

Chapter 6

TRAFFIC SIGNS

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CHAPTER 6 - TRAFFIC SIGNS

6-1.00 INTRODUCTION

6-1.01 Purpose

Traffic signs regulate, warn, and guide motorists, pedestrians, and other traffic on all public roads. The traffic sign is the most commonly used traffic control device, and it is the oldest device for controlling, safeguarding, and expediting traffic. Signs are not ordinarily needed to confirm the basic rules of the road, but they are essential to inform highway users of specific regulations, to warn users where hazards are not self-evident, and to furnish information and guidance.

The Minnesota Manual on Uniform Traffic Control Devices (MN MUTCD) provides legal standards, allowable limits, and alternatives for the design, use and application of traffic signs. The purpose of this chapter is to describe typical applications, and procedures related to placement of traffic signs on Mn/DOT streets and highways.

Since the basic principles of signing are set forth in the MN MUTCD and must be adhered to, the engineers, technicians, and maintenance personnel responsible for the design, selection, and placement of these devices should have ready access to and be familiar with the MN MUTCD.

6-1.02 Scope

This chapter covers general procedures for selecting proper traffic signs and implementing the correct installation of these devices. General principles of traffic signing and practical application guidelines are strongly emphasized.

The layouts show applications (selection and placement) of recommended traffic signs for typical situations which occur frequently. All distances shown on the layouts are approximate. As stated, not all situations can be addressed. Therefore, the basic principles of traffic signs shown must be considered and applied as directed by engineering judgment.

Although it is usually desirable to provide all traffic signs as shown in the layouts, situations arise where this becomes impractical. Engineering judgment may dictate modifications to the typical layouts. When modifications are made, factors such as traffic volume, speed, sign distance, right of way, etc. must be considered.

The major source documents for this chapter are the MN MUTCD, the Standard Signs Manual, and the current edition of the Mn/DOT Standard Specifications for Construction. Technical support on the design of guide signs is available from the Mn/DOT Office of Traffic Engineering (OTE) Signing Unit. Individuals responsible for designing and fabricating signs should have access to and be familiar with these reference materials.

6-1.03 Chapter Organization

This chapter is organized into five major sections. These sections cover (6-3) legal authority for placing traffic signs, (6-4) general principles of traffic signing, (6-5) application guidelines for regulatory signs, (6-6) application guidelines for warning signs, and (6-7) application guidelines for guide signs. Preferred signing practice for construction and maintenance work zone traffic control is found in Chapter 8.

6-2.00 GLOSSARY

A-Frame - The combination of vertical flanged channel sign posts with knee braces and lateral framing to form an assembly to which a sign panel is mounted.

Breakaway Supports - Supports designed to yield when struck by an errant vehicle, thereby minimizing injury to occupants of vehicle and damage to the vehicle itself. American Association of State Highway and Transportation Officials (AASHTO) specifications, reference 4, indicate acceptable performance standards and dynamic test conditions.

Cone of Vision - A fan-shaped field of view extending in front of a vehicle operator.

Conventional Highways - A two-lane, two-way section of highway.

Demountable Legend - Non-adhesive backed character affixed to the sign face material by fasteners, usually pop-rivets (Spec. 3352.2A4).

Extruded Section - An aluminum channel substrate 152.5 mm (**6 inches**) or 305 mm (**12 inches**) in depth.

Iso-tacs - Lines of equal wind velocity given in various mean recurrence intervals.

Knee-brace - U-posts attached diagonally to riser posts or a lateral brace to increase stability of the sign structure.

Legend - The message on the face of a sign panel. It includes all alpha-numeric text, arrows, route markers, special symbols, and border elements. Legends are made of retroreflective materials except where opaque black paints are prescribed for text on certain signs.

Legend - Direct Applied - Adhesive-backed pressure sensitive characters.

Logo - A single or multicolored symbolic design unique to a product, a business or a service facility; a national, regional or local commercially recognized pictorial reference to a specific product, service or business used as a means of identification of a company's products, services or business.

Overlay - A thin, flat aluminum sheet with sign face material applied, which is bolted or pop-riveted to a sign panel.

Primary Guide Signs (Freeways only) - These signs consist of advance junction signing, exit directional signs, exit gore signs and destination signs. On interstate freeways, exit numbers are included. Distance signs are also primary guide signs.

Screening Process - Method of sign fabricating by screen printing with colored inks (pastes) over a given reflective sheeting.

Sheeting - Encapsulated Lens Retroreflective - A material utilizing retroreflective spherical lens elements adhered to a synthetic resin and covered by a smooth plastic surface (commonly referred to as "High Intensity"). See Mn/DOT Standard Specification 3352.2A2b Standard No. 2.

Sheeting - Enclosed Lens Retroreflective - A material utilizing retroreflective spherical lens elements embedded within a smooth plastic film (commonly referred to as "Engineering Grade"). See Mn/DOT Standard Specification 3352.2A2a Standard No. 1.

Sheeting - Pressure Sensitive - Reflective or non-reflective sheeting which has an adhesive backing that permits application of the sheeting to the substrate by pressure, and requires no heat, solvent, or other preparation for adhesion to smooth, clean surfaces.

Sheeting - Wide Angle Prismatic Retroreflective for Visual Impact Performance (VIP) - A material utilizing prismatic lenses formed in a transparent, synthetic resin, sealed and backed with a pressure sensitive adhesive and blue poly liner. This sheeting material has optimum performance over a broad range of observation angles.

Shop Drawing - Detail drawings of sign structures indicating materials used, dimensions, and fabricating processes.

Sign Base Material or Sign Blank (Substrate) - Sheet aluminum joined by backup splice plates, or extruded sections bolted together to form a flat surface.

Sign Face Material - Reflectorized or non-reflectorized sheeting material applied to the sign substrate.

Spliced U-Post - The combination of two flanged channel sign posts nested together and bolted to obtain the desired post length.

Square Tube - A square steel tube formed of 10 or 12 gauge steel rolled to size and welded in the corners. Tubes have holes spaced at 25.4 mm (**one inch**) intervals on all four sides along entire length of tube.

Stringers - Lateral structural members forming a frame to which the sign panel is attached. They also may provide additional strength to the assembly. Type D signs generally utilize flanged channel sign posts as stringers.

Supplemental Guide Signs - Guide signs which further orient the driver to geographical identification and secondary destinations. Destinations include cities, motorist services, and state parks.

U-Post (Flanged Channel Sign Post) - A steel post of a channel or modified channel design, with flanges against which a sign panel will be placed. Holes are punched at a uniform spacing along the centerline of the back of the post.

Windloading - The pressure of the wind on the horizontal and vertical supports of a structure are given in AASHTO specifications (reference 4).

6-3.0 LEGALITY - LEGAL AUTHORITY FOR PLACEMENT OF TRAFFIC SIGNS

6-3.01 Traffic Signs Installed by Mn/DOT Maintenance Forces

Minnesota Statute 169.06, Subdivision 2, provides that the Commissioner of Transportation (Commissioner) shall place and maintain traffic signs conforming to the MN MUTCD and the current edition of the Mn/DOT Standard Specifications for Construction as deemed necessary to regulate, warn, or guide traffic on the Minnesota trunk highway system. Mn/DOT district/division traffic offices and maintenance forces act as agents of the Commissioner in this duty. MS 174.03 Subdivision 4(a), gives further legal authority for this duty. Additional Statutes may also be applicable.

6-3.02 Traffic Signs Installed by Contract

Under the provisions of MS 161.32, Subdivision 1, the Commissioner may elect to conduct sign installation work by construction contract rather than by maintenance forces. Additional statutes may also be applicable.

6-3.03 Traffic Signs Installed by Others by Maintenance Permit

Under the provision of MS 169.06 1, Subdivision 2, the Commissioner may authorize others to install approved traffic signs by maintenance permit (Mn/DOT Form 1723). All signs shall conform to the MN MUTCD, Minnesota Standard Specifications for Construction, this Manual, and any specific conditions outlined in the permit. District/division traffic engineers should approve all sign installations to ensure that all applicable standards and practices are followed. Additional statutes may also be applicable.

6-3.04 Temporary Traffic Control Signs Installed By Construction Contracts and Public Utility Companies at Work Sites

The MN MUTCD, Part VI, Traffic Controls for Street and Highway Construction, Maintenance, Utility and Incident Management Operations provides standards and guidelines for placing traffic control signs at work sites to protect the public, workers and equipment. Section 6A covers the legal responsibility of authorities having jurisdiction to comply with the requirements of Part VI.

6-4.0 GENERAL PRINCIPLES OF TRAFFIC SIGNING

6-4.01 Basic Requirements for the Installation of Traffic Signs

As stated in the MN MUTCD, in order for traffic signs to be effective, they should meet the following basic requirements:

1. Fulfill a need.
2. Command attention.
3. Convey a clear, simple meaning.
4. Command respect of road users.
5. Give adequate time for proper response.

6-4.02 Basic Considerations for Installation of Traffic Signs

As stated in the MN MUTCD, and summarized in the second edition of Transportation and Traffic Engineering Handbook (4th edition - 1992, published by the Institute of Transportation Engineers) five basic considerations are employed to insure that the above basic requirements are met. These considerations are:

1. Design: the combination of physical features such as size, colors, and shape needed to command attention and convey a clear message.
2. Placement: the installation of devices should assure that they are within the viewer's cone of vision, so they will command attention and allow time for response.

A 20 degree cone of vision should be used for placement of signs. Signs must remain within this cone of vision to be read.
3. Operation: the application of devices so that they meet traffic requirements in a uniform and consistent manner, fulfill a need, command respect, and allow time for response.

4. Maintenance: the upkeep of devices to retain legibility and visibility, or the removal of devices if not needed, to aid in commanding respect and attention while fulfilling the needs of users.
5. Uniformity: the uniform application of similar devices for similar situations so that they fulfill the needs of users and command their respect. THE IMPORTANCE OF "UNIFORMITY" IN SIGNING CANNOT BE OVEREMPHASIZED.

6-4.03 Functional Classifications of Traffic Signs

The MN MUTCD classifies signs by their functional usage as follows:

1. Regulatory signs inform highway users of traffic laws or regulations and indicate the applicability of legal requirements that would not otherwise be apparent.
2. Warning signs are used to call attention to hazardous conditions, actual or potential, on or adjacent to a highway or street, that would not be readily apparent to the motorist.
3. Guide signs are used to provide directions to motorists, informing them of intersecting routes, directing them to cities and other important destinations, and guiding them to available services, points of interest, and other geographic, recreational, or cultural sites.

Further, guide signs for expressways and freeways have two (2) sub-classifications:

- 1 Primary guide signs consist of advance junction signing, exit directional signs, exit gore signs and destination signs. On interstate freeways, exit numbers are included. Distance signs are also primary guide signs.
2. Supplemental guide signs further provide the driver geographic orientation and secondary destinations at certain interchanges. Destinations include cities, motorist services, or state parks.

6-4.04 Department Classification by Sign Design Type

While the previous sign classifications describe general functions, Mn/DOT has further classified signs by "design" type.

Type A signs are large breakaway guide, directional, or informational signs normally installed on mainline freeways, expressways, and occasionally on conventional highways. They are supported on wide flange steel posts.



Type A Sign



Type OH Sign - Sign Support Style



Type C Sign

Type C signs are primarily regulatory, warning, route marker assemblies, and auxiliaries, as found in the Standard Signs Manual. They are the most common sign type and are typically installed by Mn/DOT sign crews.

Type D signs are the smaller guide, destination, or informational signs. They are supported on driven U-posts or mounted on overhead structures with punching and stringer spacing as indicated in the Standard Signs Manual.

Type OH signs are large overhead guide, directional, or informational signs, either spanning a roadway, cantilevered over the roadway/shoulder or bridge mounted. The requirements of the structural support system generally require installation or maintenance by contract. There are three kinds of Type OH signs: 1) sign support (no walkway or sign lighting), 2) truss (may or may not include walkway and sign lighting) and 3) bridge mounted (may or may not include walkway and sign lighting).

Type EA signs are exit number panels attached with U-posts to Type A sign panels.

Type EO signs are exit number panels attached with U-posts to Type OH sign panels.



Type D Sign



Type OH Sign - Truss Style



Type OH Sign - Bridge Mounted Style



Type EA Sign



Type OH Sign - Bridge Mounted Style

6-4.05 Elements of Traffic Sign Design

Elements of sign design include shape, color, size, legends, reflective properties, illumination, and uniformity. These elements are discussed in the MN MUTCD. However, some alternatives are permitted.

6-4.05.01 Shape

Sign shapes should be designed as stated in the MN MUTCD, except that it is the policy in Minnesota to use the rectangular shape (rather than trapezoidal) for recreation area signs.

6-4.05.02 Color

The color of signs and sign legends are specified in the MN MUTCD.

The fluorescent yellow-green color is reserved for selected warning signs. See Section 6-4.05.05, Reflectorized Sheeting Policy.

6-4.05.03 Size

The sign dimensions are specified in the MN MUTCD and Standard Signs Manual. Increases above these standard sizes are desirable where greater legibility or emphasis is needed. Special designs or large signs are prescribed for use on freeways and expressways. Standard shapes and colors shall be used and standard proportions shall be retained for enlarging signs insofar as practicable. The overall dimensions of sign panels should be in 152 mm (**6-inch**) increments. The use of smaller than "standard" size signs may sometimes be justified under the guidelines specified in the MN MUTCD.

6-4.05.04 Legends

Mn/DOT's preferred practice is to use symbol messages when the MN MUTCD allows the use of word messages as alternatives to symbols.

New warning or regulatory symbol signs not readily recognizable by the public, shall be accompanied by an educational plaque which is to remain in place for at least 3 years after initial installation.

It is Mn/DOT policy to use upper/lower-case lettering on all guide signs with proper name destinations.

The SignCAD program is currently used by OTE Signing Unit and district/division staff in designing guide signs. Contact OTE Signing Unit staff for technical assistance in the design of guide signs and usage of this program.

See Charts 6-1A, 6-1B, 6-1C, 6-1D and 6.1E for guidelines in determining guide sign panel sizes. These figures give the current recommended letter sizes based on roadway type and posted speed.

6-4.05.05 Reflectorized Sheeting Policy

For Mn/DOT operations, all signs shall use VIP sheeting, except as follows:

1. Fluorescent yellow-green VIP sheeting shall be used on the following signs:
 - a. Bicycle Crossing Sign (W11-1)
 - b. Pedestrian Sign (W11-2)
 - c. School Sign (S1-1)
 - d. Down Arrow Plaque (S2-P2), Distance Plaque (W20-100P), and Advisory Speed Plaque (W13-1) when used with the above 3 signs
 - e. School Sign (S4-3)
 - f. School Speed Limit Sign (S5-1)
2. Encapsulated lens reflective sheeting (commonly referred to as High Intensity [HI]) shall be used on the following signs:
 - a. Adopt-A-Highway Signs
 - b. LOGO Signs
3. Reflective sheeting requirements for object markers and delineators can be found in Chapter 7.
4. Reflective sheeting requirements for construction, maintenance, utility and incident management operations can be found in Chapter 8.

6-4.05.06 Overhead Guide Sign Lighting on Freeways

Driving on freeways and expressways is a complex and demanding task. Communication with the driver by signing is in constant competition for the driver's attention, particularly in the urban environment. As a countermeasure, overhead signs are typically utilized on urban area freeways.

The following guidelines were developed as a result of studies and field trips. Generally, overhead sign lighting is not needed. Each district/division should determine if it is necessary to light overhead signs based on these guidelines. A field review of the signs is required to make a sound decision. During the field review of each site, viewing of the signs should be made only with low-beam vehicle headlights. Also, it is recommended that personnel unfamiliar with the sign message be part of the review team to ensure the most objective decision possible.

By turning off or not installing overhead sign lighting, Mn/DOT benefits by decreasing energy and maintenance costs while maintaining adequate sign legibility.

Any one of the following guidelines may make it necessary to light overhead sign panels:

1. Advertising devices and/or lighting sources competing for drivers' attention.
2. Engineering judgement based on various factors including, but not limited to:

- a. At least 195 m (**650 foot**) legibility distance.
 - b. At least 300 m (**1000 foot**) detection distance.
 - c. Roadway and interchange geometrics.
 - d. High weaving traffic volumes.
 - e. Three or more overhead mounted sign panels on the same sign structure facing one direction of traffic (sign message overload).
 - f. Number of lanes (horizontal and vertical alignment).
 - g. Major forks.
 - h. Skewed bridge crossings.
 - i. Horizontal curves.
3. High density fog areas.
 4. Roadway lighting located in close proximity to overhead signs causing glare from the sign panels.
 5. Diagrammatic signs.
 6. Regulatory signs (black legend on white background).
 7. If one sign panel on a sign structure needs to be lit, all the other sign panels on the same structure should remain lit.

The details of sign lighting are discussed in Chapter 10, Lighting.

6-4.05.07 Changeable Message Signs (CMS)

It is often desirable to inform the motorist of special conditions about advisory situations or traffic congestion. Examples include truck weighing requirements, major crash warning, or surveillance monitoring.

Changeable message signs are generally used to communicate these part-time messages to the motorists. Combinations of electro-mechanical or all-electrical signs are used. Electro-mechanical signs either fold or rotate panel displays. Electrical signs consist of matrix or fiber optic displays to form selected messages.

6-4.06 Materials By Sign Type Classification

6-4.06.01 Type A signs

1. Support system - poured concrete footings or driven structural steel H-piles to support breakaway wide flange steel posts.
2. Sign panels - bolted extruded aluminum sections covered with sheet aluminum and direct applied reflectorized legend. The sign panel is attached with post clips to wide flange steel posts.

6-4.06.02 Type C signs

1. Support systems - ground mounted signs are spliced or single U-posts driven into subsoil, attached to bridge railings utilizing "O" posts or banded to traffic signal pedestals or mast arm

poles. Unsupported length and sign panel area determines number of U-posts and need for stringers and/or knee bracing.

2. Sign panel - sheet aluminum with direct applied reflectorized or screen processed legend. Punching is specified in the Standard Signs Manual.

6-4.06.03 Type D signs

1. Support system - same as Type C signs above but generally supporting greater sign panel area. May be affixed to bridge railings, traffic signal mast arms, etc.
2. Sign panel - same as for Type C signs above; splice plates may be required as specified in the Standard Signs Manual.

6-4.06.04 Type OH signs

1. Support systems
 - a. Sign support - Poured concrete shaft footing(s) supporting a sign bridge or cantilever structure with a single horizontal support for attaching sign panels.
 - b. Truss Type - Poured concrete spread, shaft or median barrier footings or spread foundation(s) supporting a sign bridge or cantilever structure. The horizontal truss supports panel mounting posts for attaching sign panels. The horizontal truss may incorporate a walkway and sign lighting system.
 - c. Bridge Mounted - Truss system attached to a bridge which includes sign panel supports for attaching sign panels. The truss may incorporate a walkway and sign lighting system.
2. Sign panels
 - a. Sign support - sheet aluminum with direct applied reflectorized legend. The sign panel may either be bolted to a sign bracket assembly or attached with post clips to panel mounting posts.
 - b. Truss Type and Bridge Mounted - bolted extruded aluminum sections covered with sheet aluminum and direct applied reflectorized legend. The sign panel is attached with post clips to sign panel supports or panel mounting posts.

6-4.07 Lateral Offset and Vertical Clearance Requirements

6-4.07.01 Type A Signs

See Figure 6.1 for normal lateral offsets and vertical clearances.

Typical placement for Exit signs (E5-1 and E5-1a) and Merge signs (W4-1 and W4-3) are also shown on Figure 6.1.

6-4.07.02 Type C and Type D signs

See Figure 6.2 for normal lateral offsets and vertical clearances.

6-4.07.03 Type OH signs

1. The lateral placement of sign panels is the relationship of the sign panel to the lane. This is to ensure that the sign message will be correctly interpreted by motorists and proper lane assignment is achieved. Even a small error in placement can have a detrimental effect on traffic operation and sign-message clarity.

The lateral offset of sign posts is 2.3 m (7.5 feet) from the surfaced shoulder to the center of the post. Post locations and guardrail requirements will be in accordance with the current edition of the Road Design Manual.

2. The minimum vertical clearance over the high point of the roadway or mountable curb shall be 5.3 m (17.33 feet).

6-4.08 Sign Installation and Maintenance Practices

6-4.08.01 Sign Installation Practice

1. Utilities and Underground Traffic Control Components

Care should be exercised in the installation of signs with respect to underground and overhead in-place utilities. In addition to "public service utilities" (electric, gas, telephone, sewer, and water lines, cables, and conduits) are traffic control device and communication installations such as signal system cables, signal interconnection conduit systems, surveillance cables, roadway lighting electric cables, and traffic counting cables. The Traffic Management Center should be contacted whenever installation is planned on a freeway in the Metro Area.

Minnesota Statute 216D requires anyone who engages in any type of excavation to provide advance notice of at least 48 hours to underground facility operators who may be affected by the excavation. Excavation means an activity that moves, removes, or otherwise disturbs the soil by use of a motor, engine, hydraulic or pneumatically-powered tool, or machine-powered equipment of any kind, or by explosives.

Gopher State One-Call is a statewide one-call notification system which was established as a result of Minnesota law to inform all Minnesota underground facility operators of intended excavation. Gopher State One-Call is open 24 hours a day, seven days a week. Calls after 5:00 p.m., before 7:00 a.m., on weekends and on holidays are accepted for emergencies only. An emergency is defined by state law as "A condition

that poses a clear and immediate danger to life or health or a significant loss of property."

PHONE NUMBERS

Twin Cities Metro (952) 454-0002

In or Out State-Toll Free (800) 252-1166

A free brochure is available and should be obtained by personnel responsible for installing sign structures in the ground.

2. Sign Groupings

Traffic signs of different functional classification should not be mixed in a given sign installation. Signs of the same functional classification may be installed as a unit, i.e., warning signs supplemented by advisory plates.

It is not always feasible to erect signs separately in urban areas where mounting space is limited and visibility problems occur. In such cases, it is permissible to mount a sign of major importance above a relatively small sign of routine or secondary significance. However, if the design of the individual panels could mislead or confuse the motorist, this practice should be avoided.

3. Spacing of Signs

General - Signs in a series must be uniformly spaced so that "a driver traveling at normal speed has adequate time to make the proper response" (MN MUTCD, Section 1A-2). Since one of the primary objectives of traffic signing is to convey a needed message to motorists, care should be taken to provide compatible and effective sign spacing and avoid reliance strictly on "minimum" distances unless absolutely necessary. As a rule of thumb for guide signs, every 25 mm (**one inch**) of capital letter text height is equivalent to 15 m (**50 feet**) of legibility distance.

Rural Areas - Sign spacing in rural areas should not be less than the distance required to read each sign at the upper range of anticipated vehicle approach speeds. For minimum recommended distances between signs of different purposes on rural thru two-lane, two-way highways see Figures 6.20, 6.22 and 6.23.

Urban Areas - In urban areas with speed limits of 30 MPH or less, the minimum desirable distance between signs is approximately 30 m (**100 feet**).

Freeways - Although conditions will exist where lesser sign spacings will be found necessary, freeway guide signs should be spaced at least 240 m (**800 feet**) apart. A spacing of at least 120 m (**400 feet**) should be provided between guide signs and all other types of signs on freeways.

Double Signing - If sign spacing approaches the minimum desirable distance, double signing (right and left shoulder) may be utilized. Also, double

signing should be used if the number of traffic conflicts is high.

4. Specular Glare

Care should be exercised in the placement of ground-mounted and overhead signs to reduce the problem of mirror reflection. This reflection is known as specular glare and is caused by motor vehicle headlights at night. Specular glare renders the sign useless by making the message impossible to read.

Normally signs should be mounted approximately at right angles to the direction of, and facing, the traffic that they are intended to serve.

Where mirror reflection from the sign face is encountered in such degree as to reduce legibility, the sign should be turned slightly away from the road. At curve alignments, the angle of placement should be determined by the course of approaching traffic rather than by the roadway edge at the point where the sign is located. Sign faces normally are vertical, but on grades it may be desirable to tilt the sign forward or back from the vertical to improve the viewing angle.

5. Windloading

AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, is used to govern the design of all signing prepared for construction contract letting. Briefly, AASHTO specifies iso-tacs and corresponding wind pressures on sign panels as follows:

All ground-mounted and overhead signs shall be designed for a 50-year mean occurrence interval, which results in 130 km/h (**80 mph**) wind speeds for Minnesota.

6. A-Frame and U-Post Mountings

Assuming an average distance of 3 m (**10 feet**) from the bottom of the sign panel to the ground line, the correct sign structure design and post spacing can be determined by using the charts in Charts 6-2, 6-3 and 6-4.

To use these charts, first determine the total length of the sign panel.

Then determine the height of the sign panel or add the heights of all of the individual sign panels to be mounted on the same sign structure. Based upon these dimensions (in millimeters or inches), select either Chart 6-2 or Chart 6-3, depending upon the mass of the U-posts to be used for the sign structure. After determining the correct number of riser posts to be used for the sign structure, refer to the punch codes in the Standard Signs Manual for the spacing from center to center of posts. If there is no punch code or the sign structure is unique, then refer to Chart 6-4 to determine riser post (center to center) spacing.

In lieu of using two riser posts (in accordance with Chart 6-2 or Chart 6-3) for a sign panel, one riser post may be used for any of the following conditions:

- a. Rocky soils - requiring drilling of holes for sign posts
- b. concrete sidewalk or median
- c. protected area experiencing low wind speeds
- d. urban location
- e. other locations where the placement of two riser posts is impractical.

On a sign assembly with 3 or more riser posts, the posts shall be spaced at least 1145 mm (**45 inches**) on centers. This criteria also applies separately to the knee braces.

Sign structures using U-posts shall be assembled according to the details shown in Figures 6.3A and 6.3B. These details were designed based on crash tests conducted at Texas Transportation Institute in 1988 and 1989.

6-4.08.02 Sign Maintenance Practice

1. Recurring Maintenance Schedule

Each maintenance area is charged with implementing recurring sign maintenance. A recurring maintenance schedule should be developed using a maximum 12 year cycle for encapsulated lens sheeting and a 15 year cycle for VIP sheeting (unless field performance studies coordinated by OTE staff determine otherwise). In order to monitor the performance of the reflective qualities of in-place signs, each district/division shall conduct periodic nighttime reflectivity observations. This review shall include all signs on Mn/DOT right-of-way facing traffic entering from local roads. See Maintenance Manual 5-791, Section 3, for those procedures.

2. Traffic Sign Field Inventory

Each district/division is charged with developing a limited field inventory. The development of a comprehensive field record of all signs is vital to sound maintenance management practice and budgets.

3. Missing or Damaged Signs

Trunk Highways--It is Mn/DOT's responsibility to replace all damaged or missing signs, except Logo signs, on the Trunk Highway system. Generally, STOP, YIELD, and DO NOT ENTER signs have the highest priority for replacement. These signs warrant weekend or overtime work for repair or replacement. Other signs should be evaluated on a case by case basis to determine relative priority. However, each district/division should develop a procedure for dealing with reports of damaged or missing signs to assure the prompt replacement of critical signs.

6-4.09 Implementation of Signing

Traffic signs are installed by construction contract or by maintenance personnel. Generally, maintenance personnel install and maintain Type C and Type D signs.

Installation of signs is typically authorized by a District/Division Traffic Work Order (DTWO) signed by the district/division traffic engineer. Variations to this practice are as follows:

1. Guide signs on the Interstate system
2. Experimental signs, object markers, or delineation
3. Alternate Route Markers
4. Business Route Markers

The above four variations shall be approved by OTE prior to installation. A copy of the DTWO will be sent to OTE.

6-4.10 Signing By Construction Contract

6-4.10.01 Contract Signing

It shall be the responsibility of each district/division to decide whether signs should be installed by maintenance personnel or by contract. The following reasons usually warrant the installation of signs by contract.

1. Need for breakaway supports.
2. Overhead or Type A guide sign installations.
3. Scope of work beyond capability of district/division forces.
4. Safety betterment.
5. Extensive need for refurbishment.

6-4.10.02 Project Memorandum

It shall be the responsibility of the district/division to prepare any necessary project memorandum for signing contracts. A project memorandum should include:

1. The types of signs to be installed.
2. The need for refurbishing existing signs.
3. The proposed contract letting date.

The Office of Traffic Engineering may review the project memorandum and recommend approval of the report or make recommendations for additions, deletions, or revisions to its content.

6-4.10.03 Work Programming

It shall be the responsibility of the district/division to program any work to be done by contract. The OTE Signing Unit shall provide cost estimates when requested to do so.

6-4.10.04 Preliminary Design

1. Work Authorization

It shall be the responsibility of the district/division office to request a charge identifier.

2. Preliminary Plan

The OTE Signing Unit shall prepare or the district/division shall assist in the preparation of a preliminary signing plan for new roadway construction. The preliminary plan shall be transmitted to the district/division for review and comment. The district /division shall transmit to any involved municipalities. One copy shall be returned to the OTE Signing Unit indicating the location of utilities. The district's/division's comments should include: (1) information regarding any unusual soil conditions which may be encountered, (2) recommendations for additional signing, and (3) comments and recommendations on proposed signing.

6-4.10.05 Detailed Design

The plan format and sequence of details shall, generally, be as follows:

1. Title sheet.
2. Estimate of quantities.
3. Sign data sheets giving pertinent information for each sign.
4. Sign lighting, delineation, and traffic barrier data sheets.
5. Roadway plan sheets showing signing for mainline and interchanges.
6. Sign panel drawings for all non-standard signs.
7. Standard details.
8. Structural details.
9. Electrical details.
10. Cross sections for Type A and Type OH signs

6-4.10.06 Special Provisions

Disposition of salvaged material and specialty items must be specified in the Special Provisions of a contract.

1. OTE Signing Unit

The OTE Signing Unit is responsible for writing the special provisions for items which are not fully covered in the Standard Specifications, including description of work, material requirements, construction requirements, method of measurement, and basis of payment.

2. District/Division

Other items, which must be included in the Special Provisions and are the responsibility of the district/division, include traffic provisions, time

schedule, and information regarding concurrent contracts.

6-4.10.07 Construction Activities

1. Inspection

Generally, all materials designated for use on state projects are subject to requirements covered by the Standard Specifications for Construction, the Plan, and the Special Provisions included in the contract proposal. Sampling, testing, and inspection of all materials shall be done in accordance with the provisions of Mn/DOT 1603.

Whenever possible, materials for sign panels and sign structures will be inspected prior to delivery to the project site. This will be done by one of two Central Office sections in accordance with the following:

a. Items requiring little or no custom fabrication.

These items are inspected by the Office of Materials and Road Research or the appropriate district/division materials engineer, or some other Department office with whom Mn/DOT has reciprocal inspection arrangements on the basis of mill reports, random samples and tests, and visual inspection after fabrication, painting, and galvanizing.

Items in this category are U-posts, delineators, sign face material, sign base material, reinforcement steel, and related hardware.

Inspected items are tagged or stamped and an inspection report, Form 2415, is sent to the Project Engineer or Resident Engineer.

b. Items requiring considerable custom fabrication.

These items are accepted by the Structural Metals Unit of the Office of Bridges and Structures under the provisions of Mn/DOT 2471 on the basis of mill reports and random samples covering the plain material, welder's qualification and welding procedures tests, and visual inspection of shop fabrication, painting, and galvanizing.

Items in this category are overhead sign supports, breakaway sign supports, anchor rods and related hardware, all fabricated and furnished in accordance with approved shop drawings.

Inspected items are tagged and an inspection report, Form 2229, is sent to the Project Engineer or Resident Engineer.

The receipt of an inspection report by project personnel, or observing the "star" stamp or tag on materials delivered to the project site does not relieve the project personnel of their responsibility to inspect for shipping damage and conformance to plans and specifications, and to make final acceptance, nor does it relieve the contractor of his responsibility for furnishing

materials of the required specifications and dimensions, in accordance with Mn/DOT 2471.3B and Mn/DOT 2471.3M1. Final acceptance is always at the project location in accordance with the provision of Mn/DOT 1516.

For materials arriving on the project site without evidence of prior inspection, project personnel should contact the Office of Materials and Road Research to determine if source inspection has been accomplished. When it is known that materials have not been inspected, sampling and testing shall be in accordance with the "Schedule for Materials Control."

In accordance with the aforementioned "Schedule of Materials Control," small quantities of material requiring little or no fabrication may be accepted on the basis of the Project Engineer's inspection report.

2. Shop Drawings

Shop drawings, prepared by the supplier (fabricator), are required for safety switches and sign lighting fixtures. These drawings are to be submitted to OTE for approval.

Shop drawings are required for all Type OH and sign support systems. These drawings are prepared by the supplier (fabricator) and are submitted to the Structural Metals Engineer for checking and approval. Corrected drawings are eventually stored at the Mn/DOT Records Center.

3. Technical Assistance

The OTE Signing Unit shall provide technical assistance to district/division project personnel, as requested. Also, the OTE Signing Unit shall advise the Project Engineer of any contacts initiated by suppliers, etc., concerning project matters.

4. Placement of Signs

Type OH and Type A signs must be located very near plan stationing. To make known the designer's intent, dimensioned elevation drawings of the sign and roadway cross section will be included in the Plan.

The importance of the positioning of overhead sign panels cannot be overemphasized. Project personnel shall notify the State Signing Engineer if panel placement is not as intended, or if the overhead sign location is to be changed.

Type A signs, excluding the exit direction sign (placed at the beginning of the deceleration taper) may be moved longitudinally + 30 m (**100 feet**) without generally affecting the sign system requirements.

5. Project Critique

Prior to job acceptance, the district/division traffic engineer, Project Engineer and designer should

critique the project. This critique should include construction problems and improving methods or procedures, condition of materials incorporated in the project, and workmanship.

6-4.10.09 Post-Contract Activities

The OTE Signing Unit is a source of certain information as follows:

1. District/division personnel often have the opportunity to observe in-place signing. Apparent failures in materials should be reported to the State Signing Engineer so that field observations may be made.
2. A report of the district's/division's recurring structural inspection procedure findings, Form 17267, shall be forwarded to the OTE Signing Unit.
3. The OTE Signing Unit maintains a list of salvaged overhead sign structures in storage.
4. The OTE Signing Unit is a source of annual quantities, unit prices, and other tabulations concerning contract signing items.
5. The OTE Signing Unit shall review and approve District/Division Traffic Work Orders specified in Section 6-4.09. Authorized revisions will be noted in the appropriate project files.

6-5.0 APPLICATION GUIDELINES-REGULATORY SIGNS

6-5.01 Purpose

Generally, the only regulatory sign applications that are discussed in this Section are those which:

1. Are not specifically addressed in the MN MUTCD; or
2. provide additional guidance to that given in the MN MUTCD on application, location, and usage of certain types of regulatory signs; or
3. establish procedures relating to engineering and traffic investigation requirements for certain regulatory signs.

6-5.02 Typical Regulatory Sign Placement at Divided Highway Intersections at Grade

The MN MUTCD, Section 2B illustrates typical positions for a number of regulatory signs.

Figures 6.4 through 6.10 show typical signing arrangements for the various intersection geometric elements encountered at divided trunk highway intersections at grade.

Appropriate signing for private and light commercial entrances is the responsibility of each district/division. Therefore, each location needs to be reviewed on a case by case basis. This allows the flexibility to deny or install signing depending on the entrance specifics.

In order to clarify and ensure uniform application for installation and maintenance of signing at entrances with trunk highways, the following guidelines are provided:

1. Private House or Farm

Stop signs and/or other signing should not normally be installed. If any extraordinary condition exists, the signing shall be properly installed by the district/division in accordance with State standards. Maintenance will be performed by Mn/DOT.

2. Light Commercial

a. If the entrance serves a single business, stop signs and/or other signing should not be installed unless a field investigation reveals that an extraordinary condition exists. If warranted, the signing shall be properly installed, either by the business (by permit) or by the district/division, in accordance with State standards. Maintenance will be performed by Mn/DOT.

b. If the entrance serves several small businesses (e.g., a small strip mall), a field investigation should be conducted to determine if a stop sign or other signing is warranted based upon high traffic volumes, restricted sight distance, crash experience, intersection geometrics, pedestrian activity, etc.

1) Signing at an entrance for existing businesses, if warranted, shall be properly installed, either by the business (by permit) or by the district/division, in accordance with State standards. Maintenance will be performed by Mn/DOT.

2) Signing at an entrance to a proposed new development, if warranted, shall be properly installed by the developer in accordance with State standards. Maintenance will be performed by Mn/DOT.

c. Heavy Commercial

Stop signs are required at each entrance. According to Section 6-5.02, other regulatory signs may be required depending on the highway type. A field investigation may be necessary to determine if any additional signing is warranted.

1) Signing at an entrance for existing heavy commercial business shall be properly installed either by the business (by permit) or

by the district/division, in accordance with State standards. Maintenance will be performed by Mn/DOT.

2) Signing at an entrance to a proposed new heavy commercial business shall be properly installed by the developer in accordance with State standards. Maintenance will be performed by Mn/DOT.



6-5.02.01 STOP Signs

This section clarifies the recommended use and minimum size of STOP signs on Mn/DOT trunk highways.

1. Primary Location

a. 750 x 750 mm (30" x 30")

Install on all two-lane, two-way city, township, or county roads

b. 900 x 900 mm (36" x 36")

Install at the following locations:

1) on all freeway/expressway ramps,

2) on trunk highways with highway speeds less than 45 mph, and

3) on any city, township, or county road with more than one through lane of approach to an intersection.

c. 1200 x 1200 mm (48" x 48")

Install at all trunk highway to trunk highway intersections with highway speeds of 45 mph or more.

2. Additional Location (left side)

a. 750 x 750 mm (30" x 30")

Install at any public road with more than one through lane of approach to an intersection based on a traffic engineering study. Justification may be based on unusual roadway geometrics, sight restrictions, or crash problems.



6-5.02.02 ONE WAY Sign (R6-1)

This section clarifies the recommended use and minimum size of ONE WAY signs (R6-1) on Mn/DOT trunk highways.

1. 900 x 300 mm (36" x 12")

The standard size for most applications. Install it above the 750 x 750 mm (30" x 30") and the 900 x 900 mm (36" x 36") STOP signs and either independently or on traffic signal poles or pedestals at signalized intersections.

2. 1200 x 450 mm (48" x 18")

Install it above 1200 x 1200 mm (48" x 48") STOP signs and at other locations as directed by the district/division traffic engineer.



6-5.03 Speed Limit Signing

Minnesota Statute 169.14 specifically states that the "...speed limit shall be effective when such signs are erected." Speed limit signs shall be placed at the terminal points described in the speed limit authorization. When entering a lower speed zone, the first speed limit sign shall be 600 x 750 mm (24" x 30") or larger. Supplemental speed limit signs for lower speed zones may be placed at intervals approximately equal to 60 seconds of travel time at the posted speed. Signs may be spaced closer in urban areas due to numerous access points. Signs may be further apart in rural areas where the character of the roadway remains constant with fewer access points. Signs should always be posted near junctions that are major traffic generators. Placement should always be in the most advantageous locations to promote driver compliance and prevent speed traps.



It shall be Mn/DOT's practice to use the REDUCED SPEED AHEAD (R2-5a) sign to give advance notice of reduced speed limits. This sign shall be used if the reduction in speed limits between two zones is 15 mph or more. This sign may be used for a difference of 10 mph or less based on engineering judgement.

The REDUCED SPEED AHEAD sign should be placed approximately 300 m (1000 feet) in advance of the first speed limit sign. Geometrics, grade, or sign clutter may impact the motorists' speed reduction. Engineering judgement should be used and the sign may be placed up to 530 m (1700 feet) in advance. The REDUCED SPEED AHEAD sign and the subsequent speed limit

sign shall be the same size and shall be a minimum 900 x 1200 mm (36" x 48") sign panel. On freeways, the REDUCED SPEED AHEAD sign panel shall be 1200 x 1500 mm (48" x 60").

The END (___) MILE SPEED (R2-6) sign shall not be used on the trunk highway system.



1. Interstate Speed Limit Signs

On freeways designated as interstates, the SPEED LIMIT XX-MINIMUM XX sign (R2-4a) shall be used. The minimum speed limit should be 40 mph unless a traffic investigation identifies a unique traffic pattern justifying a different value. The minimum speed shall be omitted whenever there are warning signs with advisory speeds advising motorists of a value lower than the minimum. The minimum speed limit should resume after the hazard is passed.

On rural interstates located outside the limits of urbanized areas (population 50,000 or more as defined by the Commissioner) the 1200 x 2400 mm (48" x 96") SPEED LIMIT 70-MINIMUM 40 sign (R2-4a) shall be used. A traffic investigation is required to justify a speed limit other than 70 mph. These signs should be erected at each interchange for traffic entering the mainline. The spacing between speed limit signs in rural areas should not exceed 16 km (10 miles).

Urban interstates, due to high traffic volumes, frequent interchanges, and unique geometrics require a traffic investigation to determine the safe and reasonable speed that shall not exceed 65 mph. The R2-4a speed limit sign should be placed at each interchange for traffic entering the mainline. If sign spacing criteria cannot be met due to the high sign density in urban areas, the speed limit sign should be placed at the first available location. The next smaller sign size may be used where proper lateral clearances cannot be achieved. The minimum speed limit should be 40 mph unless a traffic investigation identifies a unique traffic pattern justifying a different value. The minimum speed shall be omitted whenever there are advisory speeds, with warning signs, advising motorists of a value lower than the minimum. The minimum speed limit should resume after the hazard is past. Minimum speed limits should not be used on expressways or freeways that are non-interstate.

In advance of urban areas, where speed reductions to 55 mph or less are required, REDUCED SPEED AHEAD signs (R2-5a) shall be erected on both sides of the roadway. This shall be followed with appropriate speed limit signs mounted on both sides of the roadway. Subsequent confirmatory speed limits may be placed on the right side of the roadway.

2. Special Speed Limit Signing

Where sign clutter or extremely unique situations exist that require an unusually high degree of visibility for the reduced speed limit, the installation of metal flags may be used. The following provisions are to be used as a standard application and are not an endorsement of a typical solution to sign visibility.

Two flags may be mounted on each of the REDUCED SPEED AHEAD signs and on each of the first SPEED LIMIT XX sign installations located immediately past the REDUCED SPEED AHEAD signs.

The metal flags shall be made of either red ink screened over white VIP reflective sheeting, or red VIP reflective sheeting. The two galvanized steel mounting brackets should be attached to the ends of the square steel tubing.

The State Sign Shop in Oakdale will provide the square steel tubing, galvanized steel brackets, and all mounting hardware for the entire installation. The two galvanized steel mounting brackets will already be attached to the ends of the square steel tubing.

6-5.04 Bridge Speed and Load Restrictions

Under the current program of bridge inspections, load restrictions and speed restrictions are required on some bridges. In order to provide a uniform system of bridge signing, standard signs and guidelines have been developed by OTE in cooperation with the Office of Bridges and Structures. Posting requirements for bridges on trunk highways are determined by the Office of Bridges and Structures.



1. BRIDGE SPEED LIMIT Sign

Use and application of this sign is stated in the MN MUTCD, Section 2B-10.1, Bridge Speed Limit Sign (R2-X5). The procedure for installing this sign is as follows:

- Where the Office of Bridges and Structures determines that a reduced speed limit is required

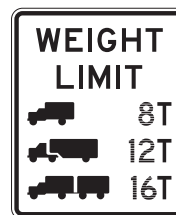
on a bridge or other elevated structure constituting part of a highway, they shall inform the appropriate district/division traffic engineer of its engineering investigation findings. The official investigation report file is retained in the Office of Bridges and Structures.

- The district/division traffic engineer then prepares a Speed Limit Authorization, Form No. 29212, to be signed by the Assistant State Traffic Engineer, OTE.
- Upon receipt of the Speed Limit Authorization, the required signs shall be installed in accordance with the MN MUTCD.
- Local authorities may submit their engineering findings to the district/division traffic engineer, who will submit the report and recommendations to OTE for speed limit authorization. The Office of Traffic Engineering will prepare speed limit authorization Form No. 29213 and the approved form will be sent to the local authority. The speed limits will become effective when the local road authority erects the signs in conformance with the MN MUTCD.



2. BRIDGE CLOSED Sign

The BRIDGE CLOSED sign (R11-2A) is to be used when it is necessary to close a bridge or structure to vehicular traffic.



3. Bridge Weight Limit Sign

The Bridge Weight Limit sign (R12-5) shall be installed either on or immediately in advance of bridges or structures where it is necessary to limit the load permitted on that structure. The Office of Bridges and Structures determines the proper weights to display on the sign, based on its engineering investigation.

4. Advance Bridge Weight Limit Sign

The weights to display on the sign shall be the same weights displayed on the Bridge Weight Limit sign selected in Item 3 above. This sign referred to as Sign R12-5 Supplement in the MnMUTCD, Section 2B-41.1, consists of a "Bridge" plaque installed above, and a "Mileage" plaque below, the Bridge Weight Limit sign (R12-5). Both plaques shall have a black legend on

yellow reflectorized background. The R12-5 Supplement sign shall be installed well in advance of bridges or structures where it is necessary to limit the load permitted on a structure. Signs should be placed at the nearest intersecting road or wide point in the road at which a vehicle can detour or turn around. The distance shown on the Mileage plaque shall be in miles.



5. Truck Restrictions on Bridges Sign

The TRUCKS MUST NOT MEET ON BRIDGE sign (R12-X3) shall be installed on two-way roadways in advance of bridges or structures where the clear opening width is greater than 5.49 m (18 feet) and less than 6.09 m (20 feet), the approach alignment is poor and the structure type is such that commercial vehicles cannot pass safely on the structure.

The VEHICLES MUST NOT MEET ON BRIDGE sign (R12-X3A) shall be installed on two-way roadways in advance of one-lane bridges or structures where the clear opening width is 5.49 m (18 feet) or less.

6. WEIGHT RESTRICTION AHEAD Sign

The WEIGHT RESTRICTION AHEAD sign (W14-X3) shall be installed where it is necessary to inform drivers of vehicles that there is a weight restriction ahead.



6-5.05 DO NOT PASS Sign

The MN MUTCD states that where standard pavement markings are present, the DO NOT PASS sign (R4-1) is not required. See Chapter 7 Markings, Section 7-4.06 for pavement markings.

Because of the demonstrated target value given by the NO PASSING ZONE pennant sign (W14-3) in critical passing maneuvers, and favorable experience with the effectiveness of the sign, it has been determined that the DO NOT PASS sign (R4-1) shall not be required on Minnesota trunk highways in locations where standard no passing zone pavement markings have been applied and maintained.

This does not preclude use of the DO NOT PASS sign where it is deemed necessary based on engineering judgment. The sign may be needed on gravel surfaced highways with higher volume of traffic where a combination of DO NOT PASS, NO PASSING ZONE, and PASS WITH CARE signs provide the only means of prohibiting passing at sight-restricted locations.



6-5.06 Emergency Stopping and Exclusion of Certain Types of Vehicles: Signs to be Used at Freeway Entrances

The MN MUTCD, Section 2B-34, Emergency Parking Signs (R8-4, 7), shows the Freeway Entrance Ramp Information Sign (R16-X4). It is general practice to use this sign assembly on ramps, facing traffic entering a freeway, to advise of the emergency stopping regulation and to inform of selective exclusion of certain classes of traffic from freeways.

Generally, the EMERGENCY STOPPING ONLY sign (R8-7) will not be required on the freeway if the above sign assembly is in place.



The PEDESTRIANS, BICYCLES, MOTORIZED BICYCLES, NON-MOTORIZED TRAFFIC PROHIBITED sign (R5-10d) should be installed facing ramp traffic which may enter the wrong way. This sign shall be located between the DO NOT ENTER (R5-1) and WRONG WAY (R5-1a) signs.

Figures 6.11 and 6.12 show typical placement of these signs on freeway interchange ramps.



6-5.07 NO TURN ON RED Sign

Minnesota Statute 169.06, Subd. 5. Traffic Signals, (c)(1) reads in part:

"(i) the driver of a vehicle which is stopped as close as practicable at the entrance to the crosswalk on the near side of the intersection or, if none, then at the entrance

to the intersection in obedience to a red or stop signal, and with the intention of making a right turn may make such right turn, after stopping, unless an official sign has been erected prohibiting such movement, but shall yield the right-of-way to pedestrians and other traffic lawfully proceeding as directed by the signal at said intersection; or (ii) the driver of a vehicle on a one-way street which intersects another one-way street on which traffic moves to the left shall stop in obedience to a red or stop signal and may then make a left turn into said one-way street, unless an official sign has been erected prohibiting the movement, but shall yield the right-of-way to pedestrians and other traffic proceeding as directed by the signal at said intersection."

The NO TURN ON RED sign (R10-11b) is the sign described in the above statute.

The MN MUTCD, Section 2B-37 Traffic Signal Signs (R10-1 to 12), outlines conditions where the use of NO TURN ON RED signs may be considered.



6-5.08 Supportive Signing for Left Turn Signals

Minnesota Statutes 169.06 Subdivision 5, details the legal requirements and responsibilities of motorists and pedestrians relative to traffic signal indications.

Signal instruction signs may be needed at certain locations to clarify signal control. Supportive signing mounted adjacent to or below the left turn signals includes the following:

1. The LEFT ON GREEN ARROW ONLY sign (R10-5) may be used to supplement a red arrow indication. This sign is intended to familiarize motorists with the red arrow signal indication. While it is not intended to use this sign on a permanent basis, its removal or retention will be based on the individual district/division traffic engineer's judgement.
2. The LEFT TURN YIELD ON GREEN with green ball sign (R10-12) may be used for a protected/permissive left turn signal operation.

6-5.09 Bus Lane Signing on Shoulders

Trunk highway shoulders in metropolitan areas are sometimes used as preferential lanes for transit buses. Typical signs and locations are shown in Figure 6-13. The diamond marking symbol shall not be used on these signs or as pavement markings on the shoulders.



6-5.10 VEHICLE NOISE LAWS ENFORCED Sign

Large trucks use a method of braking which utilizes engine exhaust manipulation to slow the vehicle. This method, referred to as engine braking, may produce a very loud distinctive staccato sound on a truck with a poorly muffled or un-muffled exhaust. Excessive exhaust noise may also be produced by other types of vehicles, including motorcycles.

Mn/DOT has developed the following guidelines for use of the VEHICLE NOISE LAWS ENFORCED sign (R16- X13) to assist local law enforcement agencies in enforcing MS 169.69 MUFFLERS and MS 169.693 MOTOR VEHICLE NOISE LIMITS.

6-5.10.01 GENERAL CRITERIA

1. Signing may be permitted on conventional trunk highways (two-lane two-way) and on non-freeway segments (no freeway type interchanges) of expressways. Signing will not be permitted on freeways.
2. Only one sign shall be allowed per trunk highway approach into a community.
3. The new sign panel displays the message "VEHICLE NOISE LAWS ENFORCED" in black legend on white background.

NOTE:

The new sign panel retains the current standard sign number (R16-X13) assigned the TRUCKS - NO JAKE BRAKING sign since it replaces this sign.

4. The placement of signs should be as follows:
 - a. Low speed urban areas - 600 x 600 mm (24" x 24") size
 - b. High speed suburban and rural areas - 900 x 1050 mm (36" x 42") size

NOTE:

There must be adequate space for each sign as determined by the district/division traffic engineer

5. The request for installation of a sign(s) shall be made through the offices of or by the community.
6. It is the responsibility of the local law enforcement agency to enforce the sign(s).
 - a. Seven County Minneapolis-St. Paul Metropolitan Area

The community must pass a resolution stating that it will enforce Minnesota Statute 169.69 (MUFFLER) and Minnesota Statute 169.693 (MOTOR VEHICLE NOISE LIMITS) prior to requesting the sign(s).

b. Outside of the Seven County Metropolitan Area

The community may pass a resolution stating that it will enforce Minnesota Statute 169.69 (MUFFLER) and Minnesota Statute 169.693 (MOTOR VEHICLE NOISE LIMITS).

6-5.10.02 FABRICATION AND INSTALLATION GUIDELINES

Seven County Minneapolis-St. Paul Metropolitan Area

1. The requesting community shall fabricate and install the sign(s) with their own forces or under contract. A permit from Mn/DOT will be required for placement of signs on trunk highway right-of-way.
2. The sign panel shall be fabricated with sheet aluminum and reflective sheeting in accordance with current Mn/DOT standards.
3. If a sign structure is to be located within the clear zone, it shall meet FHWA breakaway requirements.
4. All future maintenance of signs (knockdowns, replacement, etc.) are the responsibility of the community.

Outside of the Seven County Metropolitan Area

Signs are to be installed under either of the following methods:

1. The requesting community may fabricate and install the sign(s) with their own forces or under contract. A permit from Mn/DOT will be required for placement of signs on trunk highway right-of-way.

The sign panel shall be fabricated with sheet aluminum and reflective sheeting in accordance with current Mn/DOT standards.

If a sign structure is to be located within the clear zone, it shall meet FHWA breakaway requirements.

All future maintenance of signs (knockdowns, replacement, etc.) are the responsibility of the community.

2. Mn/DOT forces may fabricate and install the sign(s). The requesting community shall pay all fabrication and installation costs prior to fabrication of the sign panel(s).

All future maintenance of signs (knockdowns, replacement, etc.) will be performed by Mn/DOT forces and the requesting community shall pay all costs.

6-5.10.03 REPLACEMENT OF EXISTING SIGNS

1. Communities with existing signing should be notified by district/division traffic office personnel.
2. All existing Jake Brake sign panels (and sign structures installed by others within the clear zone that do not meet the FHWA breakaway requirements) shall be removed by Mn/DOT forces at Mn/DOT's expense. This includes all existing signs installed by Mn/DOT or by others within the right of way of trunk highways entering communities.
3. Mn/DOT forces to install a new sign structure to replace any existing sign structure installed by others that do not meet FHWA breakaway requirements.
4. Mn/DOT to fabricate and install the new "VEHICLE NOISE LAWS ENFORCED" sign panels on existing and new Mn/DOT sign structures at its own expense.
5. Any community with existing Jake Brake signs is not required to pass a resolution.

6-6.0 APPLICATION GUIDELINES - WARNING SIGNS

6.01 Purpose

The warning sign applications that are discussed in this section are those which:

1. are not specifically addressed in the MN MUTCD, or
2. provide additional guidance to that given in the MN MUTCD on application, location, and usage of certain types of warning signs, or
3. establish practices relating to engineering and traffic investigation requirements for certain warning signs.

The chart in Chart 6-5 and the following paragraph are reprinted from the MN MUTCD, Section 2C-3, and are duplicated here to stress the importance of maintaining proper minimum distances for warning sign placement.

Since warning signs are primarily for the benefit of the driver who is unacquainted with the road, it is very important that care be given to the placement of such signs. Warning signs should provide adequate time for the driver to perceive, identify, decide, and perform any necessary maneuver. This total time to perceive and complete a reaction to a sign is the sum of the times necessary for Perception, Identification/ understanding, Emotion/decision making, and Volition/execution of decision, and is here referred to as the PIEV time. The PIEV time can vary from about 3 seconds for general warning signs to 10 seconds for high driver judgment condition warning signs.



6-6.02 Advisory Exit Speed Signs

The Advisory Exit Speed sign (W13-2) advises motorists of the maximum recommended speed on a ramp.

This sign shall be installed in accordance with the following guidelines:

1. If the maximum recommended speed on a ramp, as it exits the mainline roadway, is less than, or equal to, 70 percent of the design speed of the mainline roadway, the exit ramp shall be signed with an Advisory Exit Speed sign. Locate the sign along the mainline in accordance with the MN MUTCD, Section 2C-36.
2. The removal or replacement of existing signs not meeting the above guidelines should be through normal attrition as follows:
 - a. Replace existing Advisory Exit Speed signs with new signs if ramp speeds meet the above recommendation.
 - b. Remove existing Advisory Exit Speed signs if ramp speeds do not meet the above recommendation.
 - c. Remove existing Advisory Ramp Speed signs located along the mainline. If a ramp speed meets the above recommendation, install an Advisory Exit Speed sign when the Ramp Speed sign is removed.

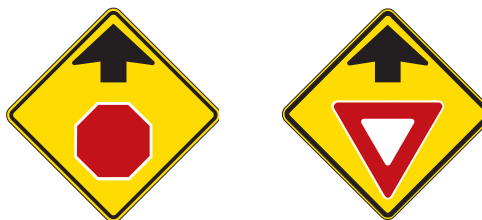


6-6.03 Chevron Alignment Signs

The Chevron Alignment sign (W1-8) is a warning sign and, as with all warning signs, should be used sparingly, as excessive use will reduce its effectiveness. Generally, this sign should be used only on 6 degree curves or greater. Curves of less than 6 degrees would be marked by standard delineation as covered in Chapter 7.

Although this sign aids in delineating the roadway, it is a warning sign and shall be installed as specified in the MN MUTCD, Sections 2A-23, 2A-24 and 2C-10. Height and lateral clearance for all signs on a curve should be uniform, to accurately delineate the roadway.

The first sign should be placed near the beginning of the curve. Spacing of the signs should be such that the motorist always has two in view, until the change in alignment eliminates the need for the signs. Variables such as approach speed, grade, super elevation, visibility and vertical alignment all affect the spacing of the signs. Chart 6-6 shows spacing of signs on various curves. Generally, the sign size is governed by the road classification (refer to Appendix C of the MN MUTCD or the Standard Signs Summary). Although the standard size for conventional roads is 450 x 600 mm (18" x 24"), the 600 x 750 mm (24" x 30") sign may be used based on engineering judgment.



6-6.04 Advance Warning Signs on Local Road Approaches

This section details the installation and maintenance of advance warning signs on local road approaches to trunk highway intersections.

The advance warning signs are: STOP AHEAD, YIELD AHEAD, and SIGNAL AHEAD.

1. Maintenance of these advance warning signs currently in place on all local road approaches to trunk highway intersections is the responsibility of the local road authority.
2. At new intersections, or at intersections where traffic control is revised by Mn/DOT, Mn/DOT will investigate the need for advance warning signs on the local road approaches and furnish and install the appropriate sign. The road authority(s) should be notified in writing of the sign installations. Maintenance of the advance warning signs will then become the complete responsibility of the local road authority.



6-6.05 BUMP and DIP Signs

This section presents guidelines on the placement of BUMP (W8-1) and DIP (W8-2) warning signs. The BUMP and DIP signs shall be installed in advance, and at the site of, sharp rises or depressions in the profile of

the roadway, respectively, which are sufficiently abrupt to create a hazardous condition, to cause considerable discomfort to passengers, to cause a shifting of the cargo, or to deflect a vehicle from its true course at the normal driving speeds for the road.

It may be desirable to supplement these signs with an Advisory Speed plate (MN MUTCD, Section 2C-35) especially if the condition exists on a high speed roadway and of such a severe nature as to damage a vehicle if a motorist fails to make the necessary reduction in speed prior to the hazardous condition.

At less severe or multiple bumps, a BUMP AHEAD (W8-1A) or BUMPS (W8-1B) sign, should be placed an adequate distance in advance of the site(s) to ensure that a motorist has sufficient warning before arriving at the location (s). An appropriate distance plaque, W20-100P or NEXT ____ MILES (W7-3a), shall be placed below the warning sign. At the site of each severe bump, a "down arrow" shall be added to the sign face instead of "AHEAD" to identify the exact location of the bump. Figure 6.14 shows the typical placement of these signs.

When locations have multiple bumps of lesser severity or pavement breaks, for a distance in excess of 1.6 km (**one mile**), then the "ROUGH ROAD" (W8-8) warning sign should be used. The supplemental distance plaque W7-3a should be used below it.

Note:

The use of a flashing beacon or orange flag is discretionary, depending on the severity of the bump or dip. When used, they should be mounted on the advance sign assembly.



6-6.06 Advisory Curve Surveys

Curve and turn signs should be used to inform the driver of a change in geometrics that is not readily apparent or occurs in an unexpected location compared to the typical character of the roadway. These warning signs require caution on the part of the vehicle operator and may call for reduction of speed or a maneuver in the interest of comfort and safety. The need for curve and turn signs may be determined in the field by making several trial runs through the curves in a test vehicle equipped with a slope meter or an electronic meter, such as Model E45 manufactured by Rieker Instrument Company. The ball-bank reading is a measure of the

amount of centrifugal force on the vehicle.

1. Slope Meter

The slope meter is an instrument used to determine the comfortable speed that a passenger vehicle can travel around a curved roadway section. This instrument consists of a steel ball in a sealed, curved glass tube filled with an alcohol solution. The tube, bent on the arc of a circle, is graduated from 0 to 20 degrees, both to the left and right of the zero point. The tube is enclosed in a metal case. When mounting the ball-bank indicator, the car should be in a stationary level position. The speedometer of the test vehicle must be accurately calibrated and the tires uniformly inflated. The indicator should be mounted vertically, with the steel ball at the zero point. All occupants who are to be in the car when the observations are made should be in the same position when mounting or checking the instrument as when making the test drive. This is necessary because changing the position of a passenger or the load in the test vehicle may cause the vehicle body to tilt to the right or left. This tilting action or body roll will cause a change in the slope meter readings.

2. Procedures for Testing A Curve

The use of the slope meter or electronic meter to measure the comfortable speed on curves involves the efforts of two people--one to drive and the other to observe the meter. The following procedures should be followed in each test:

- a. The curve under observation should first be appraised by the driver to determine the approximate safe speed which can be maintained.
- b. The driver should then conduct the first test at a speed 10 mph below the appraised speed.
- c. Each succeeding test should be made at a speed 5 mph greater than the preceding test, until the meter has reached 10 degrees, except as indicated on Chart 6-7.
- d. On each test, the driver should attain the trial run speed at a distance of at least 400 m (**1/4 mile**) from the beginning of the curve.
- e. The course throughout the curve should be maintained precisely in the center of the lane and at uniform speed. Using a vehicle with cruise control aids in this process.
- f. The observer shall note carefully the position of the ball on the slope meter or the display on an electronic meter at the approximate center of the curve and shall record the reading.
- g. The reading shall be recorded as right or left of zero. The turn sign showing an arrow bent at a right angle (W1-1 left or right) should be used to mark curves on which a meter indicates 10 degrees or more at a speed of 30 mph or less.

Additional protection may be provided by use of the Advisory Speed plate.

- h. The curve sign showing a curved arrow (W1-2 left or right) should be used to mark a curve where a test with a meter gives readings of 10 degrees or more at speeds equal to or greater than 35 mph and equal to or less than the legal speed limit established on that section of highway. Additional protection may be provided by the use of the Advisory Speed plate.
 - i. The reverse curve sign (W1-4 Left or Right) and reverse turn sign (W1-3 Left or Right) shall be installed to mark two curves or two turns as defined above and connected by a tangent of less than 180 m (**600 feet**). When an advisory speed plate is used, the lower of the two recommended speeds will prevail.
3. Curve Study Sheet

It is important that all information be recorded as indicated on a curve study sheet. As provided on the curve study sheet, trial runs should be made in each direction. The ball bank angles in Chart 6-7 shall be used to establish the safe speed on curves. As an example, for the speed range 35 mph and above, the comfortable speed for the curve is the exact speed which swings the ball 10 degrees off center on a slope meter or displays 10 degrees on an electronic meter. Any speed which causes the ball to move more than 10 degrees away from the zero position is considered uncomfortable to the driver and possibly unsafe at higher speeds.



6-6.07 Crossing Signs

6-6.07.01 Pedestrian Crossing Signs (warning and regulatory)

1. Typical Pedestrian Crossings

This section covers usage of pedestrian warning signs at locations where emphasis is needed to alert motorists to pedestrians crossing the highway. Specifics for installation of the STOP FOR PEDESTRIAN IN CROSSWALK (R1-X1) sign are found in the MN MUTCD.

Typical examples where special treatment should be considered include isolated intersections where

there are heavy pedestrian volumes, pedestrian crossings where approach visibility is poor, and at mid-block crosswalks.

Special treatment is not usually required at normal intersections within municipalities, or at rural intersections.

Figures 6.15 and 15A sets forth guidelines for the placement of signs and markings for pedestrian crossings. In urban areas, the distance for the crossing advance sign may be less where mounting problems are encountered, provided that the regulatory sign is not used.

Crosswalks shall be painted by the local jurisdiction at the crossing before the signs are installed. The local jurisdiction is responsible for maintaining the painted crosswalks.

Where signs are installed, the pedestrian warning sign (W11-2) shall be placed in all cases.

2. Handicapped Pedestrian and Elderly Pedestrian Signing

All specifics for installation of Handicapped or Senior Citizen signing are found in Appendix A of the MN MUTCD.



6-6.07.02 Deer Crossing Signs

Deer crossing signs are intended for use in advance of a section of highway which has a high frequency of deer/vehicle collisions.

Because of varying conditions of deer populations and location, each district/division should develop its own policy in selecting areas to warn motorists of deer crossings.

One source of data which should be utilized is the monthly Road Kill Deer Report that the Department of Natural Resources (DNR) has requested Mn/DOT to compile. Deer kills are indicated to the nearest 160 m (**1/10 mile**). Form 6.A shows a sample of the Monthly Deer Kill Report.

1. Procedures for Designating Deer Crossing Areas

- a. New Areas - Guidelines to sign a deer crossing area are determined by discussion and agreement between the district/division traffic engineer and the DNR. The district/division traffic engineer will have signs installed according to these guidelines.

- b. Existing Areas - All existing signed deer crossing sites should be reviewed in accordance with these guidelines and unwarranted signs removed.
- c. Individual Complaints - Individual complaints on deer crossing problems should be referred to the district/division traffic engineer.

2. Deer Crossing Sign

- a. The deer crossing symbol sign (W11-3) shall be used on all trunk highways. If the deer crossing area extends for more than 800 m (**1/2 mile**), a supplemental plaque NEXT () MILE (W7-3a) should be used beneath the warning sign.
- b. Minimum Size - Minimum sizes of deer crossing warning signs should be 900 x 900 mm (**36" x 36"**) on two-lane highways, and 1200 x 1200 mm (**48" x 48"**) on freeways and expressways.



6-6.07.03 Snowmobile Crossing Signs

Snowmobile warning signs shall be used only in advance of officially designated trails which cross the highway where there is a sight restriction or some other hazardous condition on an officially designated trail. An example of "other hazardous condition" is at crossings near bridges, where the law [MS 84.87, Subd. 1b(6)] permits snowmobiles to be operated on highway bridges (other than part of the main traveled lanes of interstate highways) when no other method of avoidance is possible.



6-6.07.04 Trail Crossing Signs

TRAIL CROSSING (W11-X7) warning signs should be used only in advance of officially designated trails which cross the highway. Typical signing is shown in Figure 6.16.



6-6.08 Low Clearance Signs

According to Minnesota Statute 169.81, Subd. 1, no vehicle loaded or unloaded shall exceed 4.11 m (**13 feet 6 inches**) in height. The low clearance sign (W12-2) shall be installed to warn drivers that the clearance is less than the maximum clearance allowed plus 0.3 m (**one foot**) or 4.42 m (**14 feet 6 inches**).

All structures with a clearance less than 4.42 m (**14 feet 6 inches**) shall be signed. An additional 75 mm (**3 inch**) allowance for frost action should be reflected in the signing.

Periodic checking of clearances needs to be done on bridges and other structures, especially when the roadway has been resurfaced.

6-6.09 Typical Signing for Transitions Between Divided Highway Section and Two-Lane, Two-Way Sections

Figure 6.17 indicates signing for transitions between divided highways and two-lane, two-way highways.

6-6.10 Typical Signing for Channelized Intersections

Figures 6.18A, 18B, and 18C indicate the signing required for channelized intersections.

6-6.11 Passing Lane Sections

Signing is needed as specified below to convey appropriate information to the motorist.

1. In Advance of the Passing Lane

Advance signing is necessary to notify and prepare drivers of the upcoming passing opportunity, so that they can make effective use of the passing lane. One sign should be placed 800 m (**1/2 mile**) upstream and additional advance signs are desirable 3-8 km (**2-5 miles**) in advance of a passing section.

The sign used for this advance notice is R4-X6. Although this is an "R" (regulatory) series sign, there is no "regulatory" mandate involved. Sign R4-X6 falls within the "R" category for signing convenience and for notification of the upcoming passing lane only. Similarly, there are other signs in the "R" series which are NOT regulatory, such as PASS WITH CARE, TAKE TURNS and LOOK BOTH WAYS signs.

2. At the Lane Addition

A regulatory sign informing slower vehicles to use the right lane should be placed at the beginning of the lane addition.

3. At the Lane Drop

Two warning signs (W4-2 and W9-1R) are recommended in advance of the lane drop transition area as shown on Figure 6.19A.

Figure 6.19A shows signing for typical passing lane sections. Figure 6.19B shows signing for a passing lane section ending near a low volume crossroad.



6-6.12 No Passing Zone Sign

The MN MUTCD specifies usage of the No Passing Zone (pennant) warning sign (W14-3), and designates the minimum size. However, the No Passing Zone Pennant sign used on trunk highways shall have a nominal size of 1200 x 1500 x 1500 mm (48" x 60" x 60") as indicated on Standard Sign Drawing W14-3.

The purpose of this larger size on trunk highways is to provide added visibility of the sign for motorists.



6-6.13 School Bus Stop Ahead Sign

Criteria for the use of the SCHOOL BUS STOP AHEAD sign (S3-1) is specified in the MN MUTCD, Part VII -- Traffic Controls for School Areas, Section 7B-11.

The need for these signs at particular locations changes over the years and warrants a program to systematically review each location.

A review to determine which SCHOOL BUS STOP AHEAD signs are still appropriate complies with the intent of the MN MUTCD which states: "Signs should be used only where warranted by facts and field studies". The MN MUTCD further states that traffic control devices be "... removed if no longer needed" and "... functional maintenance is required to adjust needed traffic control devices to current conditions and to remove unnecessary traffic control devices."

In order to keep abreast with the changing need for SCHOOL BUS STOP AHEAD signs, the district/division traffic offices should maintain an inventory of existing signs throughout the district/division. In the Spring of each year, the district/division traffic office should contact each school district by mail to establish whether students are still picked up by a bus at locations presently signed, any new locations needing signs and any other locations that may present unusual safety problems for students. Such contacts provide the district/division traffic offices an opportunity to express concerns and provide advice to the school districts. This contact will result in a more consistent application of SCHOOL BUS STOP AHEAD signs and ensure that the signs provide the intended level of safety.

6-6.14 Icy/Frosty Bridge Signing

The MN MUTCD contains no reference to a warning sign for icing on bridges.

It is not practical or prudent to attempt to sign for all the varying highway conditions that a motorist may encounter. Therefore, signing for icing on bridges should not be provided on the trunk highway system.

An exception can be made if recent crash reports clearly define an unusual crash problem related to icing on a bridge. This situation is expected to occur only when a bridge is in an area of unique or unusual geometrics.

If there are bridge locations which have a serious crash history related to icing, consideration should be given to correcting the situation rather than merely warning of it.

Application of these guidelines will best serve motorists by providing only those signs that are necessary to warn of an unusual situation.

Any existing warning sign for icy or frosty bridge conditions should not be replaced at the end of its useful life, unless a crash problem exists, as stated above, and correction of the problem contributing to the crashes cannot be accomplished.

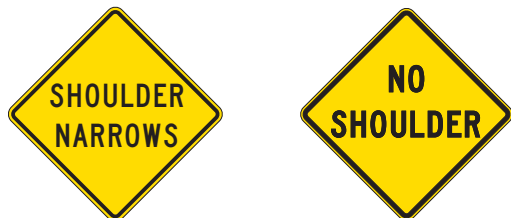
6-6.15 Controlled Burning Signing

When controlled burning on trunk highway right-of-way occurs, a CONTROLLED BURNING AHEAD sign should be installed prior to the burn area at a distance in conformance with Part VI of the MN MUTCD.

In the event winds blow smoke over the roadway, a SMOKE OVER ROAD sign should be installed past the CONTROLLED BURNING AHEAD sign to warn motorists. Installation of a SMOKE OVER ROAD sign may require relocating the CONTROLLED BURNING AHEAD sign to allow adequate distance between the two signs.

These signs shall be made of 1200 x 1200 mm (48" x 48") roll-up fluorescent orange diamond grade retroreflective sheeting with a black legend and border. The signs should be installed on temporary stands.

In the event that a portable changeable message sign (PCMS) is to be used in conjunction with the above signing to alert motorists, the PCMS should be located at least 300 m (**1000 feet**) ahead of the advance sign(s).



6-6.16 Shoulder Warning Signs

SHOULDER NARROWS (W5-X1) and NO SHOULDER (W21-X1) warning signs are suitable for certain rural high speed locations (posted at 45 mph or greater) that have an abrupt change in the right side shoulder width.

These signs shall have a black legend and border on a yellow reflectorized background.

At high speed locations where the right side shoulder width abruptly reduces by at least 0.9 m (**3 feet**) and results in a "useable width" of less than 1.9 m (**6 feet**), a SHOULDER NARROWS sign should be installed.

NO SHOULDER signs should be installed at rural high speed locations where the right side shoulder width abruptly reduces from a width of 0.9 m (**3 feet**) or greater to a width of less than 0.3 m (**one foot**).

Examples of how to apply this guideline:

1. If a vehicle on a through roadway is not required to stop at an intersection and the right side shoulder width is narrower (as described above) on the downstream side of the intersecting road, a SHOULDER NARROWS or NO SHOULDER sign should be installed.
2. If a vehicle is required to stop at an intersection and the right side shoulder width is narrower (as described above) on the downstream side of the intersecting road, a SHOULDER NARROWS or NO SHOULDER sign should not be installed.
3. If a shoulder width is narrower on the downstream side of a bridge than on the approach side, and that reduction meets the criteria set forth in the above guidelines, a SHOULDER NARROWS sign should be installed.

These guidelines do not apply where auxiliary lanes are present.

6-7.0 APPLICATION GUIDELINES - GUIDE SIGNING

6-7.01 Purpose

Generally, the only guide sign applications that are discussed in this section are those which:

1. are not specifically addressed in the MN MUTCD, or
2. provide additional guidance to that given in the MN MUTCD on application, location and usage of certain types of guide signs, or
3. must be addressed because Mn/DOT is charged with developing and implementing design, use and application of certain guide signs in accordance with Minnesota Statutes.

6-7.02 Conventional Highways

6-7.02.01 Destination and Distance City Name Selection Criteria



1. Destination City Name Selection Criteria

The MN MUTCD Sections 2D-35 and 2D-36 establish general guidelines to follow in selecting destination city names and locating destination signs. Only one destination sign is permitted on each trunk highway approach to an intersection. The key selection guideline is as follows:

"The destination shown for each direction should ordinarily be the next county seat or the next principal city, rather than a more distant destination".

The following additional criteria are provided to clarify this guideline.

a. Destination cities

Destinations should be used which will be most meaningful to the motorist unfamiliar with the area. Lakes and rivers shall not be used as destinations.

b. Number of destinations

Normally only one destination per route or direction should be identified. No more than three city names should be on a sign. A few exceptions have been made where multiple routes intersect at junctions. Arrangement of arrows on a sign panel shall be consistent with the MN MUTCD.

c. Selection criteria

Destinations must be located on the route.

The destination selected for each route, in order of preference, should be:

- 1) The county seat if it is not too distant.
- 2) The first city located at an important junction.
- 3) The first large city, taking into account the size of cities in the general area.
- 4) The next important junction.
- 5) In rare instances, a major state or national park or other significant geographical site or traffic generator may be considered.



2. Distance City Name Selection Criteria

The MN MUTCD Sections 2D-37 and 2D-38 establish guidelines to follow in selecting city names or other traffic generators, and in locating distance signs. Only one distance sign is permitted on each trunk highway leaving an intersection or leaving a municipality. City name selection shall be in accordance with the following guidelines:

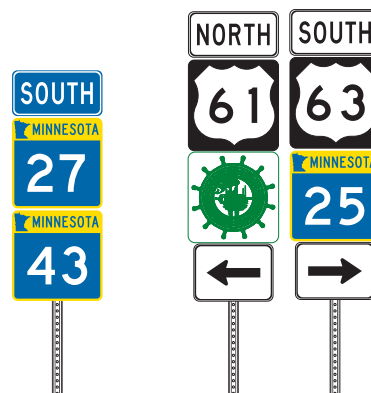
- a. The first city along the route,
- b. The first county seat, route number of an intersecting trunk highway or a significant geographical site or generator,
- c. The next major destination or "control" city.

The distance sign indicates how far it is from the sign location to the center of the next city, geographical site, or important junction.

6-7.02.02 Typical Junction Signing Layouts.

The following typical sign installations should be used as guidelines in establishing sign locations and distances between signs at junctions. The final decision shall be made by the district/division traffic engineer based on individual intersection geometrics and sound engineering judgement.

1. "T" intersection (2-lane, 2-way) (See Figure 6.20)
2. "T" intersection (2-lane, 2-way with 4-lane divided) (See Figure 6.21)
3. Typical 4-LEG intersection (See Figure 6.22)
4. Typical intersection with county road (See Figure 6.23)



6-7.02.03 Independent Route Marker Assemblies

Independent Route Markers used on junction and directional sign assemblies are to follow the standards of the MN MUTCD and shall have a minimum and standard size of 600 x 600 mm (24" x 24") for both urban and rural applications.

The practice of utilizing special 300 mm (12") route markers on green background sign panels at urban locations is not permitted.

In general, the color of the route marker auxiliaries shall match the color of the route marker it supplements (MN MUTCD, Section 2D-12). For example, white-on-blue auxiliaries shall be used to supplement the Interstate and Minnesota route markers and black-on-white auxiliaries shall be used to supplement U.S. route markers. However, it sometimes becomes necessary to include two different color route markers on the same support. When this happens the auxiliaries may not always match the color combinations of both route markers. To avoid this, route markers should be installed on separate supports whenever possible. When this is not possible the following guideline should be used to determine the color of the route marker auxiliaries:

When two or more route markers must be mounted vertically on a single support, the auxiliaries shall match the color of the route marker which takes precedence. The order of precedence is: Interstate, U.S., State, county, township, and then other routes.

This practice applies to all route marker assemblies installed on trunk highways and to mark any detours of trunk highways.



1. County Pentagon Route Markers

The pentagon shaped "Uniform County Route Marker" (M1-6) is an alternate to the standard County Route Marker (M1-X4) in Minnesota.

It is each county's decision to upgrade its route markers to the pentagon route marker for the following reasons:

- a. Many metro and outstate counties have already signed their CSAH's or county roads with the pentagon route marker.
- b. There is a lack of consistency statewide in the application of the pentagon route marker. In some counties, all of the county roads are signed with them while other counties use them on only the major county roads.
- c. Mn/DOT does not require the counties to use the pentagon route markers on those county roads meeting the criteria outlined in "A Proposal for a Uniform County Route Marker Program on a National Scale" as published by the National Association of Counties and referenced in the MN MUTCD.

Upon request by a county, each Mn/DOT district/division may elect to upgrade its county junction assemblies on state highways to include pentagon route markers at those county roads where they are being used. If the district/division decides to do this, pentagon route markers may be installed as a part of the normal sign replacement cycle.

The district/division should request the State Sign Shop in Oakdale to fabricate the pentagon route markers as needed.

Mn/DOT shall fabricate pentagon route markers using the same retroreflective materials used for all route markers on the trunk highway system and meeting the colors as stated in the MN MUTCD, Section 2D-11.

2. Memorial Routes

Mn/DOT is required by State legislation to mark trunk highways as memorial routes. Such highways include routes having historical, geological, political, or cultural significance. Typical practice is to place a minimal number of signs along the designated route to give general guidance to the motorist. The Office of Traffic Engineering shall design or approve the design of these signs.

Design Standards

The design standards for memorial route signs are available from OTE. Auxiliary arrow plates should be used to mark points where the route leaves the trunk highway system. Auxiliary arrow plates shall match the color of the memorial route sign.

a. Great River Road and Hiawatha Pioneer Trail

These memorial routes in Minnesota have special significance since they traverse several states. Memorial route signs should be installed in the same manner as U.S. and Minnesota route

markers. Auxiliary plates, where required, shall be green legend on white background for the Great River Road, and brown legend on yellow background for the Hiawatha Pioneer Trail.

b. Eisenhower Interstate System

These signs shall be installed in each of the rest areas on the Interstate system in Minnesota. The sign is 900 x 900 mm (36" x 36") with white legend on blue background and fully reflectorized. The signs shall be installed on standard U-posts on the rest area entrance ramp. These signs are not installed along the Interstate highways in conformance with the MN MUTCD.

6-7.02.05 Signal Mast Arm Signing

1. General

These signs are designed specifically to be mounted on signal mast arms. Signs are limited in size due to the weight and wind loading factors considered in the design of these structures.

The SignCAD program is currently used by OTE Signing Unit and district/division staff in designing guide signs. Contact OTE Signing Unit staff for technical assistance in the design of guide signs and usage of this program. Figure 6.30 shows typical mast arm signing.

2. Internally Lit Street Name Signs

Internally lit street name signs mounted on traffic signal mast arms are not a Mn/DOT practice. Mn/DOT will continue to install sheet aluminum sign panels on traffic signal mast arms unless a city or county has reasons for pursuing internally lit street name signs.

a. General

All contracts which include internally lit street name signs shall be submitted to OTE for review.

An internally lit street name sign may be displayed on the same mast arm with sheet aluminum signs (regulatory, warning, and guide signs).

For projects incorporating internally lit street name signs, the agreement shall specify the following:

- 1) The local road authority is responsible for all costs for fabrication, installation, power, and maintenance of internally lit street name signs.
- 2) In the event a major problem occurs with the operation of an internally lit street name sign(s) (i.e. a distraction which causes accidents), Mn/DOT may require that such signs be removed and replaced with standard sheet aluminum sign panels.

b. Design

Shop drawings of internally lit street name signs shall be submitted to OTE for review and approval.

c. Sign Housing

The sign housing should be either aluminum or stainless steel. All exterior hardware on the housing (hinges, hinge plates, bolts, nuts and washers) shall be stainless steel.

There shall be a minimum of two rows of fluorescent lamps installed in each internally lit street name sign. One row of lamps will be wired for standby operation. In the event the main row of lamps fails, the second row of lamps can be activated either automatically or manually by a switching device. Ground access to manual switches should be provided.

The fluorescent lamps should be sized to provide no more than 1.5 to 2 watts per square foot of sign face.

d. Sign Face

The sign face shall use translucent diamond grade reflective sheeting for the sign background. If the local road authority has an established community-wide color scheme (green, blue, or brown) for the background color of street name signs, the background color of the internally lit street name sign may use this color. No other colors will be approved.

The sign legend may be screened or cut from translucent diamond grade reflective sheeting. In the event of a complete lamp outage, the retroreflectivity of this material provides a failsafe operation.

The legend (letters and arrows) on internally lit street name signs shall be white. No border is required since the sign face is framed by the sign housing.

Standard letter sizes, series and spacing shall be used. In the event a route marker is to be displayed, it shall be of the standard size, 600 x 600 mm (24" x 24") unless mast arm loading becomes critical. In this case, a 450 x 450 mm (18" x 18") route marker shall be installed.

6-7.02.06 *Sign Supports*

On multi-lane conventional highways where some degree of lane use control is desirable, or where ground mounted signs are not deemed effective, overhead signs are necessary. Sign supports, where structural details are a standard product of the fabricator, should be considered in these cases. In certain situations, the cantilever type is appropriate, while others require a simple span. These sign installations are not lighted and have no walkways.

Typical applications include the following:

1. Approach guide signing to freeway interchanges where space is not available for side mounted signs.
2. Downtown guide/lane use control signing approaching intersections.
3. Approach warning signs/flashers for mid-block pedestrian crosswalks.
4. Restricted sight distance (may be coupled with other factors cited).

In all cases the important element is to display the essential message to the motorist within his cone of vision.

The OTE Signing Unit should be consulted on the design of sign supports.

6-7.02.07 *Requester Pays Signing Costs*

Requester pays signs include, but are not limited to, guide signs for local street and road identification, airports, educational institutions, regional shopping centers, tourist and travel information, major traffic generators, minor traffic generators, and specific service signs. Further details on each signing type and/or program are found in this chapter.

This section establishes current costs for all types of requester pays signs, including specific service signs.

1. Definitions

Standard Sign - Any sign that is contained in the Standard Signs Manual.

Special Sign - Guide signs that are unique and must be designed especially for that facility.

Specific Service Sign - A rectangular sign panel 1800 x 450 mm (72" x 18") displaying the name and/or optional business panel of a business, the direction, and where appropriate, the distance to the facility.

2. Cost Determination

The total cost for all requester pays signs is composed of a base cost plus a fabrication cost. The base cost includes preparation and installation expenses. The fabrication cost is a per square meter (**square foot**) cost based on current prices for VIP retroreflective sheeting, new aluminum substrate, and labor costs. Overhead charges are included in all costs.

All labor costs are based upon average hourly wages and benefits for each classification of worker. The average trip to the site is assumed to be 64 km (40 miles). The return trip is not charged because it is assumed that other work would be done on the return trip. No costs have been included for maintenance.

Current costs are contained in Tables 1-5. (See Charts 6-8A & 6-8B) These costs will be reviewed and updated every two years.

The continuing need for specific service signs should be investigated whenever Mn/DOT is notified that a business is sold, changes names, or ceases to exist, or at the time a sign is replaced.

The charges for specific service signs has been derived from the tables using the costs of a standard sign, less than 4.5 square meters (**15 square feet**), with direct applied legend. These charges are rounded to the nearest \$10 and are summarized in Chart 6-8B, Table 6.



6-7.02.08 Road, Street and 911 Road Name Signing

This section is based on Chapter 2-D, Guide Signs-Conventional Roads (Sections 2D-2 and 2D-39) of the MN MUTCD.

Road name or street signs shall be white legend on green background and fully reflectorized in accordance with current Mn/DOT requirements.

Street name signs are typically installed on a single post sign structure which must conform to FHWA breakaway requirements based on the current edition of the AASHTO Standard Specifications for Highway Signs, Luminaires and Traffic Signals.

1. General Criteria

Signing for named roads will be provided, at the request of the public road authority, on the basis of the following conditions:

- a. The appropriate local government having jurisdiction over the road shall officially designate a name for the road.
- b. An official road name may include the word "lake", "beach", or some other geographic point if the road serves only one such item. Otherwise, such word usage should be discouraged.
- c. Combination names which attempt to incorporate multiple identifications are confusing and shall not be used.
- d. Signing for names which identify a specific business or establishment, in order to identify roads which lead to specific establishments or special commercial or private interest facilities, should be discouraged. Generic names are permissible.

- e. If the official road name is changed by the public road authority prior to the sign requiring replacement, the requester will be responsible for all sign replacement costs. However, the road name may be changed at Mn/DOT's expense at the time the original sign would normally be replaced.

2. Urban Areas

Urban street name signs, such as the small "slat" versions mounted at intersection corners, are to be furnished and installed by the appropriate city.

Advance arterial and major street name signs (including mast-arm mounted signs) on trunk highways in urban areas will be provided by Mn/DOT, as needed, to fulfill basic guide signing responsibilities.

If street name signs are to be installed in an urban area (i.e. business, commercial or residential district) "...where parking and/or pedestrian movement is likely to occur or where there are other obstructions to view, the clearance to the bottom of the sign (panel) shall be at least 2.2 m (**7 feet**)" in accordance with the MN MUTCD, Section 2A-23.

Lateral offset should be a minimum of 0.6 m (**2 feet**) from the face of curb in accordance with Section 2A-24.

3. Rural Areas

When the trunk highway intersects a public road, appropriate identification of that public road will be provided on the trunk highway, by Mn/DOT, as follows:

- a. When so requested by the local governing body, Mn/DOT will furnish and install route marker assemblies on the trunk highway, provided that the intersecting local road is numbered and marked with route markers. Route marker assemblies shall be in accordance with the MN MUTCD. Identification by number only should be encouraged whenever possible.
- b. In the case of a numbered public road which is also known by an officially designated name, both types of identification may be used. For road name signs, all initial signing costs, including overhead factors and installation by Mn/DOT, shall be paid by the road authority requesting the signing, at the current rate per square meter (**square foot**) of sign, as established by Mn/DOT. Mn/DOT will maintain road name signs at its own expense.
- c. Since street name signs are installed on expressways as well as conventional highways, the signs shall be mounted at a height of at least 1.6 m (**5 feet**), measured from the level of the near edge of the pavement to the bottom of the sign panel(s) in accordance with the MN MUTCD, Section 2A-23. In addition, the sign

panel(s) must also meet the following mounting heights (measured perpendicular from the ground line) to satisfy FHWA breakaway requirements:

- 1) 2.2 m (**7 feet**) (minimum) from the ground line to the bottom of the sign panel(s)
- 2) 2.8 m (**9 feet**) (minimum) from the ground line to the top of the sign panel(s)
- d. The preferred lateral offset to the street name signs is 9 m (**30 feet**) or more from the roadway (near the right-of-way line if practical). Minimum lateral offset should be at least "...1.9 m (**6 feet**) from the edge of the shoulder, or if none, 3.7 m (**12 feet**) from the edge of the traveled way" in accordance with Section 2A-24. Unique locations should be reviewed with the district/division traffic office.

Lincoln Ave

4. Street Name Signs Above Stop Signs

Small street name signs (Sign No. D3 in the MN MUTCD) will be permitted above Mn/DOT maintained STOP signs, subject to the following conditions:

- a. Written documentation for installation and maintenance must be established between the Mn/DOT district/division office and the local jurisdiction.
- b. No street name signs are allowed if there are any other signs, such as a "ONE WAY" sign, in place on the STOP sign structure.
- c. The street name sign assembly shall be mounted 150 mm (**6 inches**) above the STOP sign.
- d. Street name signs shall be double faced and fabricated with high intensity or higher grade reflective sheeting on extruded or flat aluminum blades.
- e. The signs shall be fully reflectorized and have white legend on green background.
- f. The sign panel size should be 230 mm (**9 inches**) by a variable length (maximum 900 mm (**36 inches**)) with 152 mm (**6-inch**) upper case and 114 mm (**4-1/2-inch**) lower case letters Series B, C, D, or E.
- g. The street name sign assemblies shall be constructed so that the name plate cannot be turned.
- h. No more than three slats (6-way installation) shall be permitted above any one STOP sign.

Eagle Lake Rd

5. 911 Emergency Telephone System Road Name Signing

The staff of the 911 Emergency Telephone System may request signing to identify local roads in urban and rural areas on county, city, and township roads for emergency vehicles.

The following criteria provide local governing bodies a uniform method for fabricating and installing road name signing for the 911 System:

- a. The local governing body is responsible for naming the road.
- b. Once named, the local governing body shall have street name signs fabricated. Lettering should be a minimum of 102 mm (**4 inches**) high if located in an urban area (in accordance with the MN MUTCD, Section 2D-39) and 152 mm (**6 inches**) high in a rural area. The sign shall be fully reflectorized and have white legend on green background. To provide the best target value both day and night, high intensity or higher grade reflective sheeting should be used.
- c. The local governing body shall install the street name signs, under the Mn/DOT permit process, if the street name signs are to be installed on Mn/DOT right-of-way. Installation of signs shall not obstruct or interfere with existing traffic control devices. The physical location of the signs should be in accordance with the MN MUTCD, Section 2D-39. This would provide placement of the signs, on their own sign structure, "...at least on diagonally opposite corners so that they will be on the far right-hand side of the intersection for traffic on the major street. Signs naming both the major and cross streets should be erected at each location. They should be mounted with their faces parallel to the streets they name."

6-7.02.09 Alternate Routes Via "Off-System" Roads

In directing trunk highway traffic over alternate local (non-trunk highway) routes or shortcuts, it is necessary to ensure that traffic is directed only over roads that have: (1) suitable construction standards and surface types, (2) adequate maintenance for all-weather traffic, (3) sufficient signs and markings, and (4) approval from the local governing body for the diversion of traffic onto the route. Therefore, the following procedure is required for the placement of signs on trunk highways directing motorists onto alternate or shortcut routes via local roads.

1. Required Procedures

Signing requests directing motorists onto an alternate or shortcut route off the trunk highway

system shall be approved by the appropriate road authority. The county engineer shall certify the sufficiency of county or city roads. Signing requests shall be approved by the district/division traffic engineer.

2. City Name Signs

Only standard or approved city names may be displayed on these signs.

6-7.03 Freeways



6-7.03.01 Primary Guide Signing on Freeways

1. Rural Exits

Rural exits shall be identified by the route number of the U.S., State, or County highway intersected as well as the exit number on interstate highways. One or two destinations identifying the interchange may be included on rural exit signs, based on the following criteria.

- a. Where the intersecting road is a U.S. or State highway, the destinations shown shall usually be the first city in each direction which is a county seat or is located at a junction with another major highway, unless another city better identifies the interchange to the majority of travelers.
- b. At interchanges with county or secondary roads, the destination shown shall usually be the nearest city in one or both directions. Cities identified on guide signs shall appear on the official Minnesota Highway Map. In the absence of such a city, a geographical area or other significant public land use may be shown.

2. Urban-Suburban Exits

Urban-suburban exits intersecting with local street and road systems, shown on available area maps, shall be identified by route number, street name, and exit number if the interchange is on an interstate highway. At interchanges having more than one exit to the intersecting highway, names of cities may be included only if they clearly aid in orienting the majority of the drivers.

3. Adjacent Land-Uses

The names of adjacent land uses such as airports and stadiums may be shown if the exit has been provided specifically to serve that land use. These destinations may be signed only when they cannot be related to the street or road identified at the exit.

4. Cardinal Directions on Freeway Guide Signs

Liberal use of cardinal directions should be made on freeway guide signs, in particular at cloverleaf interchanges (where the intersected highway either begins or ends at the interchange) and at interchanges with collector-distributor roads (e.g. I-94 at I-494/I-694) or with a single exit splitting to serve both movements to the crossroad (e.g. I-494 at I-35E).



6-7.03.02 Supplemental Guide Signing on Freeways

1. Geographical Identification Signs

Geographical identification signs which identify (1) county lines, (2) incorporated city limits, (3) major river and stream crossings, (4) highways and streets crossed by the freeway, and (5) similar features, which provide orientation for the driver, may be placed on freeways where appropriate.

2. Supplemental Guide Signing In Rural Areas

In rural areas, one supplemental guide sign naming cities that did not qualify for display on the primary guide signing may be placed in each direction. Supplemental guide signs shall not interfere with primary guide signing. Sign spacing criteria shall be met. Supplemental guide signs may be provided for the following:

- a. A city in each direction along the intersected route.
 - 1) The city(ies) shall be required to pay all signing costs (if new signs are installed or existing signs are modified or replaced) if the request is approved prior to normal replacement of the existing signing.
 - 2) The city(ies) shall not be required to pay for signing if the approved signing can be included in conjunction with normal replacement of the existing signing.

In both above cases, the maintenance of requested signing will be performed by Mn/DOT at no cost to the city(ies).

- b. National parks.

- c. National monuments.
- d. "Major" state parks, which: (1) are a maximum distance of 25 km (**15 miles**) from the freeway, (2) have water, toilets, campsites, picnic areas, and (3) have accommodations for 35 overnight camp sites.
- e. Airports (See Section 6-7.05)
- f. Educational Institutions (See Section 6-7.06)
- g. Major traffic generator signing (See Section 6-7.07)



- h. General motorist services (gas, food, lodging, camping and hospital) which meet the following criteria:

- 1) Gas, Diesel and/or LP Gas -- Facilities must have vehicle services including fuel and oil; restroom facilities and drinking water; continuous, staffed operation at least 12 hours a day, seven days a week; public access to a telephone; and the facility must be located within 3 km of the freeway exit.

If district/division traffic offices determine that a gas, diesel and/or LP gas business does not meet this criteria, existing signing should be removed through normal attrition.

- 2) Food-- three meals must be served each day, seven days a week; the establishment must be licensed by the State and/or the appropriate political subdivision; and the facility must be located within 3 km (**2 miles**) of the freeway exit.
- 3) Lodging-- facilities must be available 24 hours a day throughout the year; the establishment must be licensed by the State and/or the appropriate political subdivision; and the facility must be located within 16 km (**10 miles**) of the freeway exit.
- 4) Camping-- the establishment must have a State Department of Health license as required by Minnesota Statutes, Chapter 327.15. A minimum of 20 spaces must be available for camping and parking; modern sanitary facilities (flush, chemical, or incinerator toilets) must be provided; services must be available 24 hours a day; and the campground must be not more than 16 km (**10 miles**) from the freeway exit via an all-weather road, with adequate trailblazing signing provided by the operator to enable the traveler to reach the site.

- 5) Hospitals (See Section 6-7.04.10)

- i. LOGO Sign Franchise Program (See Section 6-7.04.05)

3. Supplemental Guide Signing in Urban-Suburban Areas

The installation of supplemental guide signing must be strictly controlled because of the close spacing of interchanges, the many demands on the motorist to make major decisions and the large number of requests from generators of large traffic volumes.

In urban-suburban areas, certain supplemental guide signs may be installed when: (1) they will not interfere with primary signing, (2) the drivers' attention is not focused primarily on driving maneuvers, (3) location criteria can be met, and (4) detailed criteria specified in Section 6-7.07 Major Traffic Generator Signing has been met. Because of the factors cited above, each request from public and privately owned facilities must be reviewed on a case by case basis.

4. Prohibited Supplemental Guide Signing

In no case shall signs directing motorists to secondary or supplemental destinations be installed at interchanges of two or more freeways. In addition, supplemental signs shall not be provided for the following destinations in urban-suburban areas:

- a. Suburban cities served by roads and streets within the metropolitan grid system.
- b. Motorist services (except hospitals) except in suburban areas where there is no substantial land development to indicate to the motorist that services might be available.

6-7.03.03 Facilities Not Warranting Guide Signs on Freeways

The following facilities do not warrant supplemental guide signs on freeways.

1. Bus Terminals
2. Business Districts (local or neighborhood)
3. Camps of All Types
4. Cemeteries (except National Cemetery at Ft. Snelling)
5. Churches
6. Community Centers
7. Country Clubs
8. Dams
9. Fairgrounds (except major traffic generators)
10. Golf Courses
11. Government Buildings/Facilities (except the State Capitol)
12. Historical Sites or Areas (local)
13. Homes for Aged or Indigent and Nursing Homes
14. Hospitals and Health Centers (except designated emergency motorist services facilities)

15. Industrial Plant Areas
16. Libraries/Museums
17. Monuments (except National)
18. Office Buildings
19. Parking Facilities (except Park-and-Ride transit facilities)
20. Railroad Stations (except Amtrak Passenger Station)
21. Recreational/Conservation
 - City/County Parks
 - Fish Hatcheries
 - Forest Preserves
 - Game Farms
 - Lakes/Public Beaches
 - Picnic Areas
 - Tree Nurseries
 - Wildlife Refuges
22. High Schools, Junior High Schools, and Grade Schools
23. Shopping Centers and Malls
(See Section 6-7.07.01)
24. Subdivisions
25. Television/Radio Stations
26. Theaters
27. Truck Terminals

6-7.03.04 Freeway/Expressway Interchange Signing

The following typical layouts show the signing for freeway/expressway interchanges.

1. Diamond interchange on crossroad
(See Figure 6.26 and 6.27).
2. Folded-diamond interchange on crossroad
(See Figure 6.28).
3. Cloverleaf Interchange on crossroad
(See Figure 6.29).

6-7.03.05 Expressway At-Grade Intersection Signing

The signing for expressway intersections at-grade is found in Figure 6.30.

6-7.03.06 Bus Parking in Rest Areas

Signing within rest areas provides guidance to separate parking locations for "autos" and for "trucks and trailers".

When the need arises to sign for bus parking in a particular rest area, the following signing and pavement message guidelines are recommended:

1. Fabricate and install a "Buses" plaque above the "Trucks/Trailers", "Autos" or "Trailers/Autos" sign located at the roadway split to the parking areas until such time that the existing sign panels are to be replaced. At the time that the existing sign panels are due to be replaced, include the "Buses" legend as a part of the sign panel.

NOTE:

The buses should be directed to that parking area which not only has the availability and storage capacity for parking, but also provides adequate year round access to the rest area facilities.

2. To designate the specific bus parking locations, either install pavement markings in the designated parking stalls or fabricate and install a "Bus Parking Only" sign beside the designated parking stall(s).

6-7.03.07 Signing for Auxiliary Lanes on Freeways

This section outlines uniform signing standards for auxiliary lanes on freeways, with and without escape lanes.

The following layouts should be used in the appropriate situation.

1. Auxiliary lane less than 800 m (**1/2 mile**) in length, without escape lane (See Figure 6.31A).
2. Auxiliary lane less than 800 m (**1/2 mile**) in length, with escape lane (See Figure 6.31B).
3. Auxiliary lane 800 m (**1/2 mile**) in length or greater, without escape lane (See Figure 6.31C).
4. Auxiliary lane 800 m (**1/2 mile**) in length or greater, with escape lane (See Figure 6.31D).

6-7.04 Motorist Services Signing

This section outlines the use, application and installation of general motorist service, specific service and logo signs. This section is itemized by type of motorist service and modifies or supplements the MN MUTCD.

General motorist service signs are furnished, installed and maintained by Mn/DOT at no cost to the requester.

Fabrication, installation and maintenance costs for specific service signs are paid by the requester.

Fabrication, installation and maintenance costs for logo signs are paid by the requester under Mn/DOT agreement No. 73526.



6-7.04.01 Wayside Rest - Conventional Highways.

Wayside rests (State owned and maintained facilities only) are those rest stop facilities with limited services located on conventional highways in rural areas. (See Figure 6.32)

If the wayside rest is closed for the season, a CLOSED plaque may be installed as shown in Figure 6.32.

1. "Wayside Rest" advance sign (D5-X1) shall be installed approximately 800 m (**1/2 mile**) in advance of the point of turn. When appropriate supplemental signs are used they shall be placed below the D5-X1 or the D5-X2 sign. If the wayside rest has only picnic tables, no supplemental signs shall be used.
2. "Wayside Rest" with arrow sign (D5-X2) shall be installed approximately 60 m (**200 feet**) in advance of the point of turn.



6-7.04.02 Resorts and Camping Signs - Conventional Highways.

General RESORT (D9-X3) and CAMPING (D9-X4) motorist service signs on conventional trunk highways in rural areas, are intended to aid tourists in finding their destinations. This type of signing directs the motorist to campgrounds or resorts in areas where the Advertising Regulation Law has restricted the installation of private advertising signs off the highway right-of-way. (See Figures 6.24)

Normally, these signs are installed where specific services signs are not erected at intersections. (See 6-7.04.04 Specific Service Signs).

Guidelines concerning placement on conventional trunk highways are as follows:

1. Where the access to resorts or private campgrounds is via county, township, or other public road, the appropriate signs should be located as follows:
 - a. Where the county road intersection is identified by county number only, the signs shall be located approximately 150 m (**500 feet**) in advance of the intersection.
 - b. Where a numbered road is also identified with a road name or destination sign, the D9-X3 and/or D9-X4 sign panel or panels may be mounted on this sign structure. Minimum height to the bottom of the lowest sign panel shall be 2.2 m (**7 feet**).
 - c. Where a township road is identified only with a road name sign, the D9-X3 and/or D9-X4 sign panel or panels may be positioned in the same manner as item b above.
 - d. When a public road is not identified, the D9-X3 and/or D9-X4 signs shall be located approximately 150 m (**500 feet**) in advance of the intersection.

2. Resort and Camping Signs at Private Roads or Entrances

Mn/DOT will erect one guide sign from each direction in advance of a private road or entrance when the following conditions exist:

- a. The main access from the trunk highway is via a private road or entrance.
- b. The resort or campground is located near, but not visible from, the trunk highway.
- c. The sign located on private property cannot be effectively seen by approaching drivers because of the width of the highway right of way and/or growth of vegetation.

3. Definitions and Criteria

Resorts and campgrounds to be signed shall meet the following criteria:

- a. Resorts shall have a State Department of Health license as required by MS 157.16. A resort is defined in MS 157.15, subd. 11.
- b. Private campgrounds shall have:
 - 1) A State Department of Health license as required by MS 327.15.
 - 2) Modern sanitary facilities (flush, chemical, or incinerator toilets).
 - 3) No restrictions on type of camping (Tent, RV, Trailer, etc.).

6-7.04.03 Resort Information "Slat-Type" Signs on Local Roads.

1. General

In 1971 the Legislature passed a law governing the installation of resort information signs and stipulating certain responsibilities of Mn/DOT, as well as the counties, in carrying out the provisions of this law. This signing program applies to non-trunk highway roads, and has been commonly referred to as the "County Slat Sign" program, even though the law does not use the terms "slat sign" or "slat-type sign".

The original law included only resorts in this program, but has subsequently been expanded to include golf courses, motels, restaurants, and recreational camping areas. Statutory reference is MS 160.283 through 160.285.

These signs are to be installed only on local roads, as specified in the law. They have no application on any trunk highway.

The basic intent of these directional "slat" signs is to give additional guidance to tourists after they have turned off a trunk highway and onto a local road.

2. Application:

County "slat" signs are to be used only on "those county state-aid highways, county highways and city roads within one-half mile of areas that have restrictions on the erection of advertising devices along or adjacent thereto imposed under the applicable provisions of MS 173."

3. Other Provisions:

- a. Mn/DOT shall design a sign panel of a standard size to provide directional information, on slats designed for that purpose, for at least five individual qualifying businesses.
- b. Counties may erect and maintain these signs provided they are not erected closer than 150 m (**500 feet**) from the nearest ramp of trunk highways forming a part of the interstate system, or closer than 90 m (**300 feet**) from other trunk highways.
- c. Definitions:
 - 1) "Resort" is defined in MS 157.15, subd. 11.
 - 2) "Restaurant" is defined in MS 157.15, subd. 12.
 - 3) "Motel" is defined in MS 157.15, subd. 7.
 - 4) "Recreational camping area" is defined in MS 327.14, subd. 8.



6-7.04.04 Specific Service Signs (non-freeway only)

1. General

Officially entitled "Information signs for specific services", these signs are more commonly referred to as "specific service signs".

This signing program was mandated by the 1980 Legislature under Minnesota Statutes 160.292 to 160.297. Refer to these statutes for complete legislative intent. The 1981 Legislature amended the Statutes to permit the inclusion of motels, the 1984 Legislature permitted the inclusion of restaurants, and the 1988 Legislature added "rural agricultural businesses" and "places of worship", and the 1989 Legislature added "tourist-oriented businesses".

Mn/DOT staff reevaluated these signing guidelines in 1995. A committee comprised of staff members from the Office of Maintenance, OTE, and district/division traffic engineers was formed to evaluate the signing program. The purpose was to arrive at a "modified" signing program which could include those businesses with existing logo signs on rural isolated interchanges on bypasses, as well as all businesses in the Specific Services Sign Program.

The 1996 Legislature added "gasoline service station or other retail motor fuel business" and "optional business panel" (logo).

For a sample copy of the Specific Services Application form, see Forms 6.B1 thru 6.B4.

2. Purpose

Specific service signs are intended to display information to the traveling public on nonfreeway trunk highways in rural areas. Nonfreeway trunk highway (MS 160.292, subd. 5) is defined as "...all (1) roadways that are not designated freeways and that have crossing traffic at grade intersections and (2) bypasses of outstate municipalities that have interchanges at intersections of trunk highways with local roads or with other trunk highways". The law permits signing at the "intersection or interchange of a trunk highway with a controlled access road or a local road and at the intersection or interchange of two trunk highways."

3. Definitions

- a. "Business panel" means a separately attached sign panel that shows, either individually or in combination, the brand, symbol, trademark, or logo of the business service.
- b. "Gasoline service station or other retail motor fuel business" is a business that provides vehicle services including fuel and oil; restroom facilities and drinking water; staff for continuous operation at least 12 hours per day, seven days per week; and public access to a telephone.
- c. "Local road" means any non-trunk highway.
- d. "Motel" is defined in M S 157.15, subd. 7.
- e. "Non-freeway trunk highway" means all:
 - 1) roadways that are not designated freeways and that have crossing traffic at grade intersections.
 - 2) bypasses of outstate municipalities that have interchanges at intersections of trunk highways with local roads or with other trunk highways.
- f. "Places of Worship" (no legislative definition provided)
 The Mn/DOT definition of a "place of worship" shall be as follows:

 Any church, chapel, temple, synagogue, building, area, space, plaza or dwelling wherein or whereat respect, reverence, or devotion is paid to a Divine Being.

 There is no restriction on time or frequency of devotional activities. However, the "place" or structure should be primarily intended for such purpose, and may not be a private home or school or any other site which is not primarily a "place of worship."
- g. "Recreational camping area" is defined in MS 327.14, subd. 8.
- h. "Resort" is defined in MS 157.15, subd. 11.
- i. "Restaurant" is defined in MS 157.15, subd. 12.
- j. n. "Rural Agricultural Business" (no legislative definition provided).

The Mn/DOT definition of a "rural agricultural business" shall be as follows:

Any commercial activity engaged in as a means of livelihood or profit, located completely outside any urban district or suburban area or residence district or business district, which receives the major portion of its income from providing goods, services, commerce trade, or industry directly related to agriculture.

"Agriculture" is defined as the science or art of cultivating the soil, producing crops, or raising livestock of any kind, and in varying degrees preparing these products for marketing and consumer use. A "rural agricultural business" should be the type of facility which requires space in a rural environment and cannot be located within developed areas of a city or town.

Due to legislative ambiguity of what constitutes a "rural agricultural business", the following list of eligible businesses was developed. Since this list is not all-inclusive, individual unique requests should be discussed with OTE staff.

Eligible Rural Agricultural Businesses:

Agricultural equipment
 Commodity storage/elevators
 Farm Implement dealers
 Feed, seed, fertilizer stores
 Greenhouses
 Orchards/Produce sales
 Tree Farms, Nurseries
 Welding & Machine Shops for Agricultural equipment

- k. "Rural Area" was not defined by the Legislature. Mn/DOT interprets "Rural Area" to mean any intersection located outside of an Urban District (MS 169.01, subd.59) and not within the developed area of a community, nor within the urban limits designated by the Metro Division.
- l. "Specific service" means restaurants, rural agricultural or tourist-oriented businesses, places of worship, gasoline service stations or other retail motor fuel businesses, motels, resorts, and recreational camping areas.
- m. "Specific service sign" means a rectangular sign panel not greater than 1800 x 450 mm (72" x 18") displaying the name or optional business panel, or both, of the specific service, the direction to, and where appropriate, the distance to the facility.
- n. "Specific service sign assembly" means a combination of specific service sign panels not to exceed four panels, to be placed within the right-of-way on appropriate approaches to an intersection or interchange.
- o. "Specific service sign cluster" means a grouping of specific service sign assemblies on appropriate approaches to an intersection or interchange.

- p. "Tourist-oriented business" (no legislative definition provided).

The Mn/DOT definition of a "tourist-oriented business" shall be as follows:

A generally interactive recreational based business that receives a majority of its income or visitors from tourism. A business shall have a majority of its retail floor space dedicated to the specific type of business for which signing is being requested.

Eligible tourist-oriented businesses:

Antiques
 Gifts/Crafts/Art Sales
 Marina/Boat Launch/Guide Service
 Bait and Tackle
 Recreational Rentals (Bikes, Boats, Canoes, Jet Skis/Snowmobiles)
 Miniature Golf/Driving Range
 Trap & Skeet/Shooting Range
 Archery Range
 Wildlife Park/Animal Park
 Riding Stable
 Amusement Park

Ineligible tourist-oriented businesses:

Gun Shop
 Recreational Equipment Sales/Service
 Repair Business
 Storage Facility
 Laundromat
 Barber Shop
 Car Wash
 Grocery Store
 Hardware Store
 Convenience Store
 Lumber Yard
 Car Sales/Service/Rentals
 Carpet Sales
 Butcher Shop
 Ice Cream Shop
 Kennel
 Pet Shop
 RV Sales/Service/Rentals
 Second Hand Store
 Flea Market
 Day Care Center
 Movie Theater
 Live Theater (Orchestra, Band Concert)
 Bowling Alley
 Softball, Baseball, Soccer Fields
 Any other predominantly retail and business or manufacturing center

Inplace signs for businesses that no longer qualify as an eligible "tourist oriented" business, under these new guidelines, shall be removed at the end of their useful life. The useful life of inplace signs should not exceed ten years.

4. General Criteria

To be considered for specific services signing the following criteria must be met:

- a. Conformity with all applicable laws and rules concerning the provisions for public accommodation without regard to race, religion, color, sex, or national origin.
- b. Located within 24 km (**15 miles**) of the signed intersection or interchange.
- c. Motels and resorts shall be licensed by the State Department of Health, as required by MS 157.16.
- d. Restaurants must provide a continuous, staffed food service operation at least 4 hours a day, 5 days a week except holidays as defined in MS 645.44, subd. 5, and except as provided for seasonal businesses.; seating capacity for at least 20 people; serve meal prepared on the premises; and possess any required state or local licensing or approval. Reheated, prepackaged, ready-to-eat food is not "food prepared on the premises." Seasonal restaurants must provide a continuous, staffed food service operation at least 4 hours a day, 5 days a week, during their months of operation.

Signing for restaurants not meeting this criteria shall be removed through normal attrition.

- e. Recreational camping areas shall possess a State Department of Health license, as required by MS 327.15 and the following:
 - 1) A minimum of 15 camping spaces.
 - 2) Modern sanitary facilities (flush, chemical or incinerator toilets) and drinking water.
 - 3) Services available 24 hours a day.

Note:

"Recreational Camping Areas" accept all forms of campers (tent, trailer, motor home, etc). An applicant for a campground sign which is restrictive in nature must be able to include such restriction in the official name, i.e. "Smith's Tent Camping" or "Joe's RV Camping." Mn/DOT will not knowingly install signing which misinforms the travelling public.

- f. A "rural agricultural" or "tourist-oriented" business shall be open a minimum of eight hours per day, six days per week, and 12 months per year. However, a seasonal business may qualify if it is open eight hours per day and six days per week during the normal seasonal period.

Signing to a business at an interchange on a nonfreeway trunk highway may require up to four signs (the following two signs in each direction: one sign on the mainline to direct motorists onto the exit ramp and one sign on the exit ramp).

5. Location Criteria

a. General

- 1) All intersections or interchanges to be signed must be located in a rural area
- 1) Most specific services may be located in either a rural or urban environment. (The exception is "Rural Agricultural Businesses" which must be located in a rural area.)
- 3) Specific service signs shall be installed on Mn/DOT right of way. (See Figure 6.24)

b. Clarification of Authorized Sign Locations

General authorization for each of the four basic combinations of specific service/intersection locations is summarized as follows:

- 1) Service rural, intersection rural - Authorized
- 2) Service rural, intersection urban - Not Qualified
- 3) Service urban, intersection urban- Not Qualified
- 4) Service urban, intersection rural - Needs Clarification

NOTE:

Rural agricultural businesses must be located in rural areas to be eligible.

The Minnesota Statute is not perfectly clear on item 4) above. Two criteria to be considered in making a decision are:

- 1) the environment of the rural intersection as well as municipal boundaries.
- 2) straight ahead signing if overlapping routes are involved and one route does not service the municipality.

Several typical diagrams are included to clarify questionable situations which have arisen over the years relative to specific service signing locations. (See Figures 6-34A & 6-34B). In these diagrams, the specific service is assumed to be a "qualifying business".

6. Restrictions

- a. Each individual specific service is limited to signing at one intersection or interchange on the trunk highway system. Additional signing may be considered when the place of business is located between, or approximately an equal distance from, two or more trunk highways.

When a place of business is located off a trunk highway and can be served by two intersections with a local road (similar to a "bypass"), one sign may be installed at each of the two intersections, so as to provide the shortest route for motorists on the trunk highway.

- b. Left or right oriented businesses have priority over straight-ahead oriented businesses. If a business is eligible for a left or right directional sign panel on one approach, then it is eligible for a straight-ahead directional panel on the other approach. Although straight-ahead signing is to be discouraged, it will be permitted at certain intersections.
- c. No bumping will occur.
- d. If two or more eligible businesses apply at the same time, year-round businesses will have priority over seasonal businesses.
- e. No specific service sign or assembly shall be placed at a location that will interfere with other necessary signing as determined by the Commissioner of Transportation. If space is unavailable, requests shall be denied.
- f. Specific service signing is not permitted if the applicant's place of business meets any of the following conditions:

- 1) Place of business is readily visible* from the trunk highway.

* Interpretation of "readily visible":

This applies to visibility of the business from the approach to the intersection or interchange to be signed. Refer to Chart 6-5, Condition C (Deceleration to 10 mph from the appropriate posted speed) for the "visibility distance" to the business. If the business can be readily identified at this distance (or beyond) from both approaches, signing is not permitted. If a business cannot be seen for at least the visibility distance (from Chart 6-5) from one approach to an intersection or interchange, but is readily visible from the other, signing may be permitted only on the approach from which the business is NOT readily visible. Existing signing on trunk highway approaches from which businesses are readily visible should be removed through normal attrition.

- 2) A specific service sign on a ramp is not required if the business is readily visible from the ramp terminal or effective directional advertising is visible.

Note:

MS 173, "Advertising Devices", allows "religious notices" signs to be permitted in areas adjacent to trunk highway right-of-way. These signs, stating the location of the religious services, shall not exceed **8 square feet** (0.74 m^2) in advertising area. If this type of signing is permissible and effective, the specific services sign for "places of worship" is not to be installed.

7. Sign Details

Specific service sign panels shall be made of VIP reflective sheeting and shall be white legend on a blue background. The directional arrow and mileage shall be displayed on the same side of the panel as the direction of turn on non-freeway trunk highways at at-grade intersections and on exit ramps at interchanges. The specific service sign panel shall display only the name or optional business panel, or both, when installed on non-freeway trunk highways at interchanges.

Specific service sign panel (D9-X6) details are shown in the Standard Signs Manual. One or two lines of legend may be used as needed on a panel, and directions and distance are to be shown as indicated in the drawing. Left directional arrows will be on the left end of the panel, and right arrows on the right end.

Legend size should be 125 mm (**5 inch**) Series C - upper case for specific service names, and 100 mm (**4 inch**) Series D - modified numerals for distance figures.

Distances are to be shown in one mile increments, except that those distances under one mile shall be omitted.

Inappropriate business names are not permitted to be displayed on sign panels.

Businesses which have combinations of approved services may combine these names in their sign legend, if possible. Some of the resort owners have asked that "campground" be included as part of the legend on the specific service sign.

Example: The first line of legend would show the business name and the second line could show "RESORT - CAMPING", "MOTEL - CAFE", or similar. The legend size shall not be reduced.

Abbreviations may be required, but only standard abbreviations may be used.

There is no standard abbreviation in the dictionary for the word "CAMPGROUND". Therefore, it is recommended that the legend in this case reads: "CAMP" or "CAMPING". Proper name abbreviations may also be required. The business owners must decide, with the assistance of the

district/division traffic engineer, what legend will give the best guidance. There may also be occasions where both service names (i.e., "Resort - Camping") cannot be shown because of space limitations due to proper name text considerations.

8. Business Panel Details

If a business panel (logo) is to be displayed on a sign panel, the size of the business panel may be up to 1200 mm (**48"**) long by 300 mm (**12"**) high. A short business name may be displayed to the right of the business panel.

Only one business shall be displayed on a sign panel.

Both the ramp sign and the mainline sign shall be identical in format.

Business panel design approval is at the discretion of the district/division traffic engineer. Logos cannot resemble a traffic control device. A minimum of high intensity reflective sheeting (Mn/DOT specification 3352.2A2b) will be required.

The business panel position on the specific service sign panel shall be left-justified. When the specific service sign panel is located on the mainline approach at an interchange, the business panel shall be centered on the sign panel.

Businesses shall deliver business panel(s) to the Mn/DOT district/division office for installation on specific service sign panel(s) in the sign shop. No specific service sign panel will be installed prior to the business panel being received at the district/division office.

9. Sign Assemblies & Clusters

Each specific service sign assembly consists of individual sign panels, mounted one above the other. Left directional panels are to be mounted above right directional panels.

A "grouping" of sign assemblies is called a sign cluster, by statutory definition. One "cluster" is permitted on each trunk highway approach to a specific intersection or interchange, subject to space limitations and priority of signing types.

10. Installation Guidelines

- a. It shall be the responsibility of the district/division to investigate each intersection or interchange to determine specific service sign locations and the need to relocate in-place signing (no existing signing should be removed), based on the following guidelines and requirements. The law states that no specific service sign assembly or cluster shall be placed at a location where it will interfere with necessary signing.

- 1) Spacing is to be approximately 90 m (**300 feet**) from any existing sign to a specific service sign and between specific service signs on two-lane two-way conventional roads. If turn lane signs are in place, specific service signs shall not be installed closer than 60 m (**200 feet**) in advance of the turn lane signs. In place signs are not to be removed to accommodate specific services signing.
 - 2) Spacing is to be approximately 120 m (**400 feet**) from any existing sign to a specific service sign and between specific service signs on expressways (non-freeway trunk highways).
- b. Normally all specific services signing should be installed on the right side of the roadway. Left side (median) signing (on divided roadways) will be at the discretion of the district/division.

- c. Specific service sign located on a mainline roadway at an interchange:

Since an action message is required on a specific service sign located on the mainline approach to an exit ramp at an interchange, up to three specific service sign panels may be installed on the sign structure with the "NEXT RIGHT" sign panel mounted at the bottom as the action message. The sign legend to be displayed on each specific service sign panel shall be in accordance with Note 5 on Standard Sign No. D9-X6.

- d. Specific service sign located on a ramp at an interchange:

- 1) If the exit ramp terminal intersection with the cross street or highway allows motorists the option of turning either left or right onto the cross street or highway, the specific service sign on the exit ramp shall display the following:

- a) business name, logo or both (if there is adequate space for both).
- b) mileage (expressed in miles rounded to the nearest mile) if the business is located at least 1.6 km (**one mile**) from the interchange.
- c) arrow indicating the direction to turn.

- 2) If the exit ramp terminal intersection with the cross street or highway allows motorists to only continue in one direction (major fork or cloverleaf), the specific service sign on the exit ramp shall display the following:

- a) business name, logo or both (if there is adequate space for both).
- b) mileage (expressed in miles rounded to the nearest mile) if the business is located at least 1.6 km (**one mile**) from the interchange.

- e. The maximum number of sign structures per intersection approach will be the number of structures that can be placed within 800 m (**one-half mile**) of the intersection. The maximum number of sign structures per interchange approach will be the number of structures that can be placed within 800 m (**one-half mile**) of the exit ramp gore or past the previous interchange entrance ramp, whichever distance is the shortest.

- 1) Order of installation:

The following sequence of signs applies at intersections on trunk highways, in order that specific service signing is integrated with other traffic signing in a uniform manner. Sequence numbers begin with a), which indicates the first sign encountered by the approaching motorist (the sign furthest in advance of the intersection). Spacing of signs shall be as indicated in Figure 6.24.

- a) Junction Assembly (if applicable).
- b) Road name advance sign (if applicable).
- c) Directional sign to cities (if applicable).
- d) Other guide signing (hospital, landfill, etc., if applicable).
- e) Inplace RESORT/CAMPING motorist service signs (D9-X3 and D9-X4).
- f) Specific service sign (D9-X6) or assembly(s).
- g) Road name with arrow sign at or near intersection (if applicable).
- h) Route marker directional assembly at intersection (if applicable).
- i) Turn lane sign, where a turn lane is in place.

- 2) Trailblazing

Appropriate trailblazing signing on local roads between a trunk highway intersection or interchange and a business shall be the responsibility of the business and the local road authority, and shall be in place prior to installation of specific services signing.

- 3) Seasonal Removal

The law states that "all sign panels for seasonal services shall be covered or removed when the service is not available." A suggested method would utilize a "CLOSED" plaque, to be bolted over the arrow/distance portion of the sign panel, for seasonal businesses. CLOSED plaques shall only be required on the mainline sign and not on the ramp sign at an interchange.

11. Relation to Other Policies

- a. Existing RESORT and CAMPING motorist services signs D9-X3 and D9-X4 will be retained at an intersection where an eligible resort or campground does not apply for, or which may not find space available in, the Specific Service Signs program.

If all qualified resorts and/or campgrounds at a particular intersection decide to enter, and are included in, the Specific Service Signs program, any in-place RESORT (D9-X3) and/or CAMPING (D9-X4) signs shall be removed and D9-X6 signs installed.

- b. Existing road name signs, established by a resolution adopted by the local road authority, will remain in-place.
- c. County "slat-type" signs on the local roads are the responsibility of the local authorities and may continue to be utilized, with or without specific services signing on the trunk highway.

12Administration

- a. Applicants for specific service signs must contact the individual district/division office to initiate the application procedure.

For a sample of the Specific Services Application, see Forms 6.B1 thru 6.B4

- b. The district/division office should maintain a dated list of applications in order to issue signing to qualifying applicants on a first-come, first-serve basis.
- c. After investigating the intersection or interchange at which signing is requested, the district/division should respond to the applicant with a cover letter and a standard application form to ensure applicant eligibility, seasonal operation status, obtain all necessary business location details and advise applicants of their total cost and responsibilities.
- d. Applicant shall return the completed application form and appropriate fee to the district/division traffic office.
- e. Applicant shall supply business panels to Mn/DOT.
- f. All signs shall be fabricated, installed, maintained, replaced and removed by Mn/DOT. Sign fabrication and installation should be initiated on a work-schedule basis.
- g. All business panels shall be installed and removed by Mn/DOT.
- h. All applicants shall respond to communications from the district/division within 30 days (Required by statute).

- i. Applicant is required, on the standard application form, to agree to pay all Mn/DOT costs for replacement of vandalized or destroyed signs during the life of the sign, and to pay for new signs after the sign has reached the end of its useful life.
- j. If a business panel is stolen or damaged beyond repair, the business shall supply a new business panel paid for by the business.



6-7.04.05 Logo Signs

Logo signs are permitted on rural interstate highways and certain other urban controlled access trunk highways.

The MN MUTCD, Section 2G-5 covers standards and guidelines on the use of logo signing.

Minnesota Statute 160.80, Sign Franchise Program, authorizes Mn/DOT to establish this program for the purpose of providing, on the right-of-way of interstate and certain other controlled-access trunk highways, specific information on gas, food, lodging and camping for the benefit of the motoring public.

This program is operated by Minnesota Logos under an agreement with Mn/DOT. Businesses interested in this program should contact Minnesota Logos. All district/division questions should be directed to the Mn/DOT Office of Maintenance, Logo Contract Administrator.

Existing Mn/DOT installed General Motorist Service Signs shall remain in-place at each interchange if all businesses are not accommodated in the Logo Sign program. The State Signing Engineer, OTE, in conjunction with district/division offices shall review and approve all proposed logo installation locations to verify that Logo signs will not have a negative impact on other required signing and that proper sign spacing is maintained.



6-7.04.06 Tourist Information and Travel Information - Conventional Highways and Expressways

1. General

The "TOURIST INFO" sign (D9-10a) may be installed on trunk highways upon approval of the district/division traffic engineer.

Outside the seven county Minneapolis-St. Paul Metropolitan Area (Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington Counties), signing to tourist information and travel information facilities may be installed on expressways and on bypasses of municipalities.

The facility should be located within the following distance of the trunk highway intersection/interchange to be signed:

- a. 1.6 km (**one mile**) in an urban environment (defined in Section 6-7.08.03 d)
- b. 4.8 km (**three miles**) in a rural environment (defined in Section 6-7.08.03 d).

2. Criteria:

- a. Requests will only be accepted from a community group, such as a chamber of commerce, business association, or governmental unit. Signing to only one site in a city or area will be approved. There should be a sign on the outside of the facility, clearly stating who is the operator and means of contacting the operator.
- b. Local communities should obtain concurrence with the State Office of Tourism for site selection.
- c. If the facility is operated seasonally, the signs shall be removed or covered; or closure clearly indicated.
- d. Where approved, one sign facing each direction of traffic may be placed on the approaches to the nearest intersecting road or entrance to the facility. However, if effective on-premise signing can be installed, a request for "TOURIST INFO" signs will not be approved.
- e. Sign installation is subject to space availability and MN MUTCD standards.

f. Use the smallest size sign feasible. Generally, in urban areas, the 750 x 600 mm (30" x 24") size is adequate.

g. Requestor pays for signs, which shall be furnished and installed by Mn/DOT.

Note:

The above criteria cover primarily local area tourist information facilities. There are a few Mn/DOT Travel Information Centers located on conventional highways. Assistance for developing future sign design and layouts for these sites may be obtained from the OTE Signing Unit.



6-7.04.07 Telephone Facility Signing

All public phone facilities to which guidance is given must be identified by a telephone symbol mounted on the roof of the booth or above the "phone from car" facility. Those signs should be either internally illuminated or reflectorized for visibility at night. These signs are the responsibility of the appropriate telephone company. All signs on local roads directing motorists to public phone facilities shall be the responsibility of the appropriate road authority.

Advance or directional phone service signs are not required on non-expressway highways in urban areas where a public telephone booth is located adjacent to the highway and easily seen by the motorist.

The Phone Service Directional Sign (D9-1a) may be used to provide direction to the telephone facility when it is within a reasonably short distance from the highway, readily visible to an approaching motorist, and additional signs are not needed to direct the motorist to the facility.

Both the advance (D9-1b) and the directional (D9-1a) Phone Service Signs may be erected and maintained in remote locations (rest areas, wayside rests, parks, rural crossroad intersections, etc.). Where a motorist would not normally expect to find a telephone. If a public phone in such a remote area is equipped or retrofitted with a hearing impaired amplifier, both signs should be modified to designate such phones.



On conventional highways the Hospital symbol sign (D9-2B) shall be installed on the ground in advance of, or on a traffic signal mast arm at the intersection with the road leading to the hospital.

Trailblazing signing (D9-2A) on local roads directing motorists to the facility shall display the appropriate distance and arrow and shall be in place before any signing is installed on trunk highways.

6-7.04.08 Signing for Hospital Motorist Services

It is Mn/DOT practice to provide hospital service signs on freeways, expressways, and two-lane, two-way roads to qualified facilities at no cost.

In order to be considered for service signing on Mn/DOT maintained roads, the following criteria must be met by the hospital requesting signing:

1. Accept all emergency cases, without discrimination for any reason (including ability to pay).
2. Readily accessible from the nearest intersection or interchange (normally within a 16 km (**10 mile**) radius).
3. Provide 24-hour emergency medical care with a physician on the premises (metropolitan area) or on-call (rural areas).

On freeways and expressways in urban metropolitan areas, the HOSPITAL sign (E 10-3) shall be installed in advance of the trunk highway interchange/intersection nearest the hospital. At rural interchanges/intersections where other motorist services are signed (E10-1), the word HOSPITAL may be included on the general motorist service sign if CAMPING is not displayed. The appropriate signs (E10-4, E10-8) shall be installed on exit ramps at interchanges.



6-7.05 Airport Signing

Airport directional signing may be provided on trunk highways in accordance with the following table at the bottom of this page.

1. Location and Size of Signs
 - a. Adequate trailblazing signs, where needed to direct motorists to the facility on local roads, shall be provided and maintained by the appropriate local governmental agency.
 - b. Location and placement of all airport guide signing is dependent upon space availability.
 - c. In designing and selecting locations for airport guide sign installations, Mn/DOT has the authority to specify message content (including abbreviations). This authority also includes determining size of sign, sign location, and combination of messages, in accordance with the MN MUTCD standards for acceptable signing practice, and current state practice. Mn/DOT also retains the authority to deny requests for signing where acceptable standards cannot be met, including locations where other supplemental guide signs are already in place.

AIRPORT SIGNING GUIDELINES¹

AIRPORT CLASSIFICATION	GUIDE SIGNING ²		OPTIONAL TRAILBLAZER SIGNS TO AIRPORT ³
	INTERSTATE OR OTHER FREEWAYS	CONVENTIONAL TRUNK HIGHWAYS	
AIR CARRIER/COMMERCIAL SERVICE Airports served by scheduled air service	Nearest Interchange	Nearest Intersection	Up to 16 Kilometers (10 Miles)
GENERAL AVIATION Airports open to general aviation ⁴	Nearest Interchange	Nearest Intersection	Up to 16 Kilometers (10 Miles)

¹ These guidelines may be modified as required by local conditions, laws, and customs. They may also be applied to heliports. These guidelines may be utilized by local road authorities when appropriate.

² Guide signing may be provided from the nearest interchange and/or intersection on the interstate or trunk highway systems, normally not to exceed 24 kilometers (15 miles). Adequate trailblazing signing from this highway to the airport must be in place prior to installing guide signing.

³ Optional guide (trailblazer) signing may also be provided along routes other than the primary route described in Note 2. Optional trailblazer routes should be limited to 16 kilometers (10 miles) for Air Carrier/Commercial Service airports and 12 kilometers (7.5 miles) for General Aviation airports.

⁴ Private airports requiring owner's permission to use shall not be eligible for signing.

2. Application of Signs

- a. Individual airport names may be used on signing as necessary, to ensure adequate identification for motorists.
- b. The "AIRPORT" Sign (D1-X4), with arrow, will be adequate for most intersections at which airport signing is permitted.
- c. Individual sign design is necessary for the Minneapolis-St. Paul International Airport and its terminals. The most recent MN MUTCD standard "airport" symbol shall also be incorporated into the sign design.
- d. Trailblazing signing on local roads, when needed, should utilize the Airplane Symbol sign (I-5) with appropriate arrow.
- e. Airport guide signs shall be fully reflectorized with white legend on green background.

3. Sign Costs

All signing costs shall be paid by the requester.



6-7.06 Educational Institution Signing (Post-Secondary Schools)

Signing will be permitted for certain post-secondary schools which grant two or four year degrees with credit hours which are transferable to other schools. Examples are the University of Minnesota, State Universities, State Community Colleges, private four-year colleges, private two-year colleges, private professional schools, private vocational schools and Technical Colleges. Determination of need for signing is based on the following:

1. Enrollment Criteria:

- a. Minimum annual on-campus student enrollment for credit:
 - Urban Areas: 1500 students
 - Rural Areas: 400 students

2. Signing Criteria

- a. Signing will be permitted from the closest or most direct point on the freeway, expressway or conventional highway.
- b. If the most direct point is on a freeway, signing will be permitted only at the closest interchange serving the educational institution.
- c. Supplemental guide signs for educational institutions shall follow the normal design standards.

d. Schools which front directly on trunk highways may be allowed signs to assist the motorist in making proper entrance turns.

e. Schools signed from freeways shall be located within 8 km (**5 miles**) of the interchange in an urban area and within 16 km (**10 miles**) of the interchange in a rural area.

f. Minneapolis-St. Paul Metropolitan Area: Signing for educational institutions will not be done on the Interstate Freeway system comprising the I-494 and I-694 ring, nor on freeways within this ring, nor on I-35E and I-35W at any point on their length, because of the numerous and often closely spaced interchanges, the frequency of in-place primary signing, and the adequacy of route and street identification signing already in place. The main campus of the University of Minnesota is exempt from this restriction, because of the unusually high traffic volumes and status as a primary destination.

g. Supplemental guide signing on feeder type trunk highways:

- 1) Mn/DOT Districts 1, 2, 4, 6, 7 and 8

Additional supplemental guide signing may be extended to feeder type trunk highways (freeways, expressways or conventional highways) which provide direct access to principal trunk highways serving the eligible post-secondary school. Not more than one supplemental guide sign in each direction shall be installed on the feeder type highway routes. Feeder type highway routes shall be within 16 km (**10 miles**) of the eligible post-secondary school.

- 2) Mn/DOT District 3

Additional supplemental guide signing is NOT permitted on feeder type trunk highways.

- 3) Mn/DOT Metro Division

Seven County Minneapolis-St. Paul Metropolitan Area - Additional supplemental guide signing is NOT permitted on feeder type trunk highways within the Minneapolis-St. Paul Metro Urban Limits as defined by Mn/DOT's Metro Division.

3. Signing Location and Size

- a. Location and placement of all signing is dependent upon space availability.
- b. In design and site locations, Mn/DOT retains the authority to specify message content (including abbreviations), size of sign, sign location, and combination of messages, in accordance with standards for acceptable signing practice. Mn/DOT also retains the authority to deny

requests for signing where acceptable standards cannot be upheld including locations where other supplemental signs are already in place.

- c. Guide signs necessary at the ends of freeway ramps shall be installed.

4. Sign Format

- a. Signs on freeways shall read: (top line) "(Institution Name)", (bottom-line) "EXIT (No.)" if exits are numbered, otherwise "NEXT (or SECOND) RIGHT".
- b. Signs on freeway ramps shall display the institution name and appropriate arrow, without extraneous legend or institutional logos or symbols.
- c. Distances to schools located 4 km (2-1/2 miles) or more from the trunk highway intersection/interchange shall be shown on the sign.

5. Cost

All sign costs shall be paid by the requester.



6-7.07 Major Traffic Generator Signing (Public or Private)

1. Introduction & Background

Guide, information and destination signs are used to inform drivers of a specific route or destination. Frequently a private or public development which attracts a significant volume of motorists unfamiliar with the local area is encountered adjacent to or near a highway. To properly serve traffic, it may be desirable to provide supplemental guide signs to direct motorists to such traffic generators.

These traffic generators are major regional attractions, events or facilities which attract persons or groups from beyond a local community, city or metropolitan area. They are significant because of their unique educational, cultural, historical or recreational experience and public appeal. Predominantly retail, business or manufacturing centers are not normally eligible for guide signing.

2. Operational Guidelines

Generator Eligibility Criteria

- a. Parking for a minimum of 1,000 vehicles.
- b. A minimum of ten events per year.
- c. Average event attendance: at least 5,000 persons.
- d. Located not more than 16 km (10 miles) from the trunk highway interchange/intersection where signs are requested.

3. Signing Location and Size

- a. Not more than one supplemental guide sign per attraction in each direction along the nearest trunk highway.
- b. Additional supplemental guide signing may be extended to feeder type trunk highways which provide direct access to principal trunk highways serving the generator. Not more than one supplemental guide sign in each direction shall be installed on the feeder type highway routes. Feeder routes must be within 16 km (10 miles) of the eligible generator.
- c. Location and placement of all signing is dependent upon space availability.
- d. In designing and selecting locations for sign installation, Mn/DOT retains the authority to specify message content (including abbreviations), size of sign, sign location, and combination of message, in accordance with standards for acceptable signing practice. Mn/DOT also retains the authority to deny requests for signing where acceptable standards cannot be met, including locations where other supplemental guide signs are already in place.
- e. Where necessary, guide signs shall be installed on freeway ramps.
- f. Trailblazing signing on local roads shall be in place before any signing is installed on the trunk highway.

4. Sign Format

The sign color shall be white legend on green or brown background in accordance with the MN MUTCD. The legend shall be the same as the guidelines prescribed for other supplemental guide signs.

Distances to major generators located 4 km (2-1/2 miles) or more from the trunk highway intersection/interchange shall be shown on the sign approaching the intersection or on the ramp at an interchange.

5. Cost

All sign costs shall be paid by the requester.



6-7.07.01 Regional Shopping Center Signing

1. Introduction & Background

To properly serve non-local traffic, it may be desirable to provide supplemental guide signing to direct motorists to such traffic generators.

Signing may be installed on trunk highways for regional shopping centers meeting the following criteria.

2. Operational Guidelines

- a. Seven County Minneapolis-St. Paul Metropolitan Area (Anoka, Carver, Dakota, Hennepin, Ramsey, Scott and Washington counties)

1) General Eligibility Criteria

- a) At least 55,740 square meters (**600,000 square feet**) of retail floor space available for lease.
- b) At least two major department stores owned by a national or regional chain organization.
- c) Located within 3 km (**2 miles**) of the trunk highway.

2) Signing Location and Size

- a) Not more than one supplemental guide sign may be installed in each direction along a trunk highway.
- b) Signing may only be considered on trunk highways intersecting/interchanging with major access routes to the facility. Signing shall be located in advance of the intersecting/interchanging road that provides a logical and direct route to the facility. The intersection/interchange to be signed shall be located within 3 km (**2 miles**) of the facility.
- c) Location and placement of all signing is dependent upon mainline roadway and ramp geometrics and space availability. Any supplemental guide sign (to be installed on freeways or expressways with interchanges) shall be installed a minimum of 240 m (**800 feet**) away from other guide signs. On expressways with at-grade intersections, a 150 to 210 m (**500 to 700**

foot) distance between signs shall be maintained. Existing signing may be repositioned to accommodate signing to the facility as long as longitudinal spacing and proper sign sequencing requirements are still met.

- d) In designing and selecting locations for sign installation, Mn/DOT retains the authority to specify message content (including abbreviations), size of sign, sign location and combination of message, in accordance with standards for acceptable signing practice. The usage of logos is prohibited.

- e) Where necessary, guide signs shall be installed on freeway ramps.

- f) Trailblazing signing on local roads to the facility shall be in place before any signing is installed on the trunk highway.

3) Cost

All sign costs, including all costs to reposition any existing signing, shall be paid by the requester.

b. Outside of the Seven County Metropolitan Area

1) General Eligibility Criteria

- a) At least 55,740 square meters (**600,000 square feet**) of retail floor space available for lease.
- b) At least two major department stores owned by a national or regional chain organization.
- c) Located within 3 km (**2 miles**) of the trunk highway.
- d) Shopping center must be "under one roof".
- e) The Center must be located outside of the "downtown" or central business district.

2) Signing Location and Size

The same criteria specified for regional shopping centers located within the Seven County Metropolitan Area shall apply.

3) Cost

All sign costs, including all costs to reposition any existing signing, shall be paid by the requester.

3. Sign Format

The sign color shall be white legend on green background. The legend shall be the same as the guidelines prescribed for other supplemental guide signs.

6-7.07.02 Traffic Generator Changeable Message Signing - Metropolitan Areas

These guidelines currently apply to the cities of Minneapolis and St. Paul. They address the display of a traffic generator on permanent changeable message signs (CMS) located on freeways approaching the downtown areas.

1. General Eligibility Criteria

In order to be eligible for a name display on a permanent CMS, a traffic generator must meet all three of the following criteria:

- a. Public/private parking for a minimum of 1000 vehicles within 610 m (**2000 feet**) of the facility.
- b. Event frequency and attendance shall be:
 - 1) A minimum of ten events per year with an attendance of at least 5000 persons within a two hour period/event, or
 - 2) One day event per year with an attendance of at least 20,000 persons per event, or
 - 3) One recurring event, two to seven days in length, per year with a total minimum attendance of 50,000 persons.
- c. Located no more than 3.2 km (**2 miles**) from **the interchange on the freeway where** the permanent CMS is located.

2. Operational Guidelines

Only the facility name(s) shall be displayed on a permanent CMS which is located on a freeway. The display of a unique event by name (i.e. Ice Castle, Taste of Minnesota) may be approved on a case by case basis by the Metro Division Engineer.

If a facility is having an event either concurrent with or overlapping an event with another facility, the duration of the display of each facility name and action message on a permanent CMS will be 2 seconds. This is based on the total reading time, including the change time between message displays, at vehicle operating speeds on metro area freeways.

No more than two facilities (each with an action message) may be alternately displayed on a permanent CMS with the entire message for each facility displayed at one time.

The facility name and action message for an event may be displayed from:

- a. one hour before the gate opens until 30 minutes after the event begins when normal attendance is for the entire event (i.e. a sporting event), or
- b. one hour before the event begins and continuously throughout the duration of the event when normal attendance is part time (i.e. an automobile show).

The duration of the display shall be continuous if only one facility is having an event to be displayed on a permanent CMS.

Messages on a permanent CMS directing motorists to a facility at more than one exit on the same freeway or to an exit(s) on another freeway shall only be allowed for traffic management at the discretion of the Metro Division Office.

Mn/DOT shall install, maintain and operate permanent CMS installations. Their operation is under the direction of the Metro Division Engineer.

Mn/DOT retains the authority to use the permanent CMS(s) for traffic management purposes, in lieu of displaying the facility name(s) having the event, if a traffic incident occurs. If the permanent CMS(s) is (are) used for traffic management purposes, prepaid fees nor any portion thereof will not be refunded.

The facility shall pay \$10,000 annually or \$500 per event per day on all appropriate permanent CMS's.



6-7.08 Minor Traffic Generator Signing (Public or Private)

6-7.08.01 Introduction and Background

Mn/DOT recognizes the need to address the issue of guide signing for public and privately- owned facilities which are minor traffic generators. Minor traffic generators are facilities which generally attract non-local persons or groups unfamiliar with the location of the generator but which do not qualify as major traffic generators (see Section 6-7.07.01). Signing on trunk highways will be permitted for some generators, and denied to others, based on Mn/DOT's attempts to provide only that signing which best serves the motoring public.

For a copy of the Guide and Information Signs Application, see Forms 6.C1 and 6.C2.

Signing requests denied may be appealed as outlined in Chapter 1, Section 1-2.05. While certain options exist for the addition of, or revision to, various guide signs on Minnesota highways, it is important to remember that all traffic control devices shall comply with the requirements of the MN MUTCD.

The fact that a facility may be publicly owned, publicly financed, non-profit, recreational, cultural, or tourist/motorist oriented does NOT guarantee that highway signing will be provided. The use and installation of highway signing shall be limited to only those generators which have broad motorist appeal, serve non-familiar motorists, or are the kind of facility for which a motorist normally expects highway signing.

Serving economic and other interests of the citizens of Minnesota are major functions of the trunk highway system. However, since most of the trunk highway system is designed for high speed and much of it carries high traffic volumes, some exceeding design capacity, it is imperative that distractions be kept to a minimum so that motorists can concentrate on the primary task of driving. Supplemental guide signs, despite their obvious need, can also be considered a distraction. To be consistent with these premises, it is necessary to limit all signing (regulatory, warning and guide) to only that which is sufficient to aid drivers in safely arriving at their destinations. These guidelines and the various criteria have been developed accordingly.

6-7.08.02 General

Minor traffic generator signing may be permitted on conventional trunk highways (two-lane, two-way) and on non-freeway segments (no freeway-type interchanges) of expressways, for the types of facilities listed, subject to the general and specific criteria for eligibility. However, minor traffic generator signing may be considered on expressways utilizing freeway design on bypasses of rural communities.

Minor traffic generator signing will not be permitted on freeways. This is consistent with the overall national signing system for freeways, and with general recommendations of AASHTO.

Exemption:

National parks, national monuments, and major state parks (state parks with a minimum size of 500 acres, and at least 35 overnight camping sites with modern sanitary facilities), located within 24 km (15 miles) of the freeway interchange, are exempt from this restriction.

6-7.08.03 Operational Guidelines for Minor Traffic Generators

Primary signing, which always takes precedence in the signing scheme of any intersection, includes standard intersection signing, destination signs, distance signs, motorist services signs, plus regulatory, warning and route marker signs. Supplemental guide signing to minor traffic generators shall never take precedence over these signs and may have to be denied because of insufficient space.

1. General Criteria and Signing Restrictions

- a. Minor traffic generator signing may be permitted from the closest or most direct point

on the trunk highway, at the intersection with the local road leading to the generator. Signing may also be considered on other trunk highways intersecting with local roads that serve as logical, primary access routes for motorists approaching from other directions.

b. Signing shall not be permitted:

- 1) If the establishment is readily visible and identifiable from the trunk highway, or an advertising sign(s) can be legally and effectively located off right of way near the intersection (i.e., zoning allows signs, and sign visibility is not impaired). In either case, motorists must receive sufficient notice to safely prepare for their turn from the trunk highway.
- 2) Within the corporate limits of one city directing motorists to a facility located in another city.

c. Unless specified otherwise, facilities shall be open a minimum of five days a week, during normal business hours. Normal business hours implies an eight-hour day.

For seasonal generators, Mn/DOT may incorporate signing indicating periods of closure where appropriate.

d. Generators shall be located within specified distances from the trunk highway intersection at which signing is permitted. These distances vary depending on the type of generator and whether the signed intersection is located within an Urban Environment or a Rural Environment.

The specified distances are included in the criteria for each minor traffic generator (Section 6-7.08.04) and in a separate table in Section 6-7.08.05.

Definitions of the two general environments are shown as follows. When a requested sign location falls within an area exhibiting characteristics in between urban and rural environments, the district/division should use judgement in determining the maximum distance requirement.

- 1) Urban Environment: Typical characteristics are highly developed areas having slower speeds, higher proportion of local traffic, increased difficulty in finding acceptable locations for traffic signs, and more stressful and complicated driving environment.
- 2) Rural Environment: Typical characteristics are relatively undeveloped or agricultural land, higher speeds, higher proportion of non-local traffic, easy ability to find acceptable locations for traffic signs, and relatively uncomplicated driving environment. Small cities in otherwise rural areas are included in this definition.

- e. Location and placement of all signing is dependent upon space availability. Signing shall not be permitted if spacing is unavailable or if relocation of in-place signs is not feasible.
- f. All signing costs (see Form 6.B2) shall be paid by the requester (public or private).
- g. In designing signs and selecting locations for sign installation Mn/DOT retains the authority to specify message content (including abbreviations); size of sign; sign location; and combination of message, in accordance with standards for acceptable signing practice. Mn/DOT also retains the authority to deny requests for signing where acceptable standards cannot be met, including locations where other supplemental signs are already in-place. Official facility names may be used on signs.

Distances to generators are to be shown in one mile increments, except that those distances under 1.6 km (**one mile**) shall be omitted.

- h. A generator which qualifies for signing in more than one category within these guidelines may choose only one category for which to receive signing.
- i. Trailblazing signing on local roads is the responsibility of the facility and the local road authority. Trailblazing signing, if needed, shall be in-place before signing is installed on the trunk highway. Color of trailblazing signs shall

match that of the signing installed by Mn/DOT forces on the trunk highway.

- j. When Mn/DOT determines that the number of qualifying generators being requested signing by a community cannot all be accommodated on signing at the same intersection due to driver information overload and sign spacing guidelines, the local governing body(ies) shall prioritize which facilities may be signed.
- k. Minor traffic generators should be recertified at the time of sign renewal or replacement.
- l. All minor traffic generator signs which qualified under previous criteria, but do not qualify under present guidelines, may be retained in-place until the end of their normal sign life. Mn/DOT shall then remove the signs.

6-7.08.04 Typical Minor Generators

The distances from the minor generator to the nearest trunk highway will be as specified in the table at the bottom of this page.

Signing on the trunk highway by Mn/DOT to the following minor traffic generators may be permitted in accordance with the following guidelines.

1. Cultural, Recreational, and Historical Minor Traffic Generators

The sign colors for these facilities shall be white legend on brown background.

Urban and Rural Minor Traffic Generator Signing

Cultural, Recreational, and Historical Generators			Other Minor Generators		
	Distance from Highway (in kilometers)			Distance from Highway (in kilometers)	
	Urban	Rural		Urban	Rural
Arboretums	5	5	AMTRAK Stations	2	2
Camps, Private (Rural only)	-	16	Bus Depots	2	2
Golf Courses	5	16	Civic Centers/Convention Centers	2	2
Great River Road Amenity Sites	2	5	Correctional Institutions	5	5
Historical Sites & Markers	2	16	(Federal & State)		
Indoor Ice Arenas	2	5	County Fairgrounds	2	8
Interpretive Centers	2	5	Downtown/Business District	-	5
Lock & Dam Sites	2	8	(Rural only)		
Museums	2	8	Drivers License/Road Test	2	5
Parks	5	16	Exam Stations		
Public Access to Lakes/Rivers	2	16	High Schools	2	5
Scientific & Natural Areas	2	16	Industrial Parks (Rural only)	-	5
Ski Areas (Snow Skiing)	8	16	Libraries	2	2
Veterans & War Memorials	2	5	Multi-Purpose Facilities (Rural only)	-	5
Wildlife Refuges & Mgmt. Areas	2	16	Public Office Buildings	2	5
Zoos	8	16	Recycling Centers	2	8
			Regional Human	2	5
			Services/Treatment Centers		
			Sanitary Landfills	5	8
			Solid Waste Transfer Stations	5	8
			WorkForce Centers	2	5



- a. Arboretums: Facilities where trees, shrubs and plants are cultivated and displayed for scientific and educational purposes.
- Should provide parking for at least 50 vehicles.
 - Should provide walking or driving trails and viewing facilities.
 - Should provide interpretive program, and/or audio/visual self-guiding presentations.



- b. Camps, Private (Rural only): Facilities are generally specialized rural summer camps which are operated or sponsored by church, fraternal, scouting or similar organizations and are not open to the general public for overnight camping. These facilities generally accommodate pre-arranged sessions of several days duration and are oriented toward recreation, education, training or combinations thereof. Visitors are usually not familiar with the camp location.
- Full-time staff on site to accommodate clientele
 - Summer/seasonal operation only
 - Private operation
 - Pre-arranged accommodations
 - No public overnight camping permitted



- c. Golf Courses open to the public: These are Professional Golfers' Association (PGA) approved courses having a minimum of 9 holes and open to the public. Driving ranges and miniature golf courses are not eligible for signing.



- d. Great River Road (GRR) Amenity Sites: On the national designated GRR route which follows the trunk highway system (non-freeway), signs may be permitted at intersections with local roads leading to GRR "amenity" (point of interest) sites. Only those sites which are directly tied to the GRR system and identified on GRR maps and brochures may be signed.

These sites include parks, museums and historic sites directly related to the GRR. Sign format and size shall be as determined by OTE.

The Office of Environmental Services should coordinate signing with the district/division traffic office, so that all applicable sign fabrication, location and installation standards are met.



- e. Historical Markers: Historical markers are a joint venture between Mn/DOT and the Minnesota Historical Society. Mn/DOT shall fabricate, install, and maintain signs at its own expense. Requests for signing shall be submitted to Mn/DOT.



- f. Historical Sites: Requests for signing shall be submitted to OTE. OTE staff will forward requests to the Minnesota Historical Society for recommendations. The Society's recommendations shall govern Mn/DOT's approval or denial of requests.
- g. Indoor Ice Arenas: High usage facilities built primarily to accommodate ice skating activities, both competitive and recreational in nature.

h. Interpretive Centers: Facilities that provide explanations and interpretations of historical, cultural, and educational subject matter. Interpretive centers shall have on- premise staff and/or guides to present continuing service to visitors.

i. Lock and Dam Sites: Corps of Engineers facilities which attract visitors interested in viewing boating operations through the locks, and/or utilizing other available recreational facilities.

- Shall have viewing provisions for the public.
- Should have parking for at least 15 vehicles.
- Should have restroom facilities.
- Should have telephone available.



j. Museums: Facilities devoted to the procurement, care, study and display of objects of lasting interest or value.

Requests for signing shall be submitted to OTE. Office of Traffic Engineering staff will forward requests to the Minnesota Historical Society for recommendations. The Society's recommendations shall govern Mn/DOT's approval or denial of requests.

Requests for signing to other museums (such as art or transportation museums) shall meet the general signing criteria for minor traffic generators.



k. Parks: Recreational facilities of varying sizes, types and purposes which are open to the public. They are operated by various agencies/jurisdictions, and are classified for signing purposes as follows:

City Parks, County Parks, Regional Parks, State Parks and National Parks. They generally provide picnic tables, playground equipment, drinking water, trash barrels, and rest room facilities. These facilities shall meet Minnesota Department of Health standards relative to water supply and rest room facilities, and be maintained in a sanitary and park-like condition.



l. Public Access to Lakes and Rivers:

All requests for signing to State-provided public access sites shall be approved by the DNR. Requests for signing to all other access sites shall be approved by Mn/DOT.

Access Criteria:

- Access road shall be maintained in passable condition.
- Should provide parking for a minimum of 20 vehicles at the access site. (Smaller lot acceptable at remote areas.)
- Gravel surface (or better) at the access site.
- Concrete boat-launching ramp, or equivalent. (trailered boats)
- Cleared access to water (canoes or carry-in boats).
- No fee shall be charged for access.

The message on public access signs shall be one of the following:

- 1) Trunk highway signing: "Public Access" symbol with lake name, appropriate directional arrow and mileage as shown on Standard Sign Drawing D7-X7 or D7-X7A.
- 2) Local road signing: "Public Access" symbol, with appropriate arrow as shown on Standard Sign Drawing D7-X8 or D7-X8A.

m. Scientific and Natural Areas: Facilities developed by the DNR and offer varying types of displays in a natural setting.

- Should provide parking for a minimum of 20 vehicles.
- Shall provide viewing areas.
- Should provide on-site explanation (audio, visual or staff person) of the subject matter.
- Should provide restroom facilities.



n. Ski Areas (Snow Skiing): Public or private winter recreational sites providing downhill and/or cross country skiing facilities, and open to the public.

- Downhill skiing facilities shall provide adequate staff in case of an emergency.

- Cross-country facilities shall have trails which are maintained with trail guide signs or maps placed at key locations indicating location and distances.
- Should provide parking for a minimum of 100 vehicles at downhill sites, a minimum of 30 vehicles at cross-country sites.

The message on ski areas signs shall be as follows:

- 1) Trunk highway signing: "SKI AREA or Name of Ski Area - NEXT RIGHT (EXIT XX)"
 - 2) Local road signing: Downhill symbol sign (D7-X13) or cross country symbol sign (D7- X14) with appropriate arrow
- o. Veteran and War Memorials: Independently located outdoor sites built to commemorate veterans of U.S. military actions and/or the actions themselves. The sites should be of a unique size and presence, easily available for public viewing, and not part of any other building or facility.
- Shall provide adequate on-site parking or parking in the immediate area of the memorial.
- p. Wildlife Refuges and Management Areas: Facilities open to the public that offer viewing of a variety of wildlife.
- Shall provide interpretive facilities/programs, or viewing areas/nature trails.
 - Should provide parking for a minimum of 20 vehicles (Rural) and a minimum of 50 vehicles (Urban).
 - Should have restroom and telephone facilities.
- q. Zoos: Zoological gardens or parks where a wide variety of living wild animals are kept and safely displayed for public exhibition.
- Shall provide identification and explanation of displays and wildlife is also essential.
 - A zoo shall be registered and approved by the American Association of Zoological Parks and Aquariums.
2. Other Minor Traffic Generators
- The sign colors for these facilities shall be white legend on green background.
- a. AMTRAK Stations: Facilities are AMTRAK railroad passenger stations.
 - b. Bus Depots: Facilities are bus terminals with staffed ticket counters and public waiting rooms, providing inter-city and inter-state motorcoach bus services.

- c. Civic Centers/Convention Centers: Facilities that accommodate activities of various types and are primarily oriented toward conventions, meetings, expositions and performances.

- Shall hold events or activities continuously throughout the year, at least once a month, on average (Rural) and 3 times a month on average (Urban).
- Events or activities shall be non-local in scope and draw visitors from outside the local area.
- Shall provide adequate on-site parking or parking in the immediate area of the facility.
- Shall provide seating for a minimum of 1000 people (Urban).

- d. Correctional Institutions (State and Federal): State and federal penal institutions that generate a significant volume of non-local visitors.



- e. County Fairgrounds:



- f. Downtown or Business District (Rural only): The intent of this signing is to direct motorists to the "center" of a rural city, where the trunk highway does not pass through the city center area. Signing is permitted ONLY to designate the "city center", NOT to designate any other business or shopping area. Signing may utilize the legend "DOWNTOWN" or "BUSINESS DISTRICT", based on the preference of the local city administration.

- g. Drivers License/Road Test Exam Stations (Permanent):

- Shall offer complete staff, to include road testing of drivers.
- Shall be an official facility operated by (or designated by) the Department of Public Safety.



h. High Schools: Multi-purpose facilities hosting a variety of activities throughout the year. Some may have a remote stadium or athletic complex which generates traffic and also qualifies for signing.

- Shall hold events or activities that are non-local in scope and draw visitors from outside the local area.
- Shall provide adequate on-site parking.



i. Industrial Parks (Rural only):

- Delivery vehicles to industrial park businesses shall be predominantly non-local vehicles.
- Business activities shall not be limited to local interests or customers only.



j. Libraries:

k. Multi-Purpose Facilities (Rural only): Facilities include, but are not limited to, the following:

1) Community Centers (Public)

A public building designed for a community's social, cultural, educational and recreational activities.

2) Armories

Facilities where arms and military equipment are stored, and/or which are used for training military reserve personnel, and are used for other public purposes.



l. Public Office Buildings: Public administrative offices (federal, state and local) where the general public goes on a regular basis to conduct business. Adequate on-premise signing shall be visible to the motorist.



m. Recycling Centers: Facilities which have complied with the permit rules of, and been officially designated by the Minnesota Pollution Control Agency (MPCA). (Reference: MS 173.086 and 115A.555.)

The MPCA is responsible for designating recycling centers that satisfy the following criteria:

- Operate a minimum of 12 hours per week, 12 months a year;
- Accept at least 4 different types of recyclable materials; and
- Comply with Minnesota Rule 7035.2845 regarding the permitting of recycling facilities.

n. Regional Human Services Centers, Regional Treatment Centers: Public treatment facilities operated by the Minnesota Department of Human Services. (Reference: MS 252, 253 and 254.)



o. Sanitary Landfills: Facilities which have been approved by the Minnesota Pollution Control Agency (MPCA). Service shall be available to the public, as well as to commercial and governmental users.



- p. Solid Waste Transfer Stations: Facilities which have a current and valid permit from the Minnesota Pollution Control Agency (MPCA). Service shall be available to the public, as well as to commercial and governmental users.



- q. WorkForce Centers: Facilities formed through a partnership between locally based community, county, and state agencies where the general public goes on a regular basis for employment and training services. Adequate on-premise signing shall be visible to the motorist.

6-7.08.05 Distance Limits to Minor Traffic Generators

Minor traffic generators that qualify for signing shall be located within the maximum distances from the intersection of the trunk highway with the local road. See the table at the bottom of page 6-51. The requested intersection to be signed may be in either a rural or urban environment, as defined below:

Urban Environment: Typical characteristics are highly developed areas having slower speeds, higher proportion of local traffic, increased difficulty in finding acceptable locations for traffic signs, and more stressful and complicated driving environment.

Rural Environment: Typical characteristics are relatively undeveloped or agricultural land, higher speeds, higher proportion of non-local traffic, easy ability to find acceptable locations for traffic signs, and relatively uncomplicated driving environment. Small cities in otherwise rural areas are included in this definition.

6-7.08.06 Exclusions - Facilities Not Eligible for Signing

Minor Traffic Generator guidelines specify that qualifying facilities attract persons or groups from beyond a strictly local area, have broad motorist appeal and attract non-familiar motorists. Generally, all other facilities are excluded from signing. Other reasons for excluding certain facilities are listed below:

1. Generally smaller traffic volumes.
2. General familiarity by majority of users, visitors or clientele.
3. Do not have regional significance.

If one of the following facilities is found to have unique circumstances, the request should be reviewed with the Director, OTE.

If the issue is complex or would appear to have state-wide ramifications, it should be discussed and resolved among all transportation district/division engineers.

Any variance from these guidelines (which cannot be satisfactorily resolved as noted above) must be reviewed by the External Sign Variance Committee. The requester and the district/division involved will be notified of the final decision concerning the sign request.

Normally ineligible facilities:

STATEWIDE

- American Legion/VFW & other "fraternal" Facilities
- Athletic Fields
- Cemeteries (except national or state cemeteries)
- Compost Sites
- Correctional Facilities (local and regional)
- Dance Halls
- Drive-In Theaters
- Driving Ranges (Golf)
- Fish Hatcheries
- Forest Preserves (county, state or federal)
- Game Farms and Preserves
- * Golf Courses - closed to the public
- Half-way Houses/Shelter Houses
- Health Clubs
- * Miniature Golf Courses
- Nursing/Senior Citizens Homes or Centers
- Office Buildings or Facilities (Private)
- Office Parks
- Post Offices
- Rehabilitation Centers
- Road Maintenance Facilities
- Schools (Elementary, Junior High)
- * Shopping Centers
- Sportsman Clubs
- Swimming Beaches and Swimming Pools
- Tennis Courts
- Veterans Homes
- Wildlife Treatment Facilities

ADDITIONAL URBAN

- Downtown/Business District
- Industrial Parks
- Marinas
- Wildlife Refuges (State and Local)
- * Facility may be eligible for signing under other signing guidelines contained elsewhere in this chapter.

6-7.08.07 Minor Traffic Generator Signing in the Metropolitan Area

Mn/DOT staff reevaluated the Minor Traffic Generator Signing Guidelines in 1995, which resulted in an expansion of the types of facilities that could qualify for signing. The number of facilities which could qualify in the Metro Area greatly exceeds the number of acceptable installation locations.

Only those minor generators with regional appeal due to their unique educational, cultural, historical, or recreational aspects will be eligible for signing in the Metro Area.

As defined by Mn/DOT's Metro Division, the following minor generators are ineligible for signing within the Minneapolis-St. Paul Metro Urban Limits:

- Arboretums
- City & County Parks
- Downtown or Business Districts
- Golf Courses open to the public
- High Schools
- Indoor Ice Arenas
- Industrial Parks
- Libraries
- Multi-Purpose Facilities
- Non-DNR Trail Accesses
- Public Access to lakes & rivers
- Public Office Buildings
- Recycling Centers
- Scientific & Natural Areas
- Ski Areas
- Solid Water Transfer Stations
- Wildlife Refuges & Management Areas

Inplace signing for ineligible minor traffic generators will be removed through normal attrition.

6-7.08.07 Application Form

See Form 6.C1 and 6.C2 for a copy of the Application form for Guide and Information Signs.



6-7.09 Reference Post System

Reference post markers shall be erected along any section of a trunk highway route to: (1) assist drivers in estimating their progress, (2) provide a means for identifying the location of emergency incidents, and (3) aid in highway maintenance. The zero reference point should begin at the south or west State line, and at the

south or west junctions where routes begin. When a reference post marker cannot be erected in its correct location, it may be moved up to 15 m (**50 feet**) in either direction. If it cannot be placed within 15 m (**50 feet**) of its correct location, it should be omitted.

Further information about the Reference Post System can be found in Chapter 13, Section 13- 4.09.

For the design and size of reference post markers refer to the MN MUTCD.



6-7.10 Trail Access Signing

Signing may be permitted for access points to major recreational trails having improved and well-maintained surfaces for hiking, biking, etc. All trails shall provide complete marking or trail maps for user guidance.

1. Operational Guidelines

- a. Shall provide parking at the site or within the immediate vicinity, surfaced and maintained year-round.
- b. Parking Spaces:
 - 1) Minimum of 40 vehicles at freeway signed sites
 - 2) Minimum of 20 vehicles at conventional highway sites. A smaller lot is acceptable at remote areas.
- c. Minimum trail length: 8 km (**5 miles**)
- d. Sign format:
 - 1) Freeway - the official trail name and the freeway exit number
 - 2) Non-Freeway - "ACCESS" plus the official trail name and a directional arrow
 - 3) Expressway - "ACCESS" plus the official trail name and the message "NEXT RIGHT"

The signs shall be fully reflectorized with a white legend and border on a brown background.
- e. All requests for signing to DNR provided public trails shall be approved by the DNR. Requests for signing to other trail access sites may be approved by Mn/DOT.
- f. Access sites shall be located no more than 16 km (**10 miles**) from the interchange or intersection.

g. Sign Locations:

- 1) Signing on freeways may be permitted from the closest or most direct point on the freeway, at the interchange with the local road leading to an access point.
- 2) Signing on conventional highways and expressways may be permitted from the closest or most direct point on the trunk highway, at the intersection/interchange with the local road leading to the trail access. Signing may also be permitted on other trunk highways intersecting with local roads that serve as logical, primary access routes for motorists approaching from other directions.
- h. The location and placement of all signing is dependent upon space availability. Signing shall not be permitted if spacing is unavailable or if relocation of in-place signs is not feasible.
- i. All signing costs shall be paid by the requester (public or private).
- j. In designing signs and selecting locations for sign installations, Mn/DOT retains the authority to specify the message content (including abbreviations), size of the sign, sign location, and the combination of messages in accordance with the standards for acceptable signing practice. Mn/DOT also retains the authority to deny requests for signing where acceptable standards cannot be met, including locations where other signs are already in place.
- k. Trailblazing signing on local roads is the responsibility of the facility and the local road authority. Trailblazing signing, if needed, shall be in place before signing is installed on the trunk highway. The color of trailblazing signs shall match that of the signing installed by Mn/DOT forces on the trunk highway.
- l. Signing on freeways shall only be permitted outside the Seven-County Minneapolis-St. Paul Metropolitan Area (Anoka, Carver, Dakota, Hennepin, Ramsey, Scott and Washington Counties).



6-7.11 Geological Marker Signs - Non-Freeway

The Geological Society of Minnesota (GSM), a non-profit corporation, has constructed and maintained geological markers throughout the state for many years.

The markers consist of descriptive bronze plaques, approximately 600 x 900 mm (24" x 36") mounted on stone work pedestals or walls. Many exist in Mn/DOT Rest Areas, Wayside Rests, Scenic Overlooks, and/or Wayside Historical Marker Sites. The markers detail the geological significance of the area near their location.

Mn/DOT-GSM cooperation occurred in the development of many sites located along trunk highways. Signing to these sites began in 1997, and will continue in accordance with the following guidelines.

1. Criteria

- a. Sites shall be approved by the GSM.
- b. Sites shall be located along trunk highways and easily accessible as part of a wayside development such as a wayside rest, scenic overlook, historical marker site, adjacent city parks, or similar sites.
- c. Sites within state parks shall not be signed.
- d. Sites shall not be signed along freeways.

2. Signing Method

- a. Sites having Geological Markers only
 - 1) Install advance sign D7-X1, "Geological Marker ½ Mile on Right (left)"
 - 2) Install sign D7-X2, "Geological Marker" with arrow at the entrance road or turnoff.
- b. Sites located in other facilities (as listed above)
 - 1) Install sign D5-X1C beneath the in-place advance sign.
 - 2) If there is no advance sign in place for the facility, install sign D5-X1C beneath the directional sign.
- c. Signs shall be fully reflectorized and have white legend on brown background.
- d. Sign fabrication, installation and maintenance costs will be paid by Mn/DOT.

6-8.00 APPLICATION GUIDELINES - MISCELLANEOUS SIGNS

6-8.01 Soil and Water Conservation District Signs

The policy concerning approval and placement of Soil and Water Conservation District signs is as follows:

1. The Soil and Water Conservation District shall complete and submit an Application for Permit (Mn/DOT Form 1723) to the appropriate area maintenance engineer for approval to install a sign in accordance with the following criteria and conditions:

- a. Sign shall be located on the top of the back slope just inside the right-of-way line. The sign cannot be placed on the shoulder slope or in the ditch bottom. The sign should be placed to obtain a minimum hazard location.
 - b. Signs shall be permitted only on non-freeway types of roadways.
 - c. Where the approved location is within the clear zone (Road Design Manual), the sign support shall be a break-away type.
 - d. The sign panel shall be the same design or equal to that available from the National Association of Conservation Districts.
 - e. The sign installation shall be maintained in good repair. If this requirement is not met, the applicant will be notified to remove the sign.
 - f. The sign cannot be placed at a location where it will interfere with the effectiveness of any traffic control device, or interfere in any way with the safe operation of motor vehicle traffic or the safety of pedestrians and non-motorized vehicles.
2. The Soil and Water Conservation Districts will be responsible for furnishing the signs and posts, and for installation at the designated locations.
 3. Since Soil and Water Conservation Districts are governmental subdivisions, no fee will be charged for the permit.

6-8.02 General Information Signs

The MN MUTCD, Section 2D-48, General Information Signs, briefly covers boundary signs. There is a need to provide certain boundary signs to give orientation and guidance to the motorist. Details on sign design for common boundary signs used on the trunk highway system are found in the Standard Signs Manual.



6-8.02.01 State Entrance ("WELCOME TO MINNESOTA") Signs and "Exit" Signs

The appropriate sign shall be installed at all Minnesota highway entrances as near as possible to the State line.

1. General
 - a. The Office of Environmental Services has installed large concrete signs on stone/concrete bases at major entrances to Minnesota. They also maintain several wooden signs, mounted on stone/wood marker assemblies, at several state

entrances. No other signs are to be installed at the above entrances.

- b. Sign locations should be verified with the district/division traffic office.

2. Sign Format

- a. Standard Sign No. I2-10 has been installed at all trunk highway entrances not covered by signing in (a) above. This sign utilizes a blue and gold reflectorized scenic background.

- b. In conjunction with the new state entry sign panel, a "Minnesota Exit" sign panel has been developed to view as motorists leave Minnesota.

This standard sign (I2-12) displays the legend "VISIT AGAIN" on a blue and gold reflectorized scenic background.

- c. Both sign designs utilize High Intensity sheeting and are 1650 x 1050 mm (66" x 42").



6-8.02.02 County Name Signs

The County Name Sign (I2-5) shall be installed at all county line boundaries on the trunk highway system. When the county line is also at a river or municipal boundary, the sign should include both entities.

County Land Use Zoning signs shall not be installed or retained on trunk highways, either individually or as part of a sign assembly. Zoning requirements are easily obtainable from local governments; therefore, such signing is unnecessary. Further, these signs do not serve to guide or orient the average motorist.



6-8.02.03 City Name Signs

1. General

City name signs installed on the trunk highway system shall conform to the standards found in the Standard Signs Manual.

City name signs should be installed only at communities identified on the Official Minnesota Highway Map and/or official county highway maps. There shall be recognizable business or residential dwellings indicating the existence of a community.

2. Operational Guidelines

Sign Number I2-3 should normally be installed at the actual corporate boundary, subject to the following guidelines:

- a. Metropolitan Areas (Seven County Minneapolis-St. Paul Metro Area and Duluth)

Install Sign I2-3 at or near the corporate limits on all trunk highways, including interstate highways.

- b. All other areas of Minnesota

Install Sign I2-3 at or near the corporate limits on all trunk highways, excluding interstate highways.

- c. On interstate highways, the following criteria apply:

- 1) If the corporate limits of a community are crossed by the interstate highway, and there is no interchange serving the community, install the sign on the interstate highway at the corporate limit crossings.
- 2) If the corporate limits of a community are crossed by the interstate highway, and an interchange directly serves the community and the community is not identified on either the major interchange guide signs or on a supplemental guide sign, install the sign on the interstate highway at the corporate limit crossings.
- 3) If the corporate limits of a community are crossed by the interstate highway, and an interchange directly serves the community and the community is identified on either the major interchange guide signs or on a supplemental guide sign, do not install the sign on the interstate highway.

Where proper city names have two words, it may be desirable to arrange the name on two lines rather than one, especially when the words are long. City names shall not be abbreviated.

All city name signs shall include the population figure. The figure used shall be that of the last official Federal or State census. Population figures are changed only after an official census. If a community decides it does not want the population included on this sign, Mn/DOT will cover this legend.

An exception to the above applies to unincorporated communities which warrant city name signs, but for which population counts are not available. The sign installed at these locations shall carry only the community name.



6-8.02.04 Community Recognition Signs (panels)

1. Introduction & Background

There has been a continuing series of requests by cities to attach supplemental sign panels to the City Name Markers sign. The Community Recognition Sign Program allows communities to express their own identity. Permitting the displaying of sign panels allows the community to pick what is locally important for installation on trunk highway rights-of-way.

2. Restrictions

Community Recognition Signs will not be allowed on Interstate freeways statewide, or on freeways and expressways in the seven-county Metro area (Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington counties).

3. General Guidelines

- a. Examples of sign panels that are permitted:

- 1) Non-profit service organizations
- 2) Special programs, either permanent or temporary; e.g. DARE, Tree City, etc.
- 3) City logo
- 4) City recognition slogans; e.g. State Baseball Champions
- 5) Drinking Water Protection Area sign panel

- b. The sign panels shall be initiated and coordinated by the community.

- c. Any combination of sign panels may be permitted, up to a total of 1800 mm (72") in length by 600 mm (24") in height. These panels may be installed horizontally either below the City Name Marker sign or, if preferred by the district/division, below an existing Star City sign panel if it is mounted on its own structure.

- d. The message on sign panels shall not simulate a traffic control device or contain directional sign messages or advertising for a commercial product or service.

- e. Political or commercial advertising will not be allowed on sign panels.

- f. The sign panel designs shall be approved by the district/division traffic engineer.

4. Costs

If more than two Community Recognition Sign panels are to be installed by the community on an existing sign structure, the community shall pay an up-front charge of \$200 to Mn/DOT for reimbursement of costs incurred by State forces to:

- a. raise the existing City Name Marker Sign panel or the Star City Sign panel as required to meet the 2.8 m (**9 foot**) clearance from the ground.
- b. modify the U-channel sign structure to include knee braces if necessary in order to meet breakaway and wind loading requirements.
- c. furnish and install a horizontal stringer for the mounting of Community Recognition Signs.

5. Sign Format

- a. The sign panel background, or the predominant color, may be any color except red or orange.
- b. The sign panels may be made of either reflective or non-reflective sheeting. If made of reflective sheeting, they shall be no more reflective than High Intensity Sheeting. Fluorescent materials shall not be used on sign panels.
- c. The sign base material shall be sheet aluminum or other material approved by Mn/DOT. See Minnesota Standard Specifications for Construction, 3352.2A1b.

6. Installation Guidelines

Community Recognition Sign Panels shall be fabricated, installed and maintained by the city under the Mn/DOT permit process.

- a. In order to accommodate more than two Community Recognition Sign panels, any NEWCity Name Marker Sign panels to be installed by Mn/DOT forces should be mounted with a 2.8 m (**9 foot**) clearance from the ground instead of the 2.2 m (**7 foot**) minimum clearance. See Figure 6.35, Layout 2.
- b. EXISTING City Name Marker Sign panels or Star City Sign panels (mounted on its own structure) shall be installed on the sign structure so that a minimum 2.2 m (**7 foot**) clearance is provided. See Figure 6.35, Layout 1.
- c. More than two Community Recognition Sign panels shall be installed on horizontal stringers (installed by Mn/DOT forces) by the community as shown in Figure 6.35, Sign Panel Attachment Detail.
- d. If less than three Community Recognition Sign panels are to be installed on an existing sign structure, they shall be installed by the community in accordance with the following:
 - 1) If only one Community Recognition Sign

panel is to be installed, it should be attached to the sign post farthest from the roadway.

- 2) If two Community Recognition Sign panels of the same size (up to 600 x 600 mm (**24" x 24"**)) are to be installed, they shall be centered horizontally on each existing sign post.
- 3) If two Community Recognition Sign panels of different heights are to be attached to the sign posts, and the existing sign structure is located on the inslope, the sign panels should be mounted as shown in Figure 6.35, Layout 2. The shortest sign panel shall be attached to the sign post nearest the roadway and the tallest sign panel attached to the other sign post. This will provide the maximum clearance from the ground line to each sign panel.
- 4) If two Community Recognition Sign Panels of different heights are to be attached to the sign posts, and the existing sign structure is located on the back slope, the shortest sign panel should be attached to the sign post farthest from the roadway.
- e. The attachment of Community Recognition Sign panels to horizontal stringers or sign posts shall be as shown in Figure 6.35, Sign Panel Attachment Detail.
- f. Mn/DOT Traffic Services employees should check any Community Recognition Sign panel(s) for proper attachment hardware. See Figures 6.3B or 6.35. If an improper mounting procedure or hardware has been used, Mn/DOT will reinstall the sign panels with the correct hardware.
- g. The replacement cycle (end of useful life) of the sign panels will be determined by each Mn/DOT district/division office.

6-8.02.05 Municipal Identification Entrance Signs

These signs shall be located outside of the clear zone, and shall be installed only through the Mn/DOT permit process.

Refer to Mn/DOT Maintenance Bulletin Number 97-2 (dated 9-16-97) or its latest revision for all applicable guidelines and provisions. This bulletin may be obtained from district/division maintenance and permit offices, or from the Office of Maintenance in Central Office.

6-8.03 Drainage Divide Signs

1. General

Distinct geographical features, such as the Continental Divide of the United States, are usually identified on major highways.

The Minnesota map displays "drainage area" divides. It shows the four major drainage divides for Hudson Bay, the Mississippi River, Lake Superior and the Missouri River crossing approximately 50 State Trunk Highways. Nine trunk highways are crossed at least twice by a drainage divide.

Drainage divides in Minnesota are not obvious to motorists and are not geographically distinct features, nor is their identification of interest, significance, or benefit to the majority of motorists.

2. Installation Guidelines:

- a. Drainage divides shall not be signed on any freeways or at interchanges on expressways.
- b. Drainage divide identification signs shall not be installed on conventional highways or at intersections on expressways, except within a rest area or wayside parking area established at the site to accommodate vehicles off the roadway.

Site viewing, explanatory signs, and trails as needed shall be located completely off the roadway and shoulder areas.

6-8.04 Watershed District Signs

1. General

Watershed districts are local units of government which exist to protect water resources. There are over 40 watershed districts throughout the state authorized by the Legislature in 1995.

The watershed districts are established at the request of citizens, counties or cities when water management problems escalate. The boundaries are widely variable and do not follow political boundaries.

Watershed districts in Minnesota are not obvious to motorists, nor is their identification of interest, significance, or benefit to the majority of motorists.

2. Installation Guidelines:

- a. Watershed districts shall not be signed on any freeways or at interchanges on expressways.
- b. Watershed district identification signs shall not be installed on conventional highways, or at intersections on expressways except within a rest area or wayside parking area established at a site to accommodate vehicles off the roadway.

Site viewing, explanatory signs, and trails as needed shall all be located completely off the roadway and shoulder areas.

- c. Existing signs at watershed district boundaries without roadside parking facilities shall be removed at the end of their sign life.
- d. Signing for watershed districts is to be paid for by the requester.



6-8.05 Adopt-a-Highway Signing

Mn/DOT began an Adopt-a-Highway program on the trunk highway system in 1990, as part of a statewide anti-litter effort. The program's objective is to reduce litter in Minnesota and, subsequently, retard the rate of annual increase in the State's highway-cleanup budget.

Volunteer groups throughout the state are encouraged to make a two-year commitment to clean up a 3 km (2 mile) stretch (minimum) of highway (both sides) at least three times a year. In return, roadside signs crediting the organizations will be installed at both ends of the "adopted" stretches of highway. The program is coordinated by Mn/DOT.

The district/division maintenance offices are in charge of coordination. After completion of a Mn/DOT Adopt-a-Highway Permit, approved and signed by the area maintenance engineer, each group that adopts a highway will have signs fabricated and erected by district/division maintenance forces. The signs will be fabricated and distributed out of the State Sign Shop in Oakdale.

Costs are paid by Mn/DOT.

The Adopt-A-Highway Committee revised the original Adopt-A-Highway sign configuration in 1998. The following guidelines apply when constructing or erecting an Adopt-A-Highway sign. Specific questions about the application of these guidelines should be directed to the Statewide Adopt-A-Highway Coordinator or the State Signing Engineer.

1. Sign Replacement Policy

Existing original design sign panels shall be replaced with a new sign panel through attrition (normal district/division sign replacement schedule).

2. Greater Minnesota and Metro Division sign differences

Signs to be used in non-metro districts shall be made of a single panel, 1500 x 900 mm (60" x 36"), (See Standard Sign Number I-X1 for sign panel design details). When the section of highway has not been adopted, the bottom half of the sign will read "This Section Available." When a highway section is adopted, the wording on the bottom half of the sign shall be overlaid with a 1500 x 450 mm (60" x 18") panel displaying the adopting group name and the phrase 'SINCE' followed by the year the adopting group began participating in this program. The 1500 x 450 mm

(60" x 18") panel is to be attached with bolts utilizing spacers to minimize damage to the reflective sheeting on the overlaid sign panel.

The Metro Division does not anticipate having any available sections and intends to use a two-panel sign, each 1500 x 450 mm (60" x 18") in size.

3. Litter Pickup

Urban freeways within the Metropolitan Twin City Area are eligible for litter pickup. This includes the I-494/I-694 ring and all freeways within that ring. The approved sign size for this usage is 1050 x 600 mm (42" x 24"). The sign shall be placed on the freeway entrance ramp, not on the mainline freeway.

4. Sign Guidelines

Sign panels shall be constructed of sheet aluminum. Fabrication methods are as follows:

- a. For the Metro Division, the top 1500 x 450 mm (60" x 18") sign panel to be fabricated with white High Intensity sheeting with the legend screened with blue ink; the bottom 1500 x 450 mm (60" x 18") sign panel to be fabricated with white High Intensity sheeting with the legend cut from blue EC film.
- b. For the non-Metro districts, the 1500 x 900 mm (60" x 36") sign panel to be fabricated with white High Intensity sheeting with the legend screened with blue ink. The 1500 x 450 mm (60" x 18") sign panel to be fabricated with white High Intensity sheeting with the legend cut from blue EC film or blue High Intensity sheeting.

Please see note number two (2) on the Adopt-A-Highway sign drawing (I-X1) for specific sign colors.

5. Displayed Group Names

All group names shall be limited to a maximum of eighteen (18) characters per line to maximize legibility. Each space between words and each type of punctuation takes up a character on a line. Group names longer than eighteen characters per line on existing signs shall be revised when their sign panels are replaced.

- a. One sign is to be installed in each direction at the beginning of the adopted highway segment.
- b. The minimum height shall be 2.2 m (7 foot) from the bottom of the sign panel to the ground (measured perpendicular from the ground line to the bottom of the sign). The maximum size is 4.45 kg/m (3 lb.) for all U-posts for the complete sign structure (including stub posts).

6. Ordering Signs

All single sign panel signs, 1500 x 900 mm (60" x 36"), and split sign panel signs, 1500 x 450 mm (60" x 18"), complete with legend can be ordered from the State Sign Shop in Oakdale. Legends cut from blue EC film may be ordered from OTE.

For those districts that intend to apply the blue legend (EC film or High Intensity Sheeting) to the bottom 1500 x 450 mm (60" x 18") sign panel fabricated with white High Intensity Sheeting, the cut legend may be obtained from the State Sign Shop in Oakdale or from OTE.

7. Agreement Form

The Adopt-A-Highway committee revised the original agreements between the adopting groups and the Minnesota Department of Transportation. See Figures 6.D1 and 6.D2 for a copy of the new agreement form.

6-8.05.01 Reference Post Marker Combined with Adopt-A-Highway Sign on the same Structure

For ease of reference, and termini location for litter pickup, many districts have installed the Adopt-A-Highway signs either adjacent to, or in close proximity to, reference post markers on rural section of freeways and expressways.

Rather than two separate sign structures close together, both the sign and marker may be combined on one sign structure.

1. General Guidelines

- a. The Adopt-A-Highway sign panel is the primary sign panel on the sign structure.
- b. At the correct Engineering station for the reference post marker, install a 3.71 kg/m (2-1/2 lb.) or 4.45 kg/m (3 lb.) U-post structure to provide an offset of 3.7 m (12 feet) from the edge of the shoulder to the left edge of the Adopt-A-Highway sign panel. Install the sign structure in accordance with Figures 6.3A, 6.3B, 6.3C and 6.3D and Charts 6-2, 6-3, and 6-4.
- c. Attach the Adopt-A-Highway sign panel to the sign structure as shown in Figure 6.3A and meeting the following minimum clearances (or see Figure 6.3):
 - 1) a minimum clearance of 1.9 m (6 feet) from the surface of the nearest traffic lane to the bottom of the sign panel, and
 - 2) a minimum clearance of 2.2 m (7 feet) measured perpendicularly from the ground line to the bottom of the sign panel.

- d. Attach the reference post marker to the left vertical post, directly below the Adopt-A-Highway sign panel with mounting hardware shown in Figure 6.3B.

6-8.05.02 Adopt-A-Rest Area Signing

Rest areas/wayside rests (Class II and Class III Rest Areas) may be adopted by groups for the purpose of litter pickup, similar to adopting a portion of highway. These rest areas typically are located off the interstate highway system. Rest areas which are maintained by the Green View organization may not be adopted under the Adopt-A-Rest Area guidelines.

1. General Guidelines

A sign has been developed to state "ADOPT A REST AREA". One sign, 1050 x 600 mm (42" x 24") may be installed along the exit ramp or road into the rest area or in the rest area at a site determined by the Site Development staff.

All other pertinent guidelines of the Adopt-A-Highway program shall apply to the Adopt-A-Rest Area program.

2. Agreement Form

See Forms 6-E1 and 6-E2 for a copy of the agreement form.

6-8.06 Township Boundary Identification Policy and Land Use Zoning Signs

Township Land Use Zoning signs or Township boundary signs shall not be installed or retained on trunk highways, either individually or as part of a sign assembly. Since zoning requirements are easily obtainable from local governments, such signing is unnecessary. Further, these signs do not serve to guide or orient the average motorist. Similarly, township boundary signs do not have sufficient orientation value to warrant installation on the trunk highway system. (There are approximately 1500 townships in Minnesota.)

6-8.07 Weigh Station Signing

The Mn/DOT signing practice for weigh stations conforms to the guidelines established in the MN MUTCD, Part II - Guide Signs--Conventional Roads, Section 2D-44 - Weigh Station Signing. The OTE Signing Unit should be contacted for current weigh station signing guidelines before existing signs are replaced.

6-8.08 Extraneous Sign Attachments to Traffic Signs on the Trunk Highway System

6-8.08.01 Authorized Sign Attachments

1. Horizontal Panels (Batten Boards)

a. General

The purpose of attention getting devices, in the form of flags and/or orange horizontal panels, is to advise motorists of a new sign, an altered traffic control condition or similar situation where an eye-catching device is desirable to alert the repeat driver of the change. The flags are normally mounted above a new or altered traffic sign. Horizontal panels are always mounted above a new or altered traffic sign.

Horizontal panels as attention getting devices on signs are recommended only for usage on a limited basis, based on a site by site evaluation. Overuse of this type of attention getting device could easily lead to proliferation statewide which may decrease the effectiveness of this device.

Limiting the use of these types of devices is also based on the following:

- 1) FHWA MUTCD Ruling Number II-59 on Temporary Attention Getting Devices. The effective date of the ruling was February 9, 1983.

As cited in this ruling, the MUTCD provides a satisfactory means, including the use of flags, for attention getting devices.

- 2) Revised Part VI of the MN MUTCD does not mention the use of horizontal panels as attention getting devices for construction or maintenance operations.

b. Design

Other types of attention getting devices, such as flags (cloth, metal or plastic), may be used on a temporary or permanent basis. Metal or plastic flags shall be fabricated using fluorescent orange diamond grade reflective sheeting.

All horizontal panels shall be fabricated using fluorescent orange diamond grade sheeting.

The size of horizontal panels shall be based on a height to width ratio of 1 to 3. The width shall not exceed that of the sign it is being placed above. For diamond shaped warning signs, the height to width ratio is based upon the dimension measured along one side of the sign.

c. Permanent Use

Horizontal panels may be installed above any regulatory sign, except not above STOP or YIELD signs. The use of horizontal panels, on a permanent basis, should only be considered if other methods (such as sign enlargement, additional median mounted signs, etc.) have been attempted without positive results. Any one of the following criteria may justify their use:

- 1) The location has an unusually high rate of violations when compared with other similar types of locations within the district/division.
- 2) The location has an extreme sight distance limitation where the sign is not visible or legible for a sufficient distance.
- 3) Other geometric or engineering factors which may indicate that some specific existing sign(s) needs additional motorist' attention.

If a horizontal panel is installed on a permanent basis, the device should be evaluated periodically by district/division forces. When the device is worn out or due for replacement, the district/division should re-evaluate the need prior to installing a new horizontal panel as an attention getting device.

Any horizontal panel may be retained until the end of its useful life or when it is no longer needed.

d. Temporary Use

Horizontal panels may be installed above any warning or regulatory sign, but not above STOP or YIELD signs. It is recommended they be installed for a period of approximately three months. However, at those locations where they need to be retained longer, they should be removed within one year of original installation.

Any one of the following criteria may justify the use of horizontal batten boards:

- 1) The location has a change in traffic control.
- 2) The location has a change in permanent signing.
- 3) It is determined that additional attention to a situation is required for a period of time, not to exceed one year.

Each district/division maintain a separate log or inventory listing the location and date of installation for all horizontal panels. This will help in reviewing and making decisions relative to the condition, effectiveness, and removal of horizontal panels.

2. Non-Metal Flags

The temporary use of non-metal flags is permitted as stated in the MN MUTCD. Non-metal flags may be used for up to three months and should then be removed.

6-8.08.02 *Un-authorized Sign Attachments*

From time to time municipalities attach certain unauthorized sign panels, (e.g. Green River Ordinance Enforced, Radar Patrolled, etc.) beneath the City Name Sign on approaches to the municipality.

These attachments, dealing with regulatory and enforcement issues, are not appropriate. The only attachments to signs on the trunk highway system are those allowed under Section 6-8.03.04, Community Recognition Signs.

Extraneous and unauthorized sign panels should be removed and no such attachments permitted on any signs on the trunk highway system.

6-8.09 **Vehicle Mounted Signs**6-8.09.01 *Vehicle Makes Frequent Stops Signs*

A special sign panel with the message "VEHICLE MAKES FREQUENT STOPS" may be attached to the back of any Mn/DOT vehicle which, by nature of the work, must make frequent stops. The sign is to be used at the discretion of the work unit and not intended to be a required sign. This sign panel may be used for all Mn/DOT situations, although it may be of use to other road authorities as well.

The sign is to be 1500 x 600 mm (60" x 24") with black legend on fluorescent orange diamond-grade reflective sheeting background.

Any other temporary signs conveying this type of message shall be replaced with the new sign panel design through normal attrition.

6-8.10 **Seat Belt Signs**

Seat belt signs conforming to MN MUTCD standards shall be installed on all trunk highways near the state entrance point. The purpose of these signs is to alert motorists entering Minnesota to the State's law regarding seat belt usage and promote safety for the traveling public.

Two new signs have been designed to replace the existing signs as follows:



1. Sign No. R16-X11

This sign is 1800 x 900 mm (72" x 36") in size with a black legend and border on white background. It shall be used at all state border entrances on the trunk highway system and at entrances from airports.



2. Sign No. R16-X12

This sign has a black legend and border on a white background.

The 900 x 900 mm (36" x 36") size sign may be installed at entrances from weigh stations and rest areas.

The 450 x 450 mm (18" x 18") size sign may be installed at entrances from parking lots and park and ride lots.

The sign designs incorporate the federal seat belt symbol. New Sign No. R16-X11 incorporates the same message and is the same size as old Sign No. R16-X11 which was used at trunk highway state entrance locations.

3. The Physical Research Section will work with the district/division traffic and materials engineers to determine which test sections should be signed. This will involve compiling a listing of the current sites and test section signs and determining which test sections should remain and be retained and signed under a uniform signing format.

4. Test sections shall be identified by one of the following methods:

- a. The preferred method is paint, reflectorized tape or some other device embedded in the pavement at the outside edge of the shoulder (if paved) or the edge of the roadway.
- b. Signs or markers located at the edge of the right of way line. If this method is used, a sign panel should identify the number of the test section. The sign panel shall have black, 51 mm (2-inch) high numbers and border on a white non-reflectorized background. It shall be attached to a lightweight 2.97 kg/m (2 lb.) U-post or plastic delineator post and positioned so the sign panel faces the roadway.

5. All test section signing installations should be coordinated by the district/division traffic offices.

6. All inplace test section signs should be removed at the end of their useful life, with the exception of SHRP signing which should be retained as long as the program is still operating.

If a test section is to be retained when signs are due to be removed, the test section, with the exception of SHRP signing, should be identified by one of the methods specified in Item 4 above.

6-8.11 Test Section Signing

Test sections have been developed and monitored by the Office of Materials and Road Research and by district/division maintenance forces. Test sections should be signed in accordance with the following guidelines.

1. Each test section shall have an identifying number.
2. The Office of Materials and Road Research is developing a computerized tracking system. It is intended that all test sections statewide will be incorporated into this tracking system. Any printout should contain the test section number, trunk highway, reference point, test section limits and a brief description of the purpose of the test section.

The list of valid and new test sections should be updated at least once a year by the Physical Research Section. A copy of this list should be forwarded to the State Signing Engineer.