMP SHOULDER CLOSURE

Figure 18B
SHOULDER EDGE LINE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
1-LANE, 1-WAY / 1-RAMP / USABLE SHOULDER
POSTED SPEED: 20, 25 OR 30 MPH
RAMP SHOULDER CLOSURE

Figure 18C

CONES SPACED AT 40' TYP.
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:

- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A MINI ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

USE EITHER A OR B

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

Figure 18D
SHOULDER EDGE LINE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36” TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN.) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT - STOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

FACE OF CURB OR EDGE OF TRAVEL LANE

7 CONES @ 40' SPACING = 240'

7 CONES @ 40' SPACING = 240'

180'

360' @ 45 MPH
360' @ 45 MPH

440' @ 50 MPH
440' @ 50 MPH

520' @ 55 MPH
520' @ 55 MPH

FACE OF CURB OR EDGE OF TRAVEL LANE

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
1-LANE, 1-WAY / 1-RAMP / USABLE SHOULDER
POSTED SPEED: 45, 50 OR 55 MPH
RAMP SHOULDER CLOSURE

CONES SPACED AT 40' TYP.
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING ROTATING LIGHT ATOP VEHICLE

Figure 19

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STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
1-LANE, 1-WAY / RAMP / NO OR NARROW SHOULDER
POSTED SPEED: 20, 25 OR 30 MPH
LANE ENCROACHMENT

CONES SPACED AT 40' TYP.
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

19A

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STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
1-LANE, 1-WAY / RAMP / NO OR NARROW SHOULDER
POSTED SPEED: 35 OR 40 MPH
LANE ENCROACHMENT

Figure 19A
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN.) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT AT TOP VEHICLE

OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
1-LANE, 1-WAY / RAMP / NO OR NARROW SHOULDER
POSTED SPEED: 45, 50 OR 55 MPH
LANE ENCROACHMENT

Figure 19B
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MINI) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT / TOP VEHICLE
- OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

1-LANE, 1-WAY / RAMP / NO OR NARROW SHOULDER
POSTED SPEED: 20, 25 OR 30 MPH
LANE ENCROACHMENT

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
1-LANE, 1-WAY / RAMP / NO OR NARROW SHOULDER
POSTED SPEED: 20, 25 OR 30 MPH
LANE ENCROACHMENT

Figure 19C
TRAFFIC COUNTER TUBE WORK TYPICAL APPLICATION

KEY:
- WORK AREA / LANE INTRUSION
- 36" TRAFFIC CONE
- TRAFFIC SPOTTER
- ADVANCED WARNING SIGN
- TYPE A (MIN) ARROW PANEL
- USE CAUTION-MODE DISPLAY ON ARROW PANEL
- SHADOW VEHICLE WITH HIGH-INTENSITY FLASHING OR ROTATING LIGHT STOP VEHICLE

OPTIONAL CONFIGURATION WITH TWO SHADOW VEHICLES.

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
OFFICE OF PLANNING & PRELIMINARY ENGINEERING (OPPE)

TRAFFIC COUNTER TUBE WORK
<1 HOUR DURATION / DAY OR NIGHT
1-LANE, 1-WAY / RAMP / NO OR NARROW SHOULDER
POSTED SPEED: 45, 50 OR 55 MPH
LANE ENCROACHMENT

Figure 19E