

Guidelines for Implementing Management Methods to Maintain Traffic Sign Retroreflectivity



This information is intended to help you implement a management method that satisfies the new MUTCD rules are in place regarding the maintenance of sign retroreflectivity.

Two Management Methods

- Expected Sign Life
- Blanket Replacement



This document will explain the concepts of each of these management methods. They are both acceptable methods for meeting the new MUTCD sign retroreflectivity requirements, as long as they are implemented correctly.

Expected Sign Life

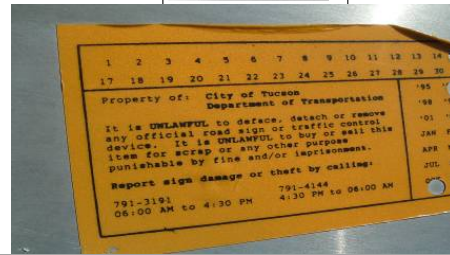
- Based on the expected life of the sheeting type in your geographic area
- Replacement based on expected life for individual signs



This method does not require an inventory if you can label the year the sign was installed. If so, daytime inspections of the sign can be conducted to determine if they have reached their expected sign life. For ease of inspection, the year of installation can be added to the front of the sign as shown or the back of the sign as shown in the next page.

Indicating Sign Age

- Stickers on front or back of sign to show when fabricated or installed



Sign age on back of sign

Determining Sign Life

- Build and use a weathering rack like the one shown
- Use AASHTO-NTPEP data
- Use warranty information from sheeting company
- Specify sign life
- Measure existing signs with known install date and compare to min level
- Use weathering data or nearby jurisdiction's weathering data



This method relies on having sign life information available. There are many sources of information available for sign age. Manufacturers could provide you with this information. Your local LTAP or state DOT should be able to provide the information too. There are a variety of other ways to acquire the information too.

Using Warranty Information

- Predicted sign age could be provided in a warranty by sheeting manufacturers.
- Typical warranties not typically based on minimum retroreflectivity levels
- Agencies could develop specifications with warranties based on minimum retroreflectivity levels
 - Example: Warranty Type III sheeting for 15 years in accordance to Table 2A-3 of the MUTCD



Sign life may be different for fluorescent sign materials

Expected Sign Life

- **Advantages:**
 - This method requires that agencies track the installation date of their signs.
 - Can use a date sticker, bar code, or computerized sign management system
 - Agencies can develop or copy local service life levels
- **Disadvantages:**
 - It may be time consuming to inspect date stickers if the stickers are not easily viewable or identifiable on the sign.
 - Another possible difficulty relates to marking signs that need to be replaced.



This method requires that agencies track the installation date of their signs. For the field replacement approach to this method, there is the benefit of associating the condition of a sign to its age. The use of a computerized sign management system may eliminate the need for a date sticker, but it also limits the means that may be used to analyze actual service lives because of the need for bar-code reading equipment or other technology-dependent equipment that might be used to code information on a sign.

The expected sign life method allows agencies to help develop local service life requirements based on actual end-of-service-life retroreflectivity measurements and comparisons to minimum required levels. These comparisons can provide useful information on service life under local conditions, product performance, sign fabrication processes, and analysis of replacement strategies. This method requires that the type of sheeting used to fabricate a sign be known. Other pertinent information may also be necessary to take advantage of sophisticated sign life prediction algorithms.

One drawback to this method is that it can be fairly time consuming to check date stickers if the stickers are not easily viewable or identifiable on the sign. Another possible difficulty relates to marking signs that need to be replaced, although immediate replacement is possible for some sign types. If an agency uses a sign management system and functions with the use of portable computers in the field, the inspectors can easily note the signs that need to be replaced, and even generate work orders.

Blanket Replacement

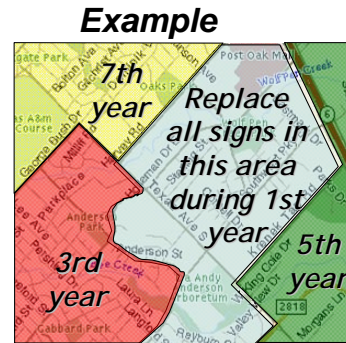
- All signs in an area/corridor are replaced at the same time at specified intervals
- Specified intervals should be set based on expected sign life of the sign type with the shortest expected life
- Some existing blanket sign replacement policies exist using 10-12 years for Beaded High-Intensity sheeting signs



In many ways, blanket replacement is similar to expected sign life. The major difference is that with blanket replacement you do not have to track each sign. You only track signs by location or by type.

Blanket Replacement

- Divide agency into areas/corridors or zones
- Relate number of areas to replacement cycle
- Replace all signs in an area/ corridor each replacement cycle
 - 10 yr life, → 10 areas
 - Annual replacement in each area



Breaking area in to smaller areas makes it more manageable for a lot of reasons (e.g. assignment of resources, demand & routing maintenance)

- Here is an example of how one small-medium sized city established maintenance zones for blanket sign replacement program.



Blanket Replacement

Advantages:

The major benefit of using this method is that all signs are replaced on a predictable schedule; there is a low likelihood of a given sign being skipped over or not being replaced. This ensures that all replaced signs are visible and meet minimum retroreflectivity levels. Also, there is a low risk of signs that do not meet the minimum retroreflectivity levels remaining in-service.

Disadvantages:

The major drawback to this method is the potential amount of waste that can be generated if signs that are relatively new are removed during a normal replacement cycle. This can be particularly expensive when a blanket replacement method is first implemented. Follow-up replacement cycles can also be wasteful if signs are replaced between the expected service life periods because of knockdowns, graffiti, etc. Waste can also be generated if a percentage of signs with a 15-year life must be replaced on a 10-year cycle. This may be reduced by using signs with similar life expectancy or careful selection of sign groups and scheduling.