Determining a Strategy for Efficiently Managing Sign Retroreflectivity

The Reasons 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:

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

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 Nighttime 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.

How Retroreflectivity Works

Light is retroreflected back from the target in the shape of a cone, which decreases as distance increases.

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.