



STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
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MEMORANDUM

To: All Users of the Delaware Manual on Uniform Traffic Control Devices

From: Erik Ball, Traffic Operations Manager

Date: November 14, 2023

SUBJECT: Sign Reflectivity Program Report for 2022-2023 Season

The Delaware Manual on Uniform Traffic Control Devices (DE MUTCD) Section 2A.08, Paragraph 2 requires public agencies to maintain minimum retroreflectivity levels on their signs through an approved assessment method. To maintain compliance with this requirement as well as to ensure the continued safety of Delaware's roadways, the Delaware Department of Transportation's Signing Section instituted a Sign Reflectivity Program in 2005.

Program Structure

The Sign Reflectivity Program is divided into seasons, with each season running from September 1 to August 31 of the following year. The first six months of each season (September-February) are spent focusing on performing nighttime sign inspections. The longer hours of darkness during the fall and winter months makes this the ideal time of the year for night inspections. Employees assess the reflectivity of signs during nighttime conditions to maximize reflectivity potential. Once each assigned road has been reviewed, sign replacements are ordered and tracked through an internal reporting system (Maximo) to begin the sign fabrication process for any signs that did not meet the reflectivity standards.

During the second half of the season (March-August), the focus is shifted to sign replacement. Although signs deemed as having inadequate reflectivity values are replaced all year long, the signing staff focuses on completing the replacements on every road inspected during the previous six months before the next season begins. Doing this ensures the backlog of roads with outstanding sign replacements does not become unmanageable, and each season's replacements are typically completed before the next season starts.

At the beginning of each season, staff is given a map of their assigned area depicting every road with completed night inspections from the previous ten (10) seasons. Their goal is to complete the inspections and replacements on approximately 10% of the roads in their area each year, with the ultimate goal of completing all roads in their area within ten (10) years.

The most commonly used reflective sheeting in Delaware is known as Type IV, or High-Intensity. Type IV sheeting has an expected lifespan of ten (10) years. With inspections on a ten-year cycle, the intent is to have every sign inspected at least once in its lifetime.

Reflectivity Assessment Methods

The DE MUTCD has five approved methods for maintaining sign retroreflectivity. Delaware uses a combination of two of those five methods.

- 1) **Visual Nighttime Inspection** - Staff assess sign reflectivity at night using the headlights of an approved vehicle. Training signs to assist in this assessment have been issued to each section. The signs have brand new reflective material on the left side and a much older piece of reflective material on the right. These training signs help provide a guideline for when signs should be replaced.



- 2) **Expected Sign Life** - Installation date stickers are placed on every sign upon installation. In addition to clarifying many issues regarding sign maintenance responsibility, installation date stickers have been extremely helpful in helping to gauge expected sign life.

DelDOT does not currently use the other listed methods of Measured Sign Reflectivity, Blanket Replacements or Control Signs. The signing section experimented with Measured Sign Reflectivity for several years but found the devices to be unwieldy, expensive, and time consuming. The Blanket Replacement Method is not beneficial to DelDOT since most of the current Signing work is driven by new sign installations or changes to existing signage. This results in each road having signs of varying ages. Blanket Replacements would cause DelDOT to replace many signs that still have several years of reflectivity left, resulting in a financial hardship as well as efficiency issues. Control Signs would require each area to maintain test decks with multiple

signs to gauge the lifespan of the reflective material. The manufacturer's expected lifespan in conjunction with the installation date stickers provide the same information without the need to maintain several test decks.

The 2022-2023 Season

Staff participation in this year's Sign Reflectivity Program season was up from last year but was still much less than in previous years. With employees in every section having to absorb additional duties and on-call shifts due to continued, long-term staffing inadequacies, nighttime inspections were limited. The promise of overtime did little to attract employees experiencing fatigue from the increased work load.

Table 1. Total Hours of Overtime for Night Inspections

County	2021-2022 Hours	2022-2023 Hours
New Castle (above canal)	22.25	4.00
Kent & New Castle (below canal)	26.0	18.0
Sussex	5.0	51.50
Total Overtime Hours	53.25	73.50

Table 2. Sign Reflectivity Season Totals

County	2021-2022 Signs Inspected	2022-2023 Signs Inspected	2021-2022 Signs Replaced	2022-2023 Signs Replaced
New Castle (above canal)	2250	437	164	320
Kent & New Castle (below canal)	1893	728	37	15
Sussex	347	2600	413	168
Total	4490	3765	614	503

Each section is becoming more comfortable with integrating this program and has begun planning their daily sign work around the replacements from Night Inspections. The Sign Reflectivity Program has become a vital component to help improve safety in conjunction with Delaware's Strategic Highway Safety Plan (SHSP).

Future Goals:

- We will continue to work with the Pavement Management Section to ensure coordination occurs with capital projects, such the Pavement and Rehabilitation Program. Roads identified by a capital project for the coming year can help minimize overlapping efforts, especially if the project intends to replace signage as part of their efforts.
- Continue coordination with the Guide Sign Section to add I-Beam and Overhead signage to the Sign Reflectivity Program map.
- The potential to evolve the Sign Reflectivity Program into a Sign Inventory remains a long-term goal.
- Continue to correlate night inspections with safety initiatives identified in Delaware's Strategic Highway Safety Plan (SHSP), as a nighttime sign inspection and replacement is a low-cost improvement to enhance sign visibility, especially at night.



Attachments:

Attached are maps for each of the three counties. The roads shown in green are roads that were inspected and had all the failed signs replaced in the recent 2022 – 2023 Season. The roads shown in red are the roads that were inspected and replaced in the previous nine years. The roads show in bold, black lines are roads on the schedule to be repaved this coming year and will not be inspected, to avoid overlapping sign replacement efforts. Since the Program operates on a revolving 10-year cycle, any roads completed more than 10 years ago will not be shown on the map.









