RETROREFLECTIVITY - UPDATE

CLIFF REUER

SD LTAP

WESTERN SATELLITE – SDSM&T

605-773-5108

605-209-8932

CLIFF.REUER@STATE.SD.US

Manual on Uniform Traffic Control Devices

for Streets and Highways

2009 Edition

U.S.Department of Transportation
Federal Highway Administration

MUTCD – WEB/PURCHASE

Website:

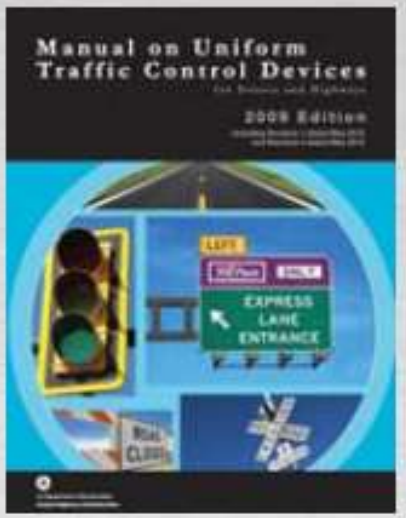
http://mutcd.fhwa.dot.gov

Purchase:

http://www.atssa.com

MUTCD

The Manual on Uniform Traffic Control Devices (MUTCD), which is published by the FHWA, is recognized as the national standard for all traffic control devices installed on any street, highway, bikeway, or private road open to public travel.



NOT PARKING LOTS AND ISLES

Required by Federal Law:

Manual on Uniform Traffic Control Devices (MUTCD)

- **Section 1A.07 Responsibility for Traffic Control Devices**
- **Standard:**
- 01 **The responsibility for the design, placement, operation, maintenance, and uniformity of traffic control devices shall rest with the public agency or the official having jurisdiction, or, in the case of private roads open to public travel, with the private owner or private official having jurisdiction. 23 CFR 655.603 adopts the MUTCD as the national standard for all traffic control devices installed on any street, highway, bikeway, or private road open to public travel (see definition in Section 1A.13). When a State or other Federal agency manual or supplement is required, that manual or supplement shall be in substantial conformance with the National MUTCD.**

Required by Federal Law:

Manual on Uniform Traffic Control Devices (MUTCD)

- **Section 1A.07 Responsibility for Traffic Control Devices**
- 02 23 CFR 655.603 also states that traffic control devices on all streets, highways, bikeways, and private roads open to public travel in each State shall be in substantial conformance with standards issued or endorsed by the Federal Highway Administrator.

CHANGES TO 2003 MUTCD IN 2007

U.S. Department of Transportation
Federal Highway Administration

NEW MUTCD SIGN RETROREFLECTIVITY REQUIREMENTS

Maintaining Traffic Sign Retroreflectivity FHWA-SA-07-020

Traffic signs provide important information to drivers at all times, both day and night. To be effective, their visibility must be maintained. The 2003 *Manual on Uniform Traffic Control Devices* (MUTCD) addresses sign visibility in several places, including Sections 1A.03, 1A.04, 1A.05, 2A.06, 2A.08, and 2A.22. These sections address factors such as uniformity, design, placement, operation, and maintenance. Previously, the MUTCD did not specify minimum retroreflectivity levels.

The second revision of the 2003 MUTCD introduces new language establishing minimum retroreflectivity levels that must be maintained for traffic signs. **Agencies have until January 2012, to establish and implement a sign assessment or management method to maintain minimum levels of sign retroreflectivity.** The compliance date for regulatory, warning, and ground-mounted guide signs is January 2015. For overhead guide signs and street name signs, the compliance date is January 2018. The new MUTCD

The new standard in Section 2A.09 requires that agencies maintain traffic signs to a minimum level of retroreflectivity outlined in Table 2A-3 of the MUTCD. The Federal Highway Administration (FHWA) believes that this proposed change will promote safety while providing sufficient flexibility for agencies to choose a maintenance method that best matches their specific conditions.

Including Table 2A-3 in the MUTCD does not imply that an agency must measure the retroreflectivity of every sign. Rather, the new MUTCD language describes five methods that agencies can use to maintain traffic sign retroreflectivity at or above the minimum levels. Agencies can choose from these methods or combine them. Agencies are allowed to develop other appropriate methods based on engineering studies. However, agencies should adopt a consistent method that produces results that correspond to the values in Table 2A-3.

individual signs that do not meet the minimum retroreflectivity levels at a particular point in time. As long as the agency with jurisdiction is maintaining signs in accordance with Section 2A.09 of the MUTCD, the agency will be considered to be in compliance. This document describes methods that can be used to maintain sign retroreflectivity at or above the MUTCD's minimum maintained retroreflectivity levels.

RETROREFLECTIVITY MAINTENANCE

The MUTCD describes two basic types of methods that agencies can use to maintain sign retroreflectivity at or above the MUTCD minimum maintained retroreflectivity levels — assessment methods and management methods. The FHWA has identified and listed assessment and management methods for maintaining sign retroreflectivity in accordance with Section 2A.09. These methods are described on page four.

DEPARTMENT OF TRANSPORTATION

Federal Highway Administration

23 CFR Part 655

[FHWA Docket No. FHWA–2010–0159]

RIN 2125–AF43

National Standards for Traffic Control Devices; the Manual on Uniform Traffic Control Devices for Streets and Highways; Revision

AGENCY: Federal Highway Administration (FHWA), Department of Transportation (DOT).

ACTION: Final rule.

SUMMARY: The MUTCD is incorporated in regulations, approved by the FHWA, and recognized as the national standard for traffic control devices used on all streets, highways, bikeways, and private roads open to public travel. The purpose of this final rule is to revise certain information relating to target compliance dates for traffic control devices. This final rule revises Table I–2 of the MUTCD by eliminating the compliance dates for 46 items (8 that had already expired and 38 that had streamline and simplify the information. The MUTCD, with these changes incorporated, is being designated as Revision 2 of the 2009 edition of the MUTCD.

DATES: *Effective Date:* This final rule is effective June 13, 2012. The incorporation by reference of the publication listed in this regulation is approved by the Director of the Office of the Federal Register as of June 13, 2012.

FOR FURTHER INFORMATION CONTACT: Mr. Chung Eng, Office of Transportation Operations, (202) 366–8043; or Mr. William Winne, Office of the Chief Counsel, (202) 366–1397, Federal Highway Administration, 1200 New Jersey Ave. SE., Washington, DC 20590. Office hours are from 8 a.m. to 4:30 p.m., E.T., Monday through Friday, except Federal holidays.

SUPPLEMENTARY INFORMATION:

Electronic Access and Filing

This document, the notice of proposed amendment (NPA), and all comments received may be viewed online through the Federal eRulemaking portal at: *http://www.regulations.gov.*

highway agencies and stre
simplify information conta
MUTCD without reducing
FHWA has the authority t
standards for traffic contro
all roads open to public tra
to 23 U.S.C. 109(d), 114(a)
and 402(a).

II. Summary of the Major
the Regulatory Action in Q

This final rule revises T
MUTCD by eliminating th
dates for 46 items (8 that h
expired and 38 that had fu
compliance dates) and ext
revises the dates for 4 item
compliance dates for 8 ite
deemed to be of critical sa
importance will remain in
addition, this final rule ad
Option statement exempti
historic street name signs
locally identified historic
the Standards and Guidan
2D.43 regarding street sign
size, and other design feat
including retroreflectivity.

III. Costs and Benefits

COMPLIANCE DATES

- MUTCD, 2009 Edition, -- 58 compliance dates in Table I-2
- Final Rule – Effective June 13, 2012
  - Eliminated 46 dates
  - Revised 4 dates
  - Retained 8 dates

TABLE I-2

2009 MUTCD Section No.(s)	2009 MUTCD Section title	Specific provision	Compliance date
2A.08	Maintaining Minimum Retroreflectivity.	Implementation and continued use of an assessment or management method that is designed to maintain regulatory and warning sign retroreflectivity at or above the established minimum levels (see Paragraph 2).	2 years from the effective date of this revision of the 2009 MUTCD*.
2A.19	Lateral Offset	Crashworthiness of sign supports on roads with posted speed limit of 50 mph or higher (see Paragraph 2).	January 17, 2013 (date established in the 2000 MUTCD).
2B.40	ONE WAY Signs (R6–1, R6–2).	New requirements in the 2009 MUTCD for the number and locations of ONE WAY signs (see Paragraphs 4, 9, and 10).	December 31, 2019.
2C.06 through 2C.14.	Horizontal Alignment Warning Signs.	Revised requirements in the 2009 MUTCD regarding the use of various horizontal alignment signs (see Table 2C–5).	December 31, 2019.

TABLE I-2 (Con't)

2E.31, 2E.33, and 2E.36.	Plaques for Left-Hand Exits.	New requirement in the 2009 MUTCD to use E1–5aP and E1–5bP plaques for left-hand exits.	December 31, 2014.
4D.26	Yellow Change and Red Clearance Intervals.	New requirement in the 2009 MUTCD that durations of yellow change and red clearance intervals shall be determined using engineering practices (see Paragraphs 3 and 6).	5 years from the effective date of this revision of the 2009 MUTCD, or when timing adjustments are made to the individual intersection and/or corridor, whichever occurs first.
4E.06	Pedestrian Intervals and Signal Phases.	New requirement in the 2009 MUTCD that the pedestrian change interval shall not extend into the red clearance interval and shall be followed by a buffer interval of at least 3 seconds (see Paragraph 4).	5 years from the effective date of this revision of the 2009 MUTCD, or when timing adjustments are made to the individual intersection and/or corridor, whichever occurs first.
6D.03**	Worker Safety Considerations.	New requirement in the 2009 MUTCD that all workers within the right-of-way shall wear high-visibility apparel (see Paragraphs 4, 6, and 7).	December 31, 2011.
6E.02**	High-Visibility Safety Apparel.	New requirement in the 2009 MUTCD that all flaggers within the right-of-way shall wear high-visibility apparel.	December 31, 2011.
7D.04**	Uniform of Adult Crossing Guards.	New requirement in the 2009 MUTCD for high-visibility apparel for adult crossing guards.	December 31, 2011.
8B.03, 8B.04	Grade Crossing (Crossbuck) Signs and Supports.	Retroreflective strip on Crossbuck sign and support (see Paragraph 7 in Section 8B.03 and Paragraphs 15 and 18 in Section 8B.04).	December 31, 2019.
8B.04	Crossbuck Assemblies with YIELD or STOP Signs at Passive Grade Crossings.	New requirement in the 2009 MUTCD for the use of STOP or YIELD signs with Crossbuck signs at passive grade crossings.	December 31, 2019.

TABLE I-2 (Con't)

- FOOTNOTES
  - *Types of signs other than regulatory or warning are to be added to an agency's management or assessment method as resources allow.
  - ** MUTCD requirements is a result of a legislative mandate
  - NOTE: All compliance date that were previously published in Table I-2 of the 2009 MUTCD and that do not appear in this revised table have been eliminated

What Changed?

Implementation and continued use of an assessment or management method that is designed to maintain ~~traffic~~ **regulatory and warning sign** retroreflectivity at or above the established minimum levels	~~January 22, 2012~~ **June 13, 2014**
~~Replace identified regulatory, warning, ground-mounted guide signs (except street-name)~~	~~January 22, 2015~~
~~Replace identified street name & overhead guide signs~~	~~January 22, 2018~~

No Change
MUTCD Section 2A.08 - STANDARD

Public agencies or officials having jurisdiction shall use an assessment or management method that is designed to maintain sign retroreflectivity at or above the minimum levels in Table 2A-3.

Table 2A-3 Minimum Maintained Retroreflectivity Levels[1]

Sign Color	Sheeting Type (ASTM D4956-04)				Additional Criteria
	Beaded Sheeting			Prismatic Sheeting	
	I	II	III	III, IV, VI, VII, VIII, IX, X	
White on Green	W*; G ≥ 7	W*; G ≥ 15	W*; G ≥ 25	W ≥ 250; G ≥ 25	Overhead
	W*; G ≥ 7	W ≥ 120; G ≥ 15			Ground-mounted
Black on Yellow or Black on Orange	Y*; O*	Y ≥ 50; O ≥ 50			2
	Y*; O*	Y ≥ 75; O ≥ 75			3
White on Red	W ≥ 35; R ≥ 7				4
Black on White	W ≥ 50				–

[1] The minimum maintained retroreflectivity levels shown in this table are in units of cd/lx/m2 measured at an observation angle of 0.2° and an entrance angle of -4.0°.
[2] For text and fine symbol signs measuring at least 1200 mm (48 in) and for all sizes of bold symbol signs
[3] For text and fine symbol signs measuring less than 1200 mm (48 in)
[4] Minimum Sign Contrast Ratio ≥ 3:1 (white retroreflectivity ÷ red retroreflectivity)
* This sheeting type shall not be used for this color for this application.

Table 2A-3. Minimum Maintained Retroreflectivity Levels[1]

Sign Color	Sheeting Type (ASTM D4956-04)				Additional Criteria
	Beaded Sheeting			Prismatic Sheeting	
	I	II	III	III, IV, VI, VII, VIII, IX, X	
White on Green	W*; G ≥ 7	W*; G ≥ 15	W*; G ≥ 25	W ≥ 250; G ≥ 25	Overhead
	W*; G ≥ 7	W ≥ 120; G ≥ 15			Post-mounted
Black on Yellow or Black on Orange	Y*; O*	Y ≥ 50; O ≥ 50			[2]
	Y*; O*	Y ≥ 75; O ≥ 75			[3]
White on Red	W ≥ 35; R ≥ 7				[4]
Black on White	W ≥ 50				–

[1] The minimum maintained retroreflectivity levels shown in this table are in units of cd/lx/m^2 measured at an observation angle of 0.2° and an entrance angle of -4.0°.
[2] For text and fine symbol signs measuring at least 48 inches and for all sizes of bold symbol signs
[3] For text and fine symbol signs measuring less than 48 inches
[4] Minimum sign contrast ratio ≥ 3:1 (white retroreflectivity ÷ red retroreflectivity)
* This sheeting type shall not be used for this color for this application.

Bold Symbol Signs

- W1-1,2 – Turn and Curve
- W1-3,4 – Reverse Turn and Curve
- W1-5 – Winding Road
- W1-6,7 – Large Arrow
- W1-8 – Chevron
- W1-10 – Intersection in Curve
- W1-11 – Hairpin Curve
- W1-15 – 270 Degree Loop
- W2-1 – Cross Road
- W2-2,3 – Side Road
- W2-4,5 – T and Y Intersection
- W2-6 – Circular Intersection
- W2-7,8 – Double Side Roads
- W3-1 – Stop Ahead
- W3-2 – Yield Ahead
- W3-3 – Signal Ahead
- W4-1 – Merge
- W4-2 – Lane Ends
- W4-3 – Added Lane
- W4-5 – Entering Roadway Merge
- W4-6 – Entering Roadway Added Lane
- W6-1,2 – Divided Highway Begins and Ends
- W6-3 – Two-Way Traffic
- W10-1,2,3,4,11,12 – Grade Crossing Advance Warning
- W11-2 – Pedestrian Crossing
- W11-3,4,16-22 – Large Animals
- W11-5 – Farm Equipment
- W11-6 – Snowmobile Crossing
- W11-7 – Equestrian Crossing
- W11-8 – Fire Station
- W11-10 – Truck Crossing
- W12-1 – Double Arrow
- W16-5P,6P,7P – Pointing Arrow Plaques
- W20-7 – Flagger
- W21-1 – Worker

Fine Symbol Signs (symbol signs not listed as bold symbol signs)

Special Cases

- W3-1 – Stop Ahead: Red retroreflectivity ≥ 7
- W3-2 – Yield Ahead: Red retroreflectivity ≥ 7; White retroreflectivity ≥ 35
- W3-3 – Signal Ahead: Red retroreflectivity ≥ 7; Green retroreflectivity ≥ 7
- W3-5 – Speed Reduction: White retroreflectivity ≥ 50
- For non-diamond shaped signs, such as W14-3 (No Passing Zone), W4-4P (Cross Traffic Does Not Stop), or W13-1P,2,3,6,7 (Speed Advisory Plaques), use the largest sign dimension to determine the proper minimum retroreflectivity level.

Assessment/Management Method

MUTCD Section 2A.08 Guidance:

Except for those signs specifically identified in Paragraph 6, one or more of the following assessment or management methods should be used to maintain sign retroreflectivity.

Paragraph 6:

- Parking, Standing, & Stopping
- Walking/Hitchhiking/Crossing signs
- Acknowledgement Signs
- Blue & Brown Signs
- Bikeway Sign – Exclusively for bicyclists & pedestrians

Assessment/Management Method

- Visual Nighttime Inspection
  - Comparison Panel Procedure
  - Calibration Signs Procedure
  - Consistent Parameters Procedure
- Measured Sign Retroreflectivity
- Expected Sign Life
- Blanket Replacement
- Control Signs

RETRO – PAVEMENT MARKING

- NOTICE OF PROPOSED AMENDMENTS WAS PUBLISHED APRIL 22, 2010.
- COMMENT PERIOD ENDED AUGUST 20, 2010.
- NO ACTION AT THIS TIME.

RETROREFLECTIVITY - UPDATE

QUESTIONS ??