



To: Edina Transportation Commission

Agenda Item #: VI. B.

From: Mark K. Nolan, AICP, Transportation Planner

Action

Discussion

Date: May 21, 2015

Information

Subject: Proposed Traffic Sign Installation and Maintenance Policy

Action Requested:

Review and comment on the attached Proposed Traffic Sign Installation and Maintenance Policy.

Information / Background:

Language adopted in the Minnesota Manual on Uniform Traffic Control Devices (MN MUTCD) requires all agencies that maintain roadways open to public travel to adopt a sign maintenance program designed to maintain traffic sign retroreflectivity at or above specific levels. The City of Edina is required to comply with these new MN MUTCD requirements. Implementation of these requirements began on June 13, 2014; up until this time. Traffic signs have always been required to be retroreflective; however, no maximum values had previously been required.

A staff team made up of the Directors of Engineering and Public Works, the transportation planner, traffic safety specialist and traffic safety coordinator met several times throughout the past few months. This team recommends the following policy for evaluating the reflectivity, installation and maintenance/replacement of traffic signs in City right-of-way.

City of Edina: Traffic Sign Installation and Maintenance Policy

I. Purpose and Goal

The goal of this policy is to improve public safety on the City's streets and prioritize the City's limited resources to install, maintain, and replace traffic signs within the City's right-of-way. The purpose of this policy includes:

- A. To establish uniform installation and maintenance of traffic signs installed on City right-of-way.
- B. To comply with Federal and State requirements.

- C. To recognize the Traffic Safety Committee as the authority to approve of traffic sign installation or removal as covered by this policy.

This policy recognizes the Minnesota Manual on Uniform Traffic Control Devices (MN MUTCD) as the standard for all traffic control devices on public roads in the state of Minnesota. All traffic signs/devices installed on City right-of-way shall conform to the MN MUTCD. Traffic signs not required by the MN MUTCD shall not be installed unless otherwise authorized by the Traffic Safety Committee (see below).

II. Sign Inventory

The City of Edina maintains a sign inventory using Geographic Information Systems (GIS) software. This inventory includes the sign type (e.g. regulatory, warning, etc.), location, year installed (if known) and sheeting material type.

III. Sign Installation and Removal

Because traffic signs must be compliant with legal and technical criteria, and in order to enhance customer service through more timely responses to public inquiries regarding needs for traffic control, the City Council delegates authority for the installation, modification, and/or removal of traffic signs covered by this policy to the Director of Public Works. This delegation is subject to the following conditions:

- A. Expenditures for the installation, modification, and/or removal of traffic signs must be within budgetary appropriations approved by the City Council.
- B. The City Council may, at its discretion, direct staff to bring certain proposals to install, modify, or remove a traffic signs before the City Council for consideration subsequent to the development of a recommendation provided by the Traffic Safety Committee.
- C. Staff will provide, on a regular basis (e.g. monthly), a report to the City Council summarizing public requests that have been processed by the Traffic Safety Committee.

Various studies have found that excess road signage reduces the effectiveness of traffic control devices resulting in reduced safety, and imposes an unnecessary financial burden on road authorities. Therefore, the City's policy is to consider removal of signs which are not required to comply with an applicable Federal or State regulation or statute and which have been determined to be unnecessary for safety purposes. The removal of excess signage shall be based on an engineering study or judgment and will be reviewed by the Traffic Safety Committee, the findings of which will be included in a Traffic Safety Report.

Studies have also found that various non-standard, non-regulatory signs (e.g. Children At Play) are ineffective. Therefore, non-standard signs, defined as any sign not included in the MN MUTCD, will not be installed within the City, and may be removed at any time, without review through the above-described process.

IV. Sign Maintenance and Replacement

In order to comply with retroreflectivity requirements, the City will use a combination of Visual Assessment and Expected Sign Life Management Methods and replace traffic signs as follows:

- A. Visual Assessment Method will be used for traffic signs with an unknown installation year (generally before 1998). One or both of the following procedures will be used as authorized by the Director of Engineering or the Director of Public Works.
 1. Comparison Panels Procedure: If a marginal sign is found during a nighttime field review, a comparison panel (which represents retroreflectivity levels above the specified minimums) is attached and the sign/panel is viewed. The signs found to be less bright than the panel would then be scheduled for replacement.
 2. Consistent Parameters Procedure: Nighttime inspections would be conducted under similar factors that were used in the research to develop the minimum retroreflectivity levels. These factors include: using a pick-up truck or sport utility vehicle of a model year 2000 or newer, with an inspector who is at least 60 years old with 20/40 normal or corrected vision and 105 degrees of peripheral vision.
 3. The Expected Sign Life Management Method will be used for traffic signs with a known installation year. Signs will be scheduled to be replaced according to the expected life of the sign reflective sheeting (according to current research). Signs may be replaced prior to the expiration date due to damage, vandalism, knock downs or other necessary reasons (see Damaged Sign Replacement below). Replacement will be scheduled as follows:
 4. Sheeting Material Types I (Engineer Grade) and III (High Intensity)
 - a) South-facing signs: Replace after 12 years
 - b) East and west-facing signs: Replace after 16 years
 - c) North-facing signs: Replace after 20 years
 5. Sheeting Material Types IV (High Intensity Prismatic) and VI (Diamond)
 - a) South-facing signs: Replace after 15 years
 - b) East and west-facing signs: Replace after 23 years
 - c) North-facing signs: Replace after 30 years

Priority shall be given to regulatory and warning signs on roads with higher vehicle usage and signs that serve a direct and essential safety function. Damaged, stolen, or missing signs (of any type) will be replaced according to this policy (see Damaged Sign Replacement below).

V. Damaged Sign Replacement

Damaged, stolen or missing signs will be replaced according to the following once reported to the Public Works Department:

- A. High Priority (STOP) within one business day
- B. Intermediate Priority (Regulatory, Warning and Guide signs required by MnMUTCD) within two business days
- C. Low Priority (all others) within five business days

VI. Modification and Deviation from Policy

The City reserves the right to modify this policy at any time if deemed to be in the best interest of the City based on safety, economic, social and political considerations.

The Director of Engineering and/or Public Works Director, or his/her designee, may authorize a deviation from the implementation of this policy with respect to a particular traffic sign when deemed to be in the best interest of the City based on safety, economic, social and political considerations. Such deviation shall be documented and include information supporting the deviation.

Attachments:

Current Traffic Sign Inventory Summary

Estimated Costs for Traffic Sign Assessment and Replacement

City of Edina: Current Traffic Sign Inventory Summary

As of Jan. 12, 2015

Total Signs: 8,820

Total Regulatory, Warning & Guide Signs: 7,828

- Regulatory: 4,529 (1,087 stop signs)
- Warning: 1,007
- Guide: 2,292 (2,278 Street "blade" signs)

Sheeting Material:

- I. Engineer Grade: 3,242 (41%) *12-20 year life expectancy*
- III. High Intensity: 1,027 (13%) *12-20 year life expectancy*
- IV. High Intensity Prismatic: 2,510 (32%) *15-30 year life expectancy*
- VI. Diamond: 1,055 (13%) *15-30 year life expectancy*
- Unknown: 7 (1%)

Year of Installation:

- Known: 4,510 (58%)
- Unknown: 3,318 (42%)

Traffic Sign Installation and Maintenance Policy: Estimated Costs

Visual Assessment Method

Staff estimates that the cost to visually inspect the 3,318 traffic signs with an unknown installation date will be approximately \$7,500 in wages (these costs can be divided over a number of years).

- Average hourly rate for part-time public works staff = \$40 (\$25/hour for senior-aged staff + \$14/hour for younger staff)
- Estimated number of signs to inspect per hour = 20 (obtained from MnDOT)
- Estimated number of total hours needed to assess signs = 190 (assuming assessing 7 hours per day with one hour per day for start/end of day tasks)
- Note: these figures represent labor costs for the visual assessments themselves and do not include necessary training costs).

Traffic Sign Replacement

Staff estimates that the cost of replacing the traffic signs in the City of Edina according to the proposed policy will be approximately \$22,000 per year. This figure accounts for the average cost of the sign materials, the average compensation of sign shop members, the average lifespan of signs, and the time it takes to install a sign on a pre-existing pole. This calculation does not account for signs which are knocked over or damaged before their replacement date.

- Estimated average time to replace a sign on a pre-existing pole = 10 minutes
- Average compensation of sign shop employees = \$44 per hour
- Average lifespan of signs = 19.4 years

The calculation below is based on the expected sign life as indicated in the proposed policy. This calculation assumes that half of the existing signs are Types I and III, and the other half are Types IV and VI, and that signs face all four cardinal directions in equal proportions.

$$19.4yr = \frac{12yr + 16yr + 16yr + 20yr + 15yr + 23yr + 23yr + 30yr}{8}$$

- Approximate number of applicable signs in the city = 7,800
- Estimated range of costs for sign materials = \$20-\$60 (for the calculation, \$40 was used)
- Cost of single sign replacement:

$$\$40 \text{ sign materials} + \frac{\$88 (2 \text{ employees per hour})}{6 (signs per hour)} = \$54.67 \text{ per sign}$$

- Total cost of sign replacement (for one sign life cycle)

$$\$54.67 \text{ per sign} * 7,800 \text{ signs} = \$426,400$$

- Estimated annual cost of sign replacement

$$\frac{\$422,400}{19.4 \text{ years}} = \$21,979.38 \text{ per year}$$