

**NCUTCD Response to Docket No. FHWA-2003-15149
Approved by NCUTCD January 7, 2005**

Proposed Changes to Sections 2A.08 & 2A.09

Yellow = from NPA

Blue = changes from RWSTC approved by NCUTCD in January 2005

Section 2A.08 Retroreflectivity and Illumination

Support:

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

Standard:

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

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

Guidance:

All overhead sign installations should be illuminated unless an engineering study shows that retroreflection will perform effectively without illumination.

Section 2A.09 ~~Minimum~~ Retroreflectivity **Assessment or Management Methods Levels**

Support:

~~(This section is reserved for future text based on FHWA rulemaking.)~~

Retroreflectivity is one of several factors associated with maintaining nighttime sign visibility (see Section 2A.22).

Guidance:

Except for those signs specifically identified in the Option in this Section, one or more of the following assessment **and/or** management methods should be used to maintain sign retroreflectivity above the minimum levels identified in FHWA's "Maintaining Traffic Sign Retroreflectivity" (see Section 1A.11):

- A. Visual Nighttime Inspection – The retroreflectivity of an existing sign is assessed by a trained sign inspector conducting a visual inspection from a moving vehicle during nighttime conditions using one or more of the following procedures:
 1. Calibration Signs – Prior to conducting a nighttime sign inspection, the sign inspector views sample signs that are at or near the minimum retroreflectivity

levels. These signs are viewed at night from the vehicle to be used during the inspection and at distances that are representative of normal sign viewing distances. During the actual inspection, the inspector identifies signs that should be replaced based on how their retroreflectivity compares to the calibration signs.

2. Consistent Parameters – The factors that influence nighttime sign visibility (such as vehicle type, headlamps, viewing distance, driver age, and driver eyesight) are kept similar to the factors used to develop the minimum levels. The inspector identifies signs that should be replaced based on a visual assessment.
 3. Comparison Panels – Small comparison panels at the minimum levels are used to assess the retroreflectivity of a sign. A comparison panel is temporarily attached to an existing sign in the field. An inspector views the sign and comparison panel combination at night. The inspector identifies signs that should be replaced based on how their retroreflectivity compares to the comparison panels.
- B. Measured Sign Retroreflectivity – Sign retroreflectivity is measured using a retroreflectometer. Signs with retroreflectivity below the minimum levels should be replaced.
- C. Expected Sign Life –When signs are installed, the installation date is labeled or recorded so that the age of a sign is known. The age of the sign is compared to the expected sign life. The expected sign life is based on the experience of sign retroreflectivity degradation in a geographic area. Signs older than the expected life should be replaced.
- D. Blanket Replacement –All signs in an area/corridor, or of a given type, should be replaced at specified intervals. This eliminates the need to assess retroreflectivity or track life of individual signs. The replacement interval is based on the expected sign life for the shortest-life material used on the affected signs.
- E. Control Signs – Replacement of signs in the field is based on the performance of a sample of control signs. The control signs might be a small sample located in a maintenance yard or a sample of signs in the field. The control signs are monitored to determine the end of retroreflective life for the associated signs. All field signs represented by the control sample should be replaced before the retroreflectivity levels of the control sample reach the minimum levels.

If the expected life method or blanket replacement method is used as the assessment method of choice by an agency; the minimum levels of retroreflectivity are for information only and an actual retroreflectivity reading is not required.

Support:

Additional information about these methods is contained in FHWA's "Maintaining Traffic Sign Retroreflectivity" (see Section 1A.11).

Option:

Highway agencies may exclude the following signs from the retroreflectivity maintenance guidelines described in this Section:

- A. Parking, Standing, and Stopping signs (R7 and R8 series).
- B. Walking/Hitchhiking/Crossing signs (R9 series, R10-1 through R10-4b).
- C. Adopt-A-Highway signs.
- D. All signs with blue or brown backgrounds
- E. Bikeway signs that are intended for exclusive use by bicyclists or pedestrians.

Support:

Although blue and brown backgrounds of positive contrast legend guide signs are required to have retroreflectivity in accordance with Section 2A.08, specific minimum levels of retroreflectivity have not been identified at this time.

Section 2A.22 Maintenance

Guidance:

All traffic signs should be kept properly positioned, clean, and legible, and should have **adequate** retroreflectivity levels as indicated in Section 2A.09. Maintenance activities should consider proper position, cleanliness, legibility, and daytime and nighttime visibility of a sign. Damaged or deteriorated signs should be replaced.

To assure adequate maintenance, a schedule for inspecting (both by day and night), cleaning, and replacing signs should be established. Employees of highway, law enforcement, and other public agencies whose duties require that they travel on the roadways should be encouraged to report any damaged, deteriorated, or obscured signs at the first opportunity.

Steps should be taken to see that weeds, trees, shrubbery, and construction, maintenance, and utility materials and equipment do not obscure the face of any sign.