



U.S. Department
of Transportation

**Federal Highway
Administration**

Mr Jz A7

Memorandum

Subject: **ACTION:** Interpretation on Application of
Downstream Tapers and Termination Areas in
Temporary Traffic Control Zones "(6-198(I) –
VA Tapers and Termination Areas – VDOT)" Date: April 2, 2004

From: Regina S. McElroy
Director, Office of Transportation Operations
To: Mr. Roberto Fonseca-Martinez
Division Administrator (HDA-VA)
Richmond, Virginia

Reply to
Attn. of: HOTO-1

*Ezell Husksey
for*

This is in response to several emails Ms. Martha C. Kapitanov of your staff had with the State of Virginia regarding the application of downstream tapers and termination areas in temporary traffic control zones. We have assigned this "official interpretation" memorandum with the designation of "6-198(I) VA Tapers and Termination Areas - VDOT." Please refer to this number on any follow-up contacts.

Request 1.

The first matter requests approval to show the downstream buffer space and taper in Figure 6C-1 and 6C-3 as "optional" in the States' Work Area Protection Manual (WAPM).

These two figures represent an example of all the "potential" components of a temporary traffic control plan (6C-1) and a "sample"(6C-3) of an application on a two-lane highway with one-way operation. Because they are not specific Typical Applications (TA's), optional **should not** be added to these Figures.

Figure 6C-1 - Component Parts of a Temporary Traffic Control Zone

This figure shows all the "potential" components of a temporary traffic control plan. It "does not" imply that everything shown in Figure 6C-1 will be included on every temporary traffic control plan.

Figure 6C-3 - Example of a One-Lane, Two-Way Traffic Taper

As Figure 6C-2 is an "example" of a one-lane two-way traffic taper, all the components shown in the figure will not necessarily occur in every temporary traffic control plan.



Request 2

The second matter/question is whether the TA's in Part 6H are Standards as the State has heard from another source.

The TA's in part 6H represent "minimum" solutions for the application for which a temporary traffic control plan is being developed. The text in the Support and Option statements in Section 6H.01(immediately following) contains the specific provisions.

Section 6H.01 Typical Applications**Support**

In general, the procedures illustrated represent minimum solutions for the situations depicted.

Option:

Other devices may be added to supplement the devices and device spacing may be adjusted to provide additional reaction time or delineation. Fewer devices may be used based on field conditions.

Note that the Option paragraph in 6H.01 allows additional devices to be placed and that there is conditional flexibility to adjust the spacing of the devices shown in the TA's. Fewer devices may also be used, based on field conditions. We suggest that if fewer devices are used, the rationale should be documented.

Therefore, unless there are related standard provisions in the notes for a TA, or that other standards in the MUTCD apply by default, the TA's in themselves are not standards. Further, the TA Notes typically contain Guidance, Option and Support provisions, which indicate that the TA's are not explicit standards in themselves.

Request 3.

The third matter requests approval to show the downstream buffer space and taper in Figure 6H-10 (TA-10) in the Virginia Work Area Protection Manual as optional.

The use of "optional" for the buffer space is consistent with the text in 6C.08 and therefore could be used in the Virginia Work Area Protection Manual. The downstream buffer space could, however, serve the useful purpose of work vehicle access to and from the activity area. This was noted as a problem when downstream tapers are used, and where the shoulder is inadequate to accommodate the work vehicles.

On the downstream taper, while the provisions in 6C.08 do indicate "optional," the two-lane one-way operations such as TA-10 and TA-11, represent conditions where a downstream taper should be used. Because one direction of traffic is in an opposing lane past the activity area, it is important to get them back in their appropriate lane as quickly as possible to avoid any conflicts with the opposing traffic. While the provisions in 6C.08 indicate the taper length should be approximately 100 feet per lane, the rationale for using the downstream taper in the two-lane one-way operations such as TA-10 and TA-11 is amplified by showing the taper length of 100 feet as a maximum length.

Section 6C.08 Tapers**Option:**

Tapers may be used in both the transition and termination areas. Whenever tapers are to be used in close proximity to an interchange ramp, crossroads, curves, or other influencing factors, the length of the tapers may be adjusted.

Option:

A downstream taper may be useful in termination areas to provide a visual cue to the driver that access is available back into the original lane or path that was closed.

Guidance:

When used, a downstream taper should have a length of approximately 30 m (100 ft) per lane with devices placed at a spacing of approximately 6.1 m (20 ft).

Also note that in the Standard provision in 6C.07 Termination Area, while a Termination Area is required for any temporary traffic control plan, there is flexibility in what the termination area consists of. The TA's throughout 6H reflect this flexibility as indicated in the following standard.

Section 6C.07 Termination Area**Standard:**

The termination area shall be used to return road users to their normal path. The termination area shall extend from the downstream end of the work area to the last TTC device such as END ROAD WORK signs, if posted.

Other than the two-lane one-way operation then, the "termination area" may in some applications be just an END ROAD WORK sign posted at a distance determined by the temporary traffic control plan design beyond the end of the activity area/work space. TA-6 on page 6H-17 is one example.

Thank you for the opportunity to clarify and interpret these matters with you. If you have any further questions related to these interpretations, please contact Mr. Peter F. Rusch at 608-239-1852.

cc: Mr. Roger Wentz, ATSSA

Xu, Guan

From: Rusch, Peter
Sent: Wednesday, March 10, 2004 8:15 PM
To: Xu, Guan
Cc: Huckaby, Ernest
Subject: FW: Figure 6C-3 in the 2003 MUTCD

Hi Guan

Per Ernie's request

Pete

-----Original Message-----

From: Kapitanov, Martha
Sent: Wednesday, March 10, 2004 7:56 AM
To: Kapitanov, Martha; Rusch, Peter; Huckaby, Ernest
Subject: RE: Figure 6C-3 in the 2003 MUTCD

Any answers -thanks

Martha C. Kapitanov
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Fax (804) 775-3356

-----Original Message-----

From: Kapitanov, Martha
Sent: Wednesday, February 25, 2004 12:41 PM
To: Rusch, Peter; Huckaby, Ernest
Subject: FW: Figure 6C-3 in the 2003 MUTCD
Importance: High

Pete/Ernie:
Please send me headquarters/MUTCD team interpretation. Thanks

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-----Original Message-----

From: Growney, Jim
Sent: Wednesday, February 25, 2004 11:03 AM
To: Kapitanov, Martha

3/11/2004

Cc: Huckaby, Ernest; Rusch, Peter
Subject: RE: Figure 6C-3 in the 2003 MUTCD

Martha,

I would have to defer to Pete or Ernie for any formal interpretation as they represent the official FHWA MUTCD Team, but will give you my opinion on David's question to use as you see fit.

In Section 6C.07 the national MUTCD states, as a Standard, that "The termination area shall be used to return road users to their normal path." However, the text does not seem to state exactly what is required in the termination area. Section 6C.07 states, "A longitudinal buffer space may be used between the work space and the beginning of the downstream taper"; and Section 6C.08 states, "Tapers may be used in both the transition and termination areas." Also, a downstream taper is identified as an Option in this Section. Therefore, as per the MUTCD text, both a buffer space and a taper are optional in the termination area of the temporary traffic control (TTC) zone.

To me, the Figures in Part 6 are provided as examples of TTC zone layouts. One needs to refer to the text in order to determine what are Standards, Guidance and Options. I believe it is acceptable for VA DOT to identify the second buffer and downstream taper as Optional in any figure they develop for the VA Work Area Protection Manual. However, I would point out to them that the national MUTCD does require a termination area to the TTC zone. Their manual should identify what TCDs need to be included as a minimum in their TTC zone termination areas.

Jim

James A. Growney, Highway Safety Engineer

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-----Original Message-----

From: Kapitanov, Martha
Sent: Monday, February 23, 2004 10:24 AM
To: Rusch, Peter; Growney, Jim
Cc: Huckaby, Ernest
Subject: FW: Figure 6C-3 in the 2003 MUTCD
Importance: High

Good morning Peter and Jim,
VDOT has an MUTCD supplement of Part 6, which is call VA work area protection manual. They have sent us a request, and I will like to have your in put, before we take any decision. Please see the following messages and please respond to me by Friday, February 27, 2004. Thank you and have a great day!

Martha C. Kapitanov
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-----Original Message-----

From: Rush, David B. [mailto:David.Rush@VirginiaDOT.org]
Sent: Wednesday, February 18, 2004 9:22 AM
To: Kapitanov, Martha
Cc: Moseley, Reginald M.
Subject: RE: Figure 6C-3 in the 2003 MUTCD
Importance: High

Martha

This same situation occurs for Figure 6C-1 also (two buffers shown, downstream taper shown). We would like to show the second buffer and downstream taper as "optional" in this figure to match the written description.

Thanks
David

-----Original Message-----

From: Rush, David B.
Sent: Tuesday, February 17, 2004 2:05 PM
To: Kapitanov, Martha
Cc: Mammano, Vincent
Subject: Figure 6C-3 in the 2003 MUTCD

Hello Martha.

In Figure 6C-3 in the 2003 MUTCD (**Examples of a One-Lane, Two-Way Traffic Taper**) the national committee is now showing a Buffer Space and a Downstream Taper on the north end of the closed lane activity area. I don't see where these are listed as "Optional" items in this figure, however, in the text on page 6C-5 (top of page) they are described as an "Option" item and "may be used". My question is, ***Do we need to show this second buffer in a flagging layout as show in this figure? Also, Is the downstream taper also optional?*** The text on page 6C-8 describes downstream tapers as an "Option" item and states they "may be useful to provide a visual cue to the driver that access is available back into the original lane or path that was closed". In conversations with some folks at ATSSA, they consider everything shown in Figure 6C-3 as "Standard" minimum items which "shall be used". If that's the case, the text does not agree with the figure.

I would like to show **Figure 6C-3**, as well as **6H-10 (TA-10)**, with "Optional" beside the second buffer space and the downstream taper. Normally on two-lane roadways, you do not have a shoulder wide enough to drive on, and construction equipment must exit the work zone from the end of the activity area. A downstream taper would prevent this, and make slow moving equipment/vehicles to pull into traffic. We will show the flagger in the southbound lane a minimum of 200 feet back from the end of the channelizing devices (currently no minimum distance shown), and reference Table 6C-2 (Stopping Sight Distance as a Function of Speed) for greater placement distances for posted speeds of 35 mph and greater.

Please advise if you concur with these proposed changes to our Virginia Work Area Protection manual.

Thanks,
David Rush
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