

DEPARTMENT OF TRANSPORTATION**Federal Highway Administration****23 CFR Part 655**

[FHWA Docket No. 96-15]

RIN 2125-AD68

National Standards for Traffic Control Devices; the Manual on Uniform Traffic Control Devices for Streets and Highways; Standards for Center Line and Edge Line Markings**AGENCY:** Federal Highway Administration (FHWA), DOT.**ACTION:** Notice of proposed amendment for the Manual on Uniform Traffic Control Devices (MUTCD); request for comments.

SUMMARY: The MUTCD is incorporated by reference in 23 Code of Federal Regulations (CFR) part 655, subpart F, and recognized as the national standard for traffic control on all public roads. Sec. 406 of the Department of Transportation and Related Agencies Appropriations Act, 1993, requires that the MUTCD include a national standard to define the roads that must have center line or edge line markings or both, provided that in setting such a standard, consideration be given to the functional classification of roads, traffic volumes, and the number and width of lanes. The MUTCD amendments herein proposed are intended to improve traffic operations and safety by providing national standards and guidance to establish uniform application and use of center line and edge line markings on streets and highways.

DATES: Submit written, signed comments on or before May 2, 1997.**ADDRESSES:** Submit written, signed comments to FHWA Docket No. 96-15, Federal Highway Administration, Room 4232, HCC-10, 400 Seventh Street, SW., Washington, D.C. 20590. All comments received will be available for examination at the above address between 8:30 a.m. and 3:30 p.m., e.t., Monday through Friday except Federal holidays. Those desiring notifications of receipt of comments must include a self-addressed, stamped postcard.**FOR FURTHER INFORMATION CONTACT:** Mr. Ernest D. L. Huckaby, Office of Highway Safety (HHS-10), (202) 366-9064; or Mr. Raymond W. Cuprill, Office of Chief Counsel (HCC-20), (202) 366-0834, Federal Highway Administration, 400 Seventh Street, SW., Washington, DC 20590-0001. Office hours are from 7:45 a.m. to 4:15 p.m., e.t., Monday through Friday except Federal holidays.

SUPPLEMENTARY INFORMATION: The MUTCD is approved by the FHWA as the national standard for all streets and highways open to public travel. The MUTCD is available for inspection and copying as prescribed in 49 CFR part 7, appendix D. It may be purchased for \$44.00 from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, stock no. 050-001-00308-2. The FHWA both receives and initiates requests for amendments to the MUTCD. Each request is assigned an identification number that shows, by Roman numeral, the part of the MUTCD affected and, by Arabic numeral, the order in which the request was received. The MUTCD request identification number for the amendments in this rulemaking is III-73 (Change) and is titled "Standards for Center Line and Edge Line Markings."

This notice is being issued to provide an opportunity to review and comment on the proposed amendments to the MUTCD. The FHWA will issue a final rule after considering the comments offered.

Proposed Amendment

Section 406 of the Department of Transportation and Related Agencies Appropriations Act for FY ending September 30, 1993, Pub. L. 102-388, 106 Stat 1520, requires that the MUTCD include a standard to define the roads that must have center line or edge line markings or both, provided that in setting such a standard, consideration be given to the functional classification of roads, traffic volumes, and the number and width of lanes.

Definitions

The proposed amendment uses terminology that is in compliance with the MUTCD definitions. As included in the Section 1A-9 of the MUTCD, the term "roadway" shall be defined as: "That portion of a highway improved, designed, or ordinarily used for vehicular travel, exclusive of parking and auxiliary lanes, berms, and shoulders. In the event a highway includes two or more separate roadways, the term 'roadway' as used herein, refers to any such roadway separately, but not to all such roads collectively." Center Line Marking

The FHWA proposes replacing the fifth paragraph of Section 3B-1 of the 1988 version of the MUTCD with the following:

Center line markings shall be placed on paved, undivided 2-way streets and highways having the characteristics as follows:

1. Rural arterials and collectors with roadways 18 feet or more in width and

an average daily traffic (ADT) of 1000 or more.

2. Urban arterials and collectors with roadways 20 feet or more in width and an ADT of 2000 or more.

3. Roadways with 3 lanes or more.

Center line markings should be placed on paved, undivided 2-way streets and highways having the following characteristics:

1. Rural roadways 18 feet or more in width with an ADT of 500 or more.

2. Urban roadways 20 feet or more in width with an ADT of 1000 or more.

3. Roadways where engineering studies indicate a need.

Center line markings may be placed on any undivided 2-way streets and highways.

In determining whether to place centerline markings on roadways less than 16 feet wide, the risk of vehicles on pavement edges or of drivers being adversely affected by parked vehicles may be considered. Also when edge line markings are used the risk of persistent vehicle encroachment into the lane of opposing traffic may be considered.

Edge Line Marking

The FHWA proposes replacing the second paragraph of Section 3B-6 with the following:

Edge line markings shall be white except that on the left edge of each roadway of divided streets and highways, and 1-way roadways in the direction of travel, they shall be yellow.

Edge line markings shall be placed on paved streets and highways of the following types or with the following characteristics, except when roadway edges are defined by curbs and/or by markings for parking spaces:

1. Freeways,
2. Expressways, and
3. Rural arterials.

Edge line markings should be placed on paved streets and highways with the following characteristics, except when roadway edges are defined by curbs and/or by markings for parking spaces:

1. Rural collectors 20 feet or more in width,
2. Paved streets and highways where an engineering study indicates a need.

Edge line markings may be placed on other classes of streets and highways with or without center line markings.

Compliance Date

The proposed compliance date for the proposed amendments is three years after the date of publication of the final rule in the Federal Register.

When reviewing the proposed amendments, readers should consider the additional center line marking

standards in the MUTCD Section 3B-3, "No-Passing Zone Markings" which states:

Where center line markings are installed, no-passing zones shall be established at vertical and horizontal curves and elsewhere on two- and three-lane highways where an engineering study indicates passing must be prohibited because of inadequate sight distances or other special conditions. Specific reference is made to section 11-307 UVC Revised 1968.

A no-passing zone shall be marked by either a one direction, no-passing markings (no. 5, section 3A-7) or a two direction, no-passing markings (no. 6, section 3A-7) as illustrated in figure 3-2b.

Background

Current Practice

Part III of the current MUTCD, the 1988 edition, sets forth basic principles and prescribes standards and guidelines for markings on all streets and highways open to public travel in the United States. The primary purposes of center line markings are to separate opposing directions of traffic flows, and to provide positive guidance to drivers by defining the left limit of a driver's field of safe travel and no-passing zones. The primary purpose of edge line markings is to provide positive guidance by defining the right and left limits of a driver's field of safe travel.

Sections 3B-1 and 3B-6 of the MUTCD state the following regarding the roadways on which center line and edge line marking, respectively, are recommended:

In Section 3B-1:

Center line markings are recommended on paved highways under the following conditions:

1. In rural districts on two-lane pavements 16 feet or more in width with prevailing speeds of greater than 35 mph.
2. In residential or business districts on through highways where there are significant traffic volumes.
3. On undivided pavements of four or more lanes.
4. At other locations where an engineering study indicates a need for them.

In Section 3B-6:

Edge line markings shall be provided on Interstate highways, on rural multilane highways, and may be used on other classes of roads.

Previous Proposal

Concurrently with the preparation of the 1988 edition of the MUTCD, the FHWA proposed an amendment to the

MUTCD on center line markings. In response to a February 20, 1985, petition from the Center for Auto Safety, designated by FHWA as MUTCD request III-35 (Change) titled "Warrants for Center Line Pavement Markings," the FHWA considered establishing warrants for center line markings. The FHWA's proposed amendments to the MUTCD were made available to the public for review and comment in FHWA Docket No. 87-21 on January 27, 1988, as published at 53 FR 2233. At that time the FHWA contended that minimum standards should be established for center line markings. The FHWA received 200 comments in response to the proposed amendments in FHWA Docket No. 87-21. Most of the commenters implied that: (1) The center line and edge line markings' standards and guidelines contained in the MUTCD were satisfactory, and (2) no additional standards were needed at that time. A termination notice for the rulemaking was published on January 23, 1989, at 54 FR 2998. Although denying the request for change in the termination notice, the FHWA stated that it would consider alternative actions necessary to better determine standards responsive to the motorists' needs and to the concerns expressed in the docket comments.

After the current 1988 edition of the MUTCD was published, a decision was made by the FHWA on January 6, 1988, at 53 FR 236, to postpone rulemaking on all requests for revisions to the MUTCD except those changes that would significantly impact safety. The FHWA announced its intent to rewrite and reformat the MUTCD on January 10, 1992, at 57 FR 1134.

Findings of Research

In Appendix G, Analysis of Need for Centerline Stripes, of the National Cooperative Highway Research Program Report 214, "Design and Traffic Control Guidelines for Low-Volume Rural Roads,"¹ the author, Mr. John Glennon, concludes that center line markings are justified by a benefit-cost tradeoff for low volume roads with ADT's above 300 vpd. Mr. Glennon cautioned, however, that the exact decision point is sensitive to the assumed accident costs and the obtainable accident reduction.

Messrs. Richard N. Schwab and Donald G. Capelle reported on findings and recommendations that they deduced from FHWA research studies on roadway delineation in an article titled "Is Delineation Needed," in the

¹This document is available for inspection and copying as prescribed at 49 CFR Part 7, Appendix D. A copy is in the files for FHWA Docket No. 96-15.

May 1980 issue of the "ITE Journal."² They reported that center line markings can be cost beneficial at an ADT as low as 50 vpd, and that center line markings should be used on any paved roadway surface that will retain markings and that carries two-way traffic.

According to Mr. Ted R. Miller in a paper, "Benefit-Cost Analysis of Lane Marking,"³ contained in Transportation Research Record 1334 published in 1992, even at 500 ADT, edge lines on rural two-lane roads yield safety benefits of \$17.00 for every dollar invested.

Present Practice

The American Traffic Safety Services Association (ATSSA) conducted a survey of current State practices in 1993 and published the results in a 1994 report, "Pavement Marking Programs and Practices."⁴ The survey showed that for the 794,917 miles of State roadway in the 42 responding States, 80 percent received both center line and edge line markings, while 12 percent received only center line markings. The 8 percent receiving neither center line nor edge line markings were unpaved or had an ADT of 300 vpd or less in rural areas. Either center line and edge line markings, or center line markings only are placed on all State roadways in 27, or 77 percent, of 35 responding States. Several States indicated that edge line markings are placed on all roadways 20 feet or more in width and several said that edge line markings were not used on roadways less than 16 feet in width.

The National Committee on Uniform Traffic Control Devices (NC) conducted three surveys between 1989 and 1994 to collect information from States and many local jurisdictions about their use of center line and edge line markings. The surveys focused on and provided insight regarding the best practices and the state of the practice by States and local governments. The surveys showed that most States are placing center line and edge line markings on the highways that are under the State jurisdiction. Also, the city governments preferred higher ADT limits for requiring center line markings than did the State governments.

²This document is available for inspection and copying as prescribed at 49 CFR Part 7, Appendix D. A copy is in the files for FHWA Docket No. 96-15.

³This document is available for inspection and copying as prescribed at 49 CFR Part 7, Appendix D. A copy is in the files for FHWA Docket No. 96-15.

⁴This document is available for inspection and copying as prescribed at 49 CFR Part 7, Appendix D. A copy is in the files for FHWA Docket No. 96-15.

Proposals by Others

Since 1948 the NC has served as an independent organization providing professional ideas on the content of the MUTCD, which is published by the FHWA. Beginning in 1980, the responsibilities of the NC were to initiate, review, or comment on proposed changes to the MUTCD. As such, the NC had the opportunity to review proposals and make recommendations to the FHWA in the same manner as any other member of the public. It is composed of sponsoring organizations that have substantial and continuing interest in traffic control.

The NC has been drafting proposals for amending the next version of the MUTCD. The NC proposal for Sections 3B-1 and 3B-6 contain mandatory standards, recommended guidance, and permissive options. The NC proposal also includes the types of criteria required by the Department of Transportation and Related Agencies Appropriations Act, of 1993.

The proposed NC amendment to the fifth paragraph in Section 3B-1 provides for the use of center line markings as follows. The definition of the "traveled way" in the proposal is the portion of the roadway for the movement of vehicles, exclusive of shoulders, and exclusive of parking lanes which are not excluded in the American Association of State Highway and Transportation Officials' definition.

STANDARD

Center line markings shall be placed on paved, undivided streets and highways as follows:

1. All rural arterials and collectors with a traveled way 18 feet or more in width with an ADT of 1000 or greater.
2. All urban arterials and collectors with a traveled way 20 feet or more in width with an ADT of 5000 or greater.
3. All two-way streets and highways having three or more travel lanes.

GUIDANCE

Center line markings should be placed on paved, undivided streets and highways as follows:

1. Urban arterials and collectors with a traveled way 20 feet or more in width with an ADT of 2500 or greater.
2. At other locations where an engineering study indicates a need for them.

OPTION

Center line markings may be placed on other paved, undivided streets and highways with a traveled way of 16 feet or more in width.

The proposed NC amendments in Section 3B-6 provide for the use of edge line markings as follows:

STANDARD

Edge line markings shall be placed on all freeways, expressways, and on all rural arterials with a traveled way 20 feet or more in width.

GUIDANCE

Edge line markings should be placed on paved streets and highways as follows:

1. Rural collectors with a traveled way 20 feet or more in width and where the edge of the traveled way is not otherwise delineated with curbs or other pavement markings.
2. At other locations where an engineering study indicates a need for them.

OPTION

Edge line markings may be placed on streets and highways with or without center line markings.

The ATSSA, which is one of the NC sponsoring organizations, had supported an earlier and similar draft of the above NC proposed amendments to the MUTCD Sections 3B-1 and 3B-6, with the following exceptions:

In Section 3B-1, for the use of center line markings, the ATSSA recommends that the first standard use an ADT of 500 vpd in lieu of an ADT of 1000 vpd and that the second standard use an ADT of 2000 vpd in lieu of an ADT of 5000 vpd. The ATSSA also recommends that the first guidance statement use 18 feet or more in lieu of 20 feet or more for the travel way width criteria, and an ADT of 1500 vpd in lieu of an ADT of 2500 vpd. The ATSSA reasons for recommending the lower criteria include current State practices discussed in NCHRP Synthesis of Highway Practice No. 138, "Pavement Markings: Materials and Application for Extended Service Life"⁵ dated 1988, that concludes that an ADT of 300 or greater warrants markings based on opposing traffic per day; and previously mentioned paper, "Benefit-Cost Analysis of Lane Marking,"⁶ contained in Transportation Research Record 1334 dated 1992, that reports that pavement striping yields benefits of \$60.00 for every dollar spent.

In Section 3B-6, for the use of edge line markings, the ATSSA recommends

⁵This document is available for inspection and copying as prescribed at 49 CFR Part 7, Appendix D. A copy is in the files for FHWA Docket No. 96-15.

⁶This document is available for inspection and copying as prescribed at 49 CFR Part 7, Appendix D. A copy is in the files for FHWA Docket No. 96-15.

adding the following as a guidance statement: "Pavement edge line markings should be used where there is no ambient light, minimum sight distance, or the presence of other road hazards such as soft shoulder, steep drop-offs, or unprotected long slopes."

Discussion of Amendments

A review of above-mentioned research and the NC and ATSSA surveys of current State and local government practices showed that center line and edge line markings are beneficial and that most States currently use them extensively on their roadways.

The FHWA proposed amendments to the MUTCD contain national standards and guidance for determining the streets and highways on which placement of center line markings and edge line markings are both required or recommended. The criteria in these standards and guidance provide for a uniform application on roadways while considering the flexibility needed by States and other jurisdictions in applying limited resources for improved safety. The proposed amendments also reflect current acceptable practice since many States are currently providing the required center line and edge line markings or better at their own discretion.

Rulemaking Analyses and Notices

Executive Order 12866 (Regulatory Planning and Review) and DOT Regulatory Policies and Procedures

The FHWA has determined that this action is not a significant regulatory action within the meaning of Executive Order 12866 or significant within the meaning of Department of Transportation regulatory policies and procedures. It is anticipated that the economic impact of this rulemaking would be minimal. The proposed MUTCD changes in this notice contain additional guidance and requirements for the application of center line and edge line markings on roadways. The FHWA expects that application uniformity will be improved at little additional expense to the public agencies or the motoring public. Therefore, a full regulatory evaluation is not required.

Regulatory Flexibility Act

In compliance with the Regulatory Flexibility Act (Pub. L. 96-354, 5 U.S.C. 601-612), the FHWA has evaluated the effects of this proposed action on small entities, including small governments. This notice of proposed rulemaking adds some alternative traffic control devices and only a very limited number

of new or changed requirements. Most of the proposed changes are expanded guidance and clarification information. Based on this evaluation, the FHWA hereby certifies that this action would not have a significant economic impact on a substantial number of small entities.

Executive Order 12612 (Federalism Assessment)

This action has been analyzed in accordance with the principles and criteria contained in Executive Order 12612, and it has been determined that this action would not have sufficient federalism implications to warrant the preparation of a federalism assessment. The MUTCD is incorporated by reference in 23 CFR part 655, subpart F, which requires that changes to the national standards issued by the FHWA shall be adopted by the States or other Federal agencies within two years of issuance. This proposed amendment is in keeping with the Secretary of Transportation's authority under 23 U.S.C. 109(d) and 315 to promulgate

uniform guidelines to promote the safe and efficient use of the highway.

Executive Order 12372 (Intergovernmental Review)

These proposed amendments are in keeping with the Secretary of Transportation's authority under 23 U.S.C. 109(d), 315, and 402(a) to promulgate uniform guidelines to promote the safe and efficient use of the highway. To the extent that these amendments override any existing State requirements regarding traffic control devices, they do so in the interests of national uniformity.

Paperwork Reduction Act

This action does not contain a collection of information requirement for purposes of the Paperwork Reduction Act of 1995, 44 U.S.C. 3501 *et seq.* National Environmental Policy Act

The agency has analyzed this action for the purpose of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*) and has determined

that this action would not have any effect on the quality of the environment.

Regulation Identification Number

A regulation identification number (RIN) is assigned to each regulatory action listed in the Unified Agenda of Federal Regulations. The Regulatory Information Service Center publishes the Unified Agenda in April and October of each year. The RIN number contained in the heading of this document can be used to cross reference this action with the Unified Agenda.

List of Subjects in 23 CFR Part 655

Design standards, Grant programs—transportation, Highways and roads, Incorporation by reference, Signs, Traffic regulations.

(23 U.S.C. 109(d), 114(a), 315, and 402(a); 23 CFR 1.32, 655.601, 655.602, 655.603; 49 CFR 1.48)

Issued on: July 24, 1996.

Rodney E. Slater,

Federal Highway Administrator.

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