

SECTION 512

MAINTAINING TRAFFIC

I. GENERAL

1.1 DESCRIPTION OF WORK

The Contractor shall furnish all materials, equipment and labor necessary to install and maintain all traffic control devices required for protecting workers and vehicular and pedestrian traffic through areas of construction; maintaining public and private entrances and mailbox turnouts; constructing and obliterating detours; and, providing positive guidance to protect the traveling public within the limits of the project and over detours that are not a part of the state or City highway system; in accordance with the Contract Documents, the MUTCD, the Virginia Supplement to the MUTCD, the *VDOT Road and Bridge Standards*, *VDOT Road and Bridge Specifications*, and the *Virginia Work Area Protection Manual (VWAPM)*, whichever is more restrictive. This work shall also consist of removing and disposing of roadway pavement markings in accordance with these specifications and in reasonably close conformity to the lines and grades shown in the Contract Documents or as established by the Owner.

1.2 MATERIALS

- A. Materials salvaged from the roadway shall be used in the maintenance of traffic insofar as possible. Material shall conform to the requirements of the applicable specifications.
- B. Signalization, barricades, channelizing devices, safety devices, and pavement markings shall conform to the requirements specified in Sections 700 and 704, and other applicable *VDOT Road and Bridge Specifications* Division VII sections, Traffic Control Devices, and the *VWAPM* except where otherwise indicated. Retroreflective surfaces shall conform to the requirements of *VDOT Road and Bridge Specifications* Sections 235, 238, 247, and 702, as applicable.
- C. Temporary pavement markers shall conform to the requirements of *VDOT Road and Bridge Specifications* Section 235.
- D. Flexible temporary pavement markers (FTPMS) shall consist of products from the VDOT Materials Division Approved Products List 22. All FTPMS shall be new. FTPMS are suitable for use one year after the date of receipt when stored in accordance with the manufacturer's recommendations.
- E. Temporary Construction pavement markings shall conform to the requirements of *VDOT Road and Bridge Specifications* Section 246.
- F. Temporary Construction signs shall conform to the requirements of *VDOT Road and Bridge Specifications* Section 247, 701, and with the provisions herein.

Sign substrates for rigid temporary (construction) signs mounted on posts and temporary (construction) sign panels for overlays shall be either fabricated of aluminum at least 0.080-inch thick, which shall be smooth, flat, and free of metal burrs and splinters; 0.4-inch-thick corrugated polypropylene; 0.4-inch-thick corrugated polyethylene plastic; or 0.079-inch-thick aluminum/plastic laminate.

Sign substrates for signs mounted on drums, Type 3 barricades, and portable sign stands shall be as specified below and shall be the same material that was used when the device was tested and found to be in compliance with the requirements of National Cooperative Highway Research Program (NCHRP) Report 350, Test Level 3, or of other materials allowed in the FHWA acceptance letter.

Sign Substrates for Type 3 Barricades and Portable Sign Stands

Rollup sign

0.4 inch thick corrugated polypropylene or polyethylene plastic
0.079 inch thick aluminum/plastic laminate

Sign Substrates for Drums

0.4 inch thick corrugated polypropylene or polyethylene plastic

II. EXECUTION

The Contractor shall execute the Work in accordance with the latest edition of the VDOT *Road and Bridge Specifications*, Section 512.03, Procedures. Any references to "Engineer" or VDOT personnel shall mean the "Owner".

III. MEASUREMENT FOR PAYMENT

- A. Flagger service will be measured in hours of operation as authorized or approved by the Owner. Authorized flagger service shall be according to the VWAPM and will be paid for at the contract unit price per hour. This price shall include paddles and safety equipment.
- B. Automated flagger assistance device (AFAD) will be measured in hours of operation per each AFAD as authorized or approved by the Owner. When the contract requires the use of the AFAD, it will be paid for at the contract unit price per hour for each device used. This price shall include furnishing or mobilizing the AFAD to the project, services of trained AFAD operator(s), channelizing devices, safety equipment, fuel, necessary warning devices and maintenance. Separate payment for the certified flagger operating the AFAD will not be made.

When an AFAD is used for the Contractor's convenience, each AFAD will be paid for as Flagger Service and will be measured in hours as authorized or approved by the Owner.

- C. Pilot vehicles will be measured in hours of actual use, as required by the Owner, and will be paid for at the contract unit price per hour. This price shall include vehicles, drivers, necessary warning devices, fuel, and maintenance.
- D. Electronic arrows will be measured in hours of actual use, as required by the Owner, except when used as an alternative to rotating amber light or alternating high intensity amber flashing light. In such cases, payment will not be made for electronic arrows. Electronic arrows will be paid for at the contract unit price per hour. This price shall include arrow board, fuel, maintenance, and a truck or trailer having flashing amber warning lights.
- E. Warning lights used on signs will be measured in days of actual use for the type specified and will be paid for at the contract unit price per day. This price shall include providing, maintaining, relocating, and removing warning lights as needed. Warning lights installed on traffic barrier service will not be measured for separate payment, but the cost thereof shall be

included in the contract linear foot price for traffic barrier service.

- F. Group 1 channelizing devices will not be measured for separate payment. The cost thereof shall be included in the price for other appropriate pay items.
- G. Group 2 channelizing devices, as required by the Owner, will be measured and paid for at the contract unit price per day. This price shall include maintaining devices, removing devices when no longer required, and signs. When Group 2 channelizing devices are moved to a new location or are removed and re-installed at the same location, they will be measured for separate payment. However, when the Group 2 channelizing devices are moved from one lane to another by simply moving the devices across the lane edge line without removal from the roadway, no additional payment will be made.
- H. Pedestrian barricade devices will be measured in linear feet and will be paid for at the contract unit price per foot per location. This price shall include maintaining, sand bag ballast, and removing when no longer required. When pedestrian barricade is moved to a new location as directed or approved by the Owner, the relocated barricade will be measured for separate payment.
- I. Traffic barrier service will be measured in linear feet and will be paid for at the contract unit price per foot per location. This price shall include maintaining Type B warning lights, barrier delineators, barrier panels, fixed object attachments, patching restraint holes, and removing when no longer required. When fixed object attachments are used on traffic barrier service in locations where existing guardrail is in place, this price shall also include restoring existing guardrail to its original condition. When traffic barrier service is moved to a new location as directed or approved by the Owner, the relocated barrier will be measured for separate payment. Payment for traffic barrier service will not be made until the work behind the barrier is actively pursued.
- J. Traffic barrier service guardrail terminal will be measured and paid for in units of each or linear feet, as applicable, which price shall include furnishing, installing, and removing when no longer needed. When traffic barrier service guardrail terminal is moved to a new location, as directed or approved by the Owner, the relocation will be measured for separate payment.
- K. Impact attenuator service will be measured in units of each and will be paid for at the contract unit price per each. This price shall include impact attenuator and object marker. Impact attenuators used with barrier openings for equipment access will not be measured for separate payment but the cost thereof shall be included with other appropriate items. When impact attenuator service is moved to a new location, as directed or approved by the Owner, the relocated terminal will be measured for separate payment.
- L. Temporary traffic control signal will be paid for on a lump sum basis. This price shall include, but not be limited to, poles; span wire; conduit; conductor cable; traffic signal heads; backplates; hanger assemblies; necessary control items; vehicle detection; and, when approved, portable traffic control signal equipment. The price shall also include maintaining, adjusting, and aligning equipment; providing electrical service; utility company costs; and removing equipment when no longer required.
- M. Modify signal (Location) will be paid for at the contract lump sum price for the location specified in the Contract Documents. This price shall include, but not be limited to, supports; span wire; tether wire; conduit; conductor cable; traffic signal heads; backplates; hanger

assemblies; necessary control items; vehicle detection; uninterrupted power supply; and modifying existing or proposed signals as necessary to support temporary traffic alignments in various phases of project construction or, when approved, furnishing and installing portable traffic control signal equipment. The price shall also include supplying and installing supplemental signal equipment when necessary; maintaining, adjusting, and aligning signal equipment; plan development, inclusive of signal layout, signal timing, phasing, and sequencing; providing electrical service; utility company costs; and removing temporary equipment when no longer required.

N. Temporary construction pavement markings will be measured and paid for at the contract unit price per linear foot. This price shall include marking materials, preparing the surface, adhesive, maintaining, removing removable markings when no longer required, inspections, and testing. Those construction pavement markings found in need of reapplication in accordance with these requirements shall be reapplied by the Contractor at no additional cost to the Owner with the following exceptions:

1. Markings that have been under traffic for more than 90 days will be paid for at the contract unit price when needing reapplication unless the manufacturer's warranty coverage is still in effect.
2. Markings damaged by the Owner's snow removal or other maintenance and construction operations will be paid for at the contract unit price.

O. Temporary construction pavement message markings will be measured in units of each and will be paid for at the contract unit price per each. This price shall include marking materials, preparing the surface, adhesive, maintaining, removing removable markings when no longer required, inspections, and testing

P. Temporary pavement markers will be measured and paid for at the contract unit price per each. This price shall include furnishing and installing pavement markers, surface preparation, adhesive, maintaining and replacing lost or damaged markers, and removing the pavement markers and adhesive when no longer required.

Q. Eradication of existing pavement markings will be measured in linear feet of a 6 inch width or portion thereof as specified herein. Widths that exceed a 6 inch increment by more than 1/2 inch will be measured as the next 6 inch increment. Measurement and payment for eradication of existing pavement markings specified herein shall be limited to linear pavement line markings. Eradication of existing pavement markings will be paid for at the contract unit price per linear foot. This price shall include removing linear pavement line markings, cleanup, and disposing of residue.

R. Eradication of existing nonlinear pavement markings will be measured in square feet based on a theoretical box defined by the outermost limits of the nonlinear pavement markings as defined in Standard PM-10 of the *VDOT Road and Bridge Standards*. Nonlinear pavement markings shall include but not be limited to, arrows, images, symbols, and messages. Eradication of existing nonlinear pavement markings will be paid for at the contract unit price per square foot. This price shall include removing nonlinear pavement markings, cleanup, and disposing of residue.

S. Temporary detours will be measured in linear feet along the centerline of the detour; by individual components with the quantities shown in the Contract Documents as maintenance

of traffic items, in which the components will be measured in accordance with the applicable specifications; or by lump sum, as shown on the Bid form. This price shall include removing and restoring. When a pay item, temporary detour will be paid for at the contract unit price per linear foot. This price shall include excavating, aggregate materials, drainage items, grading, asphalt, maintaining and removing detour, disposing of surplus and unsuitable material, and restoring property.

- T. Aggregate material will be and paid for at the contract unit price per ton for the type specified. This price shall include preparing the grade and furnishing, placing, maintaining, and removing material as required.
- U. Type 3 barricades will be measured and paid for at the contract bid price per each for the width specified. Multiple 4-foot-wide Type III barricades may be used together to obtain the width being specified in the pay item. This price shall include the barricades; retroreflective sheeting; and maintaining, relocating to new locations, and removing the barricades when no longer required.
- V. Temporary construction signs installed for long term stationary temporary traffic control zone as defined by the *VWAPM*, will be measured in square feet and will be paid for at the contract unit price per square foot, or per each sign as indicated on the Bid form. This price shall include furnishing, installing, maintaining; covering, uncovering, relocating and removing temporary signs, temporary sign panels, sign panel bracing, sign supports, hardware, delineators, and flags. Payment based on square footage shall be compensation for the sign(s) for the duration of the project; multiple payments for the same sign used more than once will not be allowed. Temporary signs, portable sign supports and weights, and vehicle mounted signs, their supports and mounting hardware used for intermediate term, short -term, short duration and mobile work operations, as defined in the *VWAPM* will not be measured for payment; all costs for providing such signs shall be included with other items of work.
- W. Truck-mounted attenuator will be measured in hours of actual use and will be paid for at the contract unit price per hour. This price shall include the truck-mounted attenuator, support vehicle, vehicle warning lights, vehicle mounted signs, electronic arrow boards used in lieu of vehicle warning lights, and maintenance. Electronic arrow boards required on truck-mounted attenuator support vehicles in moving or mobile operations will be measured and paid for separately.
- X. Portable traffic control signal will be paid for on a lump sum basis. This price shall include portable traffic control signal equipment; installation; energy source; and maintaining, adjusting, aligning, removing, and relocating equipment.
- Y. Portable changeable message sign will be measured in hours of actual use and will be paid for at the contract unit price per hour. This price shall include mobilizing the units to the project, maintenance, operation, and repositioning the units.
- Z. Temporary curb ramp will be measured in units of each and will be paid for at the contract unit price per each. This price shall include detectable edging, landings, maintaining, and removing when no longer required. When the temporary curb ramp is moved to a new location as directed or approved by the Owner, the relocated temporary curb ramp will be measured for separate payment.

- AA. Temporary detectable warning surface will be measured in linear feet and will be paid for at the contract unit price per linear foot. This price shall include ADA compliant truncated domes, maintaining, and removing when no longer required
- BB. Portable temporary rumble strip (PTRS) will be measured in units of each and will be paid for at the contract unit price per each array consisting of three rumble strips. This price shall include installing, maintaining, removing and relocating throughout the life of the project.
- CC. Temporary detectable warning strip will be measured in linear feet and will be paid for at the contract unit price per linear foot. This price shall include ADA compliant truncated domes, maintaining, and removing when no longer required.
- DD. Basic Work Zone Traffic Control: Separate payment will not be made for providing a person in accordance with Section 105.14. The cost shall be incidental to other traffic control items.
- EE. Intermediate Work Zone Traffic Control: Separate payment will not be made for providing a person in accordance with Section 105. The cost shall be incidental to other traffic control items.

End of Section