



# TRAFFIC AND SAFETY MANUAL

## Chapter 7 – Traffic Engineering Studies 7J- Signing and Pavement Marking Audits

# Signing Audits

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## General

Just as for the entire roadway system, including the surface, shoulders, roadside, and bridges, the overall condition of the signing system must be monitored on an ongoing basis. Signs may be damaged or knocked down by errant vehicles, wind, vandalism, etc. Existing signs may become obsolete or additional signs may be needed for any number of reasons. A periodic signing audit should be performed for a section of highway to ensure that the signing system is appropriate. It may also be done in conjunction with resurfacing, shouldering, bridge, intersection or other work and the signs upgraded to result in a complete project.

When the Manual on Uniform traffic Control Devices (MUTCD) is revised or a new one adopted, there are changes with compliance dates that must be met. Sign audits should include consideration of these dates to ensure that the signs on the primary highway system conform to MUTCD requirements.

## Maintenance

All traffic signs should be kept properly positioned, clean and legible, and should have sufficient retroreflectivity levels. Maintenance activities should consider position, cleanliness, legibility, and daytime and nighttime visibility of the sign. 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, shrubbery, and construction, maintenance, and utility materials and equipment do not obscure the face of any sign.

The Iowa Dept. of Transportation [Standards for Maintenance Activities Manual](#) section on [Sign Maintenance](#) states that repair and replacement of the following regulatory and warning signs shall be considered as emergency work and repaired as soon as possible: Stop, No Passing, Stop Ahead, Do Not Enter, Wrong Way, Road Closed and Curve w/Advisory Speed. Other regulatory and warning signs should be repaired or replaced as soon as practical during regular working hours. Repair or replacement of signs, delineators or markers which do not affect motorists' safety should be included in daily scheduled activities. An annual program of sign, delineator and marker cleanup and repair should be scheduled in April or May. Reflectivity of signs should be checked annually. Proper torque of breakaway bases should be checked annually.

## Daytime Audit

The signing system for sections of highway should be periodically reviewed during daylight hours in a more intentional way than the informal, ongoing monitoring that is done as Maintenance staff and others drive the route in the normal course of daily activities. The following factors should be considered in the audit, using the guidelines in [Chapter Two](#) of the Traffic and Safety Manual.

- Sign condition and orientation
- Lateral placement
- Longitudinal placement
- Vertical placement
- Condition of support assembly
- Whether the sign is obscured
- Whether the sign is appropriate for its use
- Whether additional signs are needed
- Whether signs can be eliminated
- Include delineators and object markers in the audit

## Nighttime Review

In addition to the routine daytime observations and the periodic daytime audit, the nighttime retroreflectivity of the signs is to be reviewed annually. Minimum levels of retroreflectivity have been suggested through research for all colors except brown and blue. They are identified in the FHWA document, [Maintaining Traffic Sign Retroreflectivity](#), along with suggested methods that may be used to maintain minimum levels of retroreflectivity. Using the Consistent Parameters Procedure from that document, the same factors that were used to develop the minimum levels should be used in conducting the inspections. Although the primary purpose of the nighttime inspection is to ensure that adequate retroreflectivity is maintained, other conditions that are not readily apparent during daytime should be noted.

## Guidelines

The primary reason for listing guidelines for conducting the night sign check is to gain consistency and repeatability just as for other traffic engineering studies such as those for sight distance, school bus stops or no passing zones. In order to use the same factors that were used to develop the minimum levels of retroreflectivity the guidelines listed below should be utilized in conducting the nighttime sign inspection:

- The inspector should be 60 years of age or older, in normal health and not impaired by sleep deprivation, etc. If the inspector is alone a tape recorder may be used to note sign deficiencies or other items requiring attention.
- A full-size sport utility vehicle or pick-up should be used.
- A model year 2000 or newer vehicle should be used.
- The vehicle must be riding in its normal position without being altered by excess weight, uneven tire pressure, etc. The windshield must be clean and the headlights must be clean and properly aimed.
- The inspection is conducted using the low beam headlights.

- The inspection is conducted at normal roadway operating speeds.
- Signs are normally inspected from the travel lane.
- The signs must be clean and free of dew or frost during the inspection and the weather should be normal without precipitation.
- Signs should be legible at the typical viewing distance for each sign, one that provides a driver with adequate time for an appropriate response.

Signs need to be replaced if they are not legible to the inspector. Notes should be made of signs that are judged as borderline for special attention on the next inspection. Notes should also be made of deficient signs provided by others such as a county or city. Although certain signs may be excluded from the retroreflectivity maintenance guidelines in the MUTCD, they must still be legible and are to be included in the nighttime sign inspection.

## **Documentation**

For many studies, the findings, conclusions and recommendations must be clearly conveyed to those who are responsible for acting on the results. This is done through the use of a memo, letter or more formal report. Some study presentations include the use of forms, tables or graphs depicting the data collected. The documentation for a sign audit should include when, where and by whom the audit was conducted, and that it was done in conformance with established guidelines. A list of deficiencies and corrections should be developed and presented to those who are responsible for maintenance or upgrading of the signing system reviewed.

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