

Electronic Mail

INFORMATION: MUTCD – Interim Approval for Use
of Retroreflective Border on Signal Backplates

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Regina S. McElroy /s/ *Regina McElroy*
Director, Office of Transportation
Operations

HOTO-1

Division Administrators
Resource Center Directors
Federal Lands Highway Division Offices

Purpose: The purpose of this memorandum is to issue an Interim Approval for the optional use of retroreflective borders on traffic signal backplates.

Background: Section 1A.10 of the 2003 edition of the Manual on Uniform Traffic Control Devices (MUTCD) contains a new provision authorizing the Federal Highway Administration (FHWA) to issue Interim Approvals. Such approvals allow the interim use, pending official rulemaking, of a new traffic control device, a revision to the application or manner of use of an existing traffic control device, or a provision not specifically described in the MUTCD. Interim approvals are considered by the Office of Transportation Operations based on the results of successful experimentation, studies, or research, and an intention to place the new or revised device into a future rulemaking process for MUTCD revisions.

Research on Retroreflective Backplate Borders: The addition of a retroreflective border strip around the outside edge of the front surface of traffic signal backplates to enhance signal conspicuity has been thoroughly researched in the Province of British Columbia in Canada. The research over a period of 7 years is summarized in the final report for Project 216 of the National Committee on Uniform Traffic Control of Canada, and has culminated in recommended revisions to the Canadian MUTCD. This research information can be accessed via the MUTCD website (<http://mutcd.fhwa.dot.gov>). Key conclusions of the research are:

- 15 percent to 24 percent reductions in total crashes, especially rear-end type crashes, after addition of the backplate borders.
- Benefit/Cost Ratio of approximately 10.
- Retroreflective border provides a distinctive frame around the traffic signal display at night, allowing road users to more readily locate the signal face among background lighting.
- Retroreflective border assists road users in detecting the presence of a major (signalized) intersection during nighttime power outage conditions.

Additional Related Information: Section 4D.17 of the 2003 MUTCD states that "the use of a signal backplate for target value enhancement should be considered on signal faces viewed against a bright sky or bright or confusing backgrounds." It further states that "the use of backplates enhances the contrast between the traffic signal indications and their surroundings for both day and night conditions, which is also helpful to elderly drivers." Section 4D.18 states that "the front surface of backplates shall have a dull black finish to minimize light reflection and to increase contrast between the signal indication and its background." The National Committee on Uniform Traffic Control Devices (NCUTCD) has reviewed the Canadian research on this subject and has recommended to the FHWA that text be added to the next edition of the MUTCD to specifically allow the optional use of a yellow retroreflective strip no wider than 75 mm (3 inches) around the perimeter of the face of backplates to project a rectangular appearance at night. Retroreflective backplate borders have been in widespread use for many years in many European countries and in Australia. The use of retroreflective backplate borders appears to provide positive safety benefits at relatively low cost. Therefore, the FHWA intends to propose amending the MUTCD to specifically allow such borders in a future MUTCD rulemaking. The FHWA is issuing Interim Approval for this use so that this application may be used by jurisdictions who wish to do so pending the rulemaking.

Conditions of Interim Approval: Interim Approval for the use of a yellow retroreflective strip at least 25 mm (1 inch) wide and no wider than 75 mm (3 inches) around the perimeter of the face of signal backplates to project a rectangular appearance at night will be granted to any jurisdiction that submits a written request to the Director of the Office of Transportation Operations. The request must state the location(s) where the device will be used and the jurisdiction's agreement to comply with item F at the bottom of page 1A-10 of the 2003 MUTCD, part of Section 1A.10. A State may request Interim Approval for all jurisdictions in that State.

Please note that at this time the MUTCD does not specify minimum retroreflectivity levels for traffic control devices. However, it is known that modern headlight design limits the amount of light reflecting from devices mounted over the road. Therefore, to obtain maximum benefits from the retroreflective backplate border on overhead-mounted signal faces, jurisdictions should consider using a type of retroreflective sheeting for this border that is specifically designed for overhead locations.

Any questions concerning this Interim Approval should be directed to Mr. Scott Wainwright at scott.wainwright@fhwa.dot.gov or by telephone at 202-366-0857.

FHWA:HOTO-1:SWainwright:ds:60857:1-28-04
cc: HOTO-1 HOTO-1(EHuckaby/Swainwright/FRanck)
Mr. Martin Knopp, Resource Center
Mr. Bob Garrett, NCUTCD
Mr. Roger Wentz, ATSSA Mr. James Barron, ATSSA
Chron 3408 Reader 3408

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