



1200 New Jersey Avenue, SE.
Washington, DC 20590

December 4, 2008

In Reply Refer To: HOTO-1

Mr. Roger Wentz
President and CEO
American Traffic Safety Services Association
15 Riverside Parkway, Suite 100
Fredericksburg, VA 22406-1022

Dear Mr. Wentz:

Thank you for your letter of November 12, 2008, requesting an interpretation on the use of non-retroreflective warning signs in temporary traffic control zones.

We have reviewed all applicable sections of Part 2 (Signs) and Part 6 (Temporary Traffic Control) and believe the intent of the 2003 Manual on Uniform Traffic Control Devices is to allow the use of non-retroreflective signs for daytime only operations in temporary traffic control zones. The following Standard statement in Section 6F.02 supports this interpretation through the inclusion of the phrase "used at night:"

Standard:

All signs used at night shall be either retroreflective with a material that has a smooth, sealed outer surface or illuminated to show the same shape and similar color both day and night.

There are also additional standards in Section 6G.02 Work Duration that further supports this intent by requiring the use of retroreflective devices for long-term operations and for intermediate-term operations, but not for short-term, short duration, or mobile operations:

Standard:

Since long-term operations extend into nighttime, retroreflective and/or illuminated devices shall be used in long-term stationary TTC zones.

Standard:

Since intermediate-term operations extend into nighttime, retroreflective and/or illuminated devices shall be used in intermediate-term stationary TTC zones.



The second paragraph in Section 6F.02 requires all TTC warning signs, except for a few specific exceptions, to have a black legend and border on an orange background. The third paragraph in Section 6F.02 allows a fluorescent red-orange or fluorescent yellow-orange color background color to be used in lieu of the regular orange color. All TTC warning signs, including those that are retroreflective and non-retroreflective and regardless of the material from which they are made, must meet the color requirements for signs, and should be replaced when the colors no longer conform to these requirements.

You also expressed concerns about non-retroreflective signs being used in hours of darkness and during bad weather. Use of these signs at night would not be in conformance with the 2003 MUTCD. Specifically defining what would constitute “bad weather” has not been attempted and would be difficult to achieve to everyone’s satisfaction.

We have assigned your request for interpretation the following official ruling number and title: "6-223 (I) – Daytime Use of Non-retroreflective Signs in TTC Zones." Please refer to this official ruling number in any future correspondence. If we can be of any further assistance in this matter, please contact me at 202-366-5915 or Mr. Ken Wood at 708-283-4340.

Sincerely yours,

Original signed by:

Hari Kalla
Acting Director, Office of Transportation
Operations

FHWA:HOTO-1:BFriedman:ds:65012:12-2-08

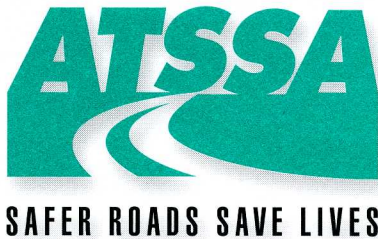
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Mr. Ken Wood, HRC-MW

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Signs in TTC Zones



November 12, 2008

Mr. Hari Kalla, Team Leader
Office of Transportation Operations
Federal Highway Administration, Mail Stop: E84-402
1200 New Jersey Avenue, S.E., HOTO-1
Washington, DC 20590

Dear Mr. Kalla:

My purpose in writing is to request the FHWA's interpretation on the use of non-retroreflective warning signs in temporary traffic control (TTC) zones. Section 2A.08 of the MUTCD (below) addresses the issue of regulatory, warning and guide signs and specifies that such signs shall be retroreflective or illuminated to show the same shape and similar color by both day and night unless otherwise noted in the manual.

Sections 2A.09, 2A.10, 2A.11 and 2A.12 address minimum maintained retroreflectivity levels, shapes, sign colors and dimensions, respectively. Section 6F.02 of the MUTCD provides a standard statement that reads that signs used at night shall either be retroreflective with a material that has a smooth, sealed outer surface or illuminated to show the same shape and similar color both day and night. It does not provide any indication that a non-retroreflective material for daytime use can be used per section 2A.08. Section 6F.15 of the MUTCD also states that TTC warning signs shall conform to the Standards for warning signs presented in Part 2.

Section 2A.08 Retroreflectivity and Illumination

Support:

There are many materials currently available for retroreflection and various methods currently available for the illumination of signs. New materials and methods continue to emerge. New materials and methods can be used as long as the signs meet the standard requirements for color, both by day and by night.

Standard:

Regulatory, warning, and guide signs shall be retroreflective or illuminated to show the same shape and similar color by both day and night, unless specifically stated otherwise in the text discussion in this Manual of a particular sign or group of signs.

The requirements for sign illumination shall not be considered to be satisfied by street or highway lighting.

Section 6F.02 General Characteristics of Signs

Support:

TTC zone signs convey both general and specific messages by means of words or symbols and have the same three categories as all road user signs: regulatory, warning, and guide.

Standard:

The colors for regulatory signs shall follow the Standards for regulatory signs in Table 2A-4 and Chapter 2B. Warning signs in TTC zones shall have a black legend and border on an orange background, except for the Highway-Rail Grade Crossing Advance Warning (W10-1) sign which shall have a black legend and border on a yellow background, and except for signs that are permitted in Parts 2 or 7 to have fluorescent yellow-green backgrounds. Colors for guide signs shall follow the Standards in Table 2A-4 and Chapter 2D, except for guide signs as noted in Section 6F.50.

Option:

Where the color orange is required, fluorescent red-orange or fluorescent yellow-orange colors may also be used.

Standard:

All signs used at night shall be either retroreflective with a material that has a smooth, sealed outer surface or illuminated to show the same shape and similar color both day and night.

The requirement for sign illumination shall not be considered to be satisfied by street, highway, or strobe lighting.

Section 6F.15 Warning Sign Function, Design, and Application

Support:

TTC zone warning signs (see Figure 6F-4) notify road users of specific situations or conditions on or adjacent to a roadway that might not otherwise be apparent.

Standard:

TTC warning signs shall conform to the Standards for warning signs presented in Part 2 and in FHWA's "Standard Highway Signs" book (see Section 1A.11). Except as noted in the Option below, TTC warning signs shall be diamond-shaped with a black legend and border on an orange background, except for the W10-1 sign which shall have a black legend and border on a yellow background, and except for signs that are permitted in Parts 2 or 7 to have fluorescent yellow-green backgrounds.

Option:

Warning signs used for TCC incident management situations may have a black legend and border on a fluorescent pink background.

Mounting or space considerations may justify a change from the standard diamond shape.

In emergencies, available warning signs having yellow backgrounds may be used if signs with orange or fluorescent pink backgrounds are not at hand.

Section 1A.02 of the 2003 MUTCD makes reference to the basic principles that govern the design and use of traffic control devices. To be effective, a traffic control device should meet five basic requirements:

- A) Fulfill a need;
- B) Command attention;
- C) Convey a clear simple message;
- D) Command respect from road users; and
- E) Give adequate time for proper response.

Design, placement, operation, maintenance and uniformity are aspects that should be carefully considered in order to maximize the ability of a traffic control device to meet the aforementioned five requirements. Vehicle speed should also be considered as an element that governs the design, operation, placement and location of various traffic control devices.

Based on review and discussion of these parts of the MUTCD, we feel that it would be beneficial if the FHWA addressed the following two points:

- A. In recent years the FHWA has made significant improvements to standards related to signs. However, these changes have not specifically impacted TTC warning sign standards. Should TTC warning sign standards be updated to be more consistent with the technologies that are available to make the work zone environment safer for workers?
- B. Work zones that utilize temporary traffic control devices as you know are very dangerous environments. There are of course many occasions when workers use non-retroreflective signs during daylight hours (and only during daylight hours), and on these occasions these materials perform as designed. There are also many occasions, whether it is during winter months when darkness occurs at an earlier time or perhaps during bad weather when these types of signs do not perform as well as a retroreflective material. Since the publication of the 2003 MUTCD there has been widespread acceptance and use of fluorescent retro-reflective materials that perform under all light and weather conditions. With the road user's expectation that work zones perform better in all environmental conditions, do non-retroreflective signs contribute to advance warning redundancy?

In addition, we have two specific questions that revolve around whether non-retroreflective warning signs used in temporary traffic control zones are in conformance with these requirements and the established standards of minimum retroreflectivity levels, shapes, colors and dimensions as spelled out in the current MUTCD. We would appreciate a response to the following two questions in the form of an official interpretation regarding the application of non-retroreflective signs on our nation's roadways.

- 1. Based on the MUTCD language contained in Parts 2 and 6 are non-reflective TTC warning signs allowed to be used?
- 2. At present there are no standards for non-retroreflective TTC warning signs which unfortunately leads to situations where signs are consistently used that do not meet any MUTCD color coordinates and values as described in 23 CFR, Part 655, Subpart F. If non-retroreflective signs are used, do they need to meet the same color requirements as retroreflective signs?

Thank you in advance for responding to this request on this important roadway safety issue.

Sincerely,

Roger A. Wentz

