

Minimum Sign Retroreflectivity Requirements



New
MUTCD
Standard

AASHTO Joint Meeting
July 15th, 2008
Monterey, CA



Why Do We Install Signs?

Required by MUTCD?

NO

Engineering Decision?

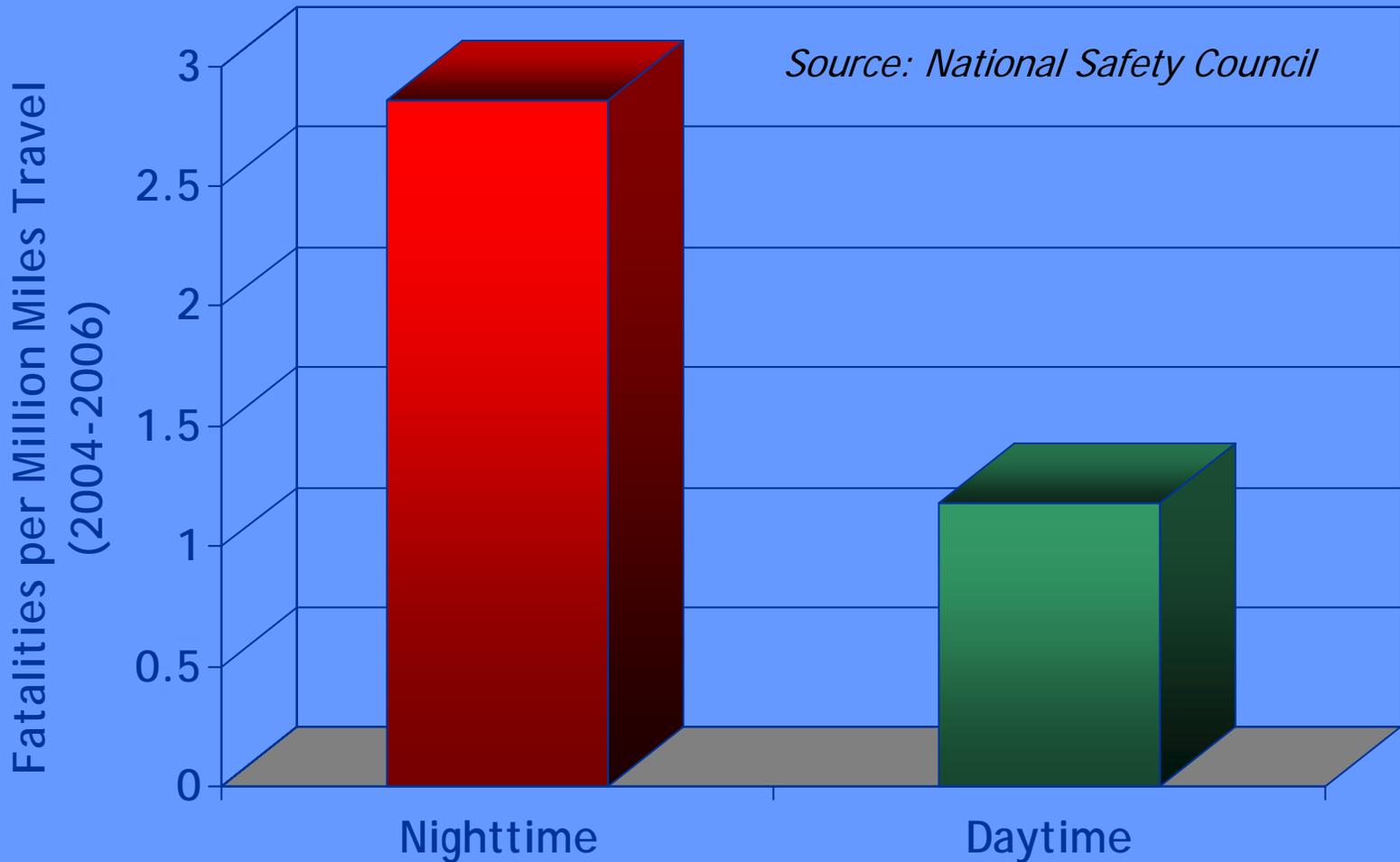
YES!



Why?

*To help drivers
(including older)*

Night Travel and Crashes



Signs Provide Critical Information to Drivers

But, Retroreflectivity Degrades Over Time

**When
Do We
Replace
Signs?**

Retroreflectivity



Final Rule



- Published on Dec 21, 2007
– Vol 72, No. 245
- Revision #2 of the 2003 Edition of the MUTCD
- Effective Jan 22, 2008

New MUTCD Language

Section 2A.09 Maintaining Minimum Retroreflectivity

- “Standard:

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

Methods to Maintain Retro



1. Visual Nighttime Inspection
 - Calibration Signs
 - Comparison Panels
 - Consistent Parameters
2. Measured Sign Retro
3. Expected Sign Life
4. Blanket Replacement
5. Control Signs
6. Future Method Based On Engineering Study

New MUTCD Language

Section 2A.09 Maintaining Minimum Retroreflectivity

- “Support:

Compliance... is achieved by having a method in place and using the method to maintain the minimum levels established in Table 2A-3.

Provided that... a method is being used, an agency would be in compliance... even if there are some individual signs that do not meet the... levels at a particular point in time.

Exempt Signs

- Parking/Standing/Stopping
- Walking/Hitchhiking
- Adopt-A-Highway
- Blue or Brown Backgrounds
- Exclusive Use of Bikes or Peds

Note: Must still meet other requirements in MUTCD (inspections, retroreflective, etc,)



Compliance Period: From “Effective” Date of Final Rule (January 22, 2008):

- 4 yrs (January, 2012)
Establish and implement method(s)
- 7 yrs (January, 2015)
Replace identified regulatory, warning, ground mounted guide signs (except street-name)
- 10 yrs (January, 2018)
Replace identified street name & overhead guide signs

New MUTCD Table 2A.3

Minimum Maintained Retroreflectivity Levels

| Sign Color | Sheeting Type (ASTM D4956-04) ① | | | | Additional Criteria |
|---------------------------------------|---------------------------------|-----------------|--------------|-------------------------------|---------------------|
| | Beaded Sheeting | | | Prismatic Sheeting | |
| | I | II | III | III, IV, VI, VII, VIII, IX, X | |
| White on Green | W* G ≥ 7 | W* G ≥ 15 | W* G ≥ 25 | W ≥ 250; G ≥ 25 | Overhead |
| | W* G ≥ 7 | W ≥ 120; G ≥ 15 | | | Ground-mounted |
| Black on Yellow or Black on Orange | Y*; O* | Y ≥ 50; O ≥ 50 | | | ② |
| | Y*; O* | Y ≥ 75; O ≥ 75 | | | ③ |
| White on Red | W ≥ 35; R ≥ 7 | | | | ④ |
| Black on White | W ≥ 50 | | | | — |

① The minimum maintained retroreflectivity levels shown in this table are in units of cd/lx/m² measured at an observation angle of 0.2° and an entrance angle of -4.0°.

② For text and fine symbol signs measuring at least 1200 mm (48 in) and for all sizes of bold symbol signs

③ For text and fine symbol signs measuring less than 1200 mm (48 in)

④ Minimum Sign Contrast Ratio ≥ 3:1 (white retroreflectivity ÷ red retroreflectivity)

* This sheeting type should not be used for this color for this application.

What do the numbers mean for selecting sheeting type?



Meeting the Minimums

All prismatic currently on the market may be used for all signs.

High-Intensity Beaded and Super Engineering Grade may be used for all signs except white legend on overhead guide signs.

Engineer Grade may be used for all signs except for:

- White legend on guide signs
- White legend on street name signs
- All warning signs

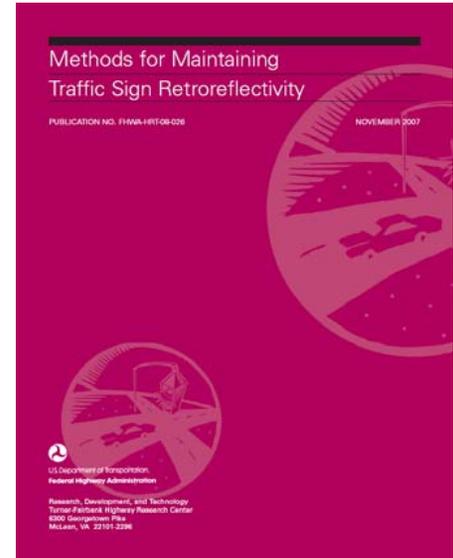
Typical Life Cycle

By Sheeting Types:

- Engineer Grade – about 7 years
 - Super Engineer Grade – 7+ years
 - High Intensity – about 12 years
 - Prismatic – about 16 years
- Decision making: Factor in overall costs including labor & maintenance of traffic

More Information

- FHWA fhwa.dot.gov/retro
 - Summary Brochure
 - Final Rule
 - Power Point Presentations
 - Newsletter Articles
- TTI tcd.tamu.edu
 - Research Reports
- ATSSA www.retroreflectivity.net
 - Q&A





Contact Information

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Questions



Pavement Marking Rulemaking Time Line

- NPA on Pavement Marking Retro
 - Perhaps early 2009
- Minimum 6- month comment period on NPA
 - Late 2009
- Final Rule...2010?

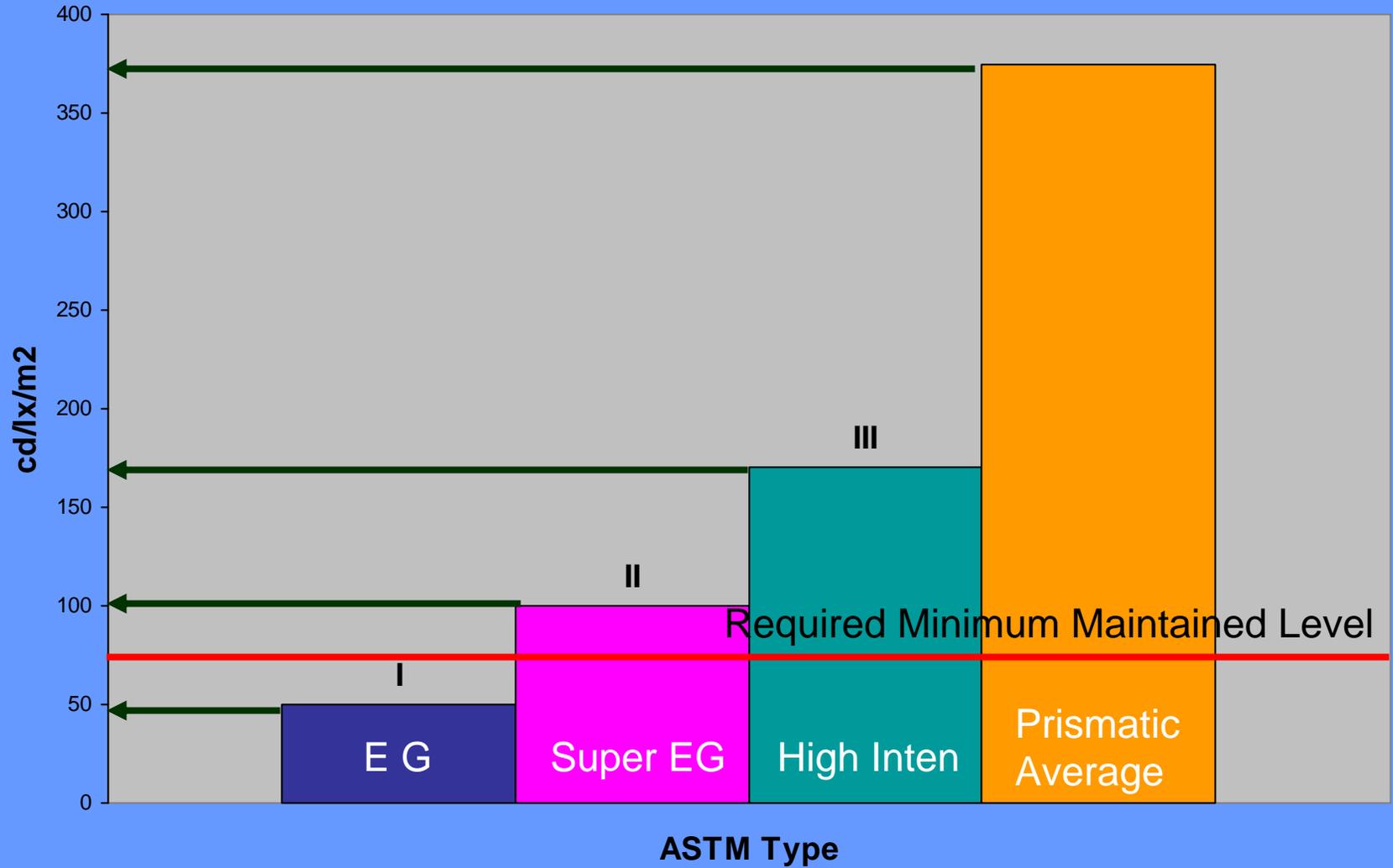


Pavement Marking Retroreflectivity

- Initial research conducted in 1990s
- Updated recommended levels research published in 2007.
- Workshops completed summer 2007
 - Goal: Gather input before drafting MUTCD language
- Preliminary Impacts report just completed, will be published soon.



Yellow - ASTM Specification (new matl, 0.2, -4.0)



Generalized Life of Yellow Sheeting

(no data)

