

VIRGINIA DEPARTMENT OF TRANSPORTATION

LOCATION AND DESIGN DIVISION

INSTRUCTIONAL AND INFORMATIONAL MEMORANDUM

GENERAL SUBJECT: Construction Work Zone	NUMBER: IIM-LD-93.15
SPECIFIC SUBJECT: Safety Guidelines and Pay Items for Construction Work Zone	DATE: May 22, 2014
	SUPERSEDES: IIM-LD-93.14
APPROVAL:	B. A. Thrasher, P.E. State Location and Design Engineer Approved May 22, 2014

Changes are shaded.

CURRENT REVISION

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- This memorandum was revised to update the detail for Temporary Asphalt Median.
 - Instructions for Temporary Traffic Control Plans are in the Road Design Manual, Appendix A, Section A-8, and have been removed from this memorandum.
 - Instructions for Temporary Raised Pavement Markers are in the Virginia Work Area Protection Manual and have been removed from this memorandum.

EFFECTIVE DATE

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- This memorandum is effective upon receipt.
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POLICY

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- These guidelines are provided as a supplement to the Manual on Uniform Traffic Control Devices (MUTCD) and the Virginia Work Area Protection Manual.

- For guidelines on the design and application of barriers and other channelization devices, please consult Traffic Engineering Division's Virginia Work Area Protection Manual.
- Temporary Traffic Control Plans/Sequence of Construction Plans shall be developed and reviewed in accordance with the VDOT Road Design Manual, Appendix A, Section A-8.

CONSTRUCTION SIGNS

- The Department will furnish the Temporary Sign Panels necessary for maintenance of traffic in accordance with Section 512 of the current VDOT Road and Bridge Specifications. When the plans show this work "to be done by State Forces", the designer will specify "Furnish Construction Signs." This will clarify the scope of work to be done by State Forces. Summarize as follows:

WORK TO BE DONE BY STATE FORCES (NON-PARTICIPATING)
Furnish Construction Signs T.E.C.
Permanent Signs T.E.C.

BARRICADES AND CHANNELIZING DEVICES

- For guidelines for the use of Barriers and Channelization Devices, see VDOT's Virginia Work Area Protection Manual, Appendix A.
- A particular type of barrier or channelizing device shall be selected, or prohibited, only as authorized by the Construction Engineer and Traffic Engineer. This authorization is to be documented in the project files.

TRAFFIC BARRIER SERVICE, CONCRETE PARAPET

- Traffic Barrier Service Concrete (Single/Double) Face Parapet (Item Code 13495/13496) is used for temporary installation on bridge deck exteriors and other temporary applications where anchoring is required. Types are as follows:

- Single face: Used only when lane widths are insufficient for double face parapet. Specify "Single Face Parapet" on plans. Paid for as Meters (Linear Feet) of Traffic Barrier Service, Concrete Single Face Parapet.
 - Concrete Lateral Support: Use with single face parapet butting temporary concrete barrier service to bridge parapet. Paid for as Each, Traffic Barrier Service, Concrete Lateral Support.
 - Double face: Specify "Double Face Parapet" on plans. Paid for as Meters (Linear Feet) of Traffic Barrier Service, Concrete Double Face Parapet.
 - When Traffic Barrier Service Concrete Parapet is placed within two feet of a trenching operation four feet or greater in depth it must be anchored. Barrier shall be anchored in other areas as determined by the Engineer. For anchoring instructions, please contact the Central Office Road and Bridge Standards/Special Design Section.
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CONSTRUCTION PAVEMENT MARKINGS

- High Quality Markings (Type B)
 - Use in areas where roadway is to be resurfaced prior to changes in traffic pattern or where pavement is to be demolished and traffic patterns will not change before demolition.
- Temporary Tape (Type C)
 - Use in areas where roadway is to be resurfaced prior to changes in traffic pattern or where pavement is to be demolished and traffic patterns will not change before demolition.
- Removable tape (Type D)
 - Use in final roadway surfaces or in areas where traffic patterns are subject to change before the pavement is resurfaced.
- Installation:
 - Install as detailed in the Virginia Work Area Protection Manual in accordance with Section 704 of VDOT's Road and Bridge Specifications.
 - Install at locations shown on the Maintenance of Traffic/Sequence of Construction Plan and/or pavement marking plans and other locations as directed by the Engineer.

TEMPORARY RAISED PAVEMENT MARKERS

- Temporary Raised Pavement Markings shall be installed in accordance with Section 6F.87 of the latest edition of the Virginia Work Area Protection Manual.
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CONSTRUCTION PAVEMENT MESSAGE MARKING

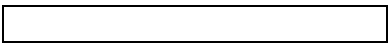
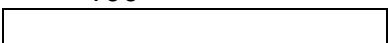

- Types:
 - High Quality Markings (Type B)
 - Temporary Tape (Type C)
 - Removable Tape (Type D)
 - Installation:
 - Install at locations shown on plans and other locations as directed by the Engineer.
 - Examples:
 - School Zone
 - R/R Crossing
 - Elongated Arrow
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ERADICATION OF EXISTING PAVEMENT MARKING

- Measurement for Payment
 - Measure in L.F. of 6" width increments.
 - Widths which exceed 6" increment by more than 1/2" will be measured as the next 6" increment.

<u>Strip Width</u>	<u>Linear Feet</u>
0.5" to 6.5"	Length
>6.5" to 12.5"	Length x 2
>12.5" to 18.5"	Length x 3

Example:

6.5"	100' 	= 100 L.F.
6.6"	100' 	= 100' x 2 = 200 L.F.
12.6"	100' 	= 100' x 3 = 300 L.F.

ERADICATION OF PAVEMENT MARKINGS

- Set up in Engineering Estimate under Group 9 Items (State Forces).
 - Use Finance Code 94.
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TRUCK MOUNTED ATTENUATOR (TMA)

- Truck Mounted Attenuators are to be provided in accordance with:
 - MUTCD
 - Virginia Work Area Protection Manual
 - Plans
 - Special Provision
 - Engineer's instructions
 - Payment to be made for hours of actual use of Truck Mounted Attenuator.
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IMPACT ATTENUATOR

- Impact Attenuators are not to be summarized for payment when used with barrier openings for equipment access. Reference VDOT's Road and Bridge Specifications, Section 512.
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IMPACT ATTENUATOR SERVICE, TYPES I, IA & II (For Temporary Installation)

- Type I:
 - Use with restricted widths
 - Use where traffic will be running close to shielded object
- Type IA:
 - Use with restricted widths
 - Use where traffic will be running close to shielded object
 - Use with 45 mph or lower Design Speed

- Type II:
 - Used where wide area of protection is necessary
 - Sand Barrel Configuration must be designed by the VDOT Road and Bridge Standards/Special Design Section.
 - Details for temporary installation are available from the Central Office Road and Bridge Standards/Special Design Section.
 - When requesting an insertable sheet, provide Road and Bridge Standards/Special Design Section with the following:
 - Print of plan sheets
 - Temporary Traffic Control Plans (if available)
 - Transmittal slip including the following:
 - Project number
 - Activity number
 - Anticipated operating speed
 - Anticipated advertisement date
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TEMPORARY ASPHALT MEDIANS

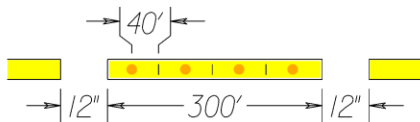
- Temporary asphalt medians are to be considered on two-lane, two-way temporary detours with speeds of 45 mph or less, as an alternative to portable concrete barriers because of:
 - Faster installation
 - Faster removal
 - Reduced traffic exposure to construction activities
- Temporary asphalt medians may be used on roadways with speed greater than 45 mph when recommended by an engineering study.
- All recommendations for the use of Temporary Asphalt Medians must have the written approval of the Regional Traffic Engineer.
- Each location should use geometrics that provide an operating speed equal to the existing roadway, where possible, to minimize operational problems. (See Geometric Design Standard GS-10)
- The Temporary Traffic Control Plans are to include the required temporary asphalt median layout details along with the "DETAIL OF TEMPORARY ASPHALT MEDIAN", available through the CADD cell library at dysmgeo.cel.
- When an intersection is within the TWTLO (Two-way, Two-lane Operation), special attention should be given to traffic control at the intersection, especially the side street approaches. Special attention may include extensive advance warning signing, supplemental pavement markings, and intersection control beacons.

DETAIL OF TEMPORARY ASPHALT MEDIAN

- The design detail below is available for applicable projects in the CADD cell library at dsymgeo.cel:
 - SDDTAM** Detail of Temporary Asphalt Median

DETAIL OF TEMPORARY ASPHALT MEDIAN

PLAN



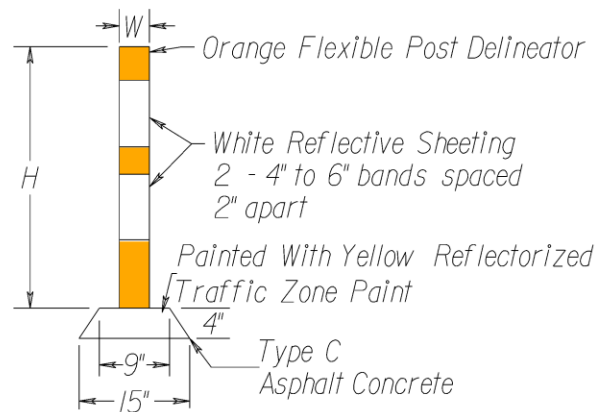
- Denotes Flexible Post Delineator
- | Denotes Temporary Pavement Marker

Spacing Between Flexible Post Delineators and Temporary Pavement Marker = 40 ft.

Spacing Between 12 inch Drainage Openings = 300 ft.
For Superelevated Curves, The Spacing Is As Directed By The Engineer.

Tubular Markers should be placed at the endpoints of the median for delineation during snow removal activities.

TYPICAL SECTION



$H = 36''$

$W = 2\frac{1}{4}'' \text{ Min.}, 4'' \text{ Max.}$

(Not to Scale)

(Rev. 12 - 2010)

POLICE PATROL (CONSTRUCTION / MAINTENANCE ZONES)

- The Commonwealth of Virginia, through an agreement between the Department of Transportation and the Department of State Police, has undertaken a program to preserve and enhance the safety of both the traveling public and members of the construction forces in their joint use of roadway facilities that are undergoing reconstruction.
- This program provides safety enhancement through the employment of extraordinary traffic surveillance/enforcement in the construction zones by State Trooper Patrols.
- The objective is to enforce proper speed limits in work zones where traffic problems are evident or anticipated through highly visible presence of State Trooper Patrols.
- Police Patrols will not flag traffic, but will direct traffic in emergency situations, such as accidents. Troopers will operate in full uniform in a marked patrol vehicle.
- Correctable situations or conditions shall be reported by the trooper to the appropriate VDOT personnel. There shall be no direct contact between troopers and contractors. The District Administrator or staff representative makes all contacts with State Police, including notice to terminate services. Communication shall be maintained between VDOT and the State Police throughout construction of project.
- Enhanced enforcement must be provided at appropriate phases of construction and times of greatest need (blocked lanes, closed shoulders, etc.).
- At Field Inspection the need for police enforcement will be discussed along with the Maintenance of Traffic/Sequence of Construction Plan. The decision to request Police Patrol assistance will be based on engineering experience and judgment, traffic volumes and speeds, work zone geometrics, accident data, and other factors based on the District personnel's knowledge of the area. A tentative decision will be made and preliminary estimates prepared.
- A final decision is made at the Pre-Advertisement meeting, determining estimated hours and hourly rates. A State Police representative should attend the Pre-Advertisement meeting. The District Administrator will forward all information to the State Police Area Sergeant.
- Final arrangements are made with the State Police following the Pre-Construction meeting based on the contractor's approved method of operation.
- Pay Item:
 - Specify Police Patrol in estimate under Group 9 Items (State Forces)
 - Use same Finance Code as main part of estimate

PAY ITEMS

<u>Pay Item</u>	<u>Pay Unit</u>	<u>Item Code</u>
Pilot Vehicles	Hours	10495
Traff. Barrier Serv., Conc., Single Face Par. MB-10A	L.F.	13495
Traff. Barrier Serv., Conc., Double Face Par. MB-11A	L.F.	13496
Traff. Barrier Serv. Guardrail Terminal (St'd GR-7)	Each	13594
Traff. Barrier Serv. Guardrail Terminal (St'd GR-8, Type I)	Each	13596
Traff. Barrier Serv. Guardrail Terminal (St'd GR-8, Type II)	Each	13598
Impact Attenuator Service, Type I	Each	13611
Impact Attenuator Service, Type I – A	Each	13630
Impact Attenuator Service, Type II – [X]	Each	13612-26
[X] = Show number of modules (1 through 15)		
Crusher Run Aggr. No. 25 or 26	Ton	14260
Truck Mounted Attenuator (TMA)	Hour	24272
Type III Barricades	Each	24150/52
Furnish Portable Changeable Message Sign	Each	24277
Portable Changeable Message Sign	Hour	24279
* Group 2 Channelizing Devices	Day	24278
* Shown in the "Guidelines" as Barricades and Channelizing Devices, Group 2. Group I Channelizing Devices are included items and are not to be set up as pay items. The Barrier Vertical Panels and Barrier Delineators are included items and are not to be set up as a pay item.		
Electronic Arrow	Hour	24281
Flagger Service	Hour	24282
** Police Patrol	TEC	24283
** TEC (Total Estimated Cost) based on number of estimated hours along with hourly rate required (See F.I. Recommendations)		
Temporary Asphalt Median	L.F.	24285
Flexible Post Delineator	Each	24286
Warning Light, Type A	Day	24287
Warning Light, Type B	Day	24288
Warning Light, Type C	Day	24289
Traffic Barrier Service, Concrete	L.F.	24290
Traffic Barrier Service, Concrete Lateral Support	Each	24292
Traffic Barrier Service, Conc. Single Face	L.F.	24296
Traffic Barrier Service, Conc. Double Face	L.F.	24297
Traffic Barrier Service Guardrail GR-2	L.F.	24300
*** Temporary Detour	L.F.	24305/10
*** St'd. GS-10 Type A, or B. For Type C, D, E and F Detours, use individual pay items.		

<u>Pay Item</u>	<u>Pay Unit</u>	<u>Item Code</u>
Furnish Construction Signs	TEC	50001
Eradication of Pavement Marking (State Forces)	TEC	50006
Eradication of Existing Pavement Marking	L.F.	54105
Temporary Pavement Marker (One-Way)	Each	54240
Temporary Pavement Marker (Two-Way)	Each	54242
		54412/15
Construction Pavement Marking (<u>Type, Width</u>)	L.F.	& 54430/42
		54465/71,
		& 54483/89
Construction Pavement Message Marking (Type & Message)	Each	54421/25,
		54446/62 &
		54473/81
Construction Pavement Marking (Type E) (6" – 24")	L.F.	54466-54564
Traffic Barrier Service, Concrete (Bridges)	L.F.	67110
Traffic Barrier Service, Conc. Single Face Par.	L.F.	68760
Traffic Barrier Service, Conc. Double Face Par.	L.F.	68762

- In the event Aggregate Base Material or Asphalt Concrete is necessary for maintenance of traffic, a type specified in the permanent pavement design shall be required in a plan note.

QUANTITIES FOR MAINTENANCE OF TRAFFIC DURING CONSTRUCTION (NO DETOUR)

- Materials for maintenance of traffic during construction should be summarized in the plans and the following note should be shown on the plans where the maintenance of traffic is not maintained by means of a detour.
 - “Existing surface, aggregate base and subbase material, which will be demolished or obliterated during construction and which is suitable for maintenance of traffic, as determined by the Engineer, shall be salvaged and utilized for maintenance of traffic prior to the use of commercial materials. When not specified as a separate pay item, the removal and salvaging of existing surfaces and aggregate base and subbase material will be measured and paid for as Regular Excavation in accordance with Section 303 of the Specification.”
- The designer should contact the District Construction Engineer for guidance in summarizing materials.