

Related Information

(h) To get copies of the documents referenced in this AD, contact Cirrus Design Corporation, 4515 Taylor Circle, Duluth, Minnesota 55811; telephone: (218) 727-2737, or on the Internet at <http://www.cirrusdesign.com>. To view the AD docket, go to the Docket Management Facility; U.S. Department of Transportation, 400 Seventh Street, SW., Nassif Building, Room PL-401, Washington, DC, or on the Internet at <http://dms.dot.gov>. The docket number is Docket No. FAA-2006-24010; Directorate Identifier 2006-CE-14-AD.

Issued in Kansas City, Missouri, on May 1, 2006.

Steven W. Thompson,

Acting Manager, Small Airplane Directorate, Aircraft Certification Service.

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

[FHWA Docket No. FHWA-2003-15149]

RIN 2125-AE98

National Standards for Traffic Control Devices; the Manual on Uniform Traffic Control Devices for Streets and Highways; Maintaining Traffic Sign Retroreflectivity

AGENCY: Federal Highway Administration (FHWA), (DOT).

ACTION: Supplemental notice of proposed amendments (SNPA); request for comments.

SUMMARY: In an earlier notice of proposed amendments (NPA), the FHWA proposed to amend the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD) to include methods to maintain traffic sign retroreflectivity. Based on the review and analysis of the numerous comments received in response to the NPA, the FHWA has decided to substantially revise the proposed amendments to the MUTCD and, as a result, is issuing this SNPA. With this SNPA, the FHWA proposes to amend the MUTCD to include a standard for minimum maintained levels of traffic sign retroreflectivity and methods to maintain traffic sign retroreflectivity at or above these levels.

DATES: Comments must be received on or before November 6, 2006.

ADDRESSES: Mail or hand deliver comments to the U.S. Department of Transportation, Dockets Management Facility, Room PL-401, 400 Seventh

Street, SW., Washington, DC 20590, or submit electronically at <http://dms.dot.gov> or fax comments to (202) 493-2251. Alternatively, comments may be submitted via the Federal eRulemaking Portal at <http://www.regulations.gov>. All comments should include the docket number that appears in the heading of this document. All comments received will be available for examination and copying at the above address from 9 a.m. to 5 p.m., e.t., Monday through Friday, except Federal holidays. Those desiring notification of receipt of comments must include a self-addressed, stamped postcard or may print the acknowledgment page that appears after submitting comments electronically. Anyone is able to search the electronic form of all comments received into any of our dockets by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an association, business, labor union, etc.). Persons making comments may review DOT's complete Privacy Act Statement in the **Federal Register** published on April 11, 2000 (Volume 65, Number 70, Pages 19477-78) or may visit <http://dms.dot.gov>.

FOR FURTHER INFORMATION CONTACT: Ms. Debra Chappell, Office of Safety Design (202) 366-0087, or Raymond Cuprill, Office of the Chief Counsel (202) 366-0791, 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:**Electronic Access and Filing**

Interested parties may submit or retrieve comments online through the Document Management System (DMS) at <http://dms.dot.gov>. The DMS is available 24 hours each day, 365 days each year. Electronic submission, retrieval help, and guidelines are available under the help section of the Web site.

An electronic copy of this document may be downloaded using the Office of the Federal Register's home page at <http://www.archives.gov> and the Government Printing Office's Web page at <http://www.access.gpo.gov/nara>.

Background

On July 30, 2004, at 69 FR 45623, the FHWA published in the **Federal Register** an NPA to amend the MUTCD to include methods to maintain traffic sign retroreflectivity.^{1 2} This NPA was

¹ The NPA published on July 30, 2004, at 69 FR 45623, describes the research and development and

in response to a Congressional directive in the Department of Transportation and Related Agencies Appropriations Act, 1993 (Pub. L. 102-388; October 6, 1992). Section 406 of this Act directed the Secretary of Transportation to revise the MUTCD to include a standard for minimum levels of retroreflectivity that must be maintained for traffic signs and pavement markings, which apply to all roads open to public travel. The FHWA is currently conducting research to develop a standard for minimum levels of pavement marking retroreflectivity. However, a NPA regarding minimum pavement marking retroreflectivity is not expected to be issued until the rulemaking for minimum traffic sign retroreflectivity is finalized.

The comment period for the NPA initially expired on October 28, 2004, but was extended to February 1, 2005 (69 FR 62007). As of June 1, 2005, the FHWA received 85 letters submitted to the docket containing 350 individual comments on the NPA. The FHWA received comments from the National Committee on Uniform Traffic Control Devices (NCUTCD), the American Association of State Highway and Transportation Officials (AASHTO), State Departments of Transportation (State DOTs), city and county governmental agencies, consulting firms, private industry, associations, other organizations, and individual private citizens. The FHWA has reviewed and analyzed the comments that were received as of June 1, 2005. Docket comments and summaries of the FHWA's analyses and determinations are discussed below. After considering and analyzing the comments, the FHWA has decided to issue this SNPA. The proposed changes would be designated as Revision No. 2 to the 2003 Edition of the MUTCD.³

The MUTCD is incorporated by reference in 23 CFR 655.601. It is available for inspection and copying as prescribed in 49 CFR part 7 and on the FHWA's Web site at <http://mutcd.fhwa.dot.gov>. Requirements for nighttime sign visibility have been included in every version of the

other efforts by the FHWA to implement this requirement. More information is available at the following Web address: <http://www.fhwa.dot.gov/retro>.

² The definition and measurement of retroreflectivity are described in the International Commission on Illumination's report, "Retroreflection: Definition and Measurement" CIE Publication 54.2-2001, CIE Central Bureau, Vienna, Austria. The document is available at the following Web address: <http://www.cie.co.at/framepublications.html>.

³ The proposed changes to the MUTCD are available for review at the following Web address: http://tcd.tamu.edu/Documents/MinRetro/2005-08-02_PROPOSED_Rev2.pdf.

MUTCD since the first edition in 1935. The 2003 Edition of the MUTCD continues to address the visibility of signs. Two pertinent MUTCD sections include: Section 2A.08 Retroreflectivity and Illumination, which states, “[r]egulatory, 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” and Section 2A.22 Maintenance, which states, “All traffic signs should be kept properly positioned, clean, and legible, and should have adequate retroreflectivity.” Section 2A.22 also recommends that nighttime inspections be scheduled to assure adequate sign maintenance. This SNPA proposes MUTCD revisions that address minimum sign retroreflectivity levels and methods to maintain sign retroreflectivity. The proposed MUTCD revisions would be mostly included in Section 2A.09 Minimum Retroreflectivity Levels, which was a new section added in the MUTCD Millennium Edition. Section 2A.09 currently serves as a placeholder for the results of this SNPA.

While many of the respondents agreed with the intent and the concepts proposed in the NPA, there were other respondents that provided comments related to the following five major issues:

(1) The NPA proposal did not meet the intent of the 1993 Congressional directive to include a standard for the minimum levels of retroreflectivity for traffic signs in the MUTCD;

(2) The table outlining the minimum retroreflectivity levels should be placed in the MUTCD;

(3) Further clarification of the compliance period should be provided;

(4) The visibility impacts associated with maintained sign retroreflectivity should be described; and

(5) The requirements in the proposal would impose additional time and resource burdens on public agencies.

The FHWA has decided to address the issues raised by the respondents by issuing this SNPA. The purpose of this SNPA is to obtain public comment on revised proposed amendments to the MUTCD to include a standard for minimum levels of retroreflectivity that must be maintained for traffic signs and methods to maintain traffic sign retroreflectivity at or above these levels. The FHWA proposes the following key changes:

(1) Add a STANDARD statement to Section 2A.09 that reads, “Public agencies or officials having jurisdiction shall use an assessment or management

method to maintain traffic sign retroreflectivity at or above the minimum levels established in the Guidance below.” This STANDARD statement requires that a method be used to manage and maintain retroreflectivity and also requires that sign retroreflectivity be maintained to minimum levels. This is a revised version of the GUIDANCE statement that was proposed in the NPA.

(2) Include the table of minimum retroreflectivity levels in the MUTCD. In the NPA, the table of retroreflectivity levels was not included in the MUTCD, but was instead contained in a document that was referenced in the MUTCD.

These proposed changes are significant enough to warrant a SNPA, which will also allow the FHWA to obtain and assess additional public comments, including comments from States and local governments, before a final rule is issued.

Discussion of Major Issues

This section provides a discussion of each of the five major issues for which comments were received in response to the NPA, along with the FHWA’s proposed resolution. The next section discusses additional comments that were received in response to the NPA that were not related to the five major issues.

(1) *The NPA proposal did not meet the intent of the 1993 Congressional directive to include a standard for the minimum levels of retroreflectivity for traffic signs in the MUTCD.*

The FHWA received comments from the National Association of County Engineers (NACE), New Jersey DOT, Saline County (Kansas), and the City of Plano (Texas) supporting the proposed text in the NPA that proposed to include the minimum retroreflectivity levels in a GUIDANCE statement, rather than a STANDARD statement.⁴ The Connecticut DOT opposed the proposed GUIDANCE, stating that by proposing to reference the minimum retroreflectivity levels and including compliance dates, the FHWA went beyond GUIDANCE.

The American Automobile Association (AAA), the American Traffic Safety Services Association (ATSSA), the Advocates for Highway

and Auto Safety (AHAS), the American Highway Users Alliance (AHUA), the American Association of Retired Persons (AARP), a representative of the sign industry, a consultant, and a private citizen all opposed the inclusion of minimum retroreflectivity as a GUIDANCE, and instead proposed that it should be a STANDARD. These comments stated that the Congressional intent was that the MUTCD should include a STANDARD, and that the importance of road safety is such that minimum levels of sign retroreflectivity should be emphasized by creating a STANDARD.

The County Engineers Association of Illinois—District 3 submitted three comments in general opposition to the proposed changes. In particular, it felt that the proposed changes represented overregulation and could be written as simple guidelines that would not expose agencies to additional tort liability. McLean County (Illinois) also opposed the proposed changes because it takes pride in its work and states that a faded sign has never been blamed for a crash in McLean County.

Considering these comments in conjunction with the FHWA’s strong support for safety and the MUTCD’s opening sentence regarding the use of traffic control devices to promote highway safety, the FHWA decided to propose a STANDARD statement that requires public agencies and officials with jurisdiction to implement a method to maintain traffic sign retroreflectivity at or above the minimum levels included in the MUTCD. This proposed STANDARD is intended to clearly satisfy the Congressional directive of the 1993 Appropriations Act as well as contribute to the improved safety of the motoring public. The FHWA acknowledges that many agencies and public officials might have concerns regarding this proposed STANDARD, particularly because of a perceived potential increase in tort litigation. However, the FHWA’s primary concern is safety, and the FHWA believes this proposed change will promote safety on our nation’s streets and highways. At the same time, the FHWA believes that the proposed changes to the MUTCD provide sufficient flexibility for the agencies or officials to choose a reasonable method to maintain and assess sign retroreflectivity that fits the particular circumstances in their jurisdictions. In fact, the selection of a reasonable method for maintaining sign retroreflectivity and strict adherence to the same might have the opposite effect concerning tort liability and litigation. Public agencies and officials that

⁴ In the context of this SNPA, the definitions of STANDARD and GUIDANCE are identical to the definitions provided in the Introduction of the MUTCD (<http://mutcd.fhwa.dot.gov>). Specifically, a STANDARD is a statement of required, mandatory, or specifically prohibitive practice regarding a traffic control device while a GUIDANCE is a statement of recommended, but not mandatory, practice in typical situations, with deviations allowed if engineering judgment or engineering study indicates the deviation to be appropriate.

implement and follow a reasonable method in conformance with the national MUTCD would appear to be in a better position to successfully defend tort litigation involving improper sign retroreflectivity than jurisdictions that lack any method.

The proposed changes include five methods that agencies can use to maintain traffic sign retroreflectivity at or above the minimum levels. In addition, agencies are not limited to these five proposed methods, as they can also develop their own methods using documented engineering judgment or studies that demonstrate that deviations are appropriate.⁵ The FHWA's intent is that by using one of these proposed methods to assess and maintain traffic sign retroreflectivity, agencies would be in conformance with the national MUTCD requirement to maintain the minimum levels of traffic sign retroreflectivity.

The purpose of providing the five methods and allowing additional methods is to provide flexibility for agencies in terms of complying with the MUTCD. In other words, conformance with the proposed changes in this SNPA would be achieved by having a method in place to maintain the minimum retroreflectivity levels, rather than by providing the minimum retroreflectivity level for every individual sign at every point in time. For example, if an agency chooses to implement the visual nighttime inspection method, there is no guarantee that the retroreflectivity of all of the agency's signs listed in the table of minimum retroreflectivity levels will be satisfied during the entire period that the signs are in the field. Assuming that an agency successfully completes the annual visual nighttime inspections and that signs failing the subjective evaluation or signs rated as marginal are scheduled for replacement or reassessment within a reasonable time period, then there is clearly a period when these signs might be below the levels in the table of minimum retroreflectivity levels while the sign is awaiting replacement or reassessment. Having a method in place to maintain the minimum retroreflectivity levels is a valuable way for agencies to prioritize how to spend limited resources on those signs that should be replaced sooner,

⁵ The 2003 Edition of the MUTCD defines a guidance statement, which is how the five methods to maintain sign retroreflectivity are proposed in the SNPA, as a statement of recommended, but not mandatory, practice in typical situations, with deviations allowed if engineering judgment or engineering study indicates the deviation to be appropriate. The terms engineering judgment and engineering study are further defined in the MUTCD, which can be found online at the following URL: <http://mutcd.fhwa.dot.gov>.

thus ultimately contributing to improved safety for the motoring public.

There are other conditions where signs might be rated as being satisfactory while temporarily falling below the minimum retroreflectivity levels.⁶ For example, dew and frost on signs have been shown to significantly reduce retroreflectivity. In addition, while research has shown that the visual nighttime inspection is a reasonable method in terms of identifying signs that need to be replaced because of inadequate retroreflectivity, the nighttime visual inspection method is not 100 percent reliable.⁷ ⁸ When inventories are not available for use on nighttime visual inspections, it is not unreasonable to miss a small percentage of signs along a densely-signed corridor, especially if a sign was knocked down or missing for some other reason at the time of the inspection. It is also possible that a sign or a group of signs could have adequate retroreflectivity for a predetermined number of years, but because of factors such as sign manufacturing defects or inadvertent mishandling during installation, a certain percentage might fall below the criteria in the proposed table of minimum retroreflectivity sooner than expected.

Having records to document the methods for managing sign retroreflectivity will help the agency achieve conformance with the proposed standard to maintain the minimum levels of retroreflectivity of traffic signs, as well as provide the agency with a more systematic process of replacing signs and a better justification for the allocation of limited resources. For example, it would be reasonable to have documentation showing that nighttime sign inspections were conducted and that signs rated poor or marginal were marked for replacement or further evaluation. It would also be reasonable to have documentation showing the installation date of signs, their expected sign life, and programmed date of replacement. This is particularly important because measurements of traffic sign retroreflectivity might show

⁶ Hildebrand, E. Reduction in Traffic Sign Retroreflectivity Caused by Dew and Frost. Proceedings from Transportation Research Board's (TRB) 82nd Annual Meeting, Washington, DC, January 2003.

⁷ Lagergran, E.A. Traffic Sign Retroreflectivity Measurements Using Human Observers. Report No. WA-RD-140.1, Washington State Transportation Center, Seattle, WA, 1987.

⁸ Hawkins, H.G. and P.J. Carlson. Results of Visual Evaluations of Sign Retroreflectivity Compared with Minimum Retroreflectivity Recommendations. In Transportation Research Record 1754, TRB, National Research Council, Washington, DC, 2001, pp. 11-20.

that certain signs are near or below the thresholds in the table of minimum retroreflectivity levels before they reach their expected life. As long as an agency has a reasonable method in place to manage or assess its signs, and establishes a reasonable schedule for sign replacement as needed, then the agency will be deemed to be in conformance with the standard proposed in this SNPA.

(2) *The table outlining the minimum retroreflectivity levels should be placed in the MUTCD.*

The FHWA received many comments regarding the proposal in the NPA to place the table outlining the minimum maintained retroreflectivity levels in a referenced document (Maintaining Traffic Sign Retroreflectivity), rather than in the language of the MUTCD. On one hand, the FHWA received 30 comments representing the AASHTO, the NACE, 26 State DOTs, and two Counties supporting the proposed reference to the document, "Maintaining Traffic Sign Retroreflectivity," and thereby only referencing the minimum retroreflectivity levels, rather than including them in the MUTCD text. Additionally, the Wisconsin DOT commented that referencing this document in GUIDANCE is too stringent, and requested that this reference be removed from the GUIDANCE. On the other hand, the FHWA received ten comments representing the ATSSA, the AHAS, the AHUA, Vermont Agency of Transportation, a representative of the sign industry, private citizens, and a consultant suggesting that the minimum maintained retroreflectivity levels should be included in the body of the MUTCD text in order to strengthen the proposed amendment as well as to make it easier for jurisdictions to find and adhere to the appropriate levels.

The FHWA has considered these comments and has decided to propose to include the table of minimum retroreflectivity levels in Section 2A.09 of the MUTCD as a new Table 2A-3. The FHWA agrees with these ten comments that a clear indication of the levels should be directly included in the MUTCD language as a convenience to all readers of the MUTCD. Moreover, the relationship between the FHWA's safety mission and the purpose of traffic control devices as described in the MUTCD, as well as the need to clearly satisfy the Congressional directive in the 1993 Appropriations Act, led to the FHWA's decision to propose to include a reference to the table of minimum retroreflectivity levels in a GUIDANCE statement in the MUTCD. The FHWA

believes that this proposed change, in addition to the proposed methods listed in the MUTCD, provides sufficient flexibility for agencies or officials to determine methods that can be customized to fit their particular circumstances.

The NACE, Saline County (Kansas), and Pierce County (Washington) suggested that the title of the minimum retroreflectivity table be changed from "Minimum Maintained Retroreflectivity Levels" to "Research Recommendations for Updated Minimum Retroreflectivity Levels." The FHWA disagrees because the table was developed based on the results of extensive research and the details describing this research have been provided in the document, "Maintaining Traffic Sign Retroreflectivity." Therefore, the FHWA believes that there is no need to include "Research Recommendations" in the title.

(3) *Further clarification of the compliance period should be provided.*

In the NPA, the FHWA proposed to add target compliance dates for Section 2A.09 Minimum Retroreflectivity to the STANDARD statement in the Introduction to the MUTCD. The FHWA proposed a phase-in target compliance period of 7 years for regulatory, warning, and post-mounted guide signs and 10 years for overhead guide signs and street name signs from the effective date of the final rule for Revision No. 2 of the 2003 MUTCD to minimize any impact on State or local governments.

The NACE, Michigan and New Jersey DOTs, Saline County (Kansas), and Pierce County (Washington) all commented that the compliance periods needed to be clarified, since it was unclear as to whether agencies were to have an assessment or management process in place by the end of the compliance period, or if the intent was that the signs themselves be in compliance by the end of the compliance period.

Therefore, in this SNPA, the FHWA proposes new language in the Introduction of the MUTCD that is intended to clarify the meaning of the compliance periods. Public agencies or officials having jurisdiction will have 2 years to identify and begin using a method to maintain sign retroreflectivity at or above the established minimum levels. In addition, the new language in this SNPA makes it clear that the 7- and 10-year compliance dates apply only to signs that have been identified using an assessment or management method as failing to meet the minimum retroreflectivity levels. The 7-year proposed compliance date for regulatory, warning, and ground-

mounted guide signs (except for street name signs) was established to allow new signs with ASTM Type I materials⁹ just being installed to remain in place for their normal expected life¹⁰ before being removed and replaced with more efficient retroreflective sheeting materials. Similarly, the FHWA proposes the 10-year compliance date for street name signs and overhead guide signs because more durable materials are normally used on these signs.

Because the proposed compliance dates are tied to the normal expected life of retroreflective materials, the FHWA believes that the changes proposed in this SNPA would lead to visibility improvements and safety enhancements without causing undue financial hardships. For those agencies and officials with jurisdiction already using sign maintenance practices that include retroreflectivity considerations, the proposed changes would have a negligible impact. For those agencies that do not already have a sign maintenance practice in place, the analysis described in the section "Imposing additional time and resource burdens on public agencies" and another analysis described near the end of this document demonstrate that the economic impacts would cause minimal additional expenses. Furthermore, the FHWA anticipates that the visibility improvements that are expected from these proposed changes would be derived from the physical removal and replacement of signs that have inadequate retroreflectivity rather than from an overall upgrade of all signs regardless of their retroreflective sheeting material condition.

The following example is provided to clarify how the proposed compliance dates are tied to normal expected sign life. Assuming that these proposed changes become final on January 1, 2007, then agencies and officials with jurisdiction will have until January 1, 2009, to establish a sign assessment or management method and have it operational. Thus by January 1, 2009, agencies and officials will be identifying signs that need to be replaced because of assessed or anticipated insufficient retroreflectivity levels. Agencies and officials will then have until January 1,

⁹ ASTM Type designations are defined in ASTM D4956. From this point forward, the ASTM prefix will be omitted from the text, but should be implicitly assumed when a specific Type of material is designated.

¹⁰ Wolshon, B., *et al.* Analysis and Predictive Modeling of Road Sign Retroreflectivity Performance. TRB Visibility Symposium, Iowa City, Iowa, June 2002. This paper can be found at <http://arrow.win.ecn.uiowa.edu/symposium/DraftPapers/VIS2002-17.pdf>.

2014, to bring the identified regulatory, warning, and ground-mounted guide signs, excluding street name signs, into conformance with the proposed table of minimum retroreflectivity levels. If an agency or officials are using Type I material for certain signs such as warning signs, they would have until January 1, 2014, to have those signs removed and replaced with signs with at least Type III material. Similarly, agencies and officials would have until January 1, 2017, to bring the identified street name signs and overhead guide signs into conformance with the proposed table of minimum retroreflectivity levels.

The FHWA received comments from the American Public Works Association (APWA), the American Road and Transportation Builders Association (ARTBA), and a private citizen in support of the compliance periods proposed in the NPA. Seven comments representing the ATSSA, the AARP, two representatives of the sign industry, and two private citizens all opposed the proposed compliance periods. These comments stated that the periods were too long and should be shortened in order to improve the effectiveness of signs and therefore roadway safety more quickly. Several of the comments cited publications about roadway safety and the economic benefits to society of saving lives. The FHWA considered these comments, but believes that shortening the compliance period might place a financial hardship on State DOTs and local governments. In addition, the proposed MUTCD language described herein is intended to enhance safety above the current level. It is expected that safety will be enhanced during the transition periods associated with the compliance dates and these transition periods achieve a reasonable balance between the costs associated with the proposed changes and safety.

Ten comments representing the NACE, Alabama, Arizona, Pennsylvania, Vermont, and Washington State DOTs, as well as McLean County (Illinois), Saline County (Kansas), Pierce County (Washington), and the City of Fort Worth (Texas) all opposed the compliance periods, stating that the compliance periods were too short. Many of these agencies cited economic concerns, while others suggested that the life cycle of the sign sheeting that they use is longer than the 7- and 10-year compliance periods, therefore the compliance period should be tailored more to the specific sign sheeting types used by agencies. Pierce County (Washington) suggested that the compliance period should be 15 years,

which was the compliance period for minimum letter size on street name signs for streets and highways having a speed limit greater than 25 mph.

The FHWA disagrees with extending the compliance period because the FHWA believes the proposed target compliance period of 7 years would allow State and local agencies to replace their signs made with Type I materials within a normal replacement period of a commonly accepted 7-year service life. In addition, the proposed 10-year compliance period for street name signs and overhead guide signs would allow an extended period of time because of the longer service life typically associated with those signs. Existing signs installed by those agencies that are already using higher-grade sign sheeting materials would likely meet the minimum retroreflectivity levels in the 7- and 10-year compliance periods, and would not need to be replaced. The proposed compliance periods also exceed the 6-year compliance period requested by the AASHTO Task Force on Retroreflectivity.

(4) *The visibility impacts associated with maintained sign retroreflectivity should be described.*

Respondents such as the County Engineers Association of Illinois—District 3 stated that the concept of improved visibility as described in the proposed NPA was unclear. In addition, the AHAS pointed out that the concept of enhanced nighttime visibility has not been thoroughly verified. The following discussion demonstrates the FHWA's view regarding the impacts of this SNPA in terms of enhanced nighttime sign visibility. Besides establishing minimum retroreflectivity levels for certain sign types, the table of minimum retroreflectivity levels proposed for inclusion in the MUTCD also eliminates the use of certain types of retroreflective sheeting materials depending on the type of sign. For instance, in this SNPA (and in the previous NPA), the FHWA proposes that Type I material would be unacceptable for warning signs and for legends on ground-mounted guide signs, and Type I, II, and III materials would be unacceptable for legends on overhead guide signs. Research has shown that these restrictions are needed to accommodate the needs of older drivers who generally have diminished visibility capabilities when compared to their younger counterparts.^{11 12}

¹¹ Carlson, P.J. and H.G. Hawkins. Updated Minimum Retroreflectivity Levels for Traffic Signs. FHWA-RD-03-081. U.S. Department of Transportation, Federal Highway Administration, Washington, DC, 2003.

¹² Carlson, P.J., H.G. Hawkins, G.F. Schertz, D.J. Mace, and K.S. Opiela. Developing Updated

Although the impact of restricting some types of sign material for certain classes of signs cannot be precisely estimated, the enhanced sign performance or improved visibility can be estimated in various ways. For instance, a convenient way to compare the relative performance of warning signs is to compare the retroreflectivity levels of different sheeting materials. The typical retroreflection level for new yellow Type I materials is approximately 65 cd/lx/m² and the typical retroreflection level for new yellow Type III beaded materials is approximately 230 cd/lx/m². Based on these typical retroreflectivity levels, Type III warning sign material will have about 3.5 times more retroreflectivity than Type I warning sign material. However, the retroreflectivity levels used for this example are associated with a retroreflective geometry that is based on an observation angle of 0.2 degrees and an entrance angle of 4 degrees. Thus the increase in retroreflection of 3.5 times is associated with specific angles that will not be constant throughout a vehicle's approach to a sign.

Another way to compare the relative performance of sheetings is to compare the fractional retroreflection, or R_T .¹³ The fractional retroreflection is usually expressed as a percentage and can be thought of as a measure of the sign sheeting efficiency in terms of its ability to return light to the source in a cone-shaped pattern. By summing the retroreflectivity levels throughout a range of observation angles, the fractional retroreflection is perhaps a more useful measure to describe the performance of a sign throughout the range of distances and angles during which the information from the sign should be available to approaching motorists.

The fractional retroreflection of Type I material is about 8 percent. For Type III beaded material, the fractional retroreflection is about 16 percent. For the microprismatic sign sheeting materials described in ASTM D4956-04, the fractional retroreflection is about 30 to 35 percent. Based on these measures, the efficiency of warning signs in terms

Minimum In-Service Retroreflectivity Levels for Traffic Signs. In Transportation Research Record 1824, TRB, National Research Council, Washington, DC, 2003, pp. 133-143.

¹³ The fundamentals of retroreflection, including observation angle, entrance angle, and fractional retroreflection, are described in the International Commission on Illumination's report, "Retroreflection: Definition and Measurement" CIE Publication 54.2-2001, CIE Central Bureau, Vienna, Austria. The document is available at the following Web address: <http://www.cie.co.at/framepublications.html>.

of their ability to return light to the source could be doubled by changing the sign sheeting from a Type I material to a Type III material and then could be doubled again by using one of the microprismatic materials currently defined in ASTM D4956-04. The FHWA believes that restricting some types of sign material for certain classes of signs will improve nighttime sign visibility to a level needed to accommodate older drivers.

(5) *The requirements in the proposal would impose additional time and resource burdens on public agencies.*

The Virginia DOT and Branch County (Michigan) both opposed the sign retroreflectivity language asserting that they would incur significant additional costs to meet the requirements. Furthermore, Virginia DOT and Branch County indicated that they have not received complaints about their signs, and that their older signs are replaced on a continuous basis.

A potential outcome of the proposed MUTCD changes described herein, besides the improved nighttime traffic sign visibility as previously explained, is that sign life-cycle costs may be enhanced by using more durable retroreflective sheeting materials (as indicated by the case studies described above). For instance, Type I material typically has an in-service life of about 7 years, while Type III material usually has an in-service life of 10 years.¹⁴ Patents protecting the technology of Type III materials have expired, which has created a very competitive market. The cost difference between Type I and Type III materials is small. In addition, some agencies such as Indiana DOT¹⁵ have studied the in-service life of Type III materials and found that they can be expected to perform adequately for at least 12 years (factors such as geographic regions within the U.S. can impact the expected in-service life of traffic signs). Therefore, even though the initial costs of Type III materials are slightly higher than Type I materials, the longer material life can produce more economical lifecycle costs. The longer material life also results in sign technicians spending less time working within the right-of-way to replace deficient signs, thus reducing their exposure to being struck by out-of-control vehicles.

¹⁴ Hawkins, G.H., P.J. Carlson, B. McCaleb, and C. McIlroy. Impact of Minimum Retroreflectivity Values on Sign Replacement Practices. FHWA/TX-97/1275-1F. College Station, TX, October 1996.

¹⁵ Nuber L. and D. Bullock. Comparison of Observed Retroreflectivity Values with Proposed FHWA Minimums. Proceedings from the TRB's 81st Annual Meeting, Washington, DC, January 2002.

It is important to note that the costs associated with the changes proposed in this SNPA should be based on the incremental cost of using a more efficient type of retroreflective material for the sign face when the sign is replaced prior to the compliance dates. It is also important to note that these costs should be only associated with the classes of signs that have restrictions on the types of sign sheeting materials that can be used. Currently, the MUTCD contains a GUIDANCE statement for nighttime sign inspections to maintain adequate sign retroreflectivity. Therefore, an agency's budget should already include the cost of replacing signs with deficient retroreflectivity.

Agencies currently using the sheeting materials that will become restricted as proposed in this SNPA would have to absorb the costs of using more efficient sign sheeting material within the appropriate compliance dates. To estimate the number of signs made with Type I materials that would need to be upgraded as a result of the proposed changes in this SPNA, data from a previous FHWA-sponsored report¹⁶ were used since no other national data are currently available. The report describes sign information data that were collected from 16 States and 9 local agencies, representing a reasonable national coverage. While the specific dates of the sign information are not referenced in the report, based on the publication date of the report, and assuming the data had been collected a few years before the report was published, it is reasonable to assume the data are now approximately 10 years old. This is important because many agencies might have already upgraded their sign sheeting policy to something other than Type I and therefore the following estimates might be conservative and might represent the worse case scenario.

The State agency data included a total of 2,757 yellow and orange warning signs. The dates of installation of these signs ranged from 1973 to 1995 with an average installation date of 1989. Of that sample, 1,443 (or 52.3 percent) were made with Type I materials.

The local agency data included a total of 2,030 yellow and orange warning signs. The dates of installation of these signs ranged from 1979 to 1994 with an average installation date of 1990. Of that sample, 1,294 (or 63.7 percent) were made with Type I materials.

The FHWA proposes to eliminate Type I material for ground-mounted guide sign legends. Using the same data set described above, it is possible to estimate the number of ground-mounted guide signs using legends made with Type I materials. For the State agencies, a total of 929 signs were measured and 420 (45.2 percent) of the legends were made with Type I material. For the local agencies, a total of 300 signs were measured and 111 (37.0 percent) of the legends were made with Type I material.

Finally, the FHWA proposes to eliminate Type I, II, and III materials for overhead guide sign legends. The previously referenced data source contains no overhead signing data. Therefore, the impacts of the overhead guide sign policy as proposed in this SNPA were assessed using the results of a Virginia DOT survey completed in early 2005.¹⁷ That survey included questions for State agencies regarding overhead guide signs and retroreflective sheeting. Of the 21 States who responded, one State (4.8 percent) uses Type I for legend material, eight States (38.1 percent) use Type III for legend material, and the remaining 12 States (57.1 percent) use Type VII, VIII, or IX for legend material.

Based on this analysis, it can be estimated that approximately 50 to 60 percent of the in-service yellow and orange warning signs use a Type I material for their sign face. Similarly, it can be estimated that approximately 50 to 60 percent of the in-service ground-mounted guide signs use a Type I material for the legend, and that approximately 40 percent of the States use a Type I, II, or III material for the legend of their overhead guide signs. The proposed table of minimum retroreflectivity levels would require that these signs be replaced with more efficient retroreflective materials before the respective compliance dates (7 years for ground-mounted signs and 10 years for street name signs and overhead guide signs).

Discussion of Other Comments

In addition to the five major issues discussed in the previous section, the FHWA also received comments that can be grouped into the following topics:

- (6) Extension of the initial NPA comment period;
- (7) Maintaining traffic sign retroreflectivity;
- (8) Methods to maintain traffic sign retroreflectivity;

(9) Potential safety implications of maintained sign retroreflectivity;

(10) Signs excluded from the proposed rule;

(11) Levels of minimum retroreflectivity and contrast ratios;

(12) Adding minimum retroreflectivity levels for larger observation angles;

(13) Adding types of sheeting to the minimum retroreflectivity table;

(14) Need for technical support and training;

(15) Changes to Section 2A.22 Maintenance; and

(16) Pavement markings.

This section of this SNPA contains a discussion of each of these topics.

(6) *Extension of the initial NPA comment period.*

The NCUTCD, the AASHTO, and Connecticut DOT all requested that the comment period be extended so that their members would have a sufficient period of time to review and develop comments. As a result, the FHWA published a notice in the **Federal Register** on October 22, 2004, that extended the comment period to February 1, 2005 (69 FR 62007). The ATSSA opposed any extension of the comment period, while the AHUA opposed extending the comment period beyond February 1, 2005.

(7) *Maintaining traffic sign retroreflectivity.*

In Section 1A.11 Relation to Other Publications, the FHWA proposed in the NPA to add the 2003 version of the publication "Maintaining Traffic Sign Retroreflectivity" to the list of other publications that are useful sources. There were 32 comments from the AASHTO, the NACE, 27 State DOTs, Saline County (Kansas), Pierce County (Washington), and a consultant in support of adding a reference to the publication "Maintaining Traffic Sign Retroreflectivity" to the discussion of useful sources of information. The primary reason for their support was the fact that the table showing the minimum levels of retroreflectivity, which is contained in the referenced publication, would thereby not be explicitly included within the body of the MUTCD language. Instead, the table of minimum values would be a part of the referenced publication and could easily be updated as the science of sign visibility continued to evolve.

While the FHWA still feels that the referenced document "Maintaining Traffic Sign Retroreflectivity" is a useful document that provides additional details of the methods available to satisfy the intent of the MUTCD sign retroreflectivity language, the FHWA has decided to include the table of

¹⁶ McGee, H.W. and S. Taori. Impacts on State and Local Agencies for Maintaining Traffic Signs Within Minimum Retroreflectivity Guidelines. FHWA-RD-97-053, FHWA, Washington, DC, 1998.

¹⁷ From an unpublished Virginia DOT survey of State DOT overhead sign lighting and sheeting policies, a copy of which is available for inspection on the docket.

minimum retroreflectivity levels in the MUTCD text as previously described. This SNPA references the 2005 Edition of the document entitled "Maintaining Traffic Sign Retroreflectivity" that has been updated to reflect the proposed changes described in this SNPA.

The ATSSA and a consultant suggested that the MUTCD should include a statement mentioned in the "Maintaining Traffic Sign Retroreflectivity" document that states, "It should be noted that there may be situations where, based on engineering judgment, an agency may want to provide greater retroreflectivity." The FHWA agrees with this concept, but because there has not been sufficient research to document the situations or to what extent additional retroreflectivity would be needed, it is premature to add such a statement. However, the FHWA notes that the proposed SNPA would not restrict agencies from using higher levels of retroreflectivity if, based on engineering judgment or studies, the agencies determine that higher levels are warranted.

The NACE, Saline County (Kansas), and Pierce County (Washington) suggested amending the "Maintaining Traffic Sign Retroreflectivity" document to provide the proper context for use of the table showing the retroreflectivity values. In addition, the NACE, Saline County (Kansas), and Pierce County (Washington) suggested that the FHWA provide additional information on how a practitioner would use the table of values to set up a management or assessment program. The FHWA agrees, and has updated the "Maintaining Traffic Sign Retroreflectivity" document to provide additional information to support the minimum retroreflectivity table, which the FHWA now proposes to include in the MUTCD. In addition, the FHWA has provided and will continue to provide training material to help agencies comply with the proposed rule.

(8) *Methods to maintain traffic sign retroreflectivity.*

The NPA included five methods that agencies can use to maintain traffic sign retroreflectivity at or above the established minimum levels. The FHWA received 26 comments from the AASHTO, the NACE, the ARTBA, 18 State DOTs, and two counties supporting the flexibility that these methods provide. Other respondents provided a mixed set of requests asking for additional details in some cases and for less detail in other cases. The FHWA considered the extent of these comments and has retained the list of assessment and management methods in Section 2A.09, but has provided less

detail about each specific assessment and management method. The additional details requested will be provided in the referenced document entitled, "Maintaining Traffic Sign Retroreflectivity (2005 Edition)."

(9) *Potential safety implications of maintained sign retroreflectivity.*

Forty-six comments representing State and local DOTs, the AASHTO, the NACE, the AARP, the ARTBA, industry, consultants, and private citizens agreed with the general principle that it is desirable to maintain adequate levels of sign retroreflectivity to enhance safety for motorists during the hours of darkness and during adverse weather. However, the AHAS questioned the sustainability of the NPA proposal in terms of safety validation.

Although there has not been a study definitively linking the safety benefits of maintaining or upgrading retroreflective sign sheeting materials, there have been some investigations that demonstrate potential safety benefits of upgrading sign sheeting materials.¹⁸ The FHWA believes these investigations provide support for the potential safety benefits of upgrading these materials.

The City of Sioux City, Iowa has a population of approximately 85,000. The City was using Type I materials prior to 1995 when a sign upgrade program was initiated that started with Type III material, but eventually moved to a Type IX material. The City was replacing approximately 10 percent of its total sign inventory per year. Using crash data, the City determined that the crashes per million vehicle miles dropped from about 6.5 in 1995 to about 4.0 in 1999. In addition, the ratio of nighttime to daytime crashes during the same period dropped from about 1.19 to about 0.96. The City estimated the costs of the program to be approximately \$150,000 for the three years from 1997 to 1999. During that same time, the City estimated a total cost savings of almost five million dollars, using an average crash cost of \$2,350. The benefit-cost ratio was estimated to be 34:1.

Putnam County, New York is a rural county located just north of New York City. The County is responsible for maintaining over 115 miles of roads. In 1992, all county road signs were fabricated with Type I materials. In 1993 and 1994, the County upgraded over 2,000 traffic signs to Type III material (for regulatory and warning signs on

roadways with recommended speeds of 30 mph and above) and Type IX material (for arrows and chevrons as well as signs on roadways with recommended speeds of 25 mph and below). Three county roads were chosen for analysis to determine the impacts of the sign sheeting upgrade program. Two of the roads were chosen because they had the highest traffic volumes in the county and the third road was chosen because it had the highest crash rate in the county. The available accident statistics for 1992 (the year before the sign upgrades) and 1995 (the year after the higher performance signs were installed) were analyzed in this study. Based on the results of this study, the difference in reported crashes between 1992 and 1995 was impressive. The total number of crashes was reduced by 26 percent, the number of injury crashes was reduced by 23 percent, and the number of nighttime crashes was reduced by 50 percent.

There are a number of limitations associated with each of these investigations. For example, other roadway improvements such as fresh pavement overlays and new pavement markings were implemented simultaneously with the signing upgrades, which make the determination of the safety effects directly associated with the signing upgrades difficult to assess. In addition, the investigations have not been individually published in peer-reviewed journals.

Despite these limitations, these investigations demonstrate that upgrading sign sheeting material can lead to improved safety. More importantly, maintaining adequate sign retroreflectivity is consistent with one of the FHWA's primary goals, which is to improve safety on the nation's streets and highways. Many safety strategies are dependent on adequate sign visibility. The FHWA expects that improvements to nighttime visibility of traffic signs will help drivers better navigate the roads at night and thus promote safety and mobility, which is consistent with the purposes of traffic control devices as described in Section 1A.01—Purposes of Traffic Control Devices of the MUTCD. Improvements in sign visibility will also support the FHWA's efforts to be responsive to the needs of older drivers, which is important because the number of older drivers is expected to increase significantly during the next 30 years.

(10) *Signs excluded from the proposed rule.*

In the NPA, the FHWA proposed to list in an OPTION paragraph signs that agencies may exclude from the

¹⁸ D. Ripley. Quantifying the Safety Benefits of Traffic Control Devices—Benefit-Cost Analysis of Traffic Sign Upgrades. Accepted for publication in the proceedings of the 2005 Mid-Continent Transportation Research Symposium, Ames, Iowa, August 2005. This paper can be found at <http://tcd.tamu.edu/Documents/MinRetro/MinRetro.htm>.

proposed assessment methods and minimum maintained sign retroreflectivity levels. The signs that the FHWA proposed to exclude were: (1) Parking, Standing, and Stopping signs (R7 and R8 series), (2) Walking, Hitchhiking, and Crossing signs (R9 series, R10-1 through R10-4b), (3) Adopt-A-Highway series, (4) All signs with blue or brown backgrounds, and (5) Bikeway signs that are intended for exclusive use by bicyclists and/or pedestrians. The intent was that the proposed list would not exclude those signs from the existing retroreflectivity and maintenance requirements and GUIDANCE that are currently included in the MUTCD.

The FHWA received 10 comments from Michigan DOT, Monroe County (New York), the ATSSA, the AARP, industry, and consultants in response to the proposed language in the OPTION paragraph described above. The FHWA considered the comments and has decided not to make any changes. While one of the key goals of the proposed MUTCD language described herein is to promote safety, the FHWA believes that the minimum retroreflectivity levels proposed in this SNPA should include, at a minimum, the most important signs—regulatory, warning, and guide signs.

The FHWA also received comments from the AHAS, the ATSSA, industry, and two consultants indicating that blue and brown signs should be included in the table of minimum retroreflectivity levels. Research is underway to provide a set of recommended minimum retroreflectivity levels for signs with blue and brown backgrounds, but there are no immediate plans to establish minimum retroreflectivity levels for these or other sign colors. The FHWA seeks comments on the need for retroreflectivity levels to be developed for signs with blue and brown backgrounds.

(11) *Levels of minimum retroreflectivity and contrast ratios.*

A representative of the sign industry opposed the levels of retroreflectivity proposed in the NPA, stating that they corresponded to a level of sign performance that is too low, and do not meet the needs of drivers on roads with both horizontal and vertical curvature, drivers on roads that are located in high ambient light conditions, drivers of large trucks, or older drivers.

The FHWA acknowledges that the initial research did not cover all conditions possible; however, providing adequate traffic sign luminance for all drivers in the worst possible situations could not be accomplished by retroreflectivity alone and would

require additional illumination. The initial research did include sensitivity analyses for different vehicle sizes, including large trucks. Also, the subjects used in the studies were at least 55 years of age with a median age of 62 years (the oldest driver to complete the study was over 80 years of age). The minimum retroreflectivity levels have been estimated to provide a nighttime accommodation level that corresponds to levels above 90 percent of the nighttime driving population. It should be noted that more studies are needed as recommended in some FHWA publications.^{19 20}

The Virginia DOT questioned whether minimum contrast ratios are needed for the white on green signs since a minimum contrast ratio is shown for white on red signs. The FHWA believes that contrast ratios are not needed for white on green signs since green signs are made with green sheeting and are much more durable in terms of maintaining their color than red signs, which are made from silk screening and thus fade towards white as the silk screen's red color fades.

A consultant opposed the contrast ratios, stating that contrast ratios of 3:1 are too low, and recommended that the ratio be raised to 4:1. The FHWA disagrees because the key issue is that the contrast ratio for the minimum retroreflectivity levels is assigned to red signs. These are signs that have unique shapes and/or sizes in addition to their legends. Therefore, the information they convey is provided through an iconic manner, rather than textual. For iconic signs, or recognition-based tasks, a contrast ratio of 3:1 is adequate.²¹ For legibility-based tasks, contrast ratios higher than 3:1 would be preferred.

The Arizona DOT opposed any reference in the MUTCD to actual minimum retroreflectivity values, either in research or in another FHWA publication. The Arizona DOT states that the research values have fluctuated in the past 10 years, and with so many other variables affecting the performance of the signs at night, including vehicle headlights, driver eyesight, weather conditions, etc., the

Arizona DOT does not agree with the values as set by the ASTM sheeting types. The FHWA disagrees. The FHWA decided to use the ASTM sheeting type designations for two reasons. First, there is not a better or as well recognized classification scheme for retroreflective sheeting, and second, luminance would be a better measure of sign performance, but there is not a practical way to consistently measure luminance in the field. As new ASTM sheeting types are designated, the minimum retroreflectivity table will be updated as appropriate.

The New Jersey DOT suggested that consideration be given to the fact that retroreflectivity of signs can be taken to a level where the glare is unsatisfactory, and that some signs with a gloss finish reflect light from headlights to a point where the sign becomes illegible. The FHWA is not aware of any research or data showing that retroreflective signs are too bright, and believes that the minimum levels will not lead to signs being excessively retroreflective.

(12) *Adding minimum retroreflectivity levels for larger observation angles.*

Two comments from the sign industry and another from a consultant opposed the 0.2-degree observation angle used in the referenced table of minimum retroreflectivity levels, and suggested that a 0.5-degree observation angle be included in order for the levels to be more meaningful and more easily adaptable in the future. The FHWA agrees that changing the standard observation angle to 0.5 degrees would provide a more meaningful retroreflectivity value. Research has been completed that supports moving toward the 0.5-degree concept and the ASTM has started working toward a revision to its specifications to describe 0.5-degree measurements.²² However, there are currently no hand-held devices that measure an observation angle of 0.5 degrees conveniently when conducting field measurements. While there are some devices currently in the design and prototype stage, the FHWA does not believe it is practical to implement minimum retroreflectivity levels based on an observation angle of 0.5 degrees until measuring devices become readily available. At that time there may be a need for an alternative table and a transition period established while the 0.2-degree measurement geometries and devices are phased out.

(13) *Adding types of sheeting to the minimum retroreflectivity table.*

²² Changes to ASTM E1709 are currently underway to include the possibility of measuring sign retroreflective sheeting at alternative observation angles, including 0.5 degrees.

¹⁹ Carlson, P.J. and H.G. Hawkins. Updated Minimum Retroreflectivity Levels for Traffic Signs. Final Report FHWA-RD-03-081. Federal Highway Administration, Washington, DC, 2003.

²⁰ Carlson, P.J., H.G. Hawkins, G.F. Schertz, D.J. Mace, and K.S. Opiela. Developing Updated Minimum In-Service Retroreflectivity Levels for Traffic Signs. In Transportation Research Record 1824, TRB, National Research Council, Washington, DC, 2003, pp. 133-143.

²¹ Carlson, P.J. and H.G. Hawkins. Updated Minimum Retroreflectivity Levels for Traffic Signs. Final Report FHWA-RD-03-081. Federal Highway Administration, Washington, DC, 2003.

The ATSSA, Texas DOT, a representative of the sign industry, and a private citizen all commented that the Minimum Maintained Retroreflectivity Levels table did not include values for Type IV material, which is now used by many State and local DOTs. During the development of the FHWA minimum retroreflectivity levels, the Type IV designation was a leftover designation for a material that was discontinued. Types VII, VIII, and IX materials were introduced and this left a large gap in performance between the Type III materials and the Type VII, VIII, and IX materials. This gap was recently filled when manufacturers began offering a product with retroreflectivity levels near the previous Type IV designation. The ASTM subsequently revamped the Type IV retroreflectivity levels as a result of the increased interest in Type IV materials. Based on the current commercial availability of Type IV retroreflective material, the FHWA proposes in this SNPA to include requirements for Type IV material in the table of Minimum Maintained Retroreflectivity Levels.

The ATSSA, a consultant, and a private citizen all commented that the Minimum Maintained Retroreflectivity Levels table did not include values for Type VI, which is in widespread use throughout the country. Type VI materials are flexible materials that are usually associated with roll-up orange traffic signs. The current research literature does not include findings specifically targeting Type VI materials. However, Type VI materials are orange and prismatic, like Types VII, VIII, and IX and should meet the same minimum performance levels of these signs. Therefore, the FHWA proposes in this SNPA to include requirements for Type VI material in the table of Minimum Maintained Retroreflectivity Levels.

The FHWA also proposes to expand the table to include Type X materials. Consequently, all currently defined ASTM Type designations that are used for traffic signs would be included in the Minimum Maintained Retroreflectivity Levels table.

(14) *Need for technical support and training.*

Five comments from Hillsdale County (Michigan), Pierce County (Washington), Saline County (Kansas), the APWA, and the NACE suggested that the FHWA provide training for road agencies in terms of developing and conducting assessment and management methods in order to comply with the MUTCD. The FHWA has developed and provided train-the-trainer workshops and teaching materials to FHWA Local Technical Assistance Program (LTAP)

instructors.²³ These instructors have, and will continue to provide training across the country to local and State employees.

(15) *Changes to Section 2A.22 Maintenance.*

In Section 2A.22 Maintenance, the FHWA proposed in the NPA to change the first paragraph of the GUIDANCE statement by replacing the phrase “adequate retroreflectivity” with “retroreflectivity levels as indicated in Section 2A.09.” The FHWA received nine comments regarding Section 2A.22. Eight of those comments (from private citizens and two consultants) suggested changing the concept of retroreflectivity that “should” be maintained, to retroreflectivity that “shall” be maintained. These comments were provided as suggestions to strengthen the MUTCD language associated with the NPA so that the Congressional directive would be more clearly satisfied.

The FHWA considered these comments and agrees. However, because we propose to include a STANDARD statement in Section 2A.09 that requires public agencies or officials having jurisdiction to use an assessment method to maintain traffic sign retroreflectivity at or above the minimum levels, the addition of a similar STANDARD statement in Section 2A.22 would be redundant.

The other commenter (a private citizen) suggested rewording the first paragraph of Section 2A.22 to read as follows: “All traffic signs should be kept properly positioned, clean, and legible, and should have retroreflectivity levels evaluated by one of the methods indicated in Section 2A.09.” The FHWA disagrees with this comment because it does not provide the flexibility for agencies to develop methods other than the five methods listed in Section 2A.09.

(16) *Pavement markings.*

Section 406 of the Department of Transportation and Related Agencies Appropriations Act, 1993 (Pub. L. 102-388; October 6, 1992) directed the Secretary of Transportation to revise the MUTCD to include a standard for minimum levels of retroreflectivity that must be maintained for traffic signs and pavement markings, which apply to all roads open to public travel. The AHAS commented that the NPA failed to fulfill this statutory command because minimum retroreflectivity levels for pavement markings were not included.

²³A description of the workshop including teaching materials and the report can be found at <http://tcd.tamu.edu/Documents/MinRetro/MinRetro.htm>.

The FHWA is currently conducting research to develop a standard for minimum levels of pavement marking retroreflectivity and intends to issue a separate NPA to amend the MUTCD to include a standard for minimum levels of pavement marking retroreflectivity. The pavement marking retroreflectivity NPA is not expected to be issued until the rulemaking for minimum traffic sign retroreflectivity is finalized.

Section-by-Section Analysis

The FHWA is seeking comments on the changes proposed in this SNPA to the Introduction, Section 1A.11 Relation to Other Publications, Section 2A.09 Minimum Retroreflectivity Levels, and Section 2A.22 Maintenance.

Introduction

The FHWA proposes in this SNPA to add STANDARD language to the Introduction describing the compliance periods associated with the new Section 2A.09 Maintaining Minimum Retroreflectivity. The proposed language would give agencies 2 years from the date of the final rule for implementation and continued use of an assessment or management method; 7 years from the effective date of the final rule for replacement of regulatory, warning, and ground-mounted guide signs that are identified as having inadequate retroreflectivity by the assessment or management method; and 10 years from the effective date of the final rule for replacement of street name signs and overhead guide signs that are identified as having inadequate retroreflectivity by the assessment or management method. This language was modified from the language that was included in the NPA in order to clarify the intent of the compliance periods.

Part 1—General

In Section 1A.11 Relation to Other Publications, the FHWA proposes adding a new SUPPORT paragraph that references the availability of the publication “Maintaining Traffic Sign Retroreflectivity (2005 Edition),”²⁴ as this publication contains supplemental information about the proposed MUTCD language that many respondents to the NPA requested.

Part 2—Signs

In Section 2A.09 Maintaining Minimum Retroreflectivity, the FHWA is proposing in this SNPA to include a STANDARD statement that requires public agencies or officials having

²⁴The document, “Maintaining Traffic Sign Retroreflectivity, 2005 Edition” is available online at the following Web address: <http://www.fhwa.dot.gov/retro>.

jurisdiction to use an assessment or management method to maintain traffic sign retroreflectivity at or above the minimum levels established in the proposed GUIDANCE paragraph that follows the STANDARD.

The proposed GUIDANCE statement that immediately follows the STANDARD states that except for the signs excluded in the proposed OPTION in Section 2A.09, one or more of the five assessment or management methods that are described immediately following the GUIDANCE statement should be used to maintain traffic sign retroreflectivity at or above the minimum levels identified in a new proposed Table 2A-3.

In this SNPA, the FHWA proposes to add the STANDARD statement to enhance safety through maintained sign visibility and to address comments questioning whether the NPA proposal satisfied the Congressional intent of the Appropriations Act of 1993.

Additionally, the FHWA proposes to include the table of minimum maintained retroreflectivity levels as a new Table 2A-3. Existing Tables 2A-3 and 2A-4 will be renumbered as Tables 2A-4 and 2A-5, respectively, and all references to these renumbered tables will be appropriately adjusted.

In this SNPA, the FHWA proposes to add a SUPPORT paragraph that explains that although conformance with the proposed STANDARD can be initially achieved by implementing an assessment or management method, the agency must continue to use the method to maintain the minimum levels established in this section in order to retain conformance with the STANDARD. This proposed SUPPORT paragraph also informs readers that the publication entitled "Maintaining Traffic Sign Retroreflectivity" contains additional information about these methods and provides a cross-reference to Section 1A.11, which describes how to obtain this publication.

Rulemaking Analyses and Notices

All comments received before the close of business on the comment closing date indicated above will be considered and will be available for examination using the docket number appearing at the top of this document in the docket room at the above address. The FHWA will file comments received after the comment closing date and will consider late comments to the extent practicable. In addition to late comments, the FHWA will also continue to file in the docket relevant information becoming available after the comment closing date, and interested persons should continue to examine the

docket for new material. A final rule may be published at any time after the close of the comment period.

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

The FHWA has determined that this action is a significant regulatory action within the meaning of Executive Order 12866 and under the regulatory policies and procedures of the U.S. Department of Transportation, because of the substantial public interest in the retroreflectivity of traffic signs. This rulemaking addresses comments received in response to the Office of Management and Budget's (OMB's) request for regulatory reform nominations from the public. The OMB is required to submit an annual report to Congress on the costs and benefits of Federal regulations. The 2002 report included recommendations for regulatory reform that OMB requested from the public.²⁵ One recommendation was that the FHWA should establish standards for minimum levels of brightness of traffic signs.²⁶ The FHWA has identified this rulemaking as responsive to that recommendation.

It is anticipated that the economic impact of this rulemaking would cause minimal additional expenses to public agencies. In 2003, the FHWA updated its analysis of the cost impacts to State and local agencies to reflect higher material costs due to inflation, an increase in the proportion of signs that would be replaced with higher-level sign sheeting material, and changes in the overall mileage of State and local roads. The findings of the 2003 analysis show that the costs of the proposed action to State and local agencies would be minimal.²⁷ The proposed phase-in periods allows sign replacement during the normal sign replacement cycle. Therefore, any marginal costs would be

²⁵A copy of the OMB report "Stimulating Smarter Regulation: 2002 Report to Congress on the Costs and Benefits of Regulation and Unfunded Mandates on State, Local, and Tribal Entities" is available at the following Web address: http://www.whitehouse.gov/omb/inforeg/summaries_nominations_final.pdf.

²⁶A complete compilation of comments received by OMB is available at the following Web address: http://www.whitehouse.gov/omb/inforeg/key_comments.html. Comment #93 cites a 1999 report generated by the Advocates for Auto and Highway Safety entitled, "Stuck in Neutral: Recommendations for Shifting the Highway and Auto Safety Agenda into High Gear—A Comprehensive Report on the Major Highway and auto Safety Issues Facing America" September 1999. This report is available at the following Web address: <http://www.saferoads.org/polls/stuckinneutral.htm>.

²⁷The "Impacts Analysis" report is available at the following Web address: http://dmses.dot.gov/docimages/pdf92/290314_web.pdf.

incremental for the upgraded level of sign retroreflectivity and most of the material available at the time of sign replacement will be of the higher retroreflective quality. Finally, the FHWA expects that the proposed levels and maintenance methods will help to promote safety and mobility on the nation's streets and highways and will result in minimum additional expense to public agencies or the motoring public. Specific examples are described in the section entitled "Discussion of Major Comments."

The proposed 7-year regulation implementation period for ground-mounted signs would allow State and local agencies to delay replacement of recently installed Type I signs until they have reached their commonly accepted 7-year service life. The proposed 10-year compliance period for overhead signs would allow an extended period of time because of the longer service life typically used for those signs. The changes proposed in this SNPA do not affect the impacts assessments described above.

The FHWA has considered the benefits and costs associated with this rulemaking and believes that the benefits outweigh the costs. Currently, the MUTCD requires that traffic signs be illuminated or retroreflective to enhance nighttime visibility. The changes proposed in this SNPA provide additional guidance, clarification, and flexibility in maintaining traffic sign retroreflectivity that is already required by the MUTCD. The proposed levels and maintenance methods consider changes in the composition of the vehicle population, vehicle headlamp design, and the demographics of drivers.

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 and has determined that this proposed action would not have a significant economic impact on a substantial number of small entities.

This rule would apply to State Departments of Transportation in the execution of their highway programs, specifically with respect to the retroreflectivity of traffic signs. Additionally, sign replacement is eligible for up to 100 percent Federal-aid funding—this applies to local jurisdictions and tribal governments, pursuant to 23 U.S.C. 120(c). Therefore, the implementation of the proposed provisions in this rule would not affect the economic viability or sustenance of small entities, as States are not included

in the definition of a small entity that is set forth in 5 U.S.C. 601.

Executive Order 13132 (Federalism)

The FHWA analyzed this proposed amendment in accordance with the principles and criteria contained in Executive Order 13132, dated August 4, 1999, and the FHWA has determined that this proposed action would not have a substantial direct effect or sufficient federalism implications on States and local governments that would limit the policy-making discretion of the States and local governments. Nothing in the MUTCD directly preempts any State law or regulation.

The MUTCD is incorporated by reference in 23 CFR part 655, subpart F. 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 nation's streets and highways.

Executive Order 12372 (Intergovernmental Review)

Catalog of Federal Domestic Assistance Program Number 20.205, Highway Planning and Construction. The regulations implementing Executive Order 12372 regarding intergovernmental consultation on Federal programs and activities apply to this program.

Unfunded Mandates Reform Act

This SNPA would not impose unfunded mandates as defined by the Unfunded Mandates Reform Act of 1995 (Pub. L. 104-4, 109 Stat. 48, March 22, 1995). The findings of the impacts analysis indicate that this proposed action will not result in the expenditure by State, local, and tribal governments, in the aggregate, or by the private sector, of \$120.7 million or more in any one year. In addition, sign replacement is eligible for up to 100 percent Federal-aid funding—this applies to local jurisdictions and tribal governments, pursuant to 23 U.S.C. 120(c).

Paperwork Reduction Act

Under the Paperwork Reduction Act of 1995 (PRA) (44 U.S.C. 3501, *et seq.*), Federal agencies must obtain approval from the OMB for each collection of information they conduct, sponsor, or require through regulations. The FHWA has determined that this proposed action does not contain a collection of information requirement for the purposes of the PRA.

Executive Order 12988 (Civil Justice Reform)

This proposed action meets applicable standards in Sections 3(a) and 3(b)(2) of Executive Order 12988, Civil Justice Reform, to minimize litigation, to eliminate ambiguity, and to reduce burden.

Executive Order 13045 (Protection of Children)

The FHWA has analyzed this proposed action under Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks. This is not an economically significant proposed action and does not concern an environmental risk to health or safety that may disproportionately affect children.

Executive Order 12630 (Taking of Private Property)

This proposed action would not effect a taking of private property or otherwise have taking implications under Executive Order 12630, Governmental Actions and Interference with Constitutionally Protected Property Rights.

Executive Order 13211 (Energy Effects)

The FHWA has analyzed this proposed action under Executive Order 13211, Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use. The FHWA has determined that this is not a significant energy action under that order because although it is a significant regulatory action under Executive Order 12866, it is not likely to have a significant adverse effect on the supply, distribution, or use of energy. Therefore, a Statement of Energy Effects under Executive Order 13211 is not required.

Executive Order 13175 (Tribal Consultation)

The FHWA has analyzed this proposed action under Executive Order 13175, dated November 6, 2000, and believes that it will not have substantial direct effects on one or more Indian tribes; will not impose substantial direct compliance costs on Indian tribal governments; and will not preempt tribal law. Therefore, a tribal summary impact statement is not required.

National Environmental Policy Act

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

Authority: 23 U.S.C. 101(a), 104, 105, 109(d), 114(a), 135, 217, 307, 315, and 402(a); sec. 406(a), Pub. L. 102-388, 106 Stat. 1520, 1564; 23 CFR 1.32; and 49 CFR 1.48(b).

Issued on: May 2, 2006.

Frederick G. Wright, Jr.,

Federal Highway Executive Director.

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DEPARTMENT OF THE TREASURY

Internal Revenue Service

26 CFR Part 1

[REG-131264-04]

RIN 1545-BD55

Withdrawal of Proposed Regulations Regarding Intercompany Transactions; Manufacturer Incentive Payments

AGENCY: Internal Revenue Service (IRS), Treasury.

ACTION: Withdrawal of notice of proposed rulemaking.

SUMMARY: This document withdraws a notice of proposed rulemaking (REG-131264-04) regarding the treatment of manufacturer incentive payments. The proposed regulations were published in the **Federal Register** on August 13, 2004 (69 FR 50112). After consideration of additional issues, the IRS and Treasury Department have decided to withdraw the proposed regulations.

DATES: These proposed regulations are withdrawn May 8, 2006.

FOR FURTHER INFORMATION CONTACT: Frances Kelly, (202) 622-7770 (not a toll-free number).

SUPPLEMENTARY INFORMATION:

Background

On August 13, 2004, the IRS and Treasury Department published a notice of proposed rulemaking (REG-131264-04) in the **Federal Register** (69 FR 50112) proposing regulations to address additional transactions involving