

DETERMINING A STRATEGY FOR EFFICIENTLY MANAGING SIGN RETROREFLECTIVITY

THE REASON FOR THE STUDY

The Manual on Uniform Traffic Control Devices (MUTCD) required minimum retroreflectivity levels for roadway signs and the Federal Highway Administration required that a plan be in place by 2012 to track roadway sign retroreflectivity. The purpose of this study was to identify, develop, and implement a cost-effective and efficient method to comply.

Five possible methods listed by the MUTCD:

- ◆ **Visual Nighttime Inspection:** Nighttime inspections are performed by trained inspectors from a moving vehicle.
- ◆ **Measured Sign Retroreflectivity:** A retroreflectometer is used to measure the retroreflectivity of signs.
 - ◆ **Expected Sign Life:** Signs older than the expected life are automatically replaced.
 - ◆ **Blanket Replacement:** Signs in an area and/or of a similar type are replaced at specified intervals.
 - ◆ **Control Signs:** When retroreflectivity readings of Control Signs become unacceptable, corresponding signs along the roadway are replaced.



Retroreflectometers are used to measure retroreflectivity



A Control Sign Pole was constructed at the Bureau of Traffic to monitor the loss of retroreflectivity of various sheeting types. Signs installed in the field concurrently with these control panels can be replaced when periodic retroreflectivity readings deem it necessary.

Retroreflective signing is an important means of reducing nighttime crashes. Signs that have sufficient retroreflectivity are beneficial to all drivers. The NHDOT selected the Visual Nighttime Inspection Method to assess the retroreflectivity of signs.

Visual Nighttime Inspection Method

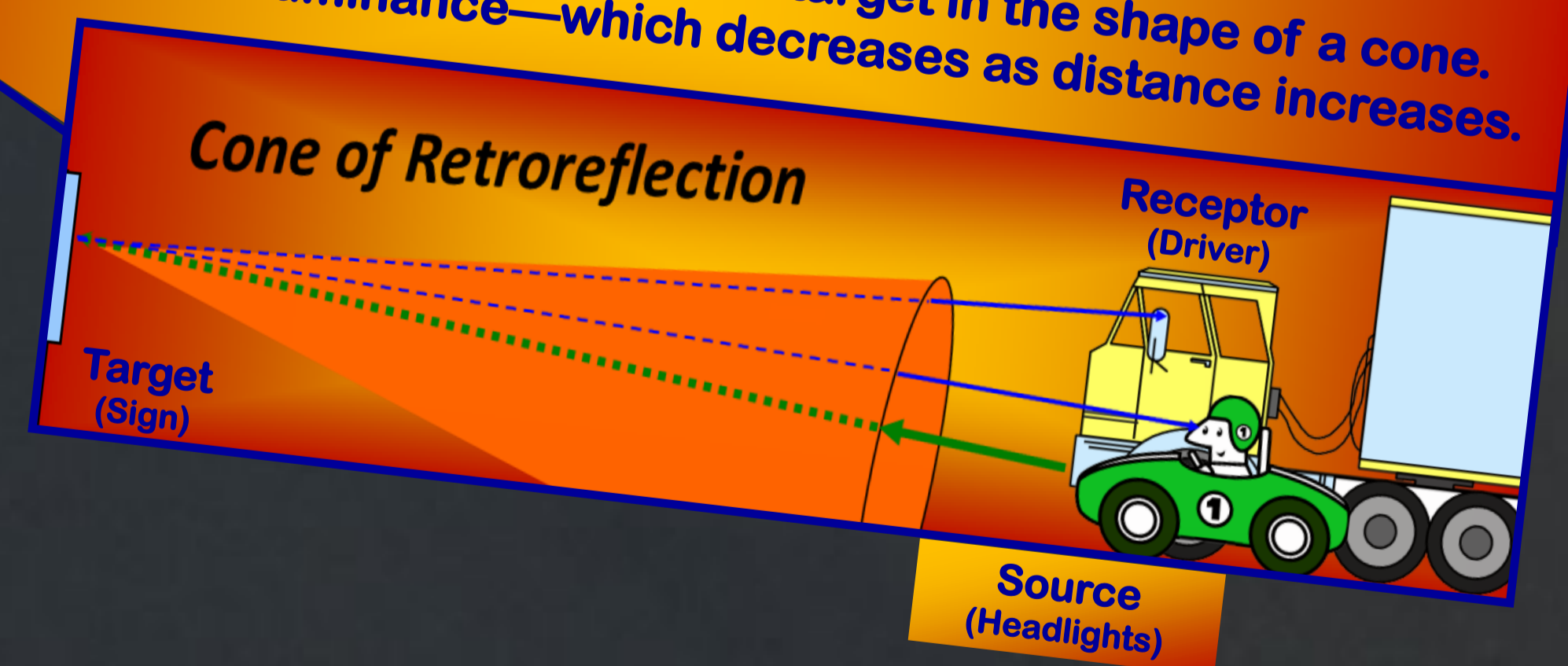
A training course was developed that took place on the access road at New Hampshire Motor Speedway in Loudon, and included in-house training along with the night time field training. During Nighttime Inspection a voice recorder is used to document the visual observations of each sign. Retroreflectivity measurements are taken on signs that are replaced from Visual Nighttime Inspection as a means of determining the effectiveness of the training.

CONCLUSIONS

Nighttime Visual Inspection Method is subjective due to the fact that perceptions vary from person to person. Modifications were made to the training course to compensate for this. Over the course of time additional research is planned at the NHDOT that may make other approaches appropriate.

HOW RETROREFLECTIVITY WORKS

Light is retroreflected back from the target in the shape of a cone. Drivers see the luminance—which decreases as distance increases.

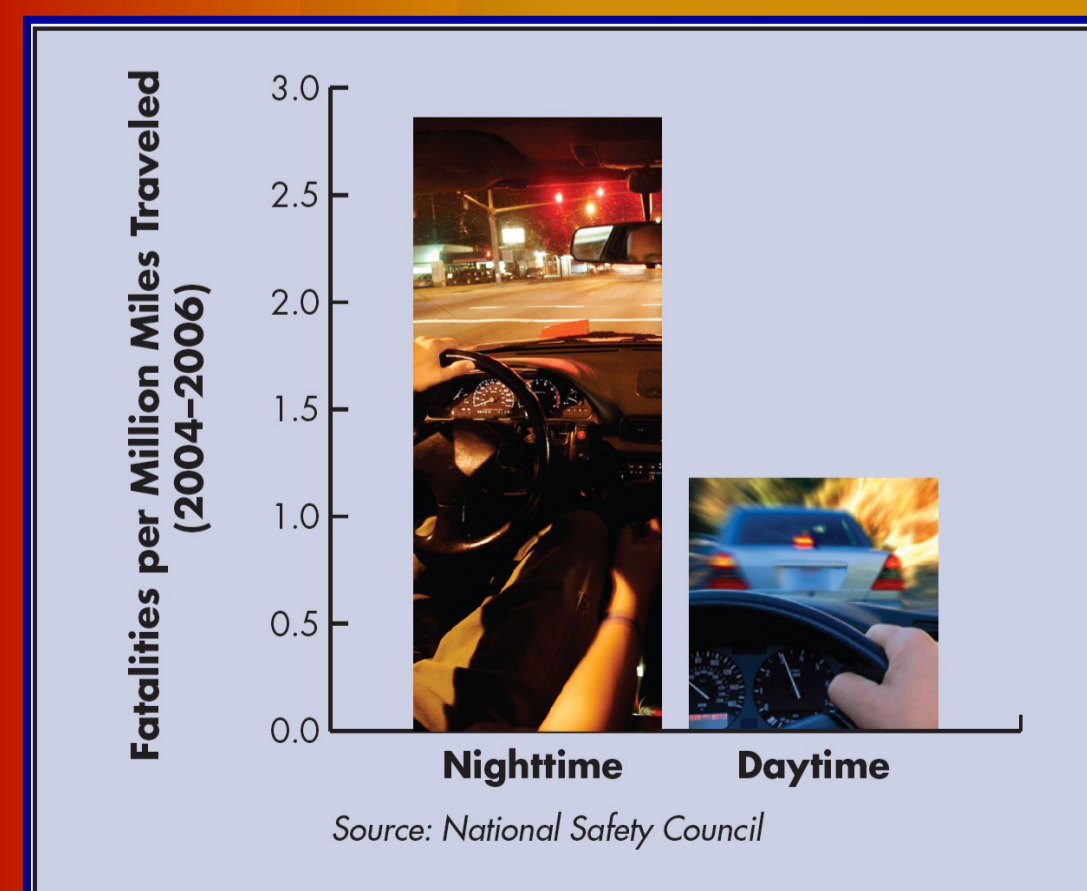


FACTORS CONTRIBUTING TO VISIBILITY AT NIGHT

- Location and condition of sign
- Amount of light from headlamps
- Visual abilities of driver
- Type and size of vehicle

WHY NIGHT TIME VISIBILITY IS IMPORTANT

In 1990 10.7 million (8%) drivers were older than 70.
 In 2006 20.6 million (10.2%) drivers were older than 70.
 The number of "older" drivers will continue to grow.



Starting at age 20 the amount of light required to see doubles every 13 years

ACKNOWLEDGEMENTS

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