

Chapter III – Using a Program Template

As referenced in the previous chapters, the Federal Highway Administration has published a variety of resource materials relating to traffic sign retroreflectivity since 2007. Printed copies of the FHWA *Sign Retroreflectivity Guidebook: How to Meet the New National Standard* (September 2009) were also widely distributed to Ohio local agencies in 2010 through several organizations, including Ohio LTAP and the Ohio Township Association (OTA).

Page 21 of the FHWA *Sign Retroreflectivity Guidebook* states that by January 2012,

“All agencies must establish and implement a sign maintenance program addressing the minimum sign retroreflectivity requirements.”

Page 5 of the FHWA publication *Methods for Maintaining Traffic Sign Retroreflectivity* discusses the need for a sign maintenance program in the context of risk management:

In order to minimize the risk to an agency of being found negligent in meeting the requirements for minimum traffic sign retroreflectivity, a sign maintenance program must be provided in order to ensure the nighttime visibility of signs. This approach has been effective in related tort claims against agencies. Conducting and maintaining an inventory of devices, replacing devices at the end of their effective lives, knowing the laws relating to traffic control devices, and applying State traffic control device specifications and standards are four basic principles suggested by the *ITE Traffic Sign Handbook* to “significantly reduce tort liability lawsuits involving traffic control devices.”

Based on review and consideration of the Ohio MUTCD requirements and the FHWA resource materials, you and your colleagues will need to decide (if you have not already done so) which assessment or management method your agency will use to maintain traffic sign retroreflectivity. The next step will then be to work through the details of finalizing and implementing your agency’s program.

“How Do We Implement Our Sign Retroreflectivity Maintenance Program?”

During 2010, Ohio LTAP staff made outreach presentations and distributed resource materials at public meetings of county and township officials throughout the state. In total, visits were made to 73 of Ohio’s 88 counties. The new retroreflectivity requirements for traffic signs were a frequent topic of conversation at these meetings. Over time, based on review of the available resources, more people became familiar with the different assessment or management

methods that can be used (see Chapter II). However, there continued to be many questions about the practical (or “how to”) aspects of using a method to comply with the standard.

Among the wealth of available resource materials relating to traffic sign retroreflectivity, a literature search conducted by Ohio LTAP in fall 2010 indicated that there were relatively few published examples of written sign maintenance policies or programs. A likely reason for this is the variety of possible approaches that different agencies could use to address the requirements. As stated in the Foreword to FHWA’s *Methods for Maintaining Sign Retroreflectivity*,

“It is not appropriate to prescribe a single detailed method for all agencies to follow. The most cost effective and efficient method to maintain sign retroreflectivity will vary by agency, depending on the types of signs in service and the traffic and environmental conditions. Therefore, this report outlines several possible methods ...”

Getting Started

Based on questions and requests for assistance from some of our local agency customers, Ohio LTAP decided to develop a sample ‘template’ (program document) that could be used, or adapted, for the purpose of implementing a sign retroreflectivity maintenance program. One of the first questions considered during the development process was: should the template be based on a particular retroreflectivity maintenance method?

The FHWA *Sign Retroreflectivity Guidebook: How to Meet the New National Standard* was developed to assist smaller agencies that have limited resources. The guidebook primarily focuses on the Consistent Parameters Procedure, saying it is “probably the most practical way for small agencies to meet the MUTCD minimum sign retroreflectivity requirements” (page 20).

This resource package from Ohio LTAP is aimed toward a similar audience, namely rural Ohio townships and villages. However, other local agencies are also welcome to review or use these materials. In order to provide several options for agencies to consider, program templates were developed for all three of the Visual Nighttime Inspection procedures described by FHWA:

- Template 1 – Calibration Signs Procedure
- Template 2 – Comparison Panels Procedure
- Template 3 – Consistent Parameters Procedure

The templates have a similar format, with an outline based on nine sections (1 through 9); however, each includes some text that is specific to the referenced method/procedure.

Agencies that decide to use methods other than Visual Nighttime Inspection (as described in OMUTCD Section 2A.09) may also be able to adapt or modify these templates for use with their specific maintenance programs. The next section provides some guidelines on how the templates may be used.

Possible Uses

The attached templates for implementing a traffic sign retroreflectivity maintenance program are provided as a resource that Ohio local agencies may voluntarily choose to use. Please note that your agency is not required to use any of the templates developed by Ohio LTAP. The responsibility for complying with the OMUTCD traffic sign retroreflectivity requirements rests with the public agency or the official having jurisdiction. Please review the full Disclaimer Statement that is provided with each template.

There are two versions of each of the three program templates: a 'guide' version, and a 'fill in the blanks' version. The templates may be used in the following ways.

- **General Reference** – Agencies that already have a policy or program in place are welcome to review these templates for general reference, or to obtain ideas for possible updates to their own written materials.
- **Adapt or Modify** – An electronic copy of each template is available from Ohio LTAP, as a Microsoft Word document file. These files can be downloaded from the Traffic Sign Retroreflectivity page of the Ohio LTAP website, at: <http://www.dot.state.oh.us/Divisions/Quality/LTAP/>. Agencies may wish to update, modify or re-write one of the templates to better suit their needs.
- **Use as Provided** – After careful review, some agencies may be comfortable with basically using one of the attached program templates as it is currently written. Under this scenario, the 'fill in the blanks' version of the template may be used. The agency will still need to fill in some of the decision items throughout the template. The 'guide' version of the template can be used as a reference for completing the 'fill in the blanks' version.

Reviewing the Attached Templates

The three program templates developed by Ohio LTAP refer to use by a Township agency as the default text. Other agencies will need to update the template language accordingly.

Each assessment or management method has possible advantages and disadvantages that need to be considered. The same is true of the individual procedures under the Visual Nighttime

Inspection Method. Agencies interested in possibly using one of the attached templates will need to consider the following questions.

Does your agency have access to a retroreflectometer?

As of April 2011, there are no known sources for purchasing calibration signs, or comparison panels. Agencies that have access to a retroreflectometer can create their own calibration signs or comparison panels, using signs from the field or signs already taken out of service. It may be possible to borrow a retroreflectometer from your County Engineer's office (or from another agency in your area). *Note: If using calibration signs or comparison panels, they need to be properly stored, maintained, and checked with a retroreflectometer at periodic intervals to ensure that they have appropriate retroreflectivity levels.*

If it is not feasible for your agency to borrow a retroreflectometer, consider using Template 3 (Consistent Parameters Procedure), rather than Template 1 (Calibration Signs Procedure) or Template 2 (Comparison Panels Procedure). The procedure described in Template 3 does not require access to a retroreflectometer.

Does your agency have access to an inspector who is at least 60 years old?

With the Consistent Parameters Procedure (referenced in Template 3), nighttime inspections are conducted under similar factors that were used in the research to develop the minimum retroreflectivity levels. These factors include: using a model year 2000 or newer sport utility vehicle (SUV) or pick-up truck to conduct the inspection; and using an inspector who is at least 60 years old. If it is not feasible for your agency to use an inspector who is at least 60 years old, consider using Template 1 (Calibration Signs Procedure) or Template 2 (Comparison Panels Procedure), instead of Template 3. The procedures described in Templates 1 and 2 do not require the inspector to be at least 60 years of age.

Additional Considerations

The following notes are provided for additional consideration when implementing a traffic sign retroreflectivity maintenance program for your agency.

Review of Traffic Signs

Sections 3 (Implementation Plan) and 4 (Traffic Sign Inventory) of the attached templates refer to identifying and documenting all traffic signs under the agency's jurisdiction. This includes identifying any damaged, deteriorated, or obscured signs, and also any signs or sign installations that do not meet the standards and requirements set forth in the OMUTCD, in order to be able to correct any deficiencies in the interest of traffic safety.

As part of the traffic sign inventory process, some agencies might also want to determine if there are any unnecessary signs on their roadways. Section 202 of the Ohio Department of Transportation's *Traffic Engineering Manual* (TEM) includes the following discussion.

202-2 Children at Play Signs

Signs intended to alert drivers that children may be present in an area, such as CHILDREN AT PLAY or WATCH FOR CHILDREN, have not been shown to have a discernable benefit to traffic safety but still remain popular with the public. No factual evidence has been presented to document the success of this type of signing in reducing pedestrian accidents, operating speeds or legal liability. Studies have shown that many types of signs attempting to warn of normal conditions in residential areas, or conditions that are not always present, have failed to achieve the desired safety benefits.

Children should not be encouraged to play in the roadway. If signs encourage parents and children to believe they have an added degree of protection, which the signs do not and cannot provide, this can result in a disservice. This type of signing has long been rejected since it is a direct and open suggestion that this behavior is acceptable.

For these reasons, **ODOT** does not provide CHILDREN AT PLAY or similar signing. This type of signing is not recommended for use on any roadway at any time.

202-3 HIDDEN DRIVE Signs

The use of this sign was discontinued on **ODOT**-maintained highways in 1970 when traffic observations and experience disclosed that drivers on the through roadway were ignoring the sign message. The signs had little or no effect in alerting drivers or in reducing their speed. The erection of HIDDEN DRIVE signs could create a false sense of security for the driveway user. The driveway traffic should be fully aware of the hazard of entering the through roadway, and should not be misled into thinking that the through traffic will be prepared to yield or stop. For these reasons, **ODOT** does not provide HIDDEN DRIVE or similar signing.

Although it refers to the Ohio MUTCD, the *Traffic Engineering Manual* is a separate publication. The TEM is a consolidation of ODOT traffic engineering policies, guidelines, standards and best practices, and is primarily intended for use by ODOT. However, other jurisdictions are also encouraged to use the TEM as a reference. It is available online at:

<http://www.dot.state.oh.us/Divisions/HighwayOps/Traffic/publications2/TEM/>

Local agency officials or employees who are unsure about traffic sign issues are encouraged to consult with appropriate traffic engineering personnel. Possible resources for further information include:

- Your County Engineer's office.
- The ODOT District office for your area.
- The ODOT Office of Traffic Engineering at Central Office (Columbus):
Jim Roth, P.E., Signing Engineer – 614-752-0438
Juanita Elliott, P.E., Traffic Standards Engineer – 614-644-8143

Use of Photographs for Documentation

Some agencies might want to consider including photographs of their traffic signs as part of the sign inventory documentation process. Photos may also be helpful for documenting corrective actions taken to address sign deficiencies (for example, replacement of a sign knocked down due to a traffic incident). If photos are used for documentation purposes, the date and location should be clearly noted along with any other pertinent information.

Inspector Training

For use of the Visual Nighttime Inspection method, the Ohio MUTCD states: "The retroreflectivity of an existing sign is assessed by a trained sign inspector..." Some agencies have asked for guidance or information about how their inspectors should be trained.

Chapter 3 of FHWA's *Methods for Maintaining Sign Retroreflectivity* publication includes the following comments:

The visual inspection technique uses trained personnel to observe traffic signs during the nighttime to assess the overall appearance of a sign and determine if it meets the required minimum retroreflectivity level. The observation is typically done through the windshield of the vehicle at or near the speed limit of the roadway.

The key to this method is having trained inspectors. While there is no nationally-recognized training course or certification for sign inspectors, agencies should provide some form of training before sign inspections are performed. One way to perform the training is to have the inspectors observe sample signs at a variety of known retroreflectivity levels before conducting the inspections. Training helps facilitate an inspector's ability to discern sign retroreflectivity levels that are at the minimum levels prior to conducting inspections. Preferably, there should be sample signs that are at or near the minimum retroreflectivity levels associated with each sign type and color. The inspector should view the sample signs under similar conditions to those under which inspections will be performed. This includes using the appropriate vehicle and placing the sample signs at typical positions that will be encountered during an inspection. For this method to be effective, the training must prepare the inspector in advance, using correct sample signs that represent retroreflectivity levels at or near the MUTCD minimum retroreflectivity levels.

The following additional comments about inspector training are included on the 'Frequently Asked Questions' page of FHWA's nighttime visibility website, which can be viewed at:

http://safety.fhwa.dot.gov/roadway_dept/night_visib/policy_guide/faq.cfm

How do I train an inspector to conduct nighttime sign inspections? If I choose the Consistent Parameters procedure, does this mean a 60-year old that reads though the FHWA information on retroreflectivity is considered "trained"?

The inspector training PowerPoint slides prepared by FHWA and available here: http://safety.fhwa.dot.gov/roadway_dept/night_visib/sign_visib/#training, provide information to help train an inspector. Those slides were developed with the intent to be used by an instructor to train inspectors. Agencies should determine if formal training is necessary to 'officially' train an inspector before inspecting the nighttime visibility of traffic signs in their locality.

Local agencies may be able to work together in order to develop or coordinate inspector training. For example, Townships and other agencies may be able to coordinate training with their County Engineer's Office. As another possible resource, Ohio LTAP is planning to offer a class on traffic sign retroreflectivity inspection at various locations throughout the state during the second half of 2011. The "tentative" anticipated timeframe is between August and November. Details will be available through the Ohio LTAP website.

Additional Responsibilities for Traffic Sign Management and Maintenance

As described in part 6 of the program template, retroreflectivity is just one of several factors associated with proper functioning of traffic signs. Local agencies continue to be responsible for the overall management and regular maintenance of signs under their jurisdiction, in the interest of traffic safety.

Sign problems and deficiencies can create serious hazards. Common concerns include signs that are knocked down, missing, damaged, deteriorated, or obscured. The following text is provided in Ohio MUTCD Section 2A.22 – Maintenance.

Guidance:

Maintenance activities should consider proper position, cleanliness, legibility, and daytime and nighttime visibility (see Section 2A.09). Damaged or deteriorated signs should be replaced.

To assure adequate maintenance, a schedule for inspecting (both day and night), cleaning, and replacing signs should be established. Employees of highway, law enforcement, and other public agencies whose duties require that they travel on the roadways should be encouraged to report any damaged, deteriorated, or obscured signs at the first opportunity.

Steps should be taken to see that weeds, trees, shrubbery, and construction, maintenance, and utility materials and equipment do not obscure the face of any sign.

A regular schedule of replacement of lighting elements for illuminated signs should be maintained.

A 1991 article from the Illinois Municipal Review (authored by William T. Sunley) included the following comments.

In these days of lengthy litigation and high cost of liability insurance for local governmental agencies, the importance of correctly installed and properly maintained roadway signs cannot be overemphasized ...

Deficiencies in sign maintenance can have serious impacts on the highway system and on public agencies. Maintenance deficiencies result primarily in a reduction in safety for the motorist and increased liability exposure for the agency. One survey revealed that for county and city road departments, the percentages of tort claims related to traffic control devices were 25 percent and 37 percent respectively. A study of tort claims involving only highway accidents in which a fatality or serious injury occurred found that signing deficiencies were cited as the factor in 41 percent of the claims.

An important element of a street and highway sign maintenance management system is the timely detection of maintenance needs. This detection requires the cooperation of many different agencies and groups. These could include other maintenance departments, police, postal carriers and citizens. The reporting process must be formalized to ensure that the lines of communication do not break down from the informant to the sign crew. This includes the establishment of a policy for the dispatch of off-shift workers for emergency repairs of traffic signs based on the degree of hazard caused by the failure. It is also essential that inspections of traffic signs be made at night to determine the adequacy of night time reflectivity and specific visibility or signing needs that may be more apparent at night.

A 1990 NCHRP publication, *Maintenance Management of Streets and Highway Signs* (Synthesis 157), noted the following:

Response Priorities

Various agencies have established a policy for how quickly repair personnel need to be dispatched to the scene of a device failure based on the degree of hazard created by the failure ...

Agencies are encouraged to establish a policy and procedure(s) for responding to notification or discovery of problems / potential hazards relating to traffic signs and other traffic control devices under their jurisdiction. Your County Engineer's office, or other agencies that have traffic sign management and maintenance responsibilities, may be able to provide examples or further guidance for establishing this type of policy.

Chapter III – Attachments

- Template 1 – Calibration Signs Procedure – ‘Guide’ Version
- Template 1 – Calibration Signs Procedure – ‘Fill in the Blanks’ Version

- Template 2 – Comparison Panels Procedure – ‘Guide’ Version
- Template 2 – Comparison Panels Procedure – ‘Fill in the Blanks’ Version

- Template 3 – Consistent Parameters Procedure – ‘Guide’ Version
- Template 3 – Consistent Parameters Procedure – ‘Fill in the Blanks’ Version

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