

# CHAPTER 11

## TRAFFIC CONTROL DESIGN

### 11.1 GENERAL

- A. All traffic control devices shall be in accordance with the requirements of the current U.S. Department of Transportation, Manual on Uniform Traffic Control Devices, (MUTCD), the Virginia Department of Transportation, Supplement to the MUTCD and the Virginia Department of Transportation Work Area Protection Manual, including all changes and revisions to date for the documents.
- B. All material and workmanship shall be in accordance with the current Virginia Department of Transportation (VDOT), Road and Bridge Standards and the City of Chesapeake, Public Facilities Manual, Volumes II & III Standards and Specifications.
- C. Whenever a development is projected to produce traffic conditions that will cause intersections to exceed the MUTCD warrants for a traffic signal, then the developer will be required to design and install traffic signals at those intersections.
- D. Traffic control devices shall include all signs, pavement markings, traffic signals, barricades, drums, cones, lighting and other devices necessary for the safe and orderly flow of vehicular and pedestrian traffic. The use of these devices shall be in accordance with the MUTCD and the Virginia Department of Transportation, Supplement to the MUTCD, including the Virginia Work Area Protection Manual.

### 11.2 STREET NAME SIGNS

- A. Street name signs shall have silver reflective message and border on a blue reflective background for all public streets. Signs for private streets shall have black lettering and border with a yellow reflective background.
- B. The manufacture, installation and mounting hardware for street name signs shall be in accordance with the City of Chesapeake Public Facilities Manual, Volume III – Technical Specifications for Street Name Signs.
- C. The sign size, mounting height and location shall be as required in the City's Specification for Street Name Signs. (PFM, Volume III)

Additional requirements may be required for street name signs at signalized intersections.

### 11.3 ROAD SIGNS

- A. All traffic signs shall be in accordance with VDOT Road and Bridge SpecificationsTr, Section 701.

- B. Road sign posts shall be 2" galvanized steel square tube or 4" x 4" salt treated wood post except for delineators and signs 2.5 square feet or less which may be mounted on galvanized "U" Channel. Wooden posts shall conform to VDOT Road and Bridge Specifications, Section 244.
- C. Sign height and location shall be as required in the MUTCD unless otherwise specified on the plans or in the specifications.
- D. Residential street, the street name signs shall be erected on the northeast quadrant of the intersection unless the sight distance is restricted or an obstruction prohibits the use of this location. In such a case the southwest quadrant shall be used. At intersections where stop or yield sign is to be located, the street name should be mounted on the same post in one quadrant.
- E. At signalized intersections with signals mounted on mast arms, the street name sign shall be mounted on the mast arm between the first and second signals from the pole.

#### 11.4 CONSTRUCTION WORK AREA CONTROL

- A. All signing, plastic drums, barricades, pavement markings and other traffic controls shall be in accordance with the VDOT Virginia Work Area Protection Manual and Part VI of the MUTCD, including all changes and revisions to date for these documents.
- B. Work shall be phased so as to maintain access to all properties, especially for emergency vehicles. It shall also be phased to minimize delays to school bus traffic.
- C. Working hours are from 9:00 a.m. to 4:00 p.m. Monday through Friday. No weekend, holiday, or night work is allowed unless approved by the Department of Development & Permits.
- D. The Contractor shall provide all traffic control devices (signs, flag persons, etc.) necessary to ensure proper safety and vehicular control.
- E. The Development & Permits Director or their representative are authorized to stop any construction or maintenance activity that is not properly signed, barricaded, and/or when deemed necessary in the best interest of the general public for the safe and orderly flow of traffic.
- F. Plastic drums shall be used in the traveled roadway and shoulder where there is a risk of being struck by vehicles. Where the traveled roadway is not wide enough for the use of drums as delineation, then vertical panels may be used. Type I and Type II barricades (MUTCD) are NOT permitted in or along the edge of the roadway or shoulder.
- G. Protective devices, plastic drums, vertical panels, barricades; shall be in accordance with the VDOT Work Area Protection Manual and the MUTCD. Devices that are used to protect the work area, equipment or other hazardous areas at night shall have

flashing amber lights. Plastic drums or vertical panels used to delineate the lanes at night shall have steady burn amber lights.

- H. Pavement markings shall be applied when traffic is to be channeled around a work area for an extensive length of time. Retro-reflectors may be required for added visibility.
- I. Where primary highways or major roadways are either overlaid or paved, pavement markings shall be installed promptly after completing the paving and prior to the removal of temporary traffic control. If the construction requires changes to be made to the final traffic pattern, then the asphalt pavement surface shall not be applied until all other construction is completed. Temporary pavement markings shall be applied to the base coat. All pavement markings, whether permanent or temporary, shall be reflective.
- J. Pavement markings that are in conflict with the movement of traffic, are not needed for the movement of traffic, or are confusing to the motorist shall be eradicated.
- K. Open holes or trenches shall not be left unattended or unprotected whenever work is not being performed. Open holes or trenches shall be backfilled with the roadway and/or shoulder restored to all traffic by the end of each workday.
- L. Two-way traffic will be maintained at all times during construction unless the City's Traffic Engineering Division has approved a lane closure or a temporary street closure. If there is an approval from Traffic Engineering for a lane closure or a temporary street closure, all lanes of traffic will be reopened to traffic at the conclusion of each construction day unless a 24-hour temporary street closure is approved.
- M. The contractor shall check all traffic control devices and work zones before, during, and after each work day to ensure proper operation. The contractor shall be responsible for checking all traffic control devices for proper operation on weekends, holidays, or any non-working day.
- N. No construction materials shall be stockpiled or equipment left parked/unattended within the "Clear Zone" as defined by the AASHTO "Roadside Design Guide" while work is not being performed.
- O. All damaged or removed traffic signal appurtenances, traffic control devices, and/or pavement markings shall be restored by the contractor. Contact the Department of Public Works – Traffic Engineering Division at (757) 382-6300 at least 48 hours prior to open cutting near signalized intersections.

## 11.5 TRAFFIC SIGNALS

- A. Traffic signals shall conform to size, configuration and location as specified in Section IV of the MUTCD.

- B. All traffic signal heads and pedestrian indicators with mounting hardware, steel poles, steel mast arms, controllers, controller cabinets, flashers, load switches, relays, malfunction management units, telemetry devices, emergency vehicle preemption, UPS battery backup systems, pedestrian buttons, electrical junction boxes, signal cable, wireless communications (spread spectrum), video detection, LED internally illuminated street name signs, concrete foundations, as well as all other related materials and equipment shall be in accordance with the standard City of Chesapeake Public Facilities Manual, Volume III - Technical Specifications.
- C. Traffic signal mast arm poles with rigid mounted signal heads shall be used except in those locations where the geometry would make it impractical. The signal shall be tethered at the bottom if span wire mounting is used. The signal layout for the intersection should generally conform to a box configuration.
- D. Traffic signal poles and street lighting shall be coordinated at signalized intersections so the traffic signal pole may be used for the street light fixture in order to minimize on the number of poles at an intersection. Luminaries shall be 400 watt H.P.S. supplied and installed by the contractor. Service connection for the lighting will be at the signal service disconnect box.
- E. Traffic controllers shall be compatible with the City's Traffic Management Center central computerized signal system software (MIST) in strict accordance with the City's Traffic controller specifications.
- F. Three and four section signal heads shall be connected directly to the associated control cabinet signal terminals by five conductor-signal cables. Five section signal heads shall be connected by seven conductor-signal cables. All other signal heads shall be connected by the number conductor signal cable specified on the plans with each signal face connected directly to the designated control cabinet signal terminals. Cable splices are unacceptable.
- G. Vehicle detection will be provided by video imaging in strict accordance with the City's video detection specifications.
- H. All signal service connections will be metered.

#### 11.6 PAVEMENT MARKINGS

- A. Pavement markings shall be in accordance with the MUTCD, the VDOT Supplement to the MUTCD and the City's Public Facilities Manual Volume III - Technical Specifications for pavement markings and markers as to the type, color and layout for the specific location the marking is applied.
- B. Solid and/or skip lines for dividing lanes, marking edges, channelizing and forming islands shall be durable high quality pavement markings, Type B, Class I, II or III in accordance with VDOT Road and Bridge Specifications, Section 704.
- C. Crosswalk, stop line and diagonal line markings shall be of preformed plastic pavement marking material, Type B, Class IV, in accordance with VDOT Road and

Bridge Specifications, Section 704.

- D. Elongated arrows and word messages shall be constructed from preformed plastic pavement marking material, Type B, Class IV in accordance with VDOT Road and Bridge Specifications, Section 704 and the MUTCD.
- E. Retro-reflectors, raised pavement markers, shall be used where added visibility is required. These markers are to be used in conjunction with pavement markings, not to replace them. Reference may be made to the MUTCD Handbook, Section 3E.
- F. Temporary pavement markings used in construction areas to guide the flow of traffic may be traffic paint, Type A, with glass beads in accordance with VDOT Specifications, Sections 740 and 242 respectively. Raised pavement may be required where added visibility is necessary.

#### 11.7 TRAFFIC CONTROL EASEMENTS

When traffic control devices are located out side of the public right-of-way then a traffic control easement for maintaining these devices shall be granted the City of Chesapeake.