

Retroreflectivity: Promote Nighttime Safety with Maintained Highway Sign and Pavement Markings

Problem: There is a disparity of crashes at night.

In the United States, almost half of all traffic fatalities occur during hours of darkness. However, only one fourth of the travel takes place during the night.

Traffic control devices are used to provide critical information, including warnings, to drivers. These devices must provide this information 24-hours per day. The most cost-effective way to make traffic control devices visible at night is to ensure that they are adequately retroreflective. Unfortunately, retroreflectivity gradually degrades over time. This requires that signs and markings be replaced prior to the point in time where they no longer meet the needs of nighttime at night.

Putting it in Perspective:

Until recently, it was unknown what level of retroreflectivity drivers need. This was due in part to changes in the most important factors influencing sign visibility. Those factors include aging driver population, new headlights with horizontal cutoff in transmitted light, and a vehicle fleet that has a higher percentage of tall vehicles such as SUVs and pickups. Recent research, taking into account those factors, has determined an appropriate level of retroreflectivity for signs (Pavement marking retroreflectivity research is continuing).

With a more thorough understanding of the visibility needs of drivers, traffic engineers will be able to make better decisions on the proper selection of sign sheeting materials and the appropriate timing of sign replacement. These decisions will take into account the needs of drivers and life cycle costs of sheeting materials.

Solution: Establish a program for managing sign retroreflectivity maintenance.

The FHWA used the recent research on minimum maintained sign retroreflectivity to establish guidelines for evaluating and managing sign retroreflectivity. These guidelines have been summarized in a 4-page guidance document and are being detailed in a document currently under development.

In addition, a Notice of Proposed Amendment to the Manual on Uniform Traffic Control Devices (MUTCD) is being drafted. The proposed amendment to the MUTCD will address maintenance of sign retroreflectivity by providing a national standard. It is anticipated that this amendment will establish a standard of practice for managing sign and pavement marking retroreflectivity maintenance.

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