# CHAPTER 6 - TRAFFIC SIGNS AND DELINEATION

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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 regulating, warning, and guiding 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 trunk highways.

Since the basic principles of signing are set forth in the MN MUTCD and must be adhered to, engineers, technicians, and maintenance personnel responsible for the design, placement, operation, maintenance, and uniformity 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. Not all situations can be addressed; therefore, the applications 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 MnDOT Standard Signs and Markings Manual, and the MnDOT Standard Specifications for Construction. Individuals responsible for designing and fabricating signs should have access to and be familiar with these reference materials. Technical support on the design of guide signs is available from the MnDOT Office of Traffic Engineering (OTE).

6-1.03 Chapter Organization
This chapter is organized into nine major sections. These sections cover (6-3) legal authority for placing traffic signs and (6-4) general principles of traffic signing, as well as application guidelines for (6-5) regulatory signs, (6-6) warning signs, (6-7) guide signs, (6-8) miscellaneous signs, (6-9) object markings, (6-10) delineation, and (Appendix A) supplemental guide signs. Preferred signing practice for construction and maintenance work zone traffic control is found in Chapter 8 of this manual.
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.

Attrition
The process of evaluating existing traffic control devices and removing and/or replacing devices that no longer meet standards through scheduled construction or routine maintenance activities.

Breakaway Supports
Supports designed to yield when struck by an errant vehicle, thereby minimizing injury to occupants of the vehicle and damage to the vehicle itself. Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, published by the American Association of State Highway and Transportation Officials, indicates acceptable performance standards and dynamic test conditions.

Business Panel
A separately attached sign panel that shows, either individually or in combination, the brand, symbol, trademark, or logo of the business service.

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

Conventional Road – Single Lane
A two-lane, two-way trunk highway.

Conventional Road – Multilane
An undivided highway with more than one lane in each direction of travel and having a posted speed equal to or less than 60 mph or a divided highway with more than one lane in each direction of travel and having a posted speed equal to or less than 55 mph.

Direct Applied
Adhesive-backed pressure sensitive retroreflective sheeting.

Expressway
A high speed, multilane, divided highway which is generally an arterial road with a posted speed greater than 55 mph. Most intersections are at-grade, although grade separated interchanges may exist.

Extruded Section
An aluminum channel substrate 6 inches or 12 inches in height.

Freeway
A divided highway with full control of access.

Intersection
(a) The area embraced within the prolongation or connection of the lateral curb lines or, if none, then the lateral boundary lines of the roadways of two highways which join one another at, or approximately at, right angles or the area within which vehicles traveling upon different highways joining at any other angle may come in conflict.
(b) Where a highway includes two roadways 30 feet or more apart, then every crossing of each roadway of such divided highway by an intersecting highway shall be regarded as a separate intersection. In the event such intersecting highway also includes two roadways 30 feet or more apart, then every crossing of two roadways of such highways shall be regarded as a separate intersection. Minn. Stat. Sec. 169.011, Subd. 36.

Iso-tacs
Lines of equal wind velocity given in various mean recurrence intervals.
Knee Brace
A flanged channel sign post attached diagonally to a riser post or a lateral brace to increase stability of the sign structure.

Local Road
Any road that is not a trunk highway.

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 and expressways)
These signs consist of advance guide signing, exit directional signs, exit gore signs, destination, and distance signs.

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

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
Retroreflective or non-retroreflective sheeting material applied to the sign substrate.

Specific Service
Restaurants; rural agricultural or tourist-oriented businesses; places of worship; gasoline service stations and other retail motor fuel businesses; and motels, resorts, or recreational camping areas that provide sleeping accommodations for the traveling public. Minn. Stat. Sec. 160.292, Subd. 21.

Specific Service Sign
A rectangular sign panel displaying the name or optional business panel, or both, of a rural agricultural or tourist-oriented business, place of worship, motel, restaurant, resort, recreational camping area, or gasoline service station or other retail motor fuel business and, where appropriate, the direction to and distance to the rural agricultural or tourist-oriented business, place of worship, recreational camping area, motel, restaurant, resort, or gasoline service station or other retail motor fuel business. Minn. Stat. Sec. 160.292, Subd. 22.

Tourist-Oriented Business
(a) “Tourist-oriented business” means a business, service, or activity that receives the major portion of its income or visitors during the normal business season from motorists not residing in the immediate area of the business or activity.

(b) “Tourist-oriented business” includes, but is not limited to (1) a greenhouse or nursery, (2) a bait and tackle shop, (3) a marina, and (4) a gift or antique shop. Minn. Stat. Sec. 160.292, Subd. 25.

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 one inch intervals on all four sides along the entire length of the tube.

Stringer
A lateral structural member 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. Exit numbers are included on freeway signs.

Trunk Highway
Any highway or segment of highway, including the interstates, under the jurisdiction of the State of Minnesota.

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.

Wind Loading
The pressure of the wind on the horizontal and vertical supports of a structure are given in Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, published by the American Association of State Highway and Transportation Officials.
6-3.00 LEGALITY - LEGAL AUTHORITY FOR PLACEMENT OF TRAFFIC SIGNS

6-3.01 Traffic Signs Installed by MnDOT Maintenance Forces

Minnesota Statute (Minn. Stat. Sec.) 169.06, Subd.2, provides that the Commissioner of Transportation (Commissioner) shall place and maintain traffic signs conforming to the MN MUTCD and the MnDOT Standard Specifications for Construction as deemed necessary to regulate, warn, or guide traffic on the Minnesota trunk highway system. MnDOT District Traffic Offices and maintenance forces act as agents of the Commissioner in this duty. Additional statutes may also be applicable.

6-3.02 Traffic Signs Installed by Contract

Under the provisions of Minn. Stat. Sec. 161.32, Subd.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 Minn. Stat. Sec. 169.06 Subd.2, the Commissioner may authorize others to install approved traffic signs by maintenance permit (MnDOT Form 1723). All signs shall conform to the permit. District Traffic Engineers should approve all sign installations and ensure that all applicable standards and practices are followed (Traffic Engineering Manual, MN MUTCD, MnDOT Standard Specifications for Construction, statutes, etc.

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

The MN MUTCD Part 6, Temporary Traffic Control, 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 6.

6-4.00 GENERAL PRINCIPLES OF TRAFFIC SIGNING

6-4.01 Principles of Traffic Control Devices

As stated in the MN MUTCD Section 1A.2, 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 from 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 Transportation and Traffic Engineering Handbook (published by the Institute of Transportation Engineers), five basic considerations are employed to ensure that the above basic requirements are met. These considerations are:

1. Design: the combination of physical features such as size, color, and shape needed to command attention and convey a clear message.
2. Placement: the installation of devices should be within the viewer’s cone of vision, so that 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. Care should be taken when placing signs near intersections so that they do not restrict intersection sight distance.

3. Operation: the application of devices so that they meet traffic requirements in a uniform and consistent manner. Devices should fulfill a need, command respect, and allow time for proper response.

4. Maintenance: the upkeep of devices to retain legibility and visibility, the removal of devices if not needed, and 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.

6.03 Functional Classifications of Traffic Signs

The MN MUTCD, Section 2A.5, 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 geographical, recreational, or cultural sites.

   Further, guide signs for expressways and freeways have two sub classifications:

   a. Primary guide signs consist of advance junction signing, exit directional signs, exit gore signs, destination, and distance signs.

   b. Supplemental guide signs further provide the driver geographic orientation and secondary destinations at certain interchanges. Destinations include cities, motorist services, or state parks. Exit numbers are included on freeway signs.
6-4.04 Department Classification by Sign Design Type

While the previous sign classifications describe general functions, MnDOT has further classified signs by design type.

**Type A**

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 (I-Beams).

1. Support system - poured concrete footings or driven structural steel H-piles to support breakaway wide-flange steel posts.

2. Sign panel - bolted extruded aluminum sections covered with sheet aluminum and direct applied retroreflective legend. The sign panel is attached with post clips to wide flange steel posts.

**Type C**

Type C signs are primarily regulatory, warning, route marker assemblies as found in the MnDOT Standard Signs and Markings Manual. They are the most common sign type and are typically installed on driven U posts or driven square tube posts or attached to signal mast arms and poles.

1. Support system - ground mounted signs are spliced or single U-posts driven into subsoil, attached to a bridge railing utilizing O-posts, or banded to traffic signal pedestals or mast arm poles. Unsupported length and sign panel area determines the number of U-posts and need for stringers and/or knee bracing.

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

3. Light Poles - Manufacturers have indicated that signs should not be placed on any breakaway light pole. Installation of signs on breakaway light poles is strongly discouraged but in some cases may be necessary only after standard installation methods are explored and rejected. Using the following criteria, signs may be placed on poles that are installed on a steel 6 bolt median foundation: 40 foot mounting height poles can have a sign with a maximum of 12 sq ft at 7 feet up from the roadway; 49 foot mounting height poles may have a sign with a maximum of 6 sq ft at a 7 feet up from the roadway.
Type D
Type D signs are the smaller guide, destination, or informational signs. They are supported on driven U posts or mounted on overhead structures (traffic signal arms, sign supports, bridges, etc) with punching and stringer spacing as indicated in the MnDOT Standard Signs and Markings Manual.

1. Support system - same as Type C signs but generally supporting greater sign panel area. They may be affixed to a bridge railing, traffic signal mast arm, etc.

2. Sign panel - same as for Type C signs but splice plates may be required as specified in the MnDOT Standard Signs and Markings Manual.

Type OH
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 types of Type OH sign support systems: (1) sign supports which include no walkway or sign lighting, (2) trusses which may or may not include walkway and sign lighting, and (3) bridge-mounted structures which may or may not include walkway and sign lighting.

Type OH signs are necessary where ground-mounted signs are not deemed effective. Applications include, but are not limited to the following:

- Freeway and expressway signing (distance, advance guide, and exit signs) where space is not available for ground mounted signs or where there are three or more lanes of travel.
- Guide and/or lane use control signing approaching intersections in urban areas.
- Approach warning sign/flasher for mid-block pedestrian crosswalks.
- Locations with restricted sight distance (may be coupled with other factors cited).
- Exit ramp or roundabout guide and/or lane use control signing where overhead signing for proper lane assignment is necessary and cannot be accomplished by ground mounted 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 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.
Overhead signs can generally be mounted to bridges with less than a 30 degree angle of skew (10 degree angle for changeable message signs). The overhead sign panel or changeable message sign should be mounted at right angles to the direction of, and facing, the traffic that they are intended to serve. Each situation is unique and the District Traffic Office should contact the Bridge Design Office for consultation. It is not recommended to mount overhead signs to pedestrian bridges; especially the truss supported or prefabricated pedestrian bridges. Except for clearance signs and other Type D signs, overhead signs shall not be mounted to railroad bridges. Remove existing overhead signs mounted to railroad bridges through attrition.

2. Sign panels

   a. Sign support - sheet aluminum with direct applied retroreflective legend. The sign panel is bolted to a sign bracket assembly.

   b. Truss type and bridge mounted - bolted extruded aluminum sections covered with sheet aluminum and direct applied retroreflective legend. The sign panel is attached with post clips to the panel mounting posts.
Type EA and Type EO
Type EA and Type EO signs are extruded sign panels attached with U-posts or S4x7.7 panel mounting posts above Type A or Type OH sign panels, respectively. These panels are used to designate exit numbers.

Traffic Signal Mast Arm Signs
These signs are designed specifically to be mounted on traffic signal mast arms. Signs are limited in size due to wind loading factors considered in the design of these structures.

Guide signs mounted on mast arms are supplemental to those mounted on the ground with the same message and therefore should be limited in use. The number of signs, size, and location of the signs on the mast arm will impact the wind loading. Before placement of signs on mast arms, a wind load analysis is required. For more information on wind load analysis contact the OTE Signals Unit.

Figure 6.23A through 6.23F show example mast arm signing and placement.

Changeable Message Signs (CMS)
Changeable Message Signs (CMS) may be used to inform the road user of special conditions about advisory situations, traffic congestion, or safety messages as determined by the District Traffic Engineer.

6-4.05 Elements of Traffic Sign Design
Elements of sign design include shape, color, size, legend, border, retroreflective properties, illumination, and uniformity. These elements are discussed in the MN MUTCD, Part 2; however, some permitted alternatives are as follows.

If there is more than one sign panel on an overhead sign structure and the sheeting is being replaced on one sign panel, the sheeting should be replaced on all of the sign panels.

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, legends, and borders are specified in the MN MUTCD. For standard signs, see the MnDOT Standard Signs and Markings Manual.
All ground mounted warning signs and their supplemental plaques on MnDOT trunk highways shall be fluorescent yellow. All warning signs and their supplemental plaques associated with pedestrians, bicyclists, playgrounds, and schools shall be fluorescent yellow green. The SCHOOL plaque is also included.

Additionally, the IN-STREET and OVERHEAD PEDESTRIAN CROSSING (R1-6 series and R1-9 series) signs and the SCHOOL SPEED LIMIT (S5-1) sign shall have fluorescent yellow-green retroreflective sheeting for only the warning color parts of the sign as shown in the MnDOT Standard Signs and Markings Manual.

6-4.05.03 Size

The sign dimensions are specified in the MN MUTCD and MnDOT Standard Signs and Markings 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 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 Legend

MnDOT’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 road users should be accompanied by an educational plaque which is to remain in place for at least three years after initial installation.

It is MnDOT guideline to use upper/lower case lettering on all guide signs with proper name destinations.

The SignCAD program is currently used by MnDOT staff in designing guide signs. Contact OTE 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 guide sign design guidelines.

6-4.05.05 Retroreflective Sheeting Policy

Retroreflective sheeting requirements for construction, maintenance, utility, and incident management operations can be found in Chapter 8 of this manual.

All MnDOT permanent signs, markers and delineators shall use Type XI sheeting except as otherwise specified in the MnDOT Specifications for Construction (e.g. X4-13 cylinder style delineators use Type IV sheeting).

6-4.05.06 Sign Lighting

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 should conduct a field review to determine if it is necessary to light overhead signs. 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, MnDOT benefits by reducing 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 judgment based on various factors including, but not limited to:
a. At least 650 foot legibility distance.
b. At least 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. Regulatory and diagrammatic signs.

Sign lighting shall be provided for all sign panels if one sign panel on a sign structure requires lighting. The details of sign lighting are discussed in Chapter 10 of this manual.

6-4.06 Lateral Offset and Vertical Clearance Requirements

6-4.06.01 Type A Signs


The typical placement for Exit signs (E5-1 and E5-1a), Merge signs (W4-1), and Added Lane sign (W4-3) is also shown on [http://www.dot.state.mn.us/trafficeng/signing/doc/placementstd.pdf](http://www.dot.state.mn.us/trafficeng/signing/doc/placementstd.pdf).

6-4.06.02 Type C and Type D Signs

See Figure 6.1 for normal lateral offsets and vertical clearances.

6-4.06.03 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 normally 7.5 feet from the edge of shoulder or the face of curb to the center of the post. Post locations and guardrail requirements will be in accordance with the current edition of the [Road Design Manual](http://www.dot.state.mn.us/trafficeng/signing/doc/placementstd.pdf).

2. The minimum vertical clearance over the high point of the roadway or mountable curb shall be 17.33 feet. See [Technical Memorandum No. 11-16-B-07](http://www.dot.state.mn.us/trafficeng/signing/doc/placementstd.pdf) for additional information regarding MnDOT Vertical Clearance Standards for New Bridges and for projects where the pavement is to be constructed under existing bridges.
6-4.07 Sign Installation and Maintenance Practices

6-4.07.01 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 inplace public service utilities. In addition, care should be taken when working around traffic control devices and communication installations such as signal system cables, signal interconnection conduit systems, surveillance cables, roadway lighting electric cables, and traffic counting cables.

Minn. Stat. Chap. 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/web notification system which was established as a result of Minnesota law to inform all Minnesota underground facility operators of intended excavation. See their web page for hours of operation and to submit an electronic ticket. Gopher State One Call is available for emergency calls 24 hours a day, seven days a week. 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  (651) 454-0002
In or Out State-Toll Free  (800) 252-1166
WEBSITE: http://www.gopherstateonecall.org/

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.

It is not always feasible to erect signs separately in urban areas where mounting space is limited and visibility problems occur. In such cases, a sign of major importance may be placed 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 for the proper response. 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 to avoid reliance strictly on minimum distances unless absolutely necessary. As a rule of thumb for guide signs, every one inch of capital letter text height is equivalent to 30 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 highways see Figures 6.24A, 6.24B, 6.25, and 6.26.

Urban Areas - In urban areas with speed limits of 35 mph or less, the minimum distance between signs is 100 feet. For 40 mph or greater, this distance is 150 feet.

Freeways - Although conditions may exist where lesser sign spacing will be found necessary, freeway guide signs should be spaced at least 800 feet apart. A spacing of at least 400 feet should be provided between guide signs and all other types of signs on freeways.
Double Signing - If sign spacing approaches the minimum distance, double signing (right and left shoulder) may be utilized. 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 tilt the sign forward or back from the vertical to improve the viewing angle.

5. Wind Loading

AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals (current edition), governs the design of all permanent signing installations 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 should be designed for a 50-year mean occurrence interval, which results in 90 mph wind speeds for Minnesota.

6. A-Frame and U-Post mountings

MnDOT uses 3 lb/ft stub posts with 2.5 lb/ft posts for the remainder of the structure. Assuming an average distance of 10 feet from the bottom of the sign panel to the ground line, the correct sign structure design and post spacing should be determined by using Chart 6.2 and Chart 6.3.

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 inches), determine the correct number of vertical U-Posts (riser posts) and knee braces from Chart 6.2. After determining the correct number of riser posts to be used for the sign structure, refer to http://www.dot.state.mn.us/trafficeng/signing/doc/canddsignground.pdf and the punch codes in the MnDOT Standard Signs and Markings 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 6.3 to determine riser post (center to center) spacing.

In lieu of using two riser posts (in accordance with Chart 6.2) for a sign panel, one riser post may be used for any of the following conditions:

a. Rocky soils where holes are drilled 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 three or more riser posts, the posts and knee braces shall be spaced at least 45 inches on centers.

Sign structures using U-posts shall be assembled according to the details shown in http://www.dot.state.mn.us/trafficeng/signing/doc/canddsignground.pdf. These details were designed based on crash tests conducted at Texas Transportation Institute in 1988 and 1989.
6-4.07.02 Sign Maintenance Practice

1. Traffic sign management system

Each District is charged with developing and maintaining a sign inventory in accordance with the statewide sign management system. A comprehensive record of all signs is vital to sound sign management and budgeting.

2. Missing or damaged signs

Unless otherwise stated in this manual, agreement, or other document, MnDOT is responsible for replacing 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 should develop a procedure for dealing with reports of damaged or missing signs to assure the prompt replacement of critical signs.

3. Sign Replacement Schedule

Each District is charged with implementing recurring sign maintenance. A sign replacement schedule should be developed using the following guidelines:

- Minimum Expected Sign Life: 15 years
- Maximum Expected Sign Life:
  - Type IV Sheeting: 20 years
  - Type IX or XI Sheeting: 30 years

A sign can remain in service until its maximum expected sign life if a visual inspection indicates that the sign meets minimum retroreflectivity levels, including contrast. The visual inspection should be used at the following sign ages:

- Type IV Sheeting: 15 and 18 years
- Type IX or XI Sheeting: 15, 18, and 20 years, and yearly thereafter

Non-prismatic sheeting should be inventoried and evaluated for action.

Each District should develop a method or process for completing the visual inspection and appropriate documentation. Visual inspection should consist of nighttime and/or daytime reviews. As a sign ages, the nighttime inspection becomes increasingly important. The visual inspection should also consider structural integrity, contrast, vegetation or other visibility issues, and/or engineering issues. The FHWA provides guidance that may be incorporated into the nighttime inspection.

Engineering judgment may be used to replace signs with specific characteristics outside of the above guidelines (such as color, type, facing direction, mandates, etc.) through blanket replacement.

6-4.08 Implementation of Signing

Each District decides whether signs should be installed by maintenance personnel or by contract. The following reasons usually justify 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 forces.
4. Safety reasons.
5. Extensive need for refurbishment.

Installation of signs by maintenance personnel is generally authorized by a District Traffic Work Order (DTWO).
6-4.08.01 Work Programming

Each District decides to program any work to be done by contract.

6-4.08.02 Preliminary Design

1. Work authorization
   The District requests a charge identifier.

2. Preliminary plan
   The District prepares a preliminary signing plan for new roadway construction. The preliminary plan should be transmitted to the OTE Signing Unit for review and comment. The District shall also transmit a copy of the plan to any involved municipalities.

6-4.08.03 Detailed Design

Standard detail sheets for signing plans can be found on the OTE website: [http://www.dot.state.mn.us/trafficeng/signing/plans.html](http://www.dot.state.mn.us/trafficeng/signing/plans.html). Plan format and sequence of details is as follows:

1. Title sheet.
2. Statement of Estimated Quantities.
4. Sign tabulation sheets giving pertinent information for each sign.
5. Traffic barrier data sheets.
7. Sign panel drawings for all non-standard signs.
10. Electrical details.
11. Cross sections for Type A and Type OH signs

6-4.08.04 Signing Special Provisions (DIV ST)

DIV ST templates for signing plan special provisions can be found on the OTE website: [http://www.dot.state.mn.us/trafficeng/signing/plans.html](http://www.dot.state.mn.us/trafficeng/signing/plans.html).

The District or OTE, if requested, 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. OTE may provide technical assistance.

6-4.08.05 Cost Estimating

If requested, OTE will provide guidance on preliminary cost estimates based on average bid prices.
6-4.08.06 Construction Activities

1. Inspection
   Generally, all materials designated for use on state projects are subject to requirements covered by MnDOT Standard Specifications for Construction, the plan, and the special provisions included in the contract proposal.

2. Technical assistance
   OTE provides technical assistance to District personnel when requested.

3. Placement of signs
   Type OH and Type A signs are located at plan stationing unless field conditions require relocation. Dimensioned elevation drawings of each sign and roadway cross section are included in the plan.
   The importance of the positioning of overhead sign panels cannot be overemphasized. Project personnel shall notify the District Traffic Engineer if panel placement cannot be 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 up to 100 feet without generally affecting the sign system requirements.

4. Project critique
   Prior to job acceptance, the District 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.

6-5.00 APPLICATION GUIDELINES-REGULATORY SIGNS

6-5.01 Purpose

Regulatory sign applications that are discussed in this section are those which:

1. Are not specifically addressed in the MN MUTCD.

2. Provide additional guidance to that given in the MN MUTCD on application, location, and usage of certain types of regulatory signs.

3. Establish procedures relating to engineering and traffic investigation requirements for certain regulatory signs.

6-5.02 Typical Sign Placement

The MN MUTCD Section 2B, illustrates typical positions for a number of regulatory signs. Figures later in this chapter supplement the MN MUTCD in showing typical positions for regulatory signs at various intersections and interchanges on MnDOT trunk highways.

Appropriate signing for private and low volume entrances is the responsibility of each District. 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 driveway
   Stop signs and/or other signing should not normally be installed. If installed, maintenance will be performed by MnDOT.

2. Low volume entrance
a. If the entrance serves a single business, stop signs and/or other signing should not be installed unless engineering judgment determines signing is warranted. If warranted, signing is installed by the District or the business itself through permit in accordance with State standards. Maintenance will be performed by MnDOT.

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, is installed by the District or the business itself through permit in accordance with State standards. Maintenance will be performed by MnDOT.

2) Signing at an entrance to a proposed new development, if warranted, is installed by the developer in accordance with state standards. Maintenance will be performed by MnDOT.

3. High volume entrance

Stop signs are required at each entrance. 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.

a. Signing at an entrance for an existing high volume business is installed by the District or the business itself through permit in accordance with State standards. Maintenance will be performed by MnDOT.

b. Signing at an entrance to a proposed new high volume business is installed by the developer in accordance with state standards. Maintenance will be performed by MnDOT.

6-5.03 Bridge Load Restrictions

Posting requirements for bridges on trunk highways are determined by MnDOT’s Office of Bridges and Structures.

1. Bridge Weight Limit Signs (R12-1a, R12-5a)

Additional Information on load posting is stated in the LRFD (Load and Resistance Factor Design) Bridge Design Manual, Section 15.13. Use and application of the R12-1a sign is stated in the MN MUTCD Section 2B.59.1.

The R12-5a sign may be used when only the single unit truck (SHV) needs posting. When a bridge load rating is controlled by SHVs, the typical posting sign (R12-5) creates a problem with unregulated permit timber trucks from the “Timber Haulers Bill”. The timber trucks with loads greater than 40 tons are associated with the two combinations vehicles, represented by the M 3S2 and M 3S3 posting sign figures. Our current MnDOT posting guidelines require that if the SHV governs the load rating and requires posting, then M 3S2 and M 3S3 will automatically be set at 40 tons maximum. This means that timber trucks are not allowed to cross the bridge, even though the bridge load rating may be greater than allowable timber truck loads. With the new single unit posting sign (R12-5a), this will give the bridge owner an option to just post the bridge for the single unit truck.

Bridge Weight Limit signs shall be installed either on or immediately in advance of the bridge or structure that is restricted. On state highways, the posting notification is sent by memo from the State Bridge Engineer to the District Engineer. The District office must inform the Bridge Management Unit when the posting signs are in place. When a bridge load rating is completed and indicates a bridge is to be posted, the posting signs must be erected within 30 days after notification of their requirement. If there are significant changes in the bridge condition or in the posted weight, temporary signs should be erected in the interim.
2. BRIDGE WEIGHT LIMIT Supplement Sign (R12-5 Supplement)

Use and application of this sign is stated in the MN MUTCD Section 2B.59.1. The BRIDGE WEIGHT LIMIT supplement sign shall be installed well in advance of bridges or structures that are restricted. Signs should be placed at the nearest intersecting road or wide point in the road at which a vehicle can detour or turn around.

3. WEIGHT RESTRICTION AHEAD Sign (W14-X3)

The WEIGHT RESTRICTION AHEAD sign should be installed in advance of bridge weight limit signs.
6-5.04 Bus Shoulder Sign (R4-X7)

According to Minn. Stat. Sec. 169.306, USE OF SHOULDERS BY BUSES, authorized buses are allowed to drive on designated shoulders on freeways and expressways in the Metro District. Typical signs and locations are shown in Figure 6.15.

The SHOULDER AUTHORIZED BUSES ONLY (R4-X7) sign shall be used to designate shoulders for bus use. The BEGIN/END (R4-X7p) plaque shall be used at the beginning and end of each section.

Where the shoulder width is less than 10 feet (11.5 feet on bridges) for a distance less than 1000 feet, the merge sign for buses (W14-X10) should be installed at the beginning of this restricted width. In locations where there is insufficient shoulder width for 1000 feet or greater, the END and BEGIN plaques should be used with the SHOULDER AUTHORIZED BUSES ONLY sign.

6-5.05 BYPASS LANE Sign (R4-X8) and BYPASS AND TURN LANE Sign (R4-X8a)

See Figure 6.16 for the typical signing of bypass lanes.

Sign bypass lanes in accordance with the following guidelines:

1. T-intersections - the 30” x 30” BYPASS LANE sign shall be installed adjacent to the bypass lane taper area.

2. Four-legged intersections - the 30” x 36” BYPASS AND TURN LANE sign shall be installed adjacent to the bypass/turn lane taper area. Use this sign in areas where right turning traffic may be present, including but not limited to roadways, high volume entrances, low volume entrances, driveways, and farm or field entrances.

6-5.06 DO NOT PASS Sign (R4-1)

MnDOT policy is to use the NO PASSING ZONE (W14-3) pennant sign (48” x 64” x 64”). This does not preclude use of the DO NOT PASS sign where it is deemed necessary based on engineering judgment.

6-5.07 Flashing LED STOP and YIELD Signs

Light Emitting Diode (LED) units may be used individually within the legend of a sign and/or in the border of a sign to improve the conspicuity or to increase the legibility of sign legends and borders. Flashing LED STOP and YIELD signs should only be considered for installation in situations necessitating enhanced visibility of the sign. When usage is limited to special circumstances, flashing LED STOP and YIELD signs may be effective safety countermeasures.

This guidance supplements the retroreflectivity and illumination information found in the MN MUTCD, Section 2A.7. It is intended for use in permanent installations of LED STOP and YIELD signs that flash continuously, but not for actuated systems.

Appropriate Usage

Flashing LED STOP and YIELD signs should only be considered for installation in situations necessitating enhanced visibility of the sign as determined by engineering study. These signs should be limited to locations with at least two of the following:

- Limited visibility on approach to the intersection, as determined by the sight distance criteria for Warrant 1 in Section 9-4.02.02 of this manual.
- A history of crashes documented to be caused by a failure to stop and deemed preventable by implementation of conspicuity improvements.
- At a rural junction of two or more high speed trunk highways to warn drivers of an unexpected crossing of another highway.
• At a rural junction of a trunk highway and a local road which has no STOP controlled intersection within five miles.

Prior to selecting a flashing LED STOP or YIELD sign, several of the following conspicuity improvement alternatives should be implemented at the intersection:

• Install a STOP AHEAD (W3-1) or YIELD AHEAD (W3-2) sign on approach to the intersection, appropriate to the intersection control.
• Increase the size of a standard STOP or YIELD sign.
• Install a second STOP or YIELD sign of equal or lesser size on the left-hand side of the roadway.
• Add one or more red or orange flags (cloth or retroreflective sheeting) above a standard STOP or YIELD sign, with the flags oriented so as to be at 45 degrees to the vertical.
• Add a strip of retroreflective material to the sign support in compliance with the provisions of MN MUTCD Section 2A.21.
• Install pavement marking messages appropriate to intersection control, such as STOP and/or STOP AHEAD, YIELD and/or YIELD AHEAD.
• Install in-lane rumble strips on approach to the intersection according to Chapter 4-4.02 of the MnDOT Road Design Manual.
• Add a stop beacon to a STOP sign according to Section 9-4.02.02 of this manual and Section 4L.5 of the MN MUTCD. The stop beacon alternative is not required prior to installing a flashing LED STOP sign. Stop beacons shall not be installed in combination with flashing LED STOP signs.

If a flashing LED STOP or YIELD sign is installed on a single lane approach, the LED sign shall be installed on the right side of the roadway and a second static STOP or YIELD sign may be mounted on the left side of the roadway. If the approach is a multilane approach and an engineering study determines that the installation of flashing LED STOP or YIELD signs on both the right and left side of the roadway is warranted, then the flashing LED signs shall flash simultaneously.

Device Characteristics
LEDs shall be red for STOP and YIELD signs.

Operation
The uniformity of the sign design shall be maintained without any decrease in visibility, legibility, or driver comprehension during either daytime or nighttime conditions.

Installation, Maintenance, and Replacement
Flashing LED STOP and YIELD signs installed by local agencies at intersections of local roads with trunk highways:

• Shall be installed via permit obtained from the District Office.
• Shall have all costs related to installation and maintenance be incurred by the permitted agency.
• May be subject to field reviews conducted by MnDOT at any time in order to verify proper installation, maintenance, and operation of the traffic control device.

In the event that a flashing LED STOP or YIELD sign is knocked down or otherwise rendered inoperable due to damage:

• The damaged sign shall be replaced immediately. Replace the damaged STOP or YIELD sign immediately with a temporary or permanent sign. A temporary non-LED STOP or YIELD sign may include an attached flashing beacon for enhanced conspicuity. The temporary sign shall remain on-site until a permanent sign is installed.
• Replacement flashing LED STOP or YIELD signs shall be installed at the expense of the permitted agency which requested the original flashing LED STOP or YIELD sign. The permitted agency shall reimburse MnDOT for the repair or replacement of any signs, permanent or temporary, LED or non-LED, related to inaction or slow response by the permitted agency.
• A permanent replacement STOP or YIELD sign may be a regular, non-LED sign if the maintaining agency wishes not to continue operation of a flashing LED STOP or YIELD sign at that location. This decision should be documented by the permitted agency, and sent to the District Traffic Office within one week of replacing the damaged sign. Discontinued operation of a flashing LED STOP or YIELD sign leading to replacement with a regular, non-LED STOP or YIELD sign for any reason other than damage should require that the District Traffic Office be notified 30 days prior to replacement. This decision should be documented by the permitted agency, and sent to the District Traffic Office at the time of notification.

6-5.08 In-Street Pedestrian Crossing signs (R1-6 series)

In-Street Pedestrian Crossing signs (R1-6 series) may be used to remind road users of the state law that requires the driver of a vehicle to stop and yield the right-of-way to a pedestrian crossing the roadway within a marked or unmarked crosswalk. With exception of installation at roundabouts, guidelines for installation of In-Street Pedestrian Crossing signs on state highways are as follows:

a. The sign shall be installed only by permit through MnDOT District offices.

b. The sign shall only be used in 35 mph or lower speed zones.

c. Only one sign structure shall be used per approach near marked crosswalks.

d. The sign shall not be used at intersections controlled by traffic control signals or on approaches controlled by STOP signs.

e. The sign should only be used at key locations, such as high volume pedestrian crosswalks, to avoid overuse.

f. The sign shall only be used as an in-street sign, not on the outside shoulder or parking lane. When installed, the sign shall not impede or obstruct any traffic movement including through or turning movements.

g. When the sign is used at or in advance of a school crossing to supplement ground mounted school warning signs, the sign should include the SCHOOL plaque.

h. The sign shall have the same sign message on both sides or a retroreflective strip mounted on the backside the same color as the centerline or lane line. To avoid driver confusion, back-to-back signs should only be used on two-lane two-way roadways. See the MN MUTCD Figure 2B-2.

i. The sign may be used seasonally to prevent damage in winter due to plowing operations, and may be removed at night if pedestrian activity is minimal.

6-5.09 Intersection Stop Control

The MUTCD does not address methodology for revising traffic control at an intersection, such as the following:

- Reduction of Stop Signs
- Increase in Stop Signs
- Reversal of Through Route
- Change from Yield to Stop
- Change from Stop to Yield

These types of changes to traffic control require careful consideration of potential safety impacts. When making these changes in stop control conditions, consider the following list. This list is not all-inclusive, but a starting point to help the traffic engineer. All of the following listed below are optional using engineering judgment.
Consider:

- Coordinating with your district PAC to discuss the best way to notify the traveling public of the upcoming changes.
- Notifying law enforcement (city, county, state) of the changes.
- Deploying enhanced conspicuity strategies for a period of time determined by the engineer. See MN MUTCD 2A.15.
- Installing advanced warning signs, either temporarily or permanently.
  - STOP AHEAD (W3-1)
  - TRAFFIC CONTROL CHANGE AHEAD (W3-X5)
  - CROSS TRAFFIC DOES NOT STOP (W4-4P)
  - NEW TRAFFIC PATTERN AHEAD (W23-2)
  - NEW (W16-15P)
  - NOTICE (W16-18P)
- Installing either temporary or permanent transverse rumble strips.
- Adding or removing pavement markings as appropriate.
  - Stop Bar
  - Stop Message(s)
  - No Passing Zones

6-5.10 Lane Designations

Under Minn. Stat. Sec. 169.18, Subd. 7(c), MnDOT may erect signs on Trunk Highways (or authorize the erection of such signs on local highways) directing traffic to use specific lanes. Special lanes may be designated when certain vehicles (for example, trucks) cannot maintain the speed required to keep the speed differential within 15-20 mph and there is adequate space available. TRUCKS USE RIGHT LANE (R4-5) may be installed according to MN MUTCD Section 2B. In addition, special bus and HOV lanes, known as restricted lanes, are designated on certain freeway mainline and entrance ramps.

6-5.11 Passing Lane Sections

See Figures 6.21A, and 6.21B for typical passing lane section signing.

6-5.11.01 Advance Passing Lane Sign (R4-X6)

The Advance Passing Lane sign should be used 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 1/2 mile upstream and additional advance signs are desirable 2-5 miles in advance of a passing section.

6-5.11.02 SLOWER TRAFFIC KEEP RIGHT Sign (R4-3)

The SLOWER TRAFFIC KEEP RIGHT sign should be placed at the beginning of the lane addition.

6-5.12 RIGHT LANE MUST TURN RIGHT Sign (R3-7) and LEFT LANE MUST TURN LEFT Sign (R3-7)

RIGHT/LEFT TURN LANE signs shall be removed through attrition unless otherwise noted. If any one RIGHT/LEFT TURN sign requires replacement before the end of its useful life, replace all turn lane signs at the intersection or on the exit ramp with the appropriate R3-7 signs or Advanced Lane Control signs.
Sign turn lanes in accordance with the following guidelines:

1. Conventional Roads
   All turn lanes should be signed unless the turn lane(s) is(are) included on an Advanced Intersection Lane Control (R3-8) sign(s). Signs may be omitted in urban areas.

2. Interchange exit ramps
   a. All turn lanes should be signed unless the turn lane(s) is(are) included on an Advanced Intersection Lane Control (R3-8) sign(s).
   b. See Figures 6.17A and 6.17B for typical Advanced Intersection Lane Control signs on ramps.

3. Expressways
   Sign all turn lanes based on the District sign replacement cycle. Adjoining Districts should coordinate installing RIGHT/LEFT TURN LANE MUST TURN RIGHT/LEFT signs within the same time frame on those highways that cross District boundaries.

6-5.13 SLOWER TRAFFIC MOVE RIGHT Sign (R4-3a)

The SLOWER TRAFFIC MOVE RIGHT signs advise slower motorists to move into the right or slower lane on interstate roadways throughout the state.

These signs were installed to educate motorists of Minn. Stat. Sec. 169.18, Subd. 1 which states that vehicles should be driven on the right unless:

1. Passing another vehicle.
2. The right lane is closed to traffic during road construction or repair.
3. On three-lane or one-way roads.

Signs were installed in the year 2000 in coordination with the Minnesota State Legislature and State Patrol. In greater Minnesota, signs were installed at 50 mile intervals and in the Metro District locations were selected based on engineering judgment. Notify the State Signing Engineer before removing a SLOWER TRAFFIC MOVE RIGHT (R3-4a) sign.

6-5.14 Speed Zone Signing

Minn. Stat. Sec. 169.14 establishes statutory speed limits on most typical roadways under ideal conditions. All other speed limits are set by the DOT Commissioner based upon an engineering and traffic investigation. Speed zone signs should be installed in the most advantageous locations to promote driver compliance. Speed zone signs should be installed according to the following criteria.

6-5.14.01 Speed Limit Sign (R2-1)

A Speed Limit sign shall be installed at the terminal points of each speed zone.

The first Speed Limit sign in a lower speed zone should be one size larger than the size designated for that type of roadway except freeways.

In addition to sign locations required by the standard in MN MUTCD 2B.13, signs should be posted beyond intersections with major traffic generators. Installation of signs in urban areas may be more frequent due to numerous access points while rural areas may be less frequent when the character of the roadway remains consistent.
6-5.14.02 Minimum Speed Limit Sign (R2-4b)

1. General

The Minimum Speed Limit sign shall be used on all freeways designated as interstates. 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.

Signs should be installed downstream of all entrance ramps. If sign spacing criteria cannot be met due to high sign density in urban areas, the Minimum 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.

2. Rural interstates

On rural interstates located outside the limits of urbanized areas (population greater than 50,000 as defined by the Commissioner) the R2-4b Minimum Speed Limit sign shall be used. The speed limit shall be 70 mph. The spacing between signs should not exceed ten miles. Signs should be installed downstream of all entrance ramps.

3. Urban interstates

On urban interstates the R2-4b Minimum Speed Limit sign shall be used. A Speed Limit (R2-1) sign may be used if a traffic investigation determines that a minimum speed limit is not required.

6-5.14.03 Dynamic Speed Display Signs

Dynamic Speed Display (DSD) signs may be installed on trunk highways at key locations such as speed transitions, school zones or on a temporary basis for maintenance and construction work zones or enhanced speed enforcement. For temporary DSD signs see Chapter 8-6.02.05

1. Location and Mounting

   a. The DSD signs shall be mounted above, below or beside the regulatory speed limit sign. If the DSD is installed to supplement an advisory speed, it should be mounted beside the warning/advisory speed combination sign.

   b. Signs mounted beside each other shall be mounted at the same height. Standard mounting heights shall comply with the MN MUTCD.

   c. DSD sign installations shall comply with all MN MUTCD crashworthy requirements.

2. Device Characteristics

   a. All portions (the static sign and the changeable message portion) of the sign shall be compliant with the Mn MUTCD.

   b. The legend shall read “YOUR SPEED” as a static sign message centered on the sign.

   c. Legend and background colors of this static sign shall match the regulatory or advisory speed sign it is paired with. The changeable portion of the DSD sign shall have a black background with an amber (yellow) illuminated legend.

   d. The changeable message portion of the sign shall display the approaching vehicle as “XX” in MPH. The following standards apply to the changeable message portion of the sign:

      i) The DSD shall flash at drivers traveling over the posted speed limit.

      ii) The flash rate should be between 50 and 60 cycles per minute.
iii) Threshold speed settings should be set at 10 mph over the posted speed limit for roadways with speeds limits under 45 mph, and 20 mph over the posted speed limit for roadways with speed limits over 45 mph or greater.

iv) For speeds measured over the speed threshold setting, the DSD sign shall go blank.

v) The DSD sign shall be blank when no vehicles are present.

e. For more product specifications, see MnDOT’s Approved Products List website.

3. Usage

a. DSD signs installed in permanent speed zones should operate 24 hours a day 7 days a week.

b. DSD signs installed on temporary speed zones should operate for the time period that the speed zone is in effect (e.g. school zones)

c. DSD signs installed by local agencies on Trunk Highways
   i) The DSD sign shall be installed by permit only through MNDOT District Offices and. All costs related to installation shall be paid by the requesting agency.
   ii) The usage of DSD signs is limited to one DSD sign used per approach of speed transition zones such as at city limits, school zones, or other large speed reduction transitions.
   iii) A request to relocate a sign shall be approved by MnDOT. The cost to relocate the sign shall be paid by the requesting agency.

6-5.15 TRUCK ROUTE (R14-1)

Based on Minn. Stat. Sec. 169.87, Subd. 1e, when a local authority petitions MnDOT to establish a truck route for travel into, through, or out of the territory under its jurisdiction, MnDOT shall investigate the matter. If the request is approved, MnDOT may designate certain highways under MnDOT’s jurisdiction as “truck routes” and may restrict truck travel to those routes when signs are erected. However, except under conditions stated in Minn. Stat. Sec. 169.87, MnDOT is not authorized to prohibit truck travel on trunk highways.

The designation of a truck route is based on the design of the roadway, the type and mass of trucks using the facility, load carried, and the weather conditions. Signs may be installed in accordance with MN MUTCD Section 2B.61.

6-5.16 TRUCK STOPPING LANE (R4-X4) at Railroad Crossings

See Figure 6.47 for typical sign placement approaching railroad crossings with truck stopping lanes. Install the TRUCK STOPPING LANE sign adjacent to the truck stopping lane taper area.

6-5.17 Two-Way Snowmobile Trail Signing

Signing of MnDOT permitted two-way snowmobile trails within trunk highway right-of-way is the responsibility of the Department of Natural Resources. Sign two-way snowmobile trails within the trunk highway right of way in accordance with the following:

1. Install 18” x 24” sign panels with black legend and border on orange background.

2. Install BEGIN and END plaques (18” x 6”) in black legend and border on white background above the two-way sign panel, designating the beginning and end of the two-way trail.

3. A 3” x 3” piece of yellow retroreflective sheeting shall be attached in the lower left corner on the back of the sign panel.
4. The sign post shall be on the FHWA approved listing of breakaway posts to support the sign panel at a mounting height of five feet.

5. The sign shall be installed on the right side of the trail.

6. All sheeting material shall be a minimum of ASTM Type III prismatic retroreflective sheeting.

6-5.18 VEHICLE NOISE LAWS ENFORCED Sign (R16-X13)

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 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.

MnDOT has developed the following guidelines for use of the VEHICLE NOISE LAWS ENFORCED sign to assist local law enforcement agencies in enforcing Minn. Stat. Sec. 169.69 MUFFLER and Minn. Stat. Sec. 169.693 MOTOR VEHICLE NOISE LIMITS.

General Criteria
1. Signing may be permitted on conventional highways and on segments of expressways without interchanges. Signing will not be permitted on freeways.

2. Only one sign shall be allowed per approach to a community. Signs shall not be installed for isolated driveways in rural areas.

3. The sign shall be installed on an independent structure and should measure 36” x 42” in size.
   
   NOTE: There shall be adequate spacing for each sign as determined by the District Traffic Engineer.

4. The request for installation of a sign(s) shall be made through the community.

5. It is the responsibility of the local law enforcement agency to enforce the sign(s).

6. The District Traffic Engineer may require that the community pass a resolution stating that it will enforce Minn. Stat. Sec. 169.69 (MUFFLER) and Minn. Stat. Sec. 169.693 (MOTOR VEHICLE NOISE LIMITS) prior to installing the sign(s).

Fabrication and Installation Guidelines
The District Traffic Engineer determines which of the following installation methods are used to install vehicle noise law signs:

1. The requesting community may fabricate and install the sign(s) with their own forces or under contract. A permit from MnDOT shall be required for placement of signs on trunk highway right-of-way. The location of the sign shall be approved by the District Traffic Engineer.

   The sign panel shall be fabricated with sheet aluminum and retroreflective sheeting in accordance with MnDOT standards.

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

   All future maintenance of signs (knockdown, replacement, etc.) shall be the responsibility of the community.

2. MnDOT forces may fabricate and install the sign(s). The requesting community shall pay all fabrication and installation costs prior to the start of the work.

   All future maintenance of signs will be performed by MnDOT forces at the expense of the community.
6-6.00 APPLICATION GUIDELINES - WARNING SIGNS

6-6.01 Purpose

Warning sign applications that are discussed in this section are those which:

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

6-6.02 Acceleration Lane Signing (W6-X1, W6-X2, and W20-X3)

The **MERGE w/Arrow** sign (W20-X3) sign may be used at the beginning of the taper for the following situations:

1. The **MN MUTCD** Section 2C.42, states “Lane ends signs should not be installed in advance of the downstream end of an acceleration lane.” Many acceleration lanes exist on the MnDOT highway system. Such situations may include escape lanes on freeways and right or left acceleration lanes on two lane conventional roads or expressways.

2. Where two lanes are carried through a roundabout or signalized intersection and the right/left lane ends within a short distance after the intersection. In these situations there is not enough physical space on the roadway to install advance lane ends signs but a sign is needed to mark the merge point. Acceleration lanes at rural unsignalized intersections should be signed in accordance with Figure 6.18.

6-6.03 Advance Warning Signs on Local Road Approaches (W2-6a, W3-1, W3-2, and W3-3)

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

The advance warning signs on local road approaches include, but are not limited to, the following:

**Roundabout Ahead** (W2-6a), **Stop Ahead** (W3-1), **Yield Ahead** (W3-2), and **Signal Ahead** (W3-3).

1. Although MnDOT maintains STOP and YIELD signs on local roads intersecting the trunk highway, maintenance of the advance warning signs on all local road approaches to trunk highway intersections is the responsibility of the road authority.

2. At new intersections, or at intersections where traffic control is revised by MnDOT, MnDOT will investigate the need for advance warning signs on the local road approaches, furnish and install the appropriate sign, and notify in writing the road authority(s) of the sign installations. Maintenance of the advance warning signs will be the responsibility of the road authority.
6-6.04 Advisory Exit and Ramp Speed Signs (W13-2, W13-3) and Combination Horizontal Alignment/Advisory Exit and Ramp Speed Signs (W13-6, W13-7)

The Advisory Exit and Ramp signs shall be installed in accordance with MN MUTCD Table 2C-5. When used, the advisory speed posted on these signs should follow the established engineering practice for determining advisory speeds as discussed under Advisory Speed Plaques, 6-6.05 Advisory Speed Plaque (W13-1P) of this Chapter and Chapter 14 of this manual.

6-6.05 Advisory Speed Plaque (W13-1P)

The Advisory Speed Plaque shall be installed below horizontal curve warning signs in accordance with MN MUTCD Table 2C-5. If horizontal curve warning signs are installed on curves which have a speed differential of 5 mph or greater then the Advisory Speed Plaque shall be installed below the horizontal curve warning sign.

Advisory speeds will be determined by the established engineering practice using a ball bank indicator using the following criteria (Chart 6.5):

1. 16 degrees of ball-bank for speeds of 20 mph or less.
2. 14 degrees of ball-bank for speeds of 25 to 30 mph.
3. 12 degrees of ball-bank for speeds of 35 mph and higher.

More information on Advisory Curve Speed Studies is shown in Chapter 14 of this manual. An example form for taking field ball banking measurements is shown in Form 6.2 of this Chapter.

On a new roadway or alignment when the established engineering practice of using a ball bank indicator is not possible, the District Traffic office should work with the designer to determine advisory speed based on the curve design speed. The signing plans should include the required warning signs based on this information. After construction is completed, it is recommended that a field review be performed based on the above established engineering practice for determining the advisory speeds and changes made to installed warning signs as necessary.

6-6.06 BRIDGE ICES BEFORE ROAD Sign (W8-13)

On state maintained roadways, the state is not liable for losses caused by snow or ice on roadways unless the state affirmatively creates the condition on the roadways.

Minn. Stat. Sec. 3.736, Subd 3(d) provides immunity for “a(ny) loss caused by snow or ice on any highway or other public place, except when the condition is affirmatively caused by the negligent acts of a state employee.”

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.

6-6.07 Channelized Intersections

Figures 6.19A and 6.19B indicate the signing required for channelized intersections.
6-6.08 Chevron Alignment Sign (W1-8)

The **MN MUTCD** provides Standards and Guidance regarding the use of the Chevron Alignment sign (W1-8). MN MUTCD Table 2C-5, states that the use of Chevrons and/or One Direction Large Arrow (W1-6) signs should be used on curves when the difference between the speed limit and advisory speed is 10 mph, but shall be used when this difference is 15 mph or greater. Generally, these signs are used for curves of over six degrees (a curve radius less than 900 feet).

The use of Chevrons on curves is preferred over the use of the One Direction Large Arrow. The exception is on conventional roadways when the speed of the turn/curve is 30 mph or less or there is a visual trap. Chevrons or delineators may supplement the One Direction Large Arrow if needed. A visual trap exists when a crest vertical curve is present before the beginning of the horizontal curve, or when a minor road, tree line, or line of utility poles continues on a tangent. In these situations the One Direction Large Arrow is used to help get the focus off of the visual trap.

![Photo showing a Visual Trap](image)

The **MN MUTCD** guidance states, “Chevron Alignment signs should be visible for a sufficient distance to provide the road user with adequate time to react to the change in alignment.” MnDOT further clarifies this statement with the following:

When used on conventional roadways, expressways, and freeway mainline curves, chevrons should be installed from the beginning to the end of the curve. When used on exit loops, a minimum of 5 chevrons should be installed. Fewer signs are necessary on exit loops because road users expect that a loop ramp will continue to curve until it joins a new roadway. When used on exit ramps, use engineering judgment on the number and placement of chevrons required per **MN MUTCD** Table 2C-5. If chevrons are not required per MN MUTCD Table 2C-5, guide delineators may be used on the outside of the curve based on engineering judgment.

Chevrons shall be installed at a minimum height of five feet for flanged channel (U channel) sign structures measured vertically from the bottom of the sign panel to the elevation of the near edge of the traveled way. For other sign structures, a minimum mounting height of four feet from the bottom of the sign panel to the elevation of the near edge of the traveled way is allowed. Whenever practical, efforts should be made to place back to back chevrons on one structure rather than having a set of structures for each direction.

When installation of the chevrons cannot meet requirements (such as field conditions do not allow for installation of chevrons on a median barrier) then an engineering study shall be used to determine the appropriate traffic devices to emphasize the curve.

The formula for calculating the degree of curvature from the radius is $D = 5729.578 / \text{Radius}$. 

6-6.09 Non-Vehicular and Vehicular Traffic Warning Signs

Non-Vehicular and Vehicular Traffic Warning signs should only be used at locations where the condition, crossing activity, or shared use of the roadway is unexpected or where a sight restriction or other geometric constraint exists.

If used, Non-Vehicular or Vehicular Traffic Warning signs placed in advance of a crossing should be placed in accordance with the MN MUTCD Table 2C-4 or Chart 6.4 of this chapter.

If a crossing is to be signed, whether or not there are crosswalk markings, advance NON-VEHICULAR or VEHICULAR CROSSING signs should be installed.

6-6.09.01 Non-Vehicular Signs

Guidance for evaluating the installation of pedestrian crosswalks can be found in Chapter 13 of this manual.

Specific information for the installation of STOP HERE FOR PEDESTRIANS signs (R1-5 series) is in the MN MUTCD Section 2B.

1. Pedestrian Crossing Signs (W11-2)

   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 crossings.

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

   See Figure 6.20 for typical placement of a Pedestrian Crossing sign (W11-2) at an intersection. In urban areas, the distance for the advance crossing sign may be less where lateral clearance is limited or where inadequate sign spacing exists.

2. Snowmobile Crossing Sign (W11-6)

   In addition to the criteria for installing Vehicular Traffic Warning signs, engineering judgment may be used to install signs for crossings based on unique trail geometric conditions, such as deep ditches, steep inslopes, narrow shoulders, or at locations where Minn. Stat. Sec. 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.

   If an established crossing meeting the guidelines for signing remains in the same location for several years, the District may consider installing warning signs with diagonal down arrows at the crossing.

   Snowmobile crossing signs should NOT be removed in the spring and reinstalled in the fall due to variations in the length of the snowmobiling season from year to year.

   Do not sign all crossings since many Grant-in-Aid trail crossings move annually (some by as little as 100 feet).

   If a snowmobile trail crossing is a multi-use trail and the criteria for sign installation are met, TRAIL CROSSING signs shall be used instead of Snowmobile Crossing signs.

3. Deer Crossing Sign (W11-3)

   Data has shown that installing static deer warning signs has not been effective in reducing deer/vehicle crashes. As such, MnDOT policy is to no longer install static Deer Crossing signs. Remove deer crossing signs through attrition.
6-6.09.02 Vehicular Traffic Warning Signs

Sight restriction determination
MnDOT provides the following clarification and guidance in determining the justification of installing Vehicular Traffic Warning Signs.

In order to determine whether or not a sight restriction exists for a crossing that cannot be relocated, a simple procedure is frequently used. This procedure is based on the standard height-of-eye of 3.5 feet and a standard traffic cone height of 28 inches. The visibility distance used in this procedure should be obtained from the AASHTO Policy on Geometric Design of Highways and Streets using either Exhibit 3-1, Stopping Sight Distance on Level Roadways, or Exhibit 3-2, Stopping Sight Distance on Grades. See Chart 6.7 for Exhibits.

Procedure:
Temporarily place the traffic cone at the passenger pickup or drop-off site. Using a vehicle or measuring device where the operator is using the correct height-of-eye, move to the visibility distance, as determined above, in advance of the cone. If the cone is not completely visible, then the site will need to have the appropriate crossing sign installed. The sign placement should be based on the values in Table 2C-4, Advance Placement Distance, of the MN MUTCD or Chart 6.4.

6-6.09.03 TRAIL CROSSING Sign (W11-15a)

A TRAIL CROSSING sign should only be installed for officially designated trails which cross the highway. To determine if the visibility distance is adequate, use the sight restriction determination procedure stated above.

6-6.09.04 Down Arrow Plaque (W16-7mP)

If a NON-VEHICULAR or VEHICULAR traffic sign is placed at a crossing, the supplemental DOWN ARROW plaque shall be installed below the crossing sign whether or not there are crosswalk markings at the crossing.

6-6.10 Low Clearance Sign (W12-2)

According to Minn. Stat. Sec. 169.81, Subd. 1, no vehicle loaded or unloaded shall exceed 13 feet 6 inches in height except double-deck buses with written authority from the Commissioner of Transportation. Per Minn. Stat. Sec. 169.801, implements of husbandry (farm equipment) are exempted from size, weight, and load provisions, but the operator must ensure that the operation does not damage a highway structure. In accordance with the MN MUTCD, Section 2C, the LOW CLEARANCE sign shall be installed to warn drivers that the clearance is less than the statutory maximum vehicle height of 13 feet, 6 inches clearance allowed plus one foot or 14 feet, 6 inches.

All structures with a clearance less than 14 feet 6 inches shall be signed. To allow for frost action, a reduction of 3 inches shall be reflected in the signing. For example, a clearance measurement of 14 feet, 3 inches will be signed as 14 feet, 0 inches.

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

6-6.11 No Passing Zones

6-6.11.01 NO PASSING ZONE Sign (W14-3)

It is MnDOT’s practice to use the NO PASSING ZONE (W14-3) pennant signs. This does not preclude use of the DO NOT PASS sign where it is deemed necessary based on engineering judgment. NO PASSING ZONE pennant signs used on conventional highways shall be 64” x 64” x 48”.

The purpose of this larger size on conventional highways is to provide added visibility of the sign for motorists.
6-6.11.02 Terminal Marker Posts

A yellow post may be used to mark each terminal end of a No Passing Zone. A yellow 360 degree visibility enhancer (or equivalent) should be mounted on the top of each marker post.

A 3 1/2" x 2" sticker stating "MnDOT NO PASSING ZONE TERMINAL MARKER" may be installed near the top of each visibility enhancer so that the sticker is visible from the roadway. The stickers are available from MnDOT’s State Sign Shop in Oakdale.

6-6.12 Passing Lane Sections

Signs should be placed in advance of the lane drop transition area as shown on Figures 6.21A and 6.21B. See Section 6-5.11 Passing Lane Sections for guidance on regulatory signs for passing lane sections.

6-6.13 SCHOOL BUS STOP AHEAD Sign (S3-1)

The MnMUTCD Part 7 - Traffic Controls for School Areas, Section 7B.13, requires the installation of School Bus Stop Ahead signs where a school bus, when stopped to pick-up or drop-off passengers, is not visible for an adequate distance and where there is no opportunity to relocate the school bus stop to provide adequate sight distance. MnDOT provides the following clarification and guidance in determining the justification of installing these signs in rural areas.

In order to determine whether a pick-up or drop-off location meets the required visibility distance, a simple procedure is frequently used. This procedure is based on the standard height-of-eye of 3.5 feet and a standard traffic cone height of 28 inches. The visibility distance used in this procedure should be obtained from the AASHTO Policy on Geometric Design of Highways and Streets using either Exhibit 3-1, Stopping Sight Distance on Level Roadways, or Exhibit 3-2, Stopping Sight Distance on Grades. See Chart 6.7 for Exhibits.

Procedure:

Temporarily place the traffic cone at the passenger pickup or drop-off site. Using a vehicle or measuring device where the operator is using the correct height-of-eye, move to the visibility distance, as determined above, in advance of the cone. If the cone is not completely visible, then the site will need to have a School Bus Stop Ahead sign installed. The sign placement should be based on the values in Table 2C-4, Advance Placement Distance, of the MnMUTCD or Chart 6.4 of this chapter.

The District Traffic Offices should maintain an inventory of existing signs.

The District Traffic Offices should regularly contact each school district to determine whether students are still picked up by a bus at locations presently signed, to determine if any new locations need signs, and if any locations may present unusual safety problems for students. 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.

The School Bus Stop Ahead sign shall not be used in advance of a school bus loading area. See MnMUTCD Section 7B.13.1 for requirements of signing for school bus loading areas.

6-6.14 SHARE THE ROAD Plaque (W16-1P) with BICYCLE WARNING Sign (W11-1)

This section provides guidance as when to add the SHARE THE ROAD plaque (W16-1P) beneath the BICYCLE WARNING sign (W11-1).

This sign combination is generally meant for short distances (less than 1 mile) of roadway where there are a significant number of bicyclists traveling to and from a bicycle path or facility. They also can be considered for a bicyclist “hot spot” just off the shared-use path or facility that attract bicyclists.

This sign combination may be used where there is no shared-use path or wide (at least four feet of paved, usable space) shoulder that bicyclists can safely ride on causing them to ride
in the traveled lane of traffic. These signs are warning signs and are meant to inform drivers of an unexpected bicyclist in their lane.

Consider providing these signs after major intersections or street entrances.

For urban areas, consider using BICYCLES MAY USE FULL LANE sign (R4-11).

For more information about these signs refer to the MN MUTCD Section 2C.60, 9B.19, and 9B.06.

6-6.15 SHOULDER NARROWS Sign (W5-X1) and NO SHOULDER Sign (W8-23)

The SHOULDER NARROWS sign (W5-X1) and the NO SHOULDER sign (W8-23) 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.

At high-speed locations where the right side shoulder width abruptly reduces by at least three feet and results in a usable width of less than six feet, a SHOULDER NARROWS sign may be installed.

A NO SHOULDER sign may be installed at rural, high speed locations where the right side shoulder width abruptly reduces from a width of three feet or greater to a width of less than 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 may 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 may be installed.

These guidelines do not apply where auxiliary lanes are present.

6-6.16 Speed Reduction Sign (W3-5)

The Speed Reduction sign shall be used if the reduction in speed limits between two zones is 15 mph or greater. This sign may be used if the difference between two zones is 10 mph or less, based on engineering judgment. In transition zones, engineering judgment should determine if placement of a speed reduction sign is necessary for the second reduction in speed.

The Speed Reduction sign should be 48" x 48".

If used, the Speed Reduction sign should be installed at least 1000 feet in advance of the reduced speed zone. If geometrics, grade, or sign clutter may impact the motorist’s ability to reduce speed, the sign location may be as far as 1700 feet in advance of the reduced speed zone.

A two-line Distance (W20-100p) plaque may be installed on the left post directly below the speed reduction sign at the option of the District Traffic Engineer. Mounting height for a secondary sign mounted to one riser post is shown in Figure 6.1 of this chapter.

Inplace speed reduction signs (R2-5a, R2-5b, and R2-X1) shall be replaced through attrition.
6-6.17 Truck Hauling Signs

6-6.17.01 Sugar Beet Piling Station Signs

When a site is open to commercial trucks, the TRUCKS ENTERING sign (W11-X3) and the Slippery When Wet sign (W8-5) should be used on each approach to the access.

Both signs shall be: 48” x 48”, provided by the requester, and delivered to MnDOT for installation and maintenance. If requested, a flasher may be installed above the TRUCKS ENTERING sign under MnDOT’s permit process.

When the site is in operation, the signs shall be opened and closed by the requester. Changeable message signs shall not be used.

6-6.17.02 Corn and other Harvest, Gravel Pits, and Logging Operations

The MN MUTCD Section 2C provides guidance on the use of permanent and seasonal VEHICULAR TRAFFIC signs.

6-6.18 Typical Signing for Transitions Between Divided Highway Section and Two-Lane, Two-Way Sections

Figure 6.22 indicates signing for transitions between divided highways and two-lane, two-way highways.

6-6.19 Truck Rollover Warning Sign (W1-13)

If used, the advisory speed posted on these signs will follow the established engineering practice for determining advisory speeds using a ball bank indicator using 10 degrees of ball-bank. More information on Advisory Curve Speed Studies is shown in Chapter 14 of this manual.

6-6.20 WATCH FOR BUSES ON SHOULDER Sign (W14-X9)

The WATCH FOR BUSES ON SHOULDER sign should be placed on all applicable freeway and expressway ramps, intersecting city, township, and county roads, and high volume entrances. These signs should not be installed for low volume entrances and private drives.

6-6.21 WATCH FOR FALLEN ROCK (W14-X1)

Although it may be appropriate to install the FALLEN ROCKS (W8-14) sign in some cases, it is preferred that the WATCH FOR FALLEN ROCK (W14-X1) sign be used on trunk highways.

6-6.22 WEIGHT RESTRICTION AHEAD Sign (W14-X3)

See Section 6-5.03 Bridge Speed and Load Restrictions for use and application of the WEIGHT RESTRICTION AHEAD sign.
6-7.00 APPLICATION GUIDELINES - GUIDE SIGNING

6-7.01 Purpose

Guide sign applications that are discussed in this section are those which:

1. Are not specifically addressed in the MN MUTCD.
2. Provide additional guidance to that given in the MN MUTCD on application, location, and usage of certain types of guide signs.
3. Must be addressed because MnDOT is charged with developing and implementing design, use, and application of certain guide signs in accordance with Minnesota Statutes.

The MN MUTCD Sections 2D and 2E provide standards on guide signing for conventional roads, expressways, and freeways. Figures later in this chapter supplement the MN MUTCD in showing typical positions for guide signs at various intersections and interchanges on MnDOT trunk highways.

Typical signing for intersections is found in Figures 6.24A through 6.29.

Typical signing for crossroad approaches to interchanges is found in Figures 6.30 through 6.33.

Typical signing for auxiliary lanes with and without escape lanes on freeways is found in Figures 6.34A through 6.34D.

6-7.02 Freeways

6-7.02.01 Primary Guide Signing

Rural exits shall be identified by the route number of the U.S., State, or County highway intersected, cardinal direction, and destination as applicable, and the exit number on freeway interchanges. Criteria for selecting destinations is shown later in this section under Signing Destinations.

Urban and suburban exits to local road systems shall be identified by route number, street name, exit number and cardinal direction as applicable. Information on the use of destinations is shown later in this section under Signing Destinations. Cardinal directions should be displayed 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 or with a single exit splitting to serve both movements to the crossroad.

6-7.02.02 Supplemental Guide Signing

The installation of supplemental guide signing should be strictly controlled in areas with closely spaced interchanges due to the many demands on the motorist to make major decisions and the large number of requests from generators of high traffic volumes. Supplemental guide signs shall not interfere with primary guide signing and sign spacing criteria shall be met. Signs directing motorists to secondary or supplemental destinations should not be installed at interchanges of two or more freeways. Criteria for supplemental guide signing is shown in Appendix A MnDOT Supplemental Guide Signs of this chapter.

6-7.03 Signing Destinations

MnDOT shall fabricate, install, and maintain destination and distance signs on trunk highways. However, if a city, meeting the criteria in this section, requests to be added to an existing sign displaying less than three cities/destinations, the city shall pay for design, fabrication, and installation of the signs unless the existing sign is due for replacement. If the existing sign is due for replacement, the city name may be added at MnDOT's expense.

1. Signing Destinations - At-grade intersections

The MN MUTCD Sections 2D.36 through 2D.40 establish guidelines for destination signs at at-grade intersections. The following criteria also apply:
a. Only one destination sign is permitted from the closest state highway on each approach to an intersection.

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

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

d. Normally only one destination per route or direction should be identified. Not more than three city names should be on one sign. A few exceptions have been made where multiple routes intersect at junctions. Arrangement of arrows on a sign panel should be consistent with the MN MUTCD.

e. Destinations should be located on the intersected numbered highway. 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.

f. For a city to be added to an existing destination sign the existing sign shall display less than three cities/destinations and the city being added should meet the selection criteria in a-e.

2. Signing Destinations - Freeways and interchanges on expressways.

   MN MUTCD Section 2E.13 provides guidance for destination signs on freeways. The following criteria also apply:

   a. Rural

One or two destinations identifying the interchange may be included on primary guide signing for rural interchanges, based on the following criteria:

   1) Where the intersecting road is a U.S. or State highway, the destinations shown should 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.

   2) At interchanges with county or secondary roads, the destination shown should be the nearest city in each direction. 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.

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.

A city in each direction along the intersected route may be signed in accordance with the following:

   1) The city(ies) shall be required to pay all of the signing costs (if new signs are installed or existing signs are modified or replaced) if the request is approved prior to the 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 the replacement of existing signing through attrition.
Future maintenance will be performed by MnDOT at no cost to the city(ies).

b. Urban-Suburban

At interchanges with county or secondary roads, destinations are not to be included on the primary guide signs. Destinations and street names cannot be combined on the same guide sign.

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. At freeway to freeway interchanges, destinations should be considered for placement on the primary guide signs if they would aid in orienting drivers.

Supplemental guide signs shall not be provided for suburban cities served by roads and streets within the metropolitan grid system in urban-suburban areas.

c. Adjacent Land Uses

The names of adjacent land uses such as airports 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.

3. Distance signing

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

MN MUTCD Sections 2D.41 and 2D.42 establish guidelines to follow in selecting city names or other traffic generators, and in locating distance signs on conventional highways. Only one distance sign is permitted on each conventional highway leaving an intersection, municipality, or interchange.

MN MUTCD Sections 2E.39 and 2E.40 provide guidelines for distance signs on freeways.

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 conventional highway, or a significant geographical site or generator.

c. The next major destination or control city.

The following guidelines must be met for a city to be added to an existing distance sign:

a. The existing sign displays less than three cities/destinations.

b. If the city meets the selection criteria previously listed, the requesting city shall pay for all sign replacement costs if the request is made prior to the sign requiring replacement. The city name may be added to a sign, at MnDOT’s expense, at the time the existing sign is due for replacement.

6-7.04 Typical Junction Signing Layouts

The following typical sign installations should be used as guidelines in establishing sign locations and distances between signs at junctions.

1. T-intersection (two-lane, two-way) (See Figure 6.24A).

2. T-intersection (divided highway) (See Figure 6.24B).

3. Typical four-leg intersection (See Figure 6.27).

4. Typical intersection with county road/city street (See Figure 6.26).
5. Typical single lane roundabout intersection (See Figure 6.27).
6. Reduced conflict intersection (See Figure 6.28).
7. Named county road on an expressway (See Figure 6.29).

6-7.05 Independent Route Marker Assemblies

Follow the MN MUTCD Sections 2D.29 – 2D.32 for conventional roads and MN MUTCD Section 2E.27 for expressways and freeways for guidance on the use of route, junction, advance route turn and directional sign assemblies. Follow MN MUTCD Section 2D.34 for confirming or reassurance sign assemblies.

The color of the route marker auxiliaries shall match the color of the route marker it supplements (see MN MUTCD Section 2D.12). For example, white on blue auxiliaries supplement the Interstate and Minnesota route markers and black on white auxiliaries supplement U.S. route markers.

It sometimes becomes necessary to include two different color route markers on the same structure. When this happens the auxiliaries may not always match the color combinations of both route markers. To avoid this, install route markers side by side according to the most current MnDOT sign structure details, http://www.dot.state.mn.us/trafficeng/signing/doc/canddsignground.pdf. When this is not possible use the following guidelines to determine the color of the route marker auxiliaries:

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

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

6-7.05.01 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.

Upon request by a county, each MnDOT District 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 decides to do this, pentagon route markers may be installed as a part of the normal sign replacement cycle.

6-7.05.02 Business Route Markers

Route Requirements:

• Business Routes should only be created along the Trunk Highway system in rural areas at locations where a bypass has been constructed or where a Trunk Highway has been decommissioned and turned back to local governments.
  - The Business Route should be created by using the previous alignment of the Trunk Highway.
• Business Routes should travel principally through the corporate limits of a city.
• Business Routes shall leave and rejoin the same Trunk Highway route via different exits or intersections.

Implementation:

• Each road authority of which the Business Route is comprised of must approve of its establishment.
• New Business Routes shall be established through written request by a local government agency to the appropriate MnDOT District Office and should include the following information:
  1) A letter from the local government agency briefly explaining route need, acknowledging initial costs and future maintenance responsibilities.
2) A letter of support from other local road authorities for trail blazing signs in their right of way, acknowledging initial costs and citing future maintenance responsibilities.

3) A completed American Association of State Highway and Transportation Officials (AASHTO) U.S. Route Number Application. The application may be downloaded from the AASHTO website: AASHTO - Special Committee on U.S. Route Numbering - Home. For “recognition of” a business route a local vicinity map will be needed per page 3. On page 6 a short statement to the effect that there are no deficiencies on proposed routing, if true, will suffice.

The MnDOT District Office staff will evaluate the proposed Business Route and send their recommendation to the MnDOT Route Numbering and Control Section Committee (RNCS) for review. The MnDOT RNCS will process the application.

- If the business route is on a US Highway or Interstate, the MnDOT RNCS will submit to the AASHTO Special Committee on US Route Numbering for approval. The Special Committee on U.S. Route Numbering meets twice each year.
- Existing Business Routes established between MnDOT and local government agencies prior to the implementation of this policy will be subject only to their initial agreements.
- If existing Business Route agreements between MnDOT and local agencies are amended at any time, the amendments should be made to more closely match this policy.

**Sign Usage**

- Guide signs referring to the highway exit / Business Route entrance shall display the existing route number or name as well as the route number of the designated Business Route.
- Business Routes shall be signed only prior to the first interchange exit or intersection leading to the Business Route in each direction.
  - If more than two exits or intersections exist on the Trunk Highway along a Business Route, no signs referring to the business route shall be placed on the Trunk Highway for the exits or intersections between the exit from and the entrance to the Trunk Highway.
  - “Downtown” and “Business District” signs directing motorists to the same exit or intersection as a Business Route shall not be allowed on the Trunk Highway.
- Trailblazing signs shall be installed along the Business Route prior to modifying the guide signs on the primary highway route.

**Maintenance Requirements:**

- All costs related to fabricating, modifying, installing, and removing signs for the purposes of establishing or disestablishing a Business Route shall be at the cost of the requesting agency. The District Traffic Office will decide if installation is completed by the community under the permit process or installed by MnDOT under the requester pay process.
- All maintenance responsibilities along the Business Route shall continue unchanged from before the Business Route’s implementation unless specified otherwise in the new agreement.
- New signs located within and related to the Business Route shall be maintained by the local government agency.
  - The agency shall be responsible for periodically checking the condition of trailblazing signs along the Business Route to ensure that they are well maintained.
  - Failure of the local agency to properly maintain the traffic control devices or fulfill other conditions of the Business Route agreement may result in MnDOT terminating the route’s status as a Business Route.
- If the requesting agency wishes to discontinue the route’s classification as a Business Route, notification must be sent to the appropriate MnDOT District Office 3 months in advance of when it is to be declassified.
  - The MnDOT District Office must notify the MnDOT Route Numbering and Control Section Committee of this change.
  - Signs referring to the business route shall be removed unless the sign panel contains other information relevant to the traveling public. If so, any legend referring to the Business Route shall be covered until the sign panel is replaced or overlayed.
6-7.06 Street Name Signs, Advance Street Name Signs, and 911 Address Signs

This section is based on Chapter 2D, Guide Signs - Conventional Roads (see Sections 2D.2, 2D.43 and 2D.44) of the MN MUTCD. Sign designs, including reflectivity, color, legend, and border shall follow the applicable requirements of the MN MUTCD and the MnDOT Standard Signs and Markings Manual and Summary. Structural mounting requirements shall follow applicable requirements as provided by the MN MUTCD or MnDOT structural details.

Standard street name signs (MN MUTCD Section 2D.43) provided by MnDOT and installed on overhead mast arm mounted signs or overhead bridge mounted signs will use the standard green background color for consistency on trunk highways and shall not include pictographs. Advance Street Name signs (MN MUTCD Section 2D.43) will follow the requirements as provided by the MN MUTCD and the standard sign designs set forth in the MnDOT Standard Sign Manual and Summary or the MN MUTCD.

6-7.06.01 General Criteria for Street Names

The following conditions will be used for street names used on MnDOT provided Street Name signs and Advance Street Name signs:

1. Street names shall be officially designated by the appropriate local government having jurisdiction over the road and match the 911 Emergency Telephone System street name.

2. Official street names 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.

3. Combination names which attempt to incorporate multiple identifications are confusing and should not be used.

4. Signing for names which identify a specific business or establishment, in order to identify streets which lead to specific establishments or special commercial or private interest facilities, should be discouraged. Generic names are permissible.

5. The use of first and last names of individuals should not be used.

6. If the official road name is changed by the 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 MnDOT's expense at the time the original sign would normally be replaced.

6-7.06.02 Street Name Signs

6-7.06.02.01 Overhead mounted street name signs

Overhead signal mast arm and bridge mounted street same signs will be provided by MnDOT in rural and urban areas, as needed, to fulfill basic guide signing responsibilities. MnDOT's practice is to install sheet aluminum retroreflective sign panels on traffic signal mast arms. Internally lit street name signs may be installed on signal mast arms by a road authority.

Specific criteria for internally illuminated street name signs mounted to signal mast arms:

The local road authority shall be responsible for all costs of fabrication, installation, power, and maintenance. MnDOT may require that internally illuminated signs be removed and replaced with standard sheet aluminum if any problems develop.

a. General Criteria

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

b. Sign Face

The sign face shall use translucent prismatic retroreflective sheeting for the sign background. If the 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 illuminated street name sign may use this color. No other colors will be approved.

The sign legend may be screened or cut from translucent prismatic retroreflective sheeting. In the event of a complete lamp outage, the retroreflectivity of this material provides a fail-safe operation.

The legend (letters and arrows) on internally illuminated 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, 24” x 24”, unless mast arm loading becomes critical. In this case, an 18” x 18” route marker may be installed.

Detailed specifications for internally illuminated street name signs are located on OTE’s Signals or Signing websites.

6-7.06.02.02 Ground mounted intersection corner street name signs

The furnishing, installation, and maintenance of street name signs, ground mounted, slat style, and located at intersection corners, are the responsibility of the local road authority. Signs installed on MnDOT right of way follow the MnDOT permit process. Signs should be mounted in street corners opposite of STOP signs.

**General criteria for ground mounted street name sign installations include the following:**

1. The governing body shall have street name signs fabricated according to MN MUTCD requirements including retroreflectivity, legend size, border, color, and standard designs to provide the best target value both day and night.

2. 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.43, "In business or commercial areas and on principal arterials, Street Name signs should be placed at least on diagonally opposite corners. In residential areas, at least one Street Name sign should be mounted at each intersection. Signs naming both streets should be installed at each intersection. They should be mounted with their faces parallel to the streets they name."

3. The mounting height of signs shall be in accordance with MN MUTCD Section 2A.18.

4. The street name sign assemblies shall be constructed so that the name plate cannot be turned.

**Specific criteria for placement on separate sign structure from STOP sign:**

1. The preferred lateral offset to the street name signs is 30 feet or greater from the roadway (near the right-of-way line if practical). The minimum lateral offset should be at least 12 feet from the edge of the shoulder. Unique locations should be reviewed with the District Traffic Office.

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

6-7.06.03 Advance Street Name Signs

In urban areas, advance street name signs for arterial and major streets on conventional highways will be provided by MnDOT, as needed, to fulfill basic guide signing responsibilities.

In rural areas, when the trunk highway intersects a public road, appropriate identification of that public road will be provided on conventional roads and expressways with at grade intersections by MnDOT (see Figures 6.26 and 6.29), based on all of the following conditions:

1. When so requested by the local governing body, MnDOT will furnish and install route marker assemblies on the trunk highway, provided that the intersecting local road is numbered and marked with route markers. Identification by number only should be encouraged whenever possible.

2. When a numbered public road is also known by an officially designated name, both types of identification may be used on a sign.
3. For road name signs, all initial signing costs, including overhead factors and installation by MnDOT, shall be paid by the road authority requesting the signing, at the current rate per square foot of sign, as established by MnDOT. MnDOT will maintain road name signs at its own expense.

6-7.06.04 911 Address Signs on Trunk Highways

Counties or private citizens are installing these signs at private driveways within trunk highway right of way. The following guidelines have been adopted for these signs:

a. The preferred sign location is near right of way line at access. This will allow the sign to be installed a minimum of 12 feet from the edge of the shoulder (typically gravel). Gopher State One Call shall be contacted prior to installing the sign.

b. Sign panel size is typically 16 inches long x 6 inches high.

c. Mounting height is a minimum of 4 feet from the bottom of the sign panel to the near edge of the pavement (driving lane).

d. Sign post size should be determined using the sign fabricator’s recommendations (typically 1.12 lb/ft, with a maximum size of 2 lb/ft.).

e. Sign color is white legend (typically 4 inch C Series) on blue background but other colors are possible. However, red and yellow should not be used in any circumstances.

f. MnDOT is not responsible for fabricating, installing, or maintaining the signs.

6-7.07 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 MnDOT Standard Signs and Markings Manual.

6-7.07.01 City Name Sign (I2-3)

Under the provisions of Minn. Stat. Section 169.06 Subd. 2a, the Commissioner may construct and maintain signs at the entrance of each city, which sign shall have the name of the city and the population. City Name signs should be installed only for communities identified on the official Minnesota Highway Map and/or official county highway maps. Signs should normally be installed at the actual corporate boundary, subject to the following guidelines:

1. Urban areas

   Signs should be installed at or near the corporate limits on all trunk highways.

2. Rural areas

   Signs should be installed at or near the corporate limits on all trunk highways, excluding interstate highways. On interstate highways, the following criteria apply:

   a. 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.

   b. 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.

   c. 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 should not be abbreviated.

MnDOT will update population figures on city name signs every 10 years and use the population figure of the last official Federal or State census. If a community requests the population figure to be updated, MnDOT will update the population figure at the cost of the community. The updated figure should be from a documented official source and provided to MnDOT.

An exception to the above applies to unincorporated communities which warrant city name signs, but for which population counts are not available. These signs carry only the community name.

Occasionally, 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 6-7.07.03 Community Recognition Signing Program of this chapter. Extraneous and unauthorized sign panels should be removed and no such attachments permitted on any signs on the trunk highway system.

6-7.07.02 Community Identification Sign

Criteria for these signs, which are allowed outside the trunk highway right-of-way, are specified in Minn. Stat. Sec. 173.08 Subd. 1(10).

This signing program is administered by the District offices.

6-7.07.03 Community Recognition Signing Program

The Community Recognition Sign Program allows communities to express their own identity under Boundary signs. Permitting the displaying of sign panels allows the community to pick what is locally important to their community for installation on trunk highway rights-of-way.

Community Recognition sign panels shall not be installed on freeways.

The Community Recognition sign panels shall be initiated and coordinated by the community.

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

The sign panel designs shall be approved by the District Traffic Engineer.

1. Examples of permitted sign panels:

   a. Non-profit service organizations.

   b. Special programs, either permanent or temporary; e.g. DARE, Tree City, Storm Ready City, Fit City, Sister City, and Yellow Ribbon City/County.

   c. City pictograph.

   d. City recognition slogans; e.g. State Baseball Champions.

   e. Drinking Water Protection Area sign panel.

   f. Heart Safe Community Sign Panels - A “Heart Safe” designation recognizes a city’s efforts to prepare its staff and citizens to recognize when someone suffers a sudden cardiac arrest and how to respond.

   Cities are eligible for signing if they are determined to be “Heart Safe” by Allina hospitals and clinics.
2. Costs

   a. Installation of Community Recognition Sign panels shall be coordinated with the District Traffic Office. The District Traffic Office will decide if installation is completed by the community under the permit process or installed by MnDOT.

   b. If more than two small Community Recognition Sign panels or one large sign panel are to be installed by the community on an existing sign structure, the community shall pay an up-front charge of $200 to MnDOT for reimbursement of costs incurred by state forces to:

      1) Raise the existing CITY NAME sign panel to meet the required ground clearance and mounting height.

      2) Modify the U-channel sign structure to include knee braces if necessary in order to meet breakaway and wind loading requirements.

      3) Furnish and install a horizontal stringer for the mounting of the Community Recognition Signs.

3. Sign Format

   The sign panel background, or the predominant color, may be any color except pink, red, orange, yellow, purple, yellow-green, or the fluorescent colors thereof.

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

   The sheeting material on new Community Recognition Sign panels should be Type XI retroreflective sheeting.

   The sign base material shall be sheet aluminum or other material approved by MnDOT. [See Minnesota Standard Specifications for Construction, 3352.]

   Any combination of sign panels may be allowed up to a total of 72” in length by 24” in height having a total square footage not to exceed 12 square feet. These panels shall be installed horizontally below the CITY NAME sign panel.

4. Installation Guidelines

   The attachment of Community Recognition Sign panels to horizontal stringers or sign posts shall be as shown in Figure 6.35, Community Recognition Signing and as follows:

   a. More than two Community Recognition Sign panels shall be installed on horizontal stringers (installed by MnDOT) by the community as shown in Figure 6.35, Community Recognition Signing.

   b. If less than three Community Recognition Sign panels are to be installed on an existing sign structure, install in accordance with the following:

      1) If only one Community Recognition Sign panel is to be installed, attach it to the sign post farthest from the roadway.

      2) If two Community Recognition Sign panels of the same size (24” x 24”) are to be installed, center 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. Attach the shortest sign panel to the sign post nearest the roadway and the tallest sign panel to the other sign post. This will provide the maximum clearance from the ground line to each sign panel. If the existing sign structure is located on the back slope attach the shortest sign panel to the sign post farthest from the roadway.
4) If a sign panel is greater than 24 inches and less than or equal to 30 inches in height attach to the sign post furthest from the roadway. When the existing sign structure is located on the backslope, attach the sign panel to the sign post nearest to the roadway. Relocate in place sign panels less than 24 inches in height to another sign post to make room for the new, larger sign panel.

5) Only one sign panel greater than 24 inches and less than or equal to 30 inches is allowed for each sign structure. If there is a desire to install a new sign panel of this size and there is a sign panel of this size in place on the sign structure, the city is responsible for deciding which two sign panels are attached to the sign structure.

MnDOT may check any Community Recognition Sign panel(s) for proper attachment hardware (see Figure 6.35). If an improper mounting procedure or hardware has been used, MnDOT may reinstall the sign panels with the correct hardware or remove it.

The replacement cycle (end of useful life) of the sign panels will be determined by each MnDOT District office.

6-7.07.04 County Name Sign (I2-5)

The County Name Marker (I2-5) sign is placed 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.

Extraneous sign panels shall not be installed on this structure, unless under 6-7.07.03 of the Community Recognition Signing Program.

6-7.07.05 Drainage Divide Sign

The Minnesota state highway 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 fifty state highways. Nine 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.

Drainage divides shall not be signed on any trunk highways.

Drainage divide identification signs may be installed within a rest area or wayside parking area established at the site to accommodate vehicles off the roadway. Signing for drainage divides shall be paid for by the requester.

Remove existing drainage divide identification signs without roadside parking facilities at the end of their sign life.
6-7.07.06 Municipal Identification Entrance Sign

Under the provisions of Minn. Stat. 173.025 a local road authority may erect a municipal identification entrance sign within the right-of-way of a trunk highway with the written permission of the commissioner. Municipal identification entrance signs erected without the written permission of the commissioner are prohibited. These signs shall be located outside of the clear zone and installed through the MnDOT permit process.

Refer to the MnDOT Right of Way Manual 5-491.514 for all applicable guidelines and provisions.

6-7.07.07 Reservation Boundary Sign

Signs may be installed for reservation boundaries which cross trunk highways, except freeways, with a limit of two signs per trunk highway.

The sign panel may include the name of the reservation, the tribal logo, and either the year of treaty or the reservation population. The panel must also be void of any commercial advertising. Sign size is variable based on sign message and font sizes. Sign panel designs shall be approved by MnDOT prior to fabrication.

The signs are to be fabricated, installed, and maintained by MnDOT unless otherwise directed by the District Traffic Office. Sign costs will be paid by the community.

6-7.07.08 Soil and Water Conservation District Sign

The Soil and Water Conservation District shall complete and submit a permit for approval to install a sign. If approved, install in accordance with all of the following criteria:

1. Locate signs 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.

2. Signs are permitted only on non-freeway types of roadways.

3. Install signs on breakaway sign supports when located within the clear zone (MnDOT Road Design Manual, Chapter 4-6.04).

4. Design sign panels to be the same design or equal to that available from the National Association of Conservation Districts.

5. Maintain the signs in good repair. If this requirement is not met, the applicant will be notified to remove the signs.

6. A 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.

7. The Soil and Water Conservation Districts will be responsible for furnishing the signs and posts, and for installation at the designated locations.

6-7.07.09 State Entry/Exit Signs

State Entry Monument (SEM) Program and Entry Signs

There are three Minnesota State Entry Monument marker types in use today: Type I and Type II monuments, and Type III metal sign panels.

Type I State Entry Monuments (constructed of precast concrete in the shape of Minnesota) and several Exit Monuments were designed in 1996 via a University of Minnesota student competition. They are typically located where interstate highways cross Minnesota’s boundary, and at the Minnesota/Canadian border.
Type II State Entry Monuments were constructed circa 1939 through 1955, and were made of a stone masonry pylon with timber arm and wood sign panel. Type II Historic SEM are restored, but not replicated, because most are eligible for the National Register of Historic Places (NRHP).

Type I and Type II entry markers are managed by the Site Development Unit in the Office of Project Management and Technical Support.

Type III state entry (WELCOME TO MINNESOTA, I2-10) metal signs are managed by the District Offices. The colors on the Type III sign panel were revised in 2006. Type III metal signs are placed on highway entrance routes with the lowest traffic volume, where no Type I or Type II monuments are located. Inplace sign panels should be replaced through attrition. Type III metal signs should be removed if a Type I or Type II state entry monument is located in the same vicinity.

State Exit Monuments and Signs
Where road conditions allow, some Type I monuments and Type III signs have a companion exit monument or sign on the opposite side of the road. Type II monuments have no ‘exit’ counterparts, as they were not designed and built during the time of original construction. Type I and Type II State Exit Monuments are managed by the Site Development Unit in the Office of Project Management and Technical Support.

Type III state exit metal signs (VISIT AGAIN, I2-12) are managed by the District Offices. Type III metal signs are located where no Type I State Exit Monument or Type II State Entry Monuments are located. Type III metal signs should be removed if a Type I State Exit Monument or a Type II State Entry Monument is located in the same vicinity.

More information regarding State Entry Monuments and Signs can be found here: [http://www.dot.state.mn.us/restareas/entry-signs/es-history.html](http://www.dot.state.mn.us/restareas/entry-signs/es-history.html).

6-7.07.10 Township Boundary Sign
Township boundary signs shall not be installed or retained on trunk highways, either individually or as part of a sign assembly. Township boundary signs do not have sufficient orientation value to warrant installation on the trunk highway system.

6-7.07.11 Watershed District Sign
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.

They 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 and are not geographically distinct features. Therefore, their identification is not of interest, significance, or benefit to the majority of motorists.

Watershed Districts shall not be signed on any trunk highway.

Watershed district identification signs may be installed within a rest area or wayside parking area established at the site to accommodate vehicles off the roadway.

Existing watershed district identification signs without roadside parking facilities shall be removed at the end of their sign life.
### 6-7.08 Designated Roadways

The practice of designating routes or roadways is a means of commemorating a person, place, or event, or for the purposes of tourism promotion. Designated roadways may include auto tour routes, nationally recognized routes, corridor based promotions, and memorial routes and bridges.

MnDOT is required to mark trunk highways as designated by Minn. Stat. Sec. 161.14. A majority of the already approved sign designs for designated roadways are found in the MnDOT Standard Signs Summary. Sign designs for newly designated routes shall be designed or approved by OTE.

1. Auto Tour Routes - Auto tour route signs are designed to provide road users with route guidance in following an auto tour route of particular cultural, historical, or educational significance. Some auto tour routes are designated in Minn. Stat. Sec. 161.14 such as the Black and Yellow Trail, Viking Trail, Amish Buggy Byway, etc.

2. Eisenhower Interstate System - These signs have been installed on standard U-posts on the rest area entrance ramp in each of the rest areas on the Interstate highways in Minnesota. These signs are not installed along the Interstate highways within the State of Minnesota.

3. Great River Road - The federal Great River Road Program was established to provide a parkway-like road paralleling the Mississippi River, from its source at Lake Itasca to the Gulf of Mexico. There is a national and a state route in Minnesota. The Great River Road is identified in Minn. Stat. Sec. 161.142, 161.148, and 373.27. The Mississippi River Parkway Commission (MRPC) is the organization that provides governance for the route. Membership, funding, and responsibilities of the MRPC are established in State Statutes. Road authorities are responsible for signing route segments within their jurisdiction. This signing program is administered by the MnDOT Office of Environmental Stewardship.

4. Minnesota Scenic Byways - The Minnesota Scenic Byways Program was established in 1992 by a memorandum of understanding between MnDOT, the Department of Natural Resources, Explore Minnesota Tourism, and the Minnesota Historical Society. Four commission members represent each of the four agencies. The Commission designates Scenic Byways with an application process that requires local support and approval by the road authority.

Some Minnesota Scenic Byways have been designated as National Scenic Byways or All-American Roads. The designations are conditional and require local byway organizations to actively pursue their objectives along the route. No additional signing is required for National Scenic Byways or All-American Roads.

Installation and all maintenance of the signs on state trunk highways will be performed by MnDOT but shall be funded by the requesting Scenic Byway organization. The byway organization is also responsible for arranging and funding the fabrication of the sign panels. For signing on local road segments, the byway organization will negotiate with the appropriate road authority.

To maintain the designation, the byway organization must submit an activity report to the State Corridor Signage Committee every three years. Since there are only twenty designated scenic byways in the state, inactive byways are at risk of losing their designation in order to designate new byways.

Confirmatory signs on designated trunk highways may be installed at 20 to 25 mile intervals along the route.

5. Nationally Coordinated Trails - Some designated roadways in Minnesota are part of a larger, national initiative. One example is Prairie Passage. Minnesota, in partnership with five other states, has developed a corridor of roads called “Prairie Passage” to protect and restore remnants of prairie. The route runs through the western part of the state. It is part of a national Prairie Passage route that extends from Canada to Mexico through the central part of the nation. It was identified and signed in 2002. Signing for Nationally Coordinated Trails will be negotiated with MnDOT OTE on a case by case basis. In the case of Prairie Passage, initial signing was funded through a Federal Highway Administration project.
6. **National Forest Scenic Byways** - The USDA Forest Service began designating scenic byways in national forests in 1987, prior to the state and national Scenic Byways programs. In Minnesota, all of these byways have also been designated as State Scenic Byways. Although these byways are designated as State Scenic Byways, the signing policy for Scenic Byways will be followed. Should they lose their designation by the Minnesota Scenic Byway Commission, sign maintenance and replacement will be funded by the USDA Forest Service in accordance with signing policy for memorial routes.

7. Corridor-Based Promotions - Examples include Heritage Trails, and Birding and Wildlife Trails. These trails involve a collection of specific interest sites located in a generalized area or in a general corridor. Sites are not all located on a specific roadway. The term trail is used metaphorically and connotes the trek from site to site along the trail. Heritage, birding, or wildlife trails are supported with mapping and supplementary information to help people locate and understand the significance of sites. Fabrication, installation, and maintenance of signs shall be funded by the sponsoring organization and meet the following guidelines:

   a. The corridor includes at least two cities.
   
   b. The corridor is part of a statewide marketing campaign.
   
   c. The corridor is approved by MnDOT and the Office of Tourism.
   
   d. Signing on the trunk highway is to be at the entrance to the site. If the site is located on a local road system, the road authority will sign on the local road at the entrance to the site.
   
   e. If the site is located within an existing signed facility (state park, historic site, etc.), a logo or icon may be attached to the right sign post on the in place signing (state park, historic site, etc.) on the trunk highway.
   
   f. Approve the design of the logo or icon sign panels by OTE prior to fabrication.
   
   g. Sheeting on sign panels will follow MnDOT’s current sign sheeting standard.
   
   h. Signs are to be installed by MnDOT forces.

8. Wildflower Routes - Wildflower routes were established in 1990. They were designated to identify and protect existing native vegetation along Minnesota roadsides, restore native wildflowers and grasses, and increase public awareness of the value of native plants. There have been no new designations since 1990. Signs were fabricated and installed by MnDOT when the routes were designated. This signing program is no longer active for trunk highways. Signs should be removed through attrition.

9. Memorial Routes and Bridges - Memorial highways and bridges are established on trunk highways by statute to commemorate an individual or entity (See Minn. Stat. Sec. 161.14). MnDOT remains neutral on proposed memorial highway legislation on non-freeway routes as long as the section of highway has only one designated name. A map of legislatively designated memorial routes and bridges is shown on MnDOT’s Transportation, Data and Analysis website [http://www.dot.state.mn.us/roadway/data/data-products.html](http://www.dot.state.mn.us/roadway/data/data-products.html).

The Minnesota Manual on Uniform Traffic Control Devices ([MN MUTCD](https://www.dot.state.mn.us/roadway/transportation/)) Section 2M.10, indicates that freeways and expressways should not be signed as memorial or dedication routes. If they are signed, the signs should be placed in nearby rest areas, scenic overlooks, or other appropriate roadside area locations where parking is provided. MnDOT recognizes that signing along freeways and expressways is in conflict with the [MN MUTCD](https://www.dot.state.mn.us/roadway/transportation/) but because state law requires signing, MnDOT has developed the following guidance for signing memorial highways and bridges on trunk highways:

   a. Freeways
      For designated routes along freeways, signs shall first be considered to be installed in rest areas. If installation of a sign in the nearest rest area is not practical, install sign at the top of the freeway entrance ramp. If memorial highway signs are installed on freeway entrance ramps, one sign in each direction of travel may be installed at the top of the nearest entrance
ramp at the beginning of the designated route. If installation of a sign on the entrance ramp is still not practical, then consider installation of a sign on the mainline. If memorial highway signs are installed on the mainline, one sign in each direction of travel at or near the beginning of the designation may be installed and is to be placed in an area which will not interfere with any other traffic control device.

b. Expressways

For designated routes along expressways, signs may be installed along mainline roadway. If memorial signs are installed on the mainline, one sign in each direction of travel at or near the beginning of the designation may be installed and is to be placed in an area which will not interfere with any other traffic control device.

c. Conventional Roadways

Memorial highway signs may be installed along conventional roadways in accordance the MN MUTCD. One sign in each direction of travel at or near the beginning of the designation may be installed and is to be placed in an area which will not interfere with any other traffic control device.

d. Bridges

Designated bridges will be signed for road users on the carrying roadway and not for the roadway beneath.

e. Rest Areas and Other Roadside Areas

Memorial highway signs installed in rest areas or other roadside areas and intended for viewing by non-motorizing public may allow for non-standard design, such as a photo of the person being commemorated or symbols. A new sign panel should be installed on its own structure. Standard signs installed on the entrance ramp are to be installed on the right side of the ramp, between the entrance gore and the parking area, with 150 to 200 foot spacing between signs.

f. Prohibition of Signs Mounted Overhead

Under no circumstances will memorial signs be mounted overhead on a roadway or bridge. Memorial highway sign designs shall be designed in accordance with the MN MUTCD Section 2M.10. The sign designs shall use a six inch combination of initial upper case and lower case letters for the person or entity being recognized. Text size may be reduced in urban areas where physical space is restricted. New sign design requests should be sent to OTE State Signing Office.

The organization sponsoring the route or bridge designation shall reimburse MnDOT according to Technical Memorandum No. 17-06-T-01 or Chart 6.6, Requester Pay Signing Costs, for the cost of fabricating, installing, and maintaining signs on trunk highways. (See Minn. Stat. Sec. 161.139).

Memorial Highway Signing - Guidance for Requesters is available to MnDOT staff when assisting requesters through the process of memorial highway signing.

6-7.09 Supplemental Guide Signing Programs

The MN MUTCD, Minnesota Statutes, and MnDOT policy allow supplemental guide signs to be installed on trunk highways for a variety of public and private facilities. A complete list of allowable facilities, general criteria, and facility specific criteria can be found in Appendix A MnDOT Supplemental Guide Signs. Standard sign designs for a variety of supplemental guide signs can be found in the MnDOT Standard Signs Summary and Manual. All other sign designs will follow the design guidance in Charts 6.1A through 6.1D and the MN MUTCD.

MnDOT provides signs at no cost to the requester for qualified facilities under the following signing programs:

1. General Motorist Service
2. Hospital
3. Resort and Camping
Unless otherwise noted, qualified facilities under Appendix A MnDOT Supplemental Guide Signs, shall pay for signs following Technical Memorandum No. 17-06-T-01 or Chart 6.6. Requester Pay Signing Costs, found in this chapter

6-7.09.01 LOGO Sign Franchise Program

Logo signs are permitted on interstate highways and urban controlled access trunk highways (freeways) as specified in Minn. Stat. Sec. 160.80 and the Logo Sign Franchise Program Agreement.

The MN MUTCD Part 2J covers standards and guidelines on the use of logo signing. Minn. Stat. Sec. 160.80 and the Logo Sign Franchise Program, authorize MnDOT to establish this program for the purpose of providing specific information on gas, food, lodging, camping, attractions and 24-hour pharmacies for the benefit of the motoring public on the right-of-way of interstate and certain other controlled-access trunk highways.

This program is currently operated by Minnesota Logos, Inc. under an agreement with MnDOT. Businesses interested in this program may contact Minnesota Logos, Inc.

Existing MnDOT installed GENERAL MOTORIST SERVICE signs should remain in place at each interchange if all businesses are not accommodated in the Logo Sign Franchise Program. Per the logo contract, the State Signing Engineer in conjunction with the District Traffic office will review and approve all site plans to verify that the proposed logo signs meet the contract requirements, will not have a negative impact on other required signing, proper sign spacing will be maintained, and no other known construction or permit projects will impact the sign locations.

6-7.09.02 Specific Service Signing Program (D9-X6)

The Specific Service Signing Program was mandated by the 1980 Legislature under Minn. Stat. Sec. 160.292 to 160.298. See these statutes for complete legislative intent. Portions of statutes described in this section and in Appendix A are shown using the Times New Roman italic font.

1981 - Permitted the inclusion of motels.
1984 - Permitted the inclusion of restaurants.
1988 - Added rural agricultural businesses and places of worship.
1989 - Added tourist-oriented businesses.
1996 - Added gasoline service station or other retail motor fuel business and optional business panel (logo).

Definitions:

1. Specific Service - 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 (Minn. Stat. Sec. 160.292, Subd. 21).

2. Specific Service Sign - a rectangular sign panel displaying the name or optional business panel, or both, of the specific service, the direction to, and where appropriate the distance to the facility (Minn. Stat. Sec. 160.292, Subd. 22).

3. Specific Service Sign Assembly - a combination of specific service sign panels on a single sign structure are to be placed within the right-of-way on appropriate approaches to an intersection or interchange (Minn. Stat. Sec. 160.292, Subd. 23).

4. Specific Service Sign Cluster - a grouping of specific service sign assemblies on appropriate approaches to an intersection or interchange (Minn. Stat. Sec. 160.292, Subd. 24).
Installation:
Specific Service signs should be installed in accordance with all of the following:

1. Priority of installation
   a. A business shall not be allowed to “bump” another business from a specific service sign.
   b. If two or more eligible businesses apply at the same time, year-round businesses have priority over seasonal businesses.
   c. 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 sign panel on the other approach. Although straight ahead signing is to be discouraged, it may be permitted at certain intersections. See Figures 6.36A and 6.36B.

2. Sign placement
   a. 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 (Minn. Stat. Sec. 160.294, Subd. 2). Requests will be denied if space is unavailable.
   b. A specific service sign on a ramp shall not be allowed if the business is readily visible from the ramp terminal or effective directional signing is visible.
   c. A specific service sign should be installed on the right side of the roadway.
   d. A sign assembly shall be limited to four panels. Assemblies on mainline approaches to interchanges are limited to three panels and one action message panel, e.g. NEXT RIGHT.
   e. Specific service signs should be installed approximately 300 feet from any inplace signs on a conventional road and approximately 500 feet from any inplace signs on an expressway. Inplace signs are not to be removed to accommodate specific service signs.
   f. The maximum number of specific service sign assemblies per intersection approach should not exceed three nor be placed past the previous interchange entrance ramp.

3. Order of installation
   The following sequence of signs should be used at intersections on conventional highways to integrate specific service signs with other traffic signs in a uniform manner. The signs are listed in the order that a motorist would encounter them as they approach an intersection. The spacing of the signs should be as shown in Figure 6.26.
   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(ies).
   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.
Only Specific Service Signs shall be installed on Specific Service Sign assemblies. Specific Service Signs are not allowed to be installed on any other sign type such as other guide signs.

4. Sign panel design:
   a. Show distances in one mile increments. Omit distances for those less than one mile.
   b. Mount left directional panels above right directional panels.
   c. Only one business shall be displayed on a sign panel.
   d. Businesses which have combinations of approved services may combine these names in their sign legend, if possible, e.g. “RESORT CAMPING”, “MOTEL CAFE”. The legend size should not be reduced. Abbreviations may be required, but only standard abbreviations may be used.
   e. Proper name abbreviations may be used as determined by the District Traffic Engineer.
   f. Inappropriate business names shall not be allowed to be displayed on sign panels.
   g. Business Panels or Logos
      1) Logos shall not resemble traffic control devices.
      2) Inappropriate logos shall not be permitted.
      3) Businesses supply either the business logo panel or the electronic image to the District Traffic Office. If the business logo panel needs replacing due to damage beyond repair or other reasons, the District Traffic Office will work with the business on the best method of replacement (Minn. Stat. Sec. 160.296, Subd. 1b).
   4) Sheeting should match MnDOT's current sign sheeting standard.
   h. Both the ramp sign and the mainline sign shall be identical in format. Ramp signs shall have directional arrows (if needed) and mileage (for distances of one mile or greater).
   i. All sign panels for seasonal services shall be covered or removed when the service is not available (Minn. Stat. Sec. 160.296, Subd. 2) and is the responsibility of the facility or business. A CLOSED plaque may be bolted over the arrow/distance portion of the sign panel, for seasonal businesses. CLOSED plaques are required on the mainline sign and not on the ramp sign at an interchange.
   j. Specific service sign panel (D9-X6) details are shown in the MnDOT Standard Signs and Markings Manual.
6-7.10 External Sign Variance Committee

MnDOT 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. Requests denied based on Minnesota Statutes or engineering standards (i.e. insufficient space and design standards) may not be appealed. At the discretion of the District Traffic Engineer, signing requests denied based on MnDOT policy may be appealed to the External Sign Variance Committee (ESVC).

The ESVC is composed of persons outside of MnDOT who meet periodically to consider various requests for signing. The group serves as a variance committee making recommendations to the Commissioner’s office on signing requests that have been denied by the District office. They review requests to see if the denials can be substantiated to have negative effects on the requester and/or motorists. The ESVC also reviews policies and criteria on informational signing matters.

The chairperson is a MnDOT employee who serves in a non-voting capacity to organize and schedule all functions of the ESVC. This individual serves as secretary and records decisions on sign variance requests. The chairperson represents the ESVC, not MnDOT, on all matters pertaining to the ESVC.

The procedures for this Committee are as follows:

1. The focal point for all sign requests shall remain with the District Traffic Engineer. If MnDOT policies or guidelines do not address a specific signing request, the District should confer with OTE staff and other Districts’ staff since all signing requests have statewide implications. If the District Traffic Engineer is uncertain as to whether or not a specific signing request should be approved, the request should be discussed with the District Engineer who will determine if the request is approved or denied. Once the District has made a ruling, the District Traffic Engineer will respond to the requestor. If the request is denied and being referred to the ESVC, the District Traffic Engineer needs to ensure there is space for signing before referring the requester to the ESVC, that the Appeals Process form is included with the response and the ESVC chairperson is copied on the response. The form is available from the ESVC Chairperson or on the OTE Signing internal website. Provide any documentation pertaining to the request to the State Signing Engineer and the ESVC Chairperson.

2. A requester who has been denied signing by the District office and is interested in appealing the decision must submit a written request for a hearing by the ESVC. The requester should contact the chair of the ESVC directly, and will then be advised of procedures and meeting date. The ESVC hears the requester’s appeal and MnDOT’s presentation separately. The recommendations of the ESVC will be based on pertinent factors, and will always consider the degree of financial hardship to the requester and safety implications.

3. For each signing request, the recommendations made by the ESVC and the State Traffic Engineer are forwarded to the Commissioner’s office for review. Presentations on each request are made to a special committee (Internal Sign Variance Committee) appointed by the Commissioner for final concurrence or denial. The requester and the District involved will be notified by the chair of the ESVC of the decision made by the Commissioner.

4. If the ESVC and the Commissioner approve the variance, the letter from the ESVC will notify the requester and the District Traffic Engineer with additional instructions. The requester will then work with the MnDOT District responsible for installing the sign to complete the process. All costs pertaining to signing will be the responsibility of the requester.

5. If the ESVC and the Commissioner deny the variance, the requester will be unable to reapply unless there is a significant change in the request.

If the requester is unable to attend the appointed ESVC meeting, they are required to notify the ESVC Chairperson at least 48 hours prior to the meeting date. Nonattendance without prior notification will result in an automatic denial for the facility. The requester cannot present to the ESVC again unless there is a significant change in their request. If the variance is granted, it does not change the guidelines covering that specific sign issue, but only that specific situation.
6-7.11 Dakota and Ojibwe Language Signing Program

Background

Indian tribal governments are federally recognized in Minnesota. Each tribe is a separate sovereign nation unique unto itself and distinct from all other federally recognized tribes. On August 8, 2013, Governor Dayton signed Executive Order 1310 Affirming the Government-to-Government Relationship between the State of Minnesota and the Minnesota Tribal Nations: Providing for Consultation, Coordination, and Cooperation. In accordance with this Order, the Minnesota Department of Transportation (MnDOT) established MnDOT Policy AD005, Minnesota Tribal Nations Government-to-Government Relationship with MnDOT, Providing for Consultation, Coordination, and Cooperation.

MnDOT recognizes the unique sovereign status of federally recognized tribes and the cultural values of all American Indian tribes in Minnesota and is committed to strengthening the government-to-government relationship with the tribes.

Tribal Governments have requested that certain traffic signs display both English and the Dakota or Ojibwe language on roads and highways that traverse tribal lands. MnDOT worked with the Advocacy Council for Tribal Transportation (ACTT) and the Federal Highway Administration Minnesota Division to develop this signing program. The purpose of the signs is to assist the Tribes with the revitalization of their language and to inform all people of the historic pre-settlement names of geographic features and the Dakota and Ojibwe words for other features on tribal lands that are included in this signing program.

Information about the meanings of the words on the signs will be publicly available on the MnDOT Tribes and Transportation webpage http://www.dot.state.mn.us/mntribes/ after signs are installed.

General Requirements

The Minnesota Manual on Uniform Traffic Control Devices for Streets and Highways (MN MUTCD) is the standard for all traffic control devices on any roadway open to public travel. All signs are traffic control devices. Uniformity of traffic control devices simplifies the task of the driver because it meets the motorist expectation which aids in recognition and understanding. For example signs are read from top to bottom, left to right and in a text size that can be read and interpreted by the motorist traveling at roadway speeds.

The MN MUTCD generally does not provide for the display of alternative or supplemental languages on traffic signs. Tribal Governments may request dual language signing on jurisdictional boundary and geographic features signs on or near tribal lands roadways under MnDOT jurisdiction. The following is MnDOT’s guidance on the display of both the English and the Dakota or Ojibwe language on traffic signs.

Guidance

The display of both the English and the Dakota or Ojibwe languages on a single sign or sign assembly may be approved by MnDOT, based on the following guidelines.

1. Requests may include any jurisdictional boundary signs (MN MUTCD Section 2H.2.2 County/City Name Marker Signs) or geographic features signs (MN MUTCD Section 2H.2.3 Lake and Stream) including the following:
   • Reservation Boundary signs,
   • City population signs,
   • County line boundaries and bodies of water such as lakes, rivers, streams, or creeks when that body of water is crossed by the trunk highway by the use of a bridge or the body of water is visible to the motorist.

2. A letter of concurrence from the City or County is required for city population signs or county boundary signs. The letter of concurrence needs to specify that they are in agreement that both languages be displayed and identify the placement, above or below, of each language.
3. Signs shall be limited to locations on or near tribal lands. Signs shall not be installed outside of tribal lands such as, but not limited to, concentrated ethnic neighborhoods or population centers.

4. The language legend shall be either Dakota or Ojibwe as specified by the Tribal Government.

5. Dakota and Ojibwe languages shall not be displayed on any other sign including, but not limited to:
   • Regulatory Signs,
   • Warning Signs (including School Zone Signs),
   • All other Guide signs including:
     ◦ Destination,
     ◦ Street Name,
     ◦ General or Specific Service (Logo Signs),
     ◦ Tourist-Oriented Directional (Specific Service Signs),
     ◦ Auto Tour Route, and
     ◦ Acknowledgment signs.

6. The use of such signs shall be limited to conventional roadways. Signs shall not be installed on freeways and expressways.

7. Signs shall be post mounted on MnDOT approved crashworthy roadside sign structures and not be overhead installations.

8. Installation of the signs shall not interfere with the placement of any other necessary signing and shall not compromise the safety or efficiency of traffic flow. The signing shall be limited to one sign at an appropriate location in each route direction.

9. All letters and numerals displayed on the sign for the main characters of the Dakota and Ojibwe language shall be as provided in the Standard Highway Signs and Markings reference publication. Unique characters that are necessary for the proper translation, but not provided in the FHWA Standard Alphabets, may be used. These unique characters are to be kept to a minimum and shall be based on the characteristics of the letter forms of the Standard Alphabets, such as stroke width and arc, to the extent practicable.

Process Overview
1. The ACTT representative as authorized by their Tribal Government will request signs through the MnDOT District Traffic Office.

2. The ACTT representative will include the following items with the request:
   a. Submittal Letter
   b. Documentation that illustrates action of approval by the Tribal Government to request signs. For example: minutes of a meeting or proceeding, letter from Tribal Government, resolution, etc.
   c. Letter of concurrence from the City or County which is required for any requested city population signs or county boundary signs. The letter or concurrence needs to specify that they are in agreement that both languages be displayed and identify the placement, above or below, of each language.
   d. List of requested signs as entered into the spreadsheet: http://www.dot.state.mn.us/trafficeng/signing/docs/dakotaorjibwelanguagesigns.xlsx. Because of the length of some Dakota and Ojibwe words, some signs could be very large unless the word or phrase is separated onto two lines. Where possible, recommend where the word or phrase can be separated onto two lines without changing the meaning.
e. If possible, submit electronically the spreadsheet referenced above to the MnDOT District Traffic Office so information can be added to the spreadsheet as described below.

3. The MnDOT District Traffic Office will provide the following information back to the ACTT representative:
   a. Sign Panel designs (PDF)
   b. Completed spreadsheet: Dakota or Ojibwe Language Signs.xlsx.
   c. A Dakota or Ojibwe Language Signs Application

4. The ACTT representative will review the sign panel designs for accuracy and if approved, will send the MnDOT District Traffic Office a completed application. If there are errors, the ACTT representative should contact the District Traffic Engineer with revisions prior to completing the application.

5. When the completed application is received, signs will be ordered for fabrication and installation.

6. The MnDOT District Traffic Office will send the completed spreadsheet to the MnDOT website coordinator who will make the English words, the Dakota or Ojibwe language words, the English translation of the Dakota or Ojibwe words, and a phonetic representation of the words available on the MnDOT Tribes and Transportation website.

Sign Panel Design

1. The Dakota and Ojibwe legend may be placed above the English legend on a case by case basis. Both legends are upper lower case lettering.

2. Due to the length of some Dakota and Ojibwe words and phrases, it is recommended to use the highway font Series D instead of E Mod. Series D is a similar font to E Mod but has less breadth to the letters by approximately 35%. By using the Series D font and one inch less than the standard font height, the overall width of the signs when placing the Dakota or Ojibwe language on two lines should, in most cases, fit on U channel post sign structures. If the word or phrase cannot be displayed on two lines the overall size of the sign may require a larger sign structure. This will increase the cost of the sign.

3. The I3-1 (Body of Water) and I2-5 (County Boundary) sign will include the Dakota or Ojibwe language in Series D, 5-inch font and the English legend in E Mod, 6-inch font.

4. The I2-3 (City Population) sign will include the Dakota or Ojibwe language in Series D, 7-inch font and the City Name with the English legend in E Mod, 8-inch font. Below the city name, the word population is abbreviated as POP and number per the standard sign drawings for I2-3.
6-7.12 Treaty Boundary Signing Program

Background
The Advocacy Council for Tribal Transportation (ACTT) requested that MnDOT erect signs to designate the approximate location of treaty boundaries established by land cession agreements between the U.S. Government and the sovereign Indian tribes living in the areas of what is now the State of Minnesota. The purpose of the signs is to inform people of the historic boundaries.

A treaty is a very significant document in which inherent rights such as hunting, fishing and gathering rights were retained in the treaty.

Because tribes are the original owners of the land, courts have held that tribes keep the right to use the land unless they expressly give up that right. Tribes preserve all their rights to use the land until then. This doctrine is known as the "reserved rights doctrine"; it was first used by the Supreme Court in United States v. Winans, 198 US 371 (1905) where the Supreme Court held: "The treaty was not a grant of rights to the Indians, but a grant of rights from them - a reservation of those not granted." [http://www.wabanaki.com/treaty_rights.htm](http://www.wabanaki.com/treaty_rights.htm)

Information on Land Cession Treaties
People who are interested in learning more about the treaties can find information through a number of avenues, including the internet. The most comprehensive website is the Treaties Matter website, [http://www.treatiesmatter.org](http://www.treatiesmatter.org). This is a companion website to the traveling exhibit Why Treaties Matter which was created through a partnership of the Minnesota Indian Affairs Council, the Minnesota Humanities Center, and the Smithsonian’s National Museum of the American Indian in Washington, D.C. in August 2010. The Treaties Matter website has information on 12 Dakota and Ojibwe land cession treaties. The treaties were established before Minnesota became a state and the boundaries of some treaties extend into adjacent states. The Why Treaties Matter exhibit travels throughout Minnesota to educate the general public about treaties.

Signing Standards:

1. Treaty Boundary will follow the standards of other boundary signs such as reservation boundaries, county boundaries, etc.

2. The signs will include a white legend on a green background.

3. The sign will include the year of the land cession treaty, the words “Treaty Boundary,” and a pictograph comprised of a white silhouette of the State of Minnesota with the area of the treaty shown in green.

4. Signs will be placed at a maximum of two locations along state highways under MnDOT’s jurisdiction where the area is entered from opposite directions of travel.

5. Signs will not be placed at entrances to the State of Minnesota unless the treaty ceded territory boundary and the state boundary coincide.

6. Approximate sign location along State owned highways will be provided by the requester based on the boundary defined in the treaty.

7. The sign will be placed at the approximate location of the treaty boundary.

8. The sign will not be surveyed in.

9. The sign does not demark the ownership or use rights of land on either side of the sign.

10. Sign fabrication, installation and replacement cost will be paid by the requester through a signing agreement.
Signing Process:

1. MnDOT Tribal Affairs will serve as the liaison between MnDOT and the requester(s).

2. All Minnesota tribes who are signatory to the treaty must be in agreement to the treaty boundary area and signing of those boundaries along state highways. The Minnesota Tribes signatory to the treaty will submit tribal resolutions or an official letter signed by the Tribal Chairman/Chairwoman/President requesting treaty boundary signs through the MnDOT Tribal Liaison.

3. The MnDOT Tribal Liaison in coordination with the requesting Minnesota tribes will contact the MnDOT State Signing Engineer.

4. The request for signs from the Minnesota Tribes signatory to the treaty must include the approximate sign location along state highways based on the treaty boundaries defined in the treaty and a pictograph of the treaty boundary overlaid on the State of Minnesota to be included on the sign as shown in the signing example below.

5. The State Signing Engineer will coordinate with the MnDOT District Traffic Engineers whose districts are included in the treaty area.

6. The State Signing Engineer will follow the current requester pay process including sending a letter of approval, application and cost estimate to MnDOT Tribal Affairs and appointed tribal government representative. Once the State Signing Engineer receives the completed application and payment from the requester, the signs will be ordered for fabrication and installation.

7. If the sign needs to be replaced because it is damaged, the replacement cost will be the responsibility of the requester.

**Signing Design Example:** (dimensions are shown in inches)

Conventional roadways i.e. Two lane - two way highways:

Freeways and expressway, i.e. high speed four lane divided roadways, signs are larger to allow motorists to read the sign at higher speeds. These signs will look the same as illustrated above however they will be 72 inches wide by 48 inches high with 8 inch tall letters and a 13 inch pictograph.
6-8.00 APPLICATION GUIDELINES - MISCELLANEOUS SIGNS

6-8.01 Adopt-A-Highway Sign Program (I-X1)

This signing program is administered by the District offices under the direction of the Office of Maintenance. MnDOT shall fabricate and install signs. One sign shall be installed in each direction at the beginning of the adopted highway segment. Volunteer group names should be limited to a maximum of 18 characters per line to maximize legibility. Each space between words and each type of punctuation takes up a character on a line. All letters shall be uppercase.

A 60" x 18" plate with the words THIS SECTION AVAILABLE should be attached to the bottom half of the 60" x 36" sign panel if a group ceases to participate in the Adopt-A-Highway program and no other group adopts that section of highway for a period of time. This plate is to be attached to the sign panel with bolts utilizing spacers to minimize damage to the retroreflective sheeting on the overlaid sign panel. The colors on the bottom 60" x 18" portion of the sign panel were reversed (white legend and border on blue background) in 2006. A 60" x 18" panel may be attached to the bottom half of the 60" x 36" sign panel for new volunteer groups until the 60" x 36" sign panel reaches the end of its useful life.

A Reference Location sign panel may be combined with an Adopt-A-Highway sign panel 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 sections of freeways and expressways.

Rather than two separate sign structures close together, both sign panels may be combined on one sign structure in accordance with all of the following criteria:

1. The Adopt-A-Highway sign panel is the primary sign panel on the sign structure.

6-8.02 Adopt-A-Rest Area Sign Program

MnDOT non-interstate rest areas, waysides, scenic overlooks, and historic properties not serviced by MnDOT’s statewide custodial service provider or by a facility partner may be adopted by groups for the purpose of litter pickup, similar to adopting a highway segment. For a current list of facilities available for adoption, contact the MnDOT Safety Rest Area (SRA) Program Manager. See www.dot.state.mn.us/restareas for contact information.

For historic properties, contact the MnDOT Historic Roadside Properties Manager for guidance with respect to the placement of Adopt-A signs. Additional restrictions on the placement of signs apply at historic sites. See www.dot.state.mn.us/roadsides/historic for contact information.

One ADOPT-A-REST AREA sign (I-X1), 42" x 24" may be installed along the entry drive into the property or within the site as approved by the SRA Program Manager and/or as determined by the Historic Roadside Properties Manager, where applicable. All other pertinent guidelines of the Adopt-A-Highway program shall apply to the Adopt-A-Rest Area program.
6-8.03 Community Wayfinding Sign Program

Generally, guidelines that are discusses in this section are those which (1) are not specifically addressed in the Minnesota Manual on Uniform Traffic Control Devices (MN MUTCD) Part 2D.50, (2) provide additional guidance to that given in the MN MUTCD on application, location and usage of signs, and (3) must be addressed because MnDOT is charged with developing and implementing design, use and application of certain guide signs in accordance with Minnesota Statutes.

1. Introduction

The community must develop a master plan for Community Wayfinding signing which contains a map of the community, including the city street/local road system and a concept design of the community wayfinding sign structure and sign panels.

2. Community Map

The map of the community shall include:

a. Exact locations of private and publicly owned destinations and attractions to be included in this signing program. Destinations or attractions must be key civic, cultural, visitor, and recreational attractions and other destinations of general interest to tourists and the traveling public and shall not be a retail, business, or manufacturing center. In addition, this type of signing shall not display advertising for a commercial product or service.

Only those destinations/attractions which qualify under MnDOT’s Minor Traffic Generator Signing program guidelines are eligible for signing (contact the MnDOT District Traffic Engineer to obtain the listing of destinations/attractions eligible for signing). Community requests for other types of destinations/attractions may utilize MnDOT’s sign variance process.

b. Conventional highway approaches to city street/local road intersections where signing is proposed.

c. Which destination(s) and attraction(s) are to be signed on each conventional approach at each city street/local road intersection.

d. City street/local road intersections where trailblazing signing is required to direct motorists to each facility. If signing is approved on the conventional highway to a facility, trailblazing signing shall be installed on the city streets/local roads by the community before signing is installed on the conventional highway.

3. General Requirements

When interested, a community initiates, coordinates and submits a master plan to the MnDOT District Traffic Engineer. The master plan needs to include a resolution (see Form 6.1) and one lead contact person within the community through which all MnDOT correspondence and contact will be made.

If a community obtains MnDOT approval for Community Wayfinding Signing, MnDOT will remove any existing minor traffic generator signs within the community. No requests for minor traffic generator signing will be approved within the community while the Community Wayfinding Signing program is in effect.

For those facilities that MnDOT considers eligible for signing on state trunk highways, the eligible community is responsible for the construction, installation, and maintenance of the community wayfinding sign structures and sign panels at its own expense.

If community wayfinding signs are not properly maintained, MnDOT will request that the community remove the signs at its own expense. If the signs are not removed within 30 days of notification, MnDOT will remove the community wayfinding signs at the expense of the community.

4. Criteria for Community Wayfinding Signing

a. Signing may be permitted on conventional highways within a community.
b. Sign locations on conventional highways shall be approved by the MnDOT District Traffic Engineer. Installation of signs shall be through the MnDOT permit process.

c. Only one sign structure is allowed in each direction approaching an intersection and should be located on the right side of the roadway.

d. A sign shall not obscure or detract from any existing traffic control devices.

e. If a sign structure is located in the clear zone, it shall meet FHWA breakaway requirements based on the current edition of the AASHTO Standard Specifications for Highway Signs, Luminaires, and Traffic Signals, or be protected as approved by the MnDOT District office.

f. Sign panel offset and mounting heights shall be in accordance with the MN MUTCD and shall not be mounted overhead.

g. Signing is allowed for left and right turning movements. Straight ahead confirmatory signing may be permitted in unique circumstances.

h. A specific destination may only be displayed on one sign structure in each direction on a conventional highway unless straight ahead confirmatory signing is also approved by the District Traffic Engineer.

i. Roadway reconstruction and/or installation of new regulatory, warning, or guide signs may necessitate relocation or removal of community destination signs by the community at its own expense.

5. Sign Design Criteria

a. Following MN MUTCD 2D.50, the sign panel background color shall not use red, orange, yellow, purple or the fluorescent versions thereof, fluorescent yellow-green or fluorescent pink.

b. The sign panels shall be made using retroreflective sheeting (see MnDOT Standard Specifications for Construction Section 3352.2A2b). Fluorescent sheeting shall not be used on sign panels.

c. The sign base material should be sheet aluminum (see MnDOT Standard Specifications for Construction Section 3352.2A1a).

d. If separate sign panels are to be used, each sign panel should not exceed six feet in length and two feet in height.

e. Pictographs may be used on community wayfinding signs and if used, comply with the requirements of the Community Wayfinding section of Part 2D in the MN MUTCD. The city pictograph, if displayed, shall be simple, easily recognizable and placed at the top of the sign structure (independently or on the top of a sign panel).

f. The lettering of a city name shall be of a font style and high color contrast for motorists to read at normal highway speeds. If used, place near the top of the sign panel.

g. Symbols, business logos or other forms of advertising for destinations and attractions are not permitted per the MN MUTCD.

h. Up to three destinations/attractions may be displayed on a sign structure (three separate sign panels or one sign panel with three destinations).

i. Destinations shall be displayed (from top to bottom of sign) in the following sequence: straight ahead destination followed by left-oriented destination followed by right-oriented destinations. Closer destinations shall be displayed above further destinations if they are in the same direction.
j. Lettering shall be 6-inches high. The suggested font is Series C Federal Highway Gothic font (or a similar font style that does not detract noticeably from legibility) with approximately a maximum number of 14 characters per line (including spaces between words). Abbreviations, if used, should be standard abbreviations.

k. Lettering and arrows shall be the same color.

l. Arrows shall be MnDOT standard arrows or similar so as to be legible and not a distraction without encircling accents or contrasting mini-backgrounds.

m. Left arrows and upward pointing arrows shall be displayed on the left side, and a right arrow on the right side of a sign panel. If a border is used, it shall be plain, not decorative.

n. All sign panel designs should be reviewed by the MnDOT District Traffic Office before fabrication.

o. The sign shall not contain any animated or moving parts or flashing disks.

p. Distracting flashing or moving lights are not allowed. Lighting which presents a new message, pictorial image, or changes illumination at a rate less than once every six seconds is determined to be a flashing or moving light and is in violation of Minn. Stat. Sec. 173.15, Subd. 7.

6-8.04 Emergency 911 sign

This sign informs motorists entering Minnesota that emergency services may be reached by dialing 911. It should be installed within five miles of the state border on major entry points into the state. Additional signs may be placed at locations such as airports, weigh stations, and rest areas.

6-8.05 Reference Location Sign (D10-1, D10-2, and D10-3)

Reference Location signs, often referred to as Reference Post markers, shall be erected along trunk highways to assist drivers in estimating their progress, provide a means for identifying the location of emergency incidents, and aid in highway planning and maintenance efforts. The zero mile point should begin at the south or west state line or at the south or west terminus where routes begin.

The Office of Transportation Data and Analysis (TDA) shall be notified of new installations of Reference Location signs. Notification shall also be made for replacement of the sign if the previous location cannot be accurately determined (i.e. knockdowns). TDA will provide correct location information for the signs. Notification should be made during the plan development stage.

A Reference Location sign shall be installed within six feet of its correct location. When a Reference Location sign cannot be installed within this distance, it may be moved and installed within 50 feet of its correct location; in this case TDA must be notified of the change. If it cannot be placed within 50 feet of its correct location, it should not be installed.

Further information about Reference Location signs can be found in the MN MUTCD Section 2H.5 and in Chapter 14-5.09 Reference Point System of the Traffic Engineering Manual.

For the design and size of Reference Location signs refer to the MN MUTCD.

MnDOT installs One Tenth Mile (X4-8) delineators on freeways and expressways to further enhance the usefulness of the Reference Location Sign System. Fabrication and installation details are specified later in Section 6-10.04.06 Tangent of this Chapter.
6-8.06 Rest Area Signing

Signing for Rest Areas is shown in the [MN MUTCD](#) Section 21.5.

6-8.06.01 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 plaque reading Buses 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. When the existing sign panels are due to be replaced, add the word “Buses” to the legend of the sign panel.

   NOTE: 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 sign reading BUS PARKING ONLY along the designated parking stall(s).

6-8.06.02 Teletypewriter (TTY) Facility Signing in Rest Areas

This symbol sign provides travelers that have hearing impairments or speech difficulties advance notice of TTY equipped public pay telephones located in several MnDOT Class I rest areas.

Guidelines for fabrication and installation of TTY sign panels are as follows:

1. The TTY symbol sign panel may be installed on an existing advance rest area sign structure for each of the rest areas equipped with TTY equipment. If there is more than one rest area sign, OTE and District Traffic Office staff will determine which advance sign structure will display the TTY symbol sign panel.

2. If the advance rest area sign panel is on a ground mounted sign structure, attach the TTY symbol sign panel in accordance with the following size guidelines:

   a. U-channel sign structures - Mount the sign panel directly below the rest area sign panel on the right U-channel post with standard sign panel mounting hardware.

   b. I-beam sign structure mounting will be determined by OTE and District Traffic Office staff.

3. If the advance rest area sign panel is mounted overhead, mount the TTY symbol sign panel overhead. The mounting location will be determined by OTE and District Traffic Office staff. If there is more than one overhead mounted advance rest area sign panel, OTE and District Traffic Office staff will determine which advance sign structure will display the TTY symbol sign panel.

4. All costs for the TTY symbol sign panels (fabrication, installation, and removal) will be borne by MnDOT, since MnDOT is providing this equipment and let the statewide contract for the installation and maintenance of the TTY equipment in all Class I rest areas.
6-8.06.03 WAYSIDE REST Sign (D5-X1, D5-X2)

Wayside rests (State owned and maintained facilities only) are rest stop facilities with limited services located on conventional highways in rural areas (see Figure 6.37). If the wayside rest is closed for the season, a CLOSED plaque may be installed.

1. Install a WAYSIDE REST advance sign approximately 1/2 mile in advance of the point of turn. Place appropriate supplemental signs below the D5-X1 or the D5-X2 sign.

2. Install a WAYSIDE REST with arrow sign (D5-X2) prior to the point of turn.

6-8.07 Road/Weather Information System (R/WIS) sign

MnDOT has approved signing for the R/WIS program, which provides road and weather information to the motorist. These signs have been installed statewide to promote this program.

6-8.08 Seat Belt Sign (R16-X11 and R16-X12)

Seat Belt signs are used on all trunk highways near state entrance points to alert motorists entering Minnesota to the state law regarding seat belt usage and promote safety for the traveling public.

Install the R16-X11 sign at all state border entrances on the trunk highway system and at entrances from airports.

The R16-X12 (36” x 36”) sign may be installed at an entrance from a weigh station or a rest area.

The R16-X12 (18” x 18”) sign may be installed at an entrance from a parking lot or a park and ride lot.

6-8.09 Enhanced Conspicuity of Standard Signs

Based on engineering judgment, where the improvement of the conspicuity of a standard regulatory, warning, or guide sign is desired, methods shown in MN MUTCD Part 2A may be used.

6-8.10 Unauthorized Sign Attachments

Extraneous and unauthorized sign panels should be removed and no such attachments are permitted on any signs on the trunk highway system.

6-8.11 Test Section Signing

Test sections are developed and monitored by the Office of Materials and Road Research and by District maintenance forces. When requested, sign in accordance with the following guidelines.

1. The Office of Materials and Road Research should track these sections and work with the District traffic and materials engineers to determine which test sections should be signed.

2. Identify test sections by one of the following methods:
   a. The preferred method is paint, retroreflective 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 design uses black, 2-inch high numbers and border on a white non-retroreflectorized background.

3. All test section signing installations should be coordinated by the District Traffic Offices.

4. All inplace test section signs should be removed at the end of their useful life, with the exception of Strategic Highway Research Program (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 3.

6-9.00 OBJECT MARKERS

6-9.01 Purpose
Object markers are used to mark obstructions within or adjacent to the roadway and mark the end of a roadway.

6-9.02 Types of Object Markers
For object marker types, colors, and uses, consult the MN MUTCD Sections 2C.63 through 2.66. Additionally, MnDOT uses markers uniquely designed for snow plow operations which are not referenced in the MN MUTCD. See the MnDOT Standard Signs Summary and Manual for MnDOT sign designs and sizes for use on MnDOT highways.

6-9.03 Applications and Guidelines

6-9.03.01 Bridge Abutments, Piers, and Rails
Bridge abutments, piers and rails within the width of the approaching shoulders should be marked with Type 3 Object Markers (X4-4). A typical application can be found in Figure 6.38.

6-9.03.02 Bridges - Narrow Bridges/One Lane Bridges
Narrow bridges should be marked and delineated as shown in Figure 6.39. More information on signing narrow bridges can be found in MN MUTCD 2C.20.

One-lane bridges should be marked and delineated as shown in Figure 6.40. More information on signing one lane bridges can be found in MN MUTCD 2C.21.

6-9.03.03 Cattle Passes/Large Culverts
Cattle passes and larger culverts that meet one of the following descriptions are subject to the provisions of this subsection:

1. Headwalls are present and are not protected by guardrail, subject to engineering judgment.

2. Minimum width of 42 inches and a maximum width of 20 feet. Large culverts 20 feet or wider may be treated as a bridge, subject to engineering judgment.

3. Any culvert with an end or opening that is within eight feet of the outside edge of the shoulder. This eight foot distance was selected because it may allow a motorist to pull off of a narrow shouldered roadway if other conditions permit.

4. Other structures as determined by the District Traffic Engineer.

All cattle passes and larger culverts meeting the above criteria should be marked with Type 2 object markers as described in Section 2C.63 and 2C.65 of the MN MUTCD and as follows:

1. The Type 2 Object Marker (X4-3) used should be constructed of 0.062-inch aluminum or other lightweight material such as fiberglass or flexible urethane sheeting. Use fluorescent yellow prismatic retroreflective sheeting of a type compatible with the base material.

2. Mount two markers back-to-back on a flexible post or 2-pound steel post. A flexible post is preferred due to its resistance to being knocked down by snowplows and farm equipment. Additionally, it provides better daytime visibility. Install the two-way marker assembly on the near right side immediately in front of the structure as shown in Figure 6.41.
6-9.03.04 Driveways

A property owner may mark each side of a driveway entrance with reflectors. Blue colored reflectors are preferred although white (colorless) may be used. Place each reflector on its own structure (not to exceed a 1.0 pound post), not more than five feet above the ground, and at least 12 feet from the outside edge of the shoulder to prevent snowplow damage.

Red or yellow reflectors should not be used since they can be easily confused with motor vehicle tail lights. MnDOT may remove existing reflectors if they obstruct or interfere with the effectiveness of any traffic control device (Reference: Minn. Stat. Sec. 169.07).

6-9.03.05 End of Roadway

A typical placement of markings for a roadway that ends with no alternative vehicular path is shown in Figure 6.38.

6-9.03.06 Guardrails

The approach end of plate beam guardrail installations should be marked with a Type 3 Object Marker in accordance with the MN MUTCD Section 2C.65.

On guardrail installations with flat end treatments, the object marker shall fit within the recessed area. On installations with round end treatments, the object marker shall wrap around the circular end treatment and shall be mounted so that the top of the marker is even with the top of the circular end treatment.

Both ends of all guardrails shall be marked with the Snowplow Marker (X4-5) as shown in Figure 6.38.

6-9.03.07 Infiltration Areas (X3-6a)

Special drainage infiltration areas are built as part of construction projects. Each infiltration area may be marked with the standard sign X3-6a to identify the area to field personnel. For more information about infiltration areas see MnDOT Tech Memo 14-06-ENV-01.

6-9.03.08 Islands

A typical application of the placement of object markers on islands can be found in Figure 6.38.

6-9.03.09 Snowmobiles or Recreational Vehicles on MnDOT Trunk Highway Right-of-Way.

It is MnDOT policy and practice to not sign or mark obstacles for snowmobiles or other recreational motorized vehicles on trunk highway right-of-way.

6-9.03.10 Snowplow Operations

The Snowplow Marker (X4-5) is used to indicate to a snowplow operator the beginning and end of a guardrail installation. The snowplow marker is shown in Figure 6.38. An alternate to the snowplow marker is a Snow Pole.

Interchange gores (freeways and expressways) are marked with a 12” x 24” Type 3 Object Marker Center (X4-4C).

6-9.03.11 Other Objects

Objects located within the clear zone should be marked with the proper object marker. The clear zone should be determined as stated in MnDOT Road Design Manual, Chapter 4-6.04.
6-10.0 DELINEATORS

6-10.01 Purpose

Delineators are guidance devices used where the alignment might be confusing or unexpected, such as lane reduction transitions and curves. They are effective guidance devices at night and during adverse weather and remain visible when the roadway is wet or snow covered.

6-10.02 Types of Delineators

For delineator types and colors, consult the MnDOT Standard Signs Summary and MnDOT Standard Signs and Markings Manual for use on MnDOT highways. Commonly used delineators types are shown in Figure 6.42 of this chapter.

6-10.03 Placement

Delineator placement guidance can be found in the MN MUTCD Section 3F. Delineator height and lateral placement are shown in Figure 6.44.

6-10.04 Applications and Guidelines

Examples of delineator installations are shown in the MN MUTCD Section 3F.

6-10.04.01 Guardrail

Delinieate three-cable guardrail as shown in the current version of MnDOT Standard Plates Nos. 8330 and 8331. The color of the retroreflective sheeting shall match the color of the adjacent edge line.

6-10.04.02 Horizontal Curves

When applied on the approaches to and throughout horizontal curves, spacing should permit several delineators to always be visible along the curve ahead of the driver. The MN MUTCD Figure 3F-1 and Table 3F-1 show the approximate spacing for delineators along horizontal curves. Figures 6.44 through 6.46 of this chapter have additional information regarding delineating curves on interchange ramps. A simple method for field personnel to determine the degree of curve or the radius of a curve is shown in Chart 6.8 of this chapter.

6-10.04.03 Interchanges

Delineation of cloverleaf and diamond interchanges is shown in Figures 6.44 through 6.46 of this chapter.

The yellow guide delineator used on the left side of exit ramps complies with MN MUTCD Section 3F.3. Spacing should follow either Plan A for an exit ramp or Plan B for an exit loop.

6-10.04.04 Intersections

Intersection delineation guidance can be found in MN MUTCD Section 3F.4.1 and placed as shown in MN MUTCD Figure 3F-2. Delineation of intersection median corners on divided-highway crossovers is shown in Figure 6.43 of this chapter.

6-10.04.05 Lane Reductions

The MN MUTCD Section 3F.3 gives guidance on delineation of lane reductions and refers to MN MUTCD Figure 3B-14.
6-10.04.06 Tangent

Per the MN MUTCD, Section 3F.3 requires single delineators to be installed on freeways and expressways except where continuous lighting is in operation between interchanges. The MN MUTCD Section 3F.4 provides guidance that delineators on mainline tangent sections should be spaced between 200 and 530 feet apart. MnDOT uses the Tenth Mile Delineator (X4-8) and spaces it approximately at 0.1 mile apart (530 feet).

6-10.04.07 Vertical Curves

When applied on crest vertical curves, the spacing should permit a minimum of three delineators to be visible from all points along the centerline of the curve at an eye level of four feet above the pavement.

6-11.0 REFERENCES


RURAL
TYPICAL SPEEDS
45 MPH AND ABOVE

URBAN
TYPICAL SPEEDS
BELOW 45 MPH

NOTES:
1. 5 ft on conventional roads; 7 ft on expressways and freeways.
2. When a secondary sign is mounted to more than one riser post, the mounting height from the elevation of the roadway to the bottom of the secondary sign shall be 5 ft on conventional roads and 7 ft on expressways and freeways.
3. When a secondary sign is mounted on a single riser post, the mounting height from the elevation of roadway to the bottom of the secondary sign may be 1 ft less than the height specified in note 2.
4. When a secondary sign is mounted on a single riser post the mounting height of the secondary sign may be mounted 5 ft. above the ground.
5. All dimensions are minimums.
REGULATORY SIGNS ON DIVIDED HIGHWAYS AT ENTRANCES

Public Street or High Volume Entrance
Low Volume Entrance
Private Driveway

Legend
* Optional
** Refer to MN MUTCD Part 2B to determine traffic control device need/warrant.

Text Ref.: 6-5.02

November 2016

FIGURE 6.2
REGULATORY SIGNS FOR DIVIDED HIGHWAY - T INTERSECTIONS

MEDIAN 30 FT. OR GREATER

NOTES:
1. If “ONE WAY” signs are to be used, both shall be installed.

Legend
- Cylinder Style Delineator (X4-13)
- Optional
  1. ONE WAY signs are optional if KEEP RIGHT signs are installed.
  2. Refer to MN MUTCD Part 2B to determine traffic control device need/warrant.

MEDIAN LESS THAN 30 FT.

Text Ref.: 6-5.02

November 2016
REGULATORY SIGNS FOR DIVIDED HIGHWAY INTERSECTIONS - MEDIANS LESS THAN 30 FT. WIDE

Legend

- Cylinder Style Delineator (X4-13)
  - Optional
  - **ONE WAY signs are optional if KEEP RIGHT signs are installed.**

Text Ref.: 6-5.02

November 2016

FIGURE 6.4
**NOTES:**

1. If placement of the ONE WAY signs in the median creates confusion see Figure 6.5B.
2. See Figure 6.2 for DO NOT ENTER and WRONG WAY signs.

* Optional

Text Ref.: 6-5.02

November 2016

REGULATORY SIGNS FOR DIVIDED HIGHWAY INTERSECTION - MEDIAN WIDTH 30 FT. OR GREATER

FIGURE 6.5A
NOTES:

1. Exercise engineering judgment in determining placement of ONE WAY signs. Field experience has shown that when placed in the median, the ONE WAY signs above the STOP/YIELD signs point towards each other causing confusion to motorists from the approaching cross streets. The MN MUTCD states to install ONE WAY signs in the near right and far left corners of each intersection. Instead of placing a ONE WAY sign in the near right corner (typically mounted above the STOP/YIELD sign in the median), consideration could be given to installing that sign in the far right corner of the intersection as shown in the figure above.

2. The ONE WAY sign should be mounted on the back side and above the STOP or YIELD sign.

3. See Figure 6.2 for DO NOT ENTER and WRONG WAY signs.
REGULATORY SIGNS FOR DIVIDED HIGHWAY INTERSECTIONS WITH FRONTAGE ROADS

NOTES:
1. The signing is the same for both approaches to the intersection.

Text Ref.: 6-5.02

November 2016

FIGURE 6.6

Lorem ipsum
REGULATORY SIGNS FOR DIVIDED HIGHWAY INTERSECTIONS WITH A ONE-WAY STREET/RAMP

NOTES:

1. See Figure 6.5B for optional location of ONE WAY signs above YIELD signs.
2. The DIVIDED HIGHWAY sign should not be used when the roadway is divided only at the junction.

Text Ref.: 6-5.02

Legend
- Cylinder Style Delineator (X4-13)
- Optional
- ** ONE WAY signs are optional if KEEP RIGHT signs are installed.

November 2016
REGULATORY SIGNS FOR DIVIDED HIGHWAY INTERSECTIONS WITH A ONE-WAY STREET/RAMP

ONE WAY

DIVIDED HIGHWAY

>30 ft.

* 

ONE WAY

ONE WAY

WRONG WAY

<30 ft.

* 

* 

NOTES:


See Figure 6.5B for optional location of ONE WAY signs above YIELD signs.

The DIVIDED HIGHWAY sign should not be used when the roadway is divided only at the junction.

Legend

Optional Cylinder Style Delineator (X4-13)

ONE WAY signs are optional if KEEP RIGHT signs are installed.

Text Ref.: 6-5.02

November 2016

LEFT TURN MUST LANE ONLY

OR

EXTENDED LEFT TURN LANE

Text Ref.: 6-5.02

FIGURE 6.7

FIGURE 6.8

May 2015

EXTENDED LEFT TURN LANE

FIGURE 6.8
NOTE:
Install ONE WAY signs on or as near to the signal pole as possible.

* Optional
** If used, the near right ONE WAY sign is not required.

Text Ref.: 6-5.02

May 2015

HIGHWAY INTERSECTIONS WITH ONE-WAY STREET/RAMP

FIGURE

6.9
REGULATORY SIGNS

RIGHT IN - RIGHT OUT INTERSECTIONS

* Optional

Text Ref.: 6-5.02

FIGURE 6.10

May 2015
Exercise engineering judgment in determining placement of ONE WAY signs. Field experience has shown that at most 3/4 intersections the ONE WAY signs placed on the near right and far left corners of the intersection can cause confusion to motorists from the approaching cross streets and the YIELD signs in the median are angled in such a way that placing ONE WAY signs above them is not feasible. Instead of placing the ONE WAY signs on the near right, consideration could be given to installing that sign in the far right corner (mounted above the KEEP RIGHT) as shown in the above figure.

Text Ref.: 6-5.02

May 2015

\[ \frac{3}{4} \text{ ACCESS INTERSECTION SIGNING} \]

FIGURE 6.11

NOTE:
STANDARD SIGN PLACEMENT

WRONG WAY AND EXCLUSION SIGNS ON INTERCHANGE RAMPS

NOTES:

1. Additional sign required on left when ramp is 3 lanes or wider.
2. These signs are not installed on expressway interchange ramps.

Text Ref.: 6-5.02
STANDARD SIGN PLACEMENT
WRONG WAY AND EXCLUSION SIGNS ON INTERCHANGE RAMPS

NOTES:
① Additional sign required on left when ramp is 3 lanes or wider.
② These signs are not installed on expressway interchange ramps.

Text Ref.: 6-5.02

| May 2015 | STANDARD SIGN PLACEMENT
|          | WRONG WAY AND EXCLUSION SIGNS ON
|          | INTERCHANGE RAMPS
|          | FIGURE 6.13 |
STANDARD SIGN PLACEMENT EXCLUSION SIGNS
ON CLOVERLEAF INTERCHANGE RAMPS

Text Ref.: 6-5.02

FIGURE 6.14

May 2015
NOTE:

1 The WATCH FOR BUSES ON SHOULDER signs shall be located beyond the ramp meter signals.

Text Ref.: 6-5.04

May 2015

AUTHORIZED BUS ONLY SHOULDER SIGNING

FIGURE 6.15
Text Ref.: 6-5.05

May 2015

BYPASS LANES

FIGURE 6.16

May 2015
ADVANCED INTERSECTION LANE CONTROL SIGNS

Single right or left turn lane

Shared through/right or left turn lanes with or without through lanes

NOTE:
Signing should be based upon geometrics such as lane development and turn lane lengths and taper lengths rather than strictly on the lane configuration.

* Optional

Text Ref.: 6-5.12
* Required if turn lane is longer than 300 feet.

NOTES:
1. Signing should be based upon geometrics such as lane development and turn lane lengths and taper lengths rather than strictly on the lane configuration.
2. An overhead structure should be installed if there are 3 or more left turn lanes.

Text Ref.: 6-5.12
NOTE:
1 Install for acceleration lanes ≥ 1000’ in length.

Text Ref.: 6-6.02

May 2015  ACCELERATION LANE SIGNING/STRIPING OPTIONS  FIGURE 6.18
NOTE:
The signing is the same for both approaches to the intersection.

* Optional

Text Ref.: 6-6.07

CHANNELIZED INTERSECTION SIGNING
RAISED MEDIAN
NOTE:
The signing is the same for both approaches to the intersection.

* Optional

Text Ref.: 6-6.07

May 2015

CHANNELIZED INTERSECTION SIGNING
PAINTED MEDIAN

FIGURE
6.19B
PEDESTRIAN CROSSING SIGNING
AT UNCONTROLLED LOCATIONS

NOTE:
Intended for use where a definite need exists:
- Heavy pedestrian volumes
- Mid-block crossings, etc.

* Optional

** If used, sign should have a plaque located below denoting “AHEAD” or “XX FEET”.

Text Ref.: 6-6.09.01

May 2015

FIGURE 6.20
NOTES:
1. The signing is the same for both approaches to the intersection.
2. Desirable location 2 - 5 miles in advance of passing lane.
3. Lane skip striping shall end approximately 50 feet beyond the Lane Reduction Transition sign.

* Optional

Text Ref.: 6-5.10, 6-6.14

May 2015

PASSING LANE SECTION SIGNING

FIGURE 6.21A
PASSING LANE SIGNING NEAR LOW VOLUME CROSS ROAD

* Optional

Text Ref.: 6-5.10, 6-6.14

May 2015

FIGURE 6.21B
NOTES:
1. All sign location distances are approximate.
2. Distances between advance signs in the two-lane, two-way section to the painted gore are 500-1200 feet.
3. On high-speed roadways (45 mph and greater), the spacing should be 400-500 feet. On low speed roadways (less than 45 mph), the spacing should be 200-400 feet.
4. Do not use Divided Highway Begins and Divided Highway Ends signs when the highway is divided only at intersections or junctions.

* Optional

Text Ref.: 6-6.20

May 2015

TRANSITION SIGNING BETWEEN DIVIDED AND UNDIVIDED ROADWAYS

FIGURE 6.22
TYPICAL MAST ARM SIGN MOUNTING

Signal Mast Arm Intersection Signing

**Figure 6.23B**

**FIGURE**

*E.V.P.*

Emergency Vehicle Pre-emption Sensor must be visible to oncoming traffic. Current standard plate 8123 puts the E.V.P. at 6' from end of mastarm.

**Center**

Signal Head location takes priority over sign location on signal mast arms. Place signs as close to center of appropriate lane as the signal head locations allow.

**Note:**

Unusual mast arm signing plans should be submitted to M-DOT Signals/ITS Section for Windload analysis.
Signal mast arm intersection signing

**Figure 6.23C**

The situation will dictate how closely a mast arm sign can be "centered" over a given lane. In this instance, the placement of the signal head, the R10-X12 sign, and the EVP sensor take priority over the guide sign placement. The guide sign is placed as close as possible to its ideal location.

NOTE: Unusual mast arm signing plans should be submitted to MnDOT signals/ITS section for windload analysis.
E.V.P.
EMERGENCY VEHICLE PRE-EMPTION SENSOR MUST BE VISIBLE TO ONCOMING TRAFFIC. THE CURRENT STANDARD PLATE 8123 PUTS E.V.P. AT 6' FROM END OF MASTARM.

* IN THIS CASE, THE SIGN IS TOO WIDE TO FIT BETWEEN THE SIGNAL HEAD AND THE E.V.P SENSOR, SO IT WAS PLACED AS CLOSE AS POSSIBLE TO CENTER OF THRU LANES WITHOUT BLOCKING THE E.V.P SENSOR

DIRECTIONAL SIGN (WITH TWO DIRECTIONAL ARROWS): CENTER* SIGN OVER THE THRU LANE(S)

NOTE: UNUSUAL MAST ARM SIGNING PLANS SHOULD BE SUBMITTED TO MnDOT SIGNALS/ITS SECTION FOR WINDLOAD ANALYSIS.
SIGNAL MAST ARM INTERSECTION SIGNING

CENTERED:
SIGNAL HEAD LOCATION TAKES PRIORITY OVER SIGN LOCATION ON SIGNAL MAST ARMS. PLACE SIGNS AS CLOSE TO IDEAL LOCATIONS AS SIGNAL HEAD LOCATIONS ALLOW.

E.V.P.
EMERGENCY VEHICLE PRE-EMPTION SENSOR MUST BE VISIBLE TO ONCOMING TRAFFIC. CURRENT STANDARD PLATE 8123 PUTS THE E.V.P. AT 6' FROM END OF MAST ARM.

NOTE:
UNUSUAL MAST ARM SIGNING PLANS SHOULD BE SUBMITTED TO MDT SIGNALS/ITS SECTION FOR WINDLOAD ANALYSIS.
SIGNAL MAST ARM INTERSECTION SIGNING

E.V.P., EMERGENCY VEHICLE PRE-EMPTION SENSOR MUST BE VISIBLE TO ONCOMING TRAFFIC. CURRENT STANDARD PLATE B123 PUTS THE E.V.P. AT 6' FROM END OF MASTARM.

DIRECTIONAL SIGN WITH UP ARROW CENTER THE SIGN OVER THE THRU LANES

DIRECTIONAL SIGN (WITH RIGHT ARROW) SIGN IS CENTERED OVER APPROACHING RIGHT TURN LANE

CENTER

SIGNAL HEAD LOCATION TAKES PRIORITY OVER SIGN LOCATION ON SIGNAL MAST ARMS, PLACE SIGNS AS CLOSE TO CENTER OF APPROPRIATE LANE(S) AS THE SIGNAL HEAD LOCATIONS ALLOW.

NOTE:
UNUSUAL MAST ARM SIGNING PLANS SHOULD BE SUBMITTED TO M&DOT SIGNALS/ITS SECTION FOR WINDLOAD ANALYSIS.
NOTES:

1. This sign(s) shall be installed prior to a left turn lane or a bypass lane.
2. If a Stop Ahead sign is not required, install signs 300 ft. apart.
3. Install sign 500 ft. from the intersection if there is no left turn lane.

* Optional

RECOMMENDED SPACING DISTANCES

Text Ref.: 6-4.08, 6-7.01, 6-7.04

FIGURE 6.24A
RECOMMENDED SPACING DISTANCES

"T" INTERSECTION SIGNING (DIVIDED HIGHWAY)

NOTES:
1. See Figures 6.4 thru 6.9 for other regulatory signs.
2. If Stop Ahead sign is not required, install signs 300 ft. apart.
3. If there is no turn lane, install these signs 500 ft. from the intersection.

Text Ref.: 6-4.08, 6-7.01, 6-7.04

May 2015

FIGURE 6.24B
4-LEG INTERSECTION SIGNING

NOTES:
1. The signing is the same for both approaches to the intersection.
2. Install this sign 500 ft. from the intersection if there is no turn lane.
3. This sign shall be installed prior to the beginning of the taper if a right turn lane is present.

* Optional

RECOMMENDED SPACING DISTANCES

Text Ref.: 6-4.08, 6-7.01, 6-7.04

May 2015
NOTES:
1. The signing is the same for both approaches to the intersection.
2. The Resort & Camping signs may be combined with the road name sign location.
3. Install sign 500 ft. from the intersection if there is no turn lane.

Text Ref.: 6-4.08, 6-7.01, 6-7.04, 6-7.06.03, 6-7.09.02, Appendix A - Resorts
NOTES:
1. Consider these factors for placement: visibility, skew, and geometrics.
2. Optional where posted speed limit is ≤ 40 mph. See Chart 6.5 for sign placement distance.
3. If used, mounting height to be 1 foot.
4. If there is no junction route marker assembly, then install the roundabout plaque above the roundabout warning sign.
5. Use the R6-4b sign for speed zones ≥ 45 mph and/or multi-lane approaches.
   Use the R6-4a sign for speed zones < 45 mph and single lane approaches.
6. Diagrammatic sign shall be installed for speed zones ≥ 55 mph. Signs may be installed at District Traffic Engineer’s discretion for speed zones 40-50 mph.
7. Guide signs may be installed in either location.

Text Ref.: 6-7.01, 6-7.04

May 2015  FIGURE 6.27
DO NOT ENTER YIELD ONE WAY

DO NOT ENTER ONE WAY

DO NOT ENTER

REDUCED CONFLICT INTERSECTION

> 1000 FT

NOTES:

1. Install signs if turn movement is also to a cross street.
2. Signs may be installed in either location.
3. Exercise engineering judgment in determining placement of ONE WAY signs. Field experience has shown that at most 3/4 intersections the ONE WAY signs placed on the near right and left corners of the intersection can cause confusion to motorists from the approaching cross streets. Consider installing the ONE WAY signs on the far right (mounted above the YIELD sign) as shown in the above figure.
4. Install sign 1000 feet in advance of left turn lane taper.

Text Ref.: 6-7.01, 6-7.04

FIGURE 6.28A

August 2017
REDUCED CONFLICT INTERSECTION

NOTES:

1. Install signs if turn movement is also to a cross street.
2. Signs may be installed in either location.
3. Exercise engineering judgment in determining placement of ONE WAY signs.

Field experience has shown that at most 3/4 of all intersections the ONE WAY signs are placed on the near right of the intersection, or in front of the KEEP RIGHT signs. Consider installing the ONE WAY signs on the far right (mounted above the KEEP RIGHT sign) as shown in the above figure.

Text Ref.: 6-7.01, 6-7.04
NOTE:
The signing is the same for both approaches to the intersection.

Text Ref.: 6-7.01, 6-7.04, 6-7.06.03
SINGLE LANE CROSSROAD SIGNING
FOR DIAMOND INTERCHANGES

NOTES:
1. Destinations should not be used in urban areas.
2. This sign should be installed prior to a turn lane. If there is no turn lane, install sign(s) 300 ft from the intersection.
3. Mast arm signs are supplemental.

* Optional

Text Ref.: 6-7.01

May 2015
MULTI-LANE CROSSROAD SIGNING
FOR DIAMOND INTERCHANGE

Destinations should not be used in urban areas. This sign should be installed prior to a turn lane. If there is no turn lane, install sign 300 ft. from the intersection. Do not install if destinations are on advance guide signs. Mast arm signs are supplemental.

NOTES:

1. Destinations should not be used in urban areas.
2. This sign should be installed prior to a turn lane. If there is no turn lane, install sign 300 ft. from the intersection.
3. Do not install if destinations are on advance guide signs.
4. Mast arm signs are supplemental.

Text Ref.: 6-7.01

FIGURE 6.31

May 2015

Page 6-116
MULTI-LANE CROSSROAD SIGNING
FOR FOLDED DIAMOND INTERCHANGES

NOTES:
1. Destinations should not be used in urban areas.
2. This sign should be installed prior to a turn lane. If there is no turn lane, install sign 300 ft. from the intersection.
3. Do not install if destinations are on advance guide signs.
4. Mast arm signs are supplemental.

Text Ref.: 6-7.01

May 2015

FIGURE 6.32

Page 6-117
NON-FREEWAY CROSSROAD SIGNING
FOR CLOVERLEAF INTERCHANGE

NOTES:
1. Destinations should not be used in urban areas.
2. Install 200 feet past the end of the taper.
3. Do not install if destinations are on advance guide signs.
4. Ground mounted.
5. Bridge mounted.

Text Ref.: 6-7.01

May 2015

FIGURE 6.33

Page 6-118
SIGNING FOR AUXILIARY LANE ON FREEWAY
LANE LESS THAN 1/2 MILE WITHOUT ESCAPE LANE

NOTES:
1. This type of auxiliary lane is located either between loops at a cloverleaf interchange or between two closely spaced interchanges.
2. Install a MERGE sign (W4-1) in the gore of the entrance ramp located at the beginning of the auxiliary lane.
3. Install a standard Exit Direction sign (overhead mounted) at the location where the exiting lane begins to diverge from the through roadway.

* These signs are not installed at cloverleaf interchanges.

Text Ref.: 6-7.01

May 2015

FIGURE 6.34A
SIGNING FOR AUXILIARY LANE ON FREEWAY
LANE LESS THAN 1/2 MILE WITH ESCAPE LANE

NOTES:
1. This type of auxiliary lane is located either between loops at a cloverleaf interchange or between two closely spaced interchanges.
2. Install a MERGE sign (W4-1) in the gore of the entrance ramp located at the beginning of the auxiliary lane.
3. Install a standard Exit Direction sign (overhead mounted) at the location where the exiting lane begins to diverge from the through roadway.

* This sign not installed at cloverleaf interchanges.

Text Ref.: 6-7.01

May 2015  FIGURE
SIGNING FOR AUXILIARY LANE ON FREEWAY  6.34B
LANE LESS THAN 1/2 MILE WITH ESCAPE LANE
SIGNING FOR AUXILIARY LANE ON FREEWAY LANE 1/2 MILE OR GREATER WITHOUT ESCAPE LANE

May 2015

NOTES:
1. Install an Added Lane sign (W4-3) in the gore located at the beginning of the auxiliary lane.
2. Install an EXIT ONLY Advance Guide sign (overhead mounted) 1000 ft. preferred, 800 ft. minimum, ahead of the EXIT ONLY Exit Direction sign.
3. Install a RIGHT LANE MUST EXIT sign (R3-33) 500 ft. ahead of the EXIT ONLY Exit Direction sign.
4. Install an EXIT ONLY Exit Direction sign (overhead mounted) at the location where the exiting lane begins to diverge from the through roadway.

Text Ref.: 6-7.01

FIGURE 6.34C
SIGNING FOR AUXILIARY LANE ON FREEWAY
LANE 1/2 MILE OR GREATER WITH ESCAPE LANE

NOTES:
1. Install an Added Lane sign (W4-3) in the gore located at the beginning of the auxiliary lane.
2. Install an EXIT ONLY Advance Guide sign (overhead mounted) 1000 ft. preferred, 800 ft. minimum, ahead of the EXIT ONLY Exit Direction sign.
3. Install an EXIT ONLY Exit Direction sign (overhead mounted) at the location where the exiting lane begins to diverge from the through roadway.

Text Ref.: 6-7.01

May 2015

FIGURE 6.34D
TYPICAL MOUNTING

SIGN PANEL ATTACHMENT DETAIL

U-POST MOUNTING

SQUARE TUBE MOUNTING

Text Ref.: 6-7.07.02
Text Ref.: 6-7.09.02, Appendix A Specific Service Signs

**SPECIFIC SERVICE SIGNING**

**TYPICAL CLARIFICATION DIAGRAMS**

---

**DIAGRAM A**

Trunk Highway Intersection QB is adjacent to the Trunk Highway.

---

**DIAGRAM VARIATION A**

Trunk Highway Intersection QB on a Grid System.

If the QB is located on the city street system OFF the Trunk Highway, signs are permitted on Trunk Highway Y if the QB has effective off R/W directional advertising signs inplace on Trunk Highway X, as "trailblazing".

---

**DIAGRAM B**

Interstate

Cannot be used on the Interstate. Sign on Trunk Highway X would be straight ahead signing.

---

**DIAGRAM C**

Diagram C signing is considered "straight ahead" on both Trunk Highways, no signing is permitted.

---

**LEGEND:**

- OK - Permissible Sign Location
- QB - Qualifying Business
- City
- Specific Service Sign(s)

---

May 2015

**FIGURE** 6.36A
SPECIFIC SERVICE SIGNING

TYPICAL CLARIFICATION DIAGRAMS

DIAGRAM D
Trunk Highway X southbound qualifies for signs for QB-1 and QB-2 since it intersects Trunk Highway Y. Section 6-7.09.02, Installation 1c applies to straight ahead signing.

One sign for each QB qualifies. A second sign may be purchased.

DIAGRAM E
Trunk Highway X southbound qualifies for a sign for QB-2 and Trunk Highway Y qualifies for a sign for QB-1. Section 6-7.09.02, Installation 1c applies to straight ahead signing.

DIAGRAM F
Bypass

Diagram F is addressed in Appendix A, Specific Service Signs Criteria #7.

DIAGRAM G
Trunk Highway and Local Road Intersection.

LEGEND:  
- OK - Permissible Sign Location  
- QB - Qualifying Business  
- City  
- Specific Service Sign(s)

Text Ref.: 6-7.09.02, Appendix A Specific Service Signs.
WAYSIDE REST SIGNING

NOTES:
1. The signing is the same for both approaches to the intersection.
2. Install prior to the point of turn.

Text Ref.: 6-8.06.03

May 2015

WAYSIDE REST SIGNING

FIGURE 6.37
Use Type 3 Object Markers to mark hazards adjacent to the roadway such as bridge abutments, piers and rails within the width of the approaching shoulders. Right is shown.

Use Type 4 Object Markers to mark the end of the roadway.

Use snowplow marker to mark guardrail for snowplowing operations.

Text Ref.: 6-9.0
GUARDRAIL

Structural plate beam type guardrail:
Where inplace, mount delineators on steel or plastic post sections fastened to wood posts 4 ft. above the edge of pavement.

3 cable type guardrail:
1. Where inplace on tangent approaches, mount delineators same as above at spacing indicated.
2. Where approach is on a curve, mount same as above but at reduced spacing based on MN MUTCD, Table 3F-1.

Greater than 18 feet but less than the approach roadway width (not including shoulders).

NOTE: Treatment is based on ideal conditions with a tangent approach, good sight distance, etc.
GUARDRAIL
Structural plate beam type guardrail:
Where inplace, mount delineators on steel or plastic post sections fastened to wood posts 4 ft. above the edge of pavement.

3 cable type guardrail:
1. Where inplace on tangent approaches, mount delineators same as above at spacing indicated.
2. Where approach is on a curve, mount same as above but at reduced spacing based on MN MUTCD, Table 3F-1.

NOTE: Treatment is based on ideal conditions with a tangent approach, good sight distance, etc.
UNPROTECTED LARGE CULVERT AND CATTLE PASS MARKING

Text Ref.: 6-9.03.03
COMMONLY USED DELINEATOR TYPES AND INSTALLATION

ONE-TENTH MILE (X4-8)
4 in. x 4 in.

GUIDE (X4-6)
8 in. x 24 in.

CYLINDER STYLE (X4-13)
6-8 inch diameter tube
9-12 inches tall

TYPES OF DELINEATORS

TYPICAL DELINEATOR PLACEMENT

Text Ref.: 6-10.0

May 2015

COMMONLY USED DELINEATOR TYPES AND INSTALLATION

FIGURE 6.42
NOTE: Corners to be handled as shown in MN MUTCD Figure 3F-2.

Text Ref.: 6-10.04.04
DIAMOND INTERCHANGE - RAMP DELINEATION

PARTIAL AND FULL LIGHTING

The District Traffic Engineer will determine if guide delineators are required on the outside of any subsequent curves. The approximate spacing shown in MN MUTCD, Table 3F-1 should be used.

NOTE: Where there is guardrail, the guide delineators are mounted either above or immediately behind the guardrail.

- Location of Guide Delineators

Text Ref.: 6-10.04.02, 6-10.04.03

May 2015

DIAMOND INTERCHANGE - RAMP DELINEATION
PARTIAL AND FULL LIGHTING

FIGURE 6.44
The District Traffic Engineer will determine if guide delineators are required on the outside of any subsequent curves.

Entrance Ramp
Minimum of 5 guide delineators on the outside of the curve. The approximate spacing shown in MN MUTCD Table 3F-1 should be used.

Delineate all of the curve. Terminate at the back of the concrete nose or at the Merging Traffic sign (W4-1).

NOTE: Where there is guardrail, the guide delineators are mounted either above or immediately behind the guardrail.

Text Ref.: 6-10.04.02, 6-10.04.03
At unlit interchanges, the District Traffic Engineer will determine if guide delineators are required on a Deceleration Lane or Taper at ramp exits. If installed, use white guide delineator (X4-6). Begin at the point of taper and carry past the gore nose. Spacing: 100 ft. on center.

NOTE: Where there is guardrail, the guide delineators are mounted either above or immediately behind the guardrail.

Plan A

Plan B

Minimum of 4 yellow guide delineators (X4-6).
Spacing: 80 ft.

Minimum of 3 white guide delineators (X4-1) (X4-6).
Spacing: 100 ft.

Minimum of 5 yellow guide delineators (X4-6).
Spacing: 50 ft.

Minimum of 3 white guide delineators (X4-1) (X4-6).
Spacing: 100 ft.

BEGIN AT EXIT SIGN OR 100 FT. MAXIMUM FROM PAVED GORE.

BEGIN AT EXIT SIGN OR 50 FT. MAXIMUM FROM PAVED GORE.

BEGIN OPPOSITE FIRST YELLOW GUIDE DELINEATOR.

BEGIN OPPOSITE FIRST YELLOW GUIDE DELINEATOR.
RAILROAD CROSSINGS WITH TRUCK STOPPING LANE

Use the same signing for the opposite direction.

Text Ref.: 6-5.15
Community Wayfinding Signing

SAMPLE RESOLUTION

BE IT RESOLVED that the City of ______________________ agrees to comply with the guidelines adopted by the Minnesota Department of Transportation (MnDOT) for Community Wayfinding Signing to be located within the rights of way of state (trunk) highways and city streets/local roads. The city agrees that it is solely responsible for the construction, installation and maintenance of all sign structures and sign panels at its own expense and that if the community wayfinding signs are not properly maintained, the city will remove the signs, at its sole expense, upon request by MnDOT. The city also agrees that if the signs are not removed within 30 days of notification by MnDOT, MnDOT forces will remove the signs at the sole cost and expense of the city.

CERTIFICATION

State of Minnesota
County of _____________________
City of _____________________

I hereby certify that the foregoing Resolution is a true and correct copy of a resolution presented to and adopted by the Council of the City of ______________________ at a duly authorized meeting thereon held on the _____ day of ________, ______, as shown by the minutes of said meeting in my possession.

________________________________
City Administrator/Clerk
** BALL BANKING FORM **

** Driving Speed **  |  ** Safe Ball Bank Reading **  
---------------------|-------------------------------
35 MPH and Higher ..........12 Degrees or under  
25-30 MPH ......................14 Degrees or under  
20 MPH or Less .................16 Degrees or under  

Date_________________ Driver: ______________________ Rider: ______________________

Roadway_______________________ Control Section________________ REF PT of Curve________

Location Description__________________________________________________________

Posted SPEED LIMIT __________ Work Order No.____________

Posted SPEED advisory __________ SP________ STA________ Curve Radius________

<table>
<thead>
<tr>
<th>DRIVING SPEED</th>
<th>Travel Direction</th>
<th>BALL BANK READING</th>
</tr>
</thead>
<tbody>
<tr>
<td>65 MPH</td>
<td>NORTH</td>
<td></td>
</tr>
<tr>
<td>60 MPH</td>
<td>EAST</td>
<td></td>
</tr>
<tr>
<td>55 MPH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 MPH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>45 MPH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40 MPH</td>
<td></td>
<td></td>
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<tr>
<td>35 MPH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 MPH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25 MPH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 MPH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 MPH</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DRIVING SPEED</th>
<th>Travel Direction</th>
<th>BALL BANK READING</th>
</tr>
</thead>
<tbody>
<tr>
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<td>SOUTH</td>
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<tr>
<td>60 MPH</td>
<td>WEST</td>
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<td>55 MPH</td>
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<td></td>
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<tr>
<td>50 MPH</td>
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</tr>
<tr>
<td>45 MPH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40 MPH</td>
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<tr>
<td>35 MPH</td>
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<td></td>
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<tr>
<td>30 MPH</td>
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<tr>
<td>25 MPH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 MPH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 MPH</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** Notes:**
1) If curve is on a multi lane roadway, ball bank readings should be taken from the inside lane. (tightest curve)
2) Degree readings are read using the approximate center of the black bubble rather than the bubbles leading or trailing edge
3) Slope Meter should be securely fastened to vehicle’s dash board (Velcro and Duct tape are acceptable.) **DO NOT PLACE OVER AIRBAGS**
4) Safe reading numbers come from Section 2C.8 of 2011 MN MUTCD.

Comments________________________________________________________________________

_________________________________________________________________________

May 2015

Ball Banking Form

FORM 6.2
### Guidelines for Conventional Road and Expressway Guide Sign Font Size

<table>
<thead>
<tr>
<th>Sign Type</th>
<th>Conventional Roads</th>
<th>Expressway*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;45mph Single Lane</td>
<td>45-60 mph Single Lane</td>
</tr>
<tr>
<td></td>
<td>City/Street Name</td>
<td>6-4.5</td>
</tr>
<tr>
<td>Arrow Size</td>
<td>3 or 13 head</td>
<td>5 or 14 head</td>
</tr>
<tr>
<td>Numerals</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>City/Street Name</td>
</tr>
<tr>
<td>Arrow Size</td>
<td>3 or 13 head</td>
<td>5 or 14 head</td>
</tr>
<tr>
<td>Numerals</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>City/Street Name</td>
</tr>
<tr>
<td>Arrow Size</td>
<td>3 or 13 head</td>
<td>5 or 14 head</td>
</tr>
<tr>
<td>Numerals</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>City/Street Name</td>
</tr>
<tr>
<td>Arrow Size</td>
<td>3 or 13 head</td>
<td>5 or 14 head</td>
</tr>
<tr>
<td>Numerals</td>
<td>6</td>
<td>8</td>
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<tr>
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<td>City/Street Name</td>
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<td>Arrow Size</td>
<td>3 or 13 head</td>
<td>5 or 14 head</td>
</tr>
<tr>
<td>Numerals</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>City/Street Name</td>
</tr>
<tr>
<td>Arrow Size</td>
<td>3 or 13 head</td>
<td>5 or 14 head</td>
</tr>
<tr>
<td>Numerals</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>City/Street Name</td>
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<td>3 or 13 head</td>
<td>5 or 14 head</td>
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<td>Numerals</td>
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<td>8</td>
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<td></td>
<td></td>
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<td>Arrow Size</td>
<td>3 or 13 head</td>
<td>5 or 14 head</td>
</tr>
<tr>
<td>Numerals</td>
<td>6</td>
<td>8</td>
</tr>
</tbody>
</table>

*Ground Mounted signs for Expressways interchanges use Chart 6.1B, US & MN Highways column. All overhead signs use Chart 6.1B Overhead Mounted Signs column.

**Notes:**
1. Letter fonts are E Modified unless otherwise noted.
2. In urban areas there may be limited horizontal space in which to place a sign. It is then permissible to reduce the size of the letters of a sign by one step. Modified cardinal directions may be used on mast arm signs if load restrictions exist.
3. These minimum and recommended sizes are shown in inches.
4. For signing on freeway and expressway ramps use the sizes shown under the speed 45-60 mph, single lane heading.
5. When a sign includes both destination and supplemental information, and letter sizes stipulated above are different for each, upsize the supplemental legend to the destination legend size.

Text Ref.: 6-4.05.04, 6-7.09, 6-7.09.11, page 6-60
### Guidelines for Freeway Guide Sign Font Size

<table>
<thead>
<tr>
<th>Sign Type</th>
<th>Overhead Mounted Signs</th>
<th>Ground Mounted Signs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advance Guide</td>
<td>Cardinal Direction</td>
<td></td>
</tr>
<tr>
<td>Exit Direction</td>
<td>First Letter</td>
<td>15</td>
</tr>
<tr>
<td>Overhead Guide Signs</td>
<td>Rest of word</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Aux/Alt Route Legend</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Route Marker</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 Digit</td>
<td>36 x 36</td>
</tr>
<tr>
<td></td>
<td>3 Digit</td>
<td>45 x 36</td>
</tr>
<tr>
<td></td>
<td>City/Street Name</td>
<td>16-12</td>
</tr>
<tr>
<td></td>
<td>Arrow Size</td>
<td>17-36</td>
</tr>
<tr>
<td></td>
<td>EXIT ONLY</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Diagonal Upward Pointing Arrow</td>
<td>8-25</td>
</tr>
<tr>
<td></td>
<td>Down Arrow</td>
<td>22-32</td>
</tr>
<tr>
<td></td>
<td>Distance</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Numeral</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Fraction Numerals</td>
<td>10</td>
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<td></td>
<td>Word</td>
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</tr>
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<td>Distance</td>
<td>Cardinal Direction</td>
<td></td>
</tr>
<tr>
<td></td>
<td>First Letter</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Rest of word</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Route Marker</td>
<td></td>
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<td></td>
<td>2 Digit</td>
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<td></td>
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<td>30 x 24</td>
</tr>
<tr>
<td></td>
<td>City/Street Name</td>
<td>13.3-10</td>
</tr>
<tr>
<td></td>
<td>Numerals</td>
<td>13.3</td>
</tr>
<tr>
<td></td>
<td>Fraction Numerals</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Word</td>
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<td>Supplemental</td>
<td>Generic</td>
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</tr>
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<td></td>
<td>Proper Name</td>
<td>13.3-10</td>
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<td></td>
<td>Action Message</td>
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</tr>
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<td></td>
<td>Word</td>
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</tr>
<tr>
<td></td>
<td>Numeral</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Letter</td>
<td>15</td>
</tr>
<tr>
<td>Exit Panel</td>
<td>Word</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Numeral</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Letter</td>
<td>15</td>
</tr>
</tbody>
</table>

Text Ref.: 6-4.05.04

May 2015

GUIDELINES FOR GUIDE SIGNS

CHART 6.1B
**Destination Signs**

- **Roscoe** → Buffalo
- **Alexandria** → St Cloud
- **Amity** ← Twin Falls
- **Remer** → Aitkin
- **Aitkin** ← Grand Rapids
- **Albany** ← 15

**Directional Signs**

- **West**
  - Interstate 94
  - Alexandria
- **East**
  - Interstate 94
  - St Cloud

**Distance Signs**

- **France Ave** 17 1/2
- **Normandale Blvd** 100 1/2
- **E Bush Lake Rd** 2
- **Osakis** 4
- **Alexandria** 16
- **Moorhead** 116
- **Askov** 8
- **Duluth** 65
- **Virginia** 25
- **Duluth** 90

Text Ref.: 6-4.05.04

<table>
<thead>
<tr>
<th>May 2015</th>
<th>TYPES OF GUIDE SIGNS</th>
<th>CHART 6.1C</th>
</tr>
</thead>
</table>

Page 6-141
Junction Signs

Signal Mast Arm Mounted Signs

Supplemental Signs

Text Ref.: 6-4.05.04

May 2015

TYPES OF GUIDE SIGNS

CHART 6.1D
Interchange Advance and Exit Guide Signs

**Interchange Advance Guide Sign Type A**
- Jasper Pipestone
- ¾ Mile

**Interchange Exit Direction Sign Type A**
- Jasper Pipestone

**Interchange Advance Guide Sign Type OH**
- Stillwater
- 1 Mile

**Interchange Exit Direction Sign Type OH**
- Stillwater

**Interchange Advance Lane Drop Guide Sign Type OH**
- Buffalo Monticello
- 1 Mile

**Interchange Exit Direction Lane Drop Guide Sign Type OH**
- Buffalo Monticello

Text Ref.: 6-4.05.04

May 2015

TYPES OF GUIDE SIGNS

CHART

6.1E

Page 6-143
U-POST STRUCTURE CHART FOR GROUND MOUNTED SIGNS

Legend
U = Vertical U-post
A = Knee Brace

Type "A" Signs with Breakaway I-Beams
(signs falling above lined area)

Text Ref.: 6-4.08.01

May 2015

U-POST STRUCTURE CHART FOR GROUND MOUNTED SIGNS

CHART 6.2
<table>
<thead>
<tr>
<th>PANEL WIDTH (inches)</th>
<th>POST SPACING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 POSTS (inches)</td>
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<tr>
<td>36</td>
<td>24</td>
</tr>
<tr>
<td>42</td>
<td>30</td>
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<td>48</td>
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<td>54</td>
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<td>60</td>
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<td>102</td>
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<td>114</td>
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<td>174</td>
<td>102</td>
</tr>
<tr>
<td>180</td>
<td>108</td>
</tr>
</tbody>
</table>

Use this chart if punch codes cannot be found in the Standard Signs and Markings Manual.
### WARNING SIGNS ADVANCE PLACEMENT CHART

<table>
<thead>
<tr>
<th>Condition A: Speed reduction and lane changing in heavy traffic</th>
<th>Condition B: Deceleration to the listed advisory speed (mph) for the condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posted or 85th Percentile Speed (mph)</td>
<td>Advance Placement Distance</td>
</tr>
<tr>
<td></td>
<td>0³</td>
</tr>
<tr>
<td>feet</td>
<td>feet</td>
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<td>20</td>
<td>225</td>
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<td>25</td>
<td>325</td>
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</tr>
<tr>
<td>65</td>
<td>1200</td>
</tr>
<tr>
<td>70</td>
<td>1250</td>
</tr>
<tr>
<td>75</td>
<td>1350</td>
</tr>
</tbody>
</table>

**NOTES:**

1. The distances are adjusted for a sign legibility distance of 180 feet for Condition A. The distances for Condition B have been adjusted for a sign legibility distance of 250 feet, which is the appropriate distance for an alignment warning symbol sign. For Condition A and B, warning signs with less than a 6-inch legend or more than 4 words, a minimum of 100 feet should be added to the advance placement distance to provide adequate legibility of the warning sign.

2. Typical conditions are locations where the road user might use extra time to adjust speed and change lanes in heavy traffic because of a complex driving situation. Typical signs are Merge and Right Lane Ends. The distances are determined by providing the driver a PRT of 14.0 to 14.5 seconds for vehicle maneuvers (2004 AASHTO Policy, Exhibit 3-3, Decision Sight Distance, Avoidance Maneuver E) minus the legibility distance of 180 feet for the appropriate sign.

3. Typical condition is the warning of a potential stop situation. Typical signs are Stop Ahead, Yield Ahead, Signal Ahead, and Intersection Warning signs. The distances are based on the 2004 AASHTO Policy, Exhibit 3-1, Stopping Sight Distance, providing a PRT of 2.5 seconds, a deceleration rate of 11.2 feet/second², minus the sign legibility distance of 180 feet.

4. Typical conditions are locations where the road user must decrease speed to maneuver through the warned condition. Typical signs are Turn, Curve, Reverse Turn, or Reverse Curve. The distance is determined by providing a 2.5 second PRT, a vehicle deceleration rate of 10 feet/second², minus the sign legibility distance of 250 ft.

5. No suggested distances are provided for these speeds, as placement location is dependent on site conditions and other signing. An alignment warning sign may be placed anywhere from the point of curvature up to 100 feet in advance of the curve. However, the alignment warning sign should be installed in advance of the curve and at least 100 feet from any other sign.

6. The minimum advance placement distance is listed as 100 feet to provide adequate spacing between signs.

---

**May 2015**

---

**CHART 6.4**
<table>
<thead>
<tr>
<th>Ball Bank Indicator Limiting Values in Degrees</th>
<th>Recommended Speed of Turn or Curve in MPH</th>
<th>Sign Drawing</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 Degrees</td>
<td>20 MPH or less</td>
<td>W1-1(R)</td>
</tr>
<tr>
<td>14 Degrees</td>
<td>25 - 30 MPH</td>
<td>W1-1(R)</td>
</tr>
</tbody>
</table>

Use this sign when two turns are connected by a tangent of less than 600 feet. The lesser of the recommended speeds for the two turns will prevail.

| 12 Degrees                                   | 35 MPH and higher                        | W1-2(R)      |

Use this sign when two curves are connected by a tangent of less than 600 feet. The lesser of the recommended speeds for the two curves will prevail.
### Table 1: Initial Sign Structure and Sign Panel

<table>
<thead>
<tr>
<th>Sign Size</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Base Cost (1) + (Cost per sq ft) * sq ft of sign panel</td>
</tr>
<tr>
<td>up to 20 sq ft</td>
<td>$799.00</td>
</tr>
<tr>
<td>20 - 50 sq ft</td>
<td>$927.00</td>
</tr>
<tr>
<td>50.1 - 90 sq ft</td>
<td>$1,060.00</td>
</tr>
</tbody>
</table>

Notes:
1. Includes structural materials, equipment, and installation labor costs.
2. Includes aluminum, sheeting materials, and panel fabrication costs.

### Table 2: Replace Sign Panel Only

<table>
<thead>
<tr>
<th>Sign Size</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Base Cost (1) + (Cost per sq ft) * sq ft of sign panel</td>
</tr>
<tr>
<td>up to 20 sq ft</td>
<td>$306.00</td>
</tr>
<tr>
<td>20 - 50 sq ft</td>
<td>$356.00</td>
</tr>
<tr>
<td>50.1 - 90 sq ft</td>
<td>$406.00</td>
</tr>
</tbody>
</table>

Notes:
1. Includes structural materials, equipment, and installation labor costs.
2. Includes aluminum, sheeting materials, and panel fabrication costs.

### Table 3: Sign Relocation Costs

<table>
<thead>
<tr>
<th>Sign Size</th>
<th>Cost to move inplace sign</th>
</tr>
</thead>
<tbody>
<tr>
<td>up to 20 sq ft</td>
<td>$450.00</td>
</tr>
<tr>
<td>20.1 - 50 sq ft</td>
<td>$500.00</td>
</tr>
<tr>
<td>50.1 - 90 sq ft</td>
<td>$550.00</td>
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</tbody>
</table>

### Table 4: Specific Service Sign Costs

<table>
<thead>
<tr>
<th>Work Type</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Sign Structure and Panel Installation</td>
<td>$943.00</td>
</tr>
<tr>
<td>Replace Sign Structure and Sign Panel</td>
<td>$677.00</td>
</tr>
<tr>
<td>Replace Sign Structure or Relocate</td>
<td>$534.00</td>
</tr>
<tr>
<td>Replace Sign Panel</td>
<td>$449.00</td>
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</tbody>
</table>
### Table 3-1. Stopping Sight Distance on Level Roadways

<table>
<thead>
<tr>
<th>Design Speed (km/h)</th>
<th>Brake Reaction Distance</th>
<th>Braking Distance on Level</th>
<th>Stopping Sight Distance Calculated (m)</th>
<th>Design (m)</th>
<th>Design Speed (mph)</th>
<th>Brake Reaction Distance</th>
<th>Braking Distance on Level</th>
<th>Stopping Sight Distance Calculated (ft)</th>
<th>Design (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>13.9</td>
<td>4.6</td>
<td>18.5</td>
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<td>25</td>
<td>91.9</td>
<td>60.0</td>
<td>151.9</td>
<td>155</td>
</tr>
<tr>
<td>50</td>
<td>34.8</td>
<td>28.7</td>
<td>63.5</td>
<td>65</td>
<td>30</td>
<td>110.3</td>
<td>86.4</td>
<td>197.0</td>
<td>200</td>
</tr>
<tr>
<td>60</td>
<td>41.7</td>
<td>41.3</td>
<td>83.0</td>
<td>85</td>
<td>35</td>
<td>128.6</td>
<td>117.6</td>
<td>246.2</td>
<td>250</td>
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<tr>
<td>70</td>
<td>48.7</td>
<td>56.2</td>
<td>104.9</td>
<td>105</td>
<td>40</td>
<td>147.0</td>
<td>153.6</td>
<td>300.6</td>
<td>305</td>
</tr>
<tr>
<td>80</td>
<td>55.6</td>
<td>73.4</td>
<td>129.0</td>
<td>130</td>
<td>45</td>
<td>165.4</td>
<td>194.4</td>
<td>359.8</td>
<td>360</td>
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<tr>
<td>90</td>
<td>62.6</td>
<td>92.9</td>
<td>155.5</td>
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<td>50</td>
<td>183.8</td>
<td>240.0</td>
<td>423.8</td>
<td>425</td>
</tr>
<tr>
<td>100</td>
<td>69.5</td>
<td>114.7</td>
<td>184.2</td>
<td>185</td>
<td>55</td>
<td>202.1</td>
<td>290.3</td>
<td>492.4</td>
<td>495</td>
</tr>
<tr>
<td>110</td>
<td>76.5</td>
<td>138.8</td>
<td>215.3</td>
<td>220</td>
<td>60</td>
<td>220.5</td>
<td>405.5</td>
<td>566.0</td>
<td>570</td>
</tr>
<tr>
<td>120</td>
<td>83.4</td>
<td>165.2</td>
<td>248.6</td>
<td>250</td>
<td>65</td>
<td>238.9</td>
<td>405.5</td>
<td>644.4</td>
<td>645</td>
</tr>
<tr>
<td>130</td>
<td>90.4</td>
<td>193.8</td>
<td>284.2</td>
<td>285</td>
<td>70</td>
<td>257.3</td>
<td>470.3</td>
<td>727.6</td>
<td>730</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>75</td>
<td>275.6</td>
<td>539.9</td>
<td>815.5</td>
<td>820</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>80</td>
<td>294.0</td>
<td>614.3</td>
<td>908.3</td>
<td>910</td>
</tr>
</tbody>
</table>

#### Note:
Brake reaction distance predicated on a time of 2.5 s; deceleration rate of 3.4 m/s² (11.2 ft/s²) used to determine calculated sight distance.

### Table 3-2. Stopping Sight Distance on Grades

<table>
<thead>
<tr>
<th>Design Speed (km/h)</th>
<th>Stopping Sight Distance (m)</th>
<th><strong>Downgrades</strong></th>
<th><strong>Upgrades</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>3%</td>
<td>20</td>
<td>20</td>
<td>19</td>
</tr>
<tr>
<td>6%</td>
<td>30</td>
<td>35</td>
<td>31</td>
</tr>
<tr>
<td>9%</td>
<td>40</td>
<td>53</td>
<td>45</td>
</tr>
<tr>
<td>3%</td>
<td>50</td>
<td>66</td>
<td>74</td>
</tr>
<tr>
<td>6%</td>
<td>60</td>
<td>87</td>
<td>92</td>
</tr>
<tr>
<td>9%</td>
<td>70</td>
<td>116</td>
<td>124</td>
</tr>
<tr>
<td>3%</td>
<td>80</td>
<td>136</td>
<td>144</td>
</tr>
<tr>
<td>6%</td>
<td>90</td>
<td>164</td>
<td>174</td>
</tr>
<tr>
<td>9%</td>
<td>100</td>
<td>194</td>
<td>207</td>
</tr>
<tr>
<td>3%</td>
<td>110</td>
<td>227</td>
<td>243</td>
</tr>
<tr>
<td>6%</td>
<td>120</td>
<td>263</td>
<td>281</td>
</tr>
<tr>
<td>9%</td>
<td>130</td>
<td>302</td>
<td>323</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Design Speed (mph)</th>
<th>Stopping Sight Distance (ft)</th>
<th><strong>Downgrades</strong></th>
<th><strong>Upgrades</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>3%</td>
<td>15</td>
<td>80</td>
<td>82</td>
</tr>
<tr>
<td>6%</td>
<td>30</td>
<td>116</td>
<td>120</td>
</tr>
<tr>
<td>9%</td>
<td>40</td>
<td>158</td>
<td>165</td>
</tr>
<tr>
<td>3%</td>
<td>50</td>
<td>205</td>
<td>215</td>
</tr>
<tr>
<td>6%</td>
<td>60</td>
<td>257</td>
<td>271</td>
</tr>
<tr>
<td>9%</td>
<td>70</td>
<td>315</td>
<td>333</td>
</tr>
<tr>
<td>3%</td>
<td>80</td>
<td>378</td>
<td>400</td>
</tr>
<tr>
<td>6%</td>
<td>90</td>
<td>446</td>
<td>474</td>
</tr>
<tr>
<td>9%</td>
<td>100</td>
<td>520</td>
<td>553</td>
</tr>
<tr>
<td>3%</td>
<td>110</td>
<td>598</td>
<td>638</td>
</tr>
<tr>
<td>6%</td>
<td>120</td>
<td>682</td>
<td>728</td>
</tr>
<tr>
<td>9%</td>
<td>130</td>
<td>771</td>
<td>825</td>
</tr>
</tbody>
</table>

#### Note:
Take a 200 foot tape, chain, or rope and stretch it between two points on a curve. At the center (100 foot mark), measure the distance in feet and inches between the chord and the arc.

**DEGREE OF CURVE RELATED TO “M” FOR A 200 FOOT CHORD**

<table>
<thead>
<tr>
<th>Degree of Curve</th>
<th>Distance “M” feet</th>
<th>Distance “M” inches</th>
<th>Radius feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>0°30’</td>
<td>.44’</td>
<td>5 ½”</td>
<td></td>
</tr>
<tr>
<td>1°00’</td>
<td>.87’</td>
<td>10 ¼”</td>
<td>5730</td>
</tr>
<tr>
<td>1°30’</td>
<td>1.31’</td>
<td>15 ¾”</td>
<td>3820</td>
</tr>
<tr>
<td>2°00’</td>
<td>1.75’</td>
<td>21”</td>
<td>2865</td>
</tr>
<tr>
<td>2°30’</td>
<td>2.18’</td>
<td>26”</td>
<td>2292</td>
</tr>
<tr>
<td>3°00’</td>
<td>2.62’</td>
<td>31 ½”</td>
<td>1910</td>
</tr>
<tr>
<td>3°30’</td>
<td>3.06’</td>
<td>36 ¾”</td>
<td>1637</td>
</tr>
<tr>
<td>4°00’</td>
<td>3.49’</td>
<td>42”</td>
<td>1432</td>
</tr>
<tr>
<td>4°30’</td>
<td>3.93’</td>
<td>47 ¼”</td>
<td>1273</td>
</tr>
<tr>
<td>5°00’</td>
<td>4.37’</td>
<td>52 ½”</td>
<td>1146</td>
</tr>
<tr>
<td>5°30’</td>
<td>4.81’</td>
<td>57 ¼”</td>
<td>1042</td>
</tr>
<tr>
<td>6°00’</td>
<td>5.25’</td>
<td>63”</td>
<td>955</td>
</tr>
<tr>
<td>6°30’</td>
<td>5.69’</td>
<td>68 ¾”</td>
<td>881</td>
</tr>
<tr>
<td>7°00’</td>
<td>6.13’</td>
<td>73 ¼”</td>
<td>819</td>
</tr>
<tr>
<td>7°30’</td>
<td>6.57’</td>
<td>78 ¾”</td>
<td>764</td>
</tr>
<tr>
<td>8°00’</td>
<td>7.02’</td>
<td>84 ¼”</td>
<td>716</td>
</tr>
<tr>
<td>8°30’</td>
<td>7.46’</td>
<td>89 ½”</td>
<td>674</td>
</tr>
<tr>
<td>9°00’</td>
<td>7.90’</td>
<td>94 ¾”</td>
<td>637</td>
</tr>
<tr>
<td>9°30’</td>
<td>8.35’</td>
<td>100 ¼”</td>
<td>603</td>
</tr>
<tr>
<td>10°00’</td>
<td>8.79’</td>
<td>105 ½”</td>
<td>573</td>
</tr>
</tbody>
</table>

Text Ref.: 6-10.04.02

May 2015

**FINDING THE DEGREE OF CURVE FOR A HORIZONTAL CURVE**

CHART 6.8
MnDOT Supplemental Guide Signs
Appendix A

www.dot.state.mn.us/trafficeng/signing/publications.html

May 2015
In order for a facility to receive supplemental guide signing, the sign location must meet engineering standards and the facility or business must meet the criteria set forth in this appendix.

Engineering standards involve the design and placement of signs. The main purpose of signing is to inform motorists of regulations such as speed limits and stops, warn them of any impending dangers such as sharp curves and steep grades, and help them find their destination by clearly marking routes and cross streets. Signs must be properly spaced so that motorists have time to perceive the information on signs and make the appropriate driving maneuver. For example, on a freeway, guide signs should be spaced approximately 800 feet apart. Furthermore, different types of signs (regulatory, warning, and guide) cannot be combined. For example, mixing a golf course sign with a speed limit sign is not allowed. This leaves limited space for supplemental guide signs.

There is tremendous demand for signing along our highway system. Many businesses, organizations, and agencies feel that they need and deserve signing to advertise, inform and/or aid the motorist in locating their establishment. As discussed under engineering standards, it is necessary to limit all signing to only that which is sufficient to aid drivers in safely arriving at their destination. As such, MnDOT policy and state law set out criteria that a facility must meet in order to be eligible for signing.

This appendix is an alphabetized list of various facility types falling into several different signing programs available for signing on MnDOT trunk highways if engineering standards can be met. Unless otherwise indicated, the General Criteria listed below apply to all facilities. In addition to the General Criteria, each facility type is listed with additional details regarding sign design, location from the intersection/interchange, roadway type allowed, and facility specific criteria.

A list of ineligible facilities is at the end of this appendix.

Contents

General Criteria ..........................................................................................................................A-1
Facility Type, Sign Design, Sign Program and Specific Criteria .............................................A-4
Logo Signs..................................................................................................................................A-37
Specific Services Signing Program ............................................................................................A-38
Ineligible Facilities.....................................................................................................................A-41
GENERAL CRITERIA

Unless specifically noted under a particular signing program, the following general criteria apply to all of MnDOT's signing programs.

1. MnDOT shall fabricate, install, and maintain signs on trunk highways unless otherwise specified by the District Traffic Engineer.

2. The cost of fabrication, installation, and maintenance shall be paid by the requester.

3. Appropriate trailblazing signs shall be the responsibility of the facility and approved by the road authority. If appropriate trailblazing cannot be installed, signing on trunk highways shall not be installed. The color and design of trailblazing signs should match that of the signing installed on the trunk highway.

4. Signs shall not be allowed from intersections or interchanges that do not provide the closest or most direct route from a trunk highway to a facility.

5. MnDOT 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. The sign design, including message and logos if applicable, shall be identical on ramp and mainline signs at an interchange.

6. Location and placement of signs is dependent upon space availability as determined by the District Traffic Engineer. Sign installations shall meet sign spacing guidelines for the type of roadway on which they are allowed. No sign installations shall be placed at a location that will interfere with other necessary signing as determined by the District Traffic Engineer. If space is unavailable, requests shall be denied.

7. Mainline signs shall not be installed for a facility if there is no space available to install signs on the ramp and vice versa.

8. All sign installations on trunk highways shall conform to MnDOT's current sign design and sign sheeting standards.

9. Signs not meeting MnDOT's current criteria shall be removed through attrition. If mainline signing is removed, ramp signing and any trailblazing on trunk highways shall also be removed.

10. Only one sign per facility may be installed in each direction along a trunk highway.

11. The criteria for installing logos (business panels) on Specific Service and LOGO signs are specified in Section 6-7.09.01 and 6-7.09.02, respectively.
12. Pictographs are defined as a pictorial representation used to identify a governmental jurisdiction, an area of jurisdiction, a governmental agency, a military base or branch of service, a governmental approved university or college, a toll payment system, or a government approved institution. They are allowed on certain signs as specifically designated in the MN MUTCD. The following are examples of such facilities allowed:

- Casinos
- Educational Institutions (post-secondary)
- National Parks, National Monuments
- State Parks
- Trail Access

If used, pictographs shall meet the following guidelines:

a. Pictographs shall not resemble a traffic control device.
b. Inappropriate pictographs shall not be permitted.
c. There shall be only one pictograph per sign.
d. The pictograph shall supplement the text message.
e. The pictograph shall not exceed 33 percent of the size of the sign panel.
f. The pictograph shall fit within the border of the sign panel. Pictographs shall not be a separate attachment outside the limits of the sign panel.
g. The pictograph designs shall be reviewed and approved by the District Traffic Office prior to fabrication.
h. The pictograph shall be fabricated on sheet aluminum conforming to MnDOT specification 3352 and installed as an overlay.

13. Signs may be considered on trunk highways that intersect with local roads which serve as logical, primary routes for motorists approaching from other directions.

14. Signs shall not be provided if the facility is readily visible or if effective off right-of-way directional signing is present or can be provided.

15. MnDOT 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. At the discretion of
the District Traffic Engineer, signing requests denied based on MnDOT policy may be appealed to the External Sign Variance Committee. Requests denied based on Minnesota statutes or engineering standards (i.e. insufficient space and design standards found in the MN MUTCD) may not be appealed.

16. If a district traffic office decides that a contract for signing a minor traffic generator is required, the following process shall be used:

   a. The requester should obtain proposals from at least three consulting engineering firms to prepare the signing contract.

   b. The requester evaluates the proposals and enters into a contract with one of the consulting engineering firms to provide all of the following:

      ▪ A complete design of a signing plan (including field cross sections if necessary), assembly of special provisions, and proposal. Technical assistance is available from the State Signing Engineer, Office of Traffic, Safety, and Technology (OTST).
      ▪ Submit the plan and proposal to the signing contractors. Typically allow 10 days for the contractor to review and submit bids.
      ▪ Review the bids and award the contract to the signing contractor.
      ▪ Inspect the signing contractor’s work with technical assistance provided by MnDOT’s district staff.
<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Sign Design</th>
<th># of Miles from an Intersection or Interchange</th>
<th>Roadway Type</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Agricultural Equipment</strong></td>
<td>D9-X6</td>
<td>N/E 15</td>
<td>• Expressway • Conventional</td>
</tr>
<tr>
<td></td>
<td>D1-X4</td>
<td>15 15</td>
<td>• Freeway • Expressway • Conventional</td>
</tr>
<tr>
<td></td>
<td>I-5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>E10-3*</td>
<td>1 1</td>
<td>• Freeway • Expressway • Conventional</td>
</tr>
<tr>
<td><strong>Airports</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>In addition to the general criteria for all signing programs, all of the following criteria apply to the Airport Signing Program. In order to be considered for signing, the following criteria shall be met by the requesting facility: 1. Private airports requiring owner’s permission to use shall not be eligible for signing. 2. Signing from one trunk highway onto a second trunk highway may be allowed if the airport is located within: 10 miles for an Air Carrier/Commercial Service airport, and 7.5 miles for a General Aviation airport. 3. These guidelines may also be applied to heliports. Signs should be installed in accordance with the following: 1. Individual airport names may be used on signing, as necessary, to ensure adequate identification for motorists. 2. The AIRPORT (D1-X4) sign with arrow will be adequate for most intersections at which airport signing is permitted. 3. At interchanges, a green version of the E10-3 sign design (with the word AIRPORT or proper name replacing the word HOSPITAL) shall be installed on the mainline. The (D1-X4) sign, or custom guide sign if proper name is used, shall be installed on ramp(s). The message on the ramp sign shall match the message on the mainline sign. 4. Trailblazing signing on local roads, when needed, shall utilize the Airplane Symbol sign (I-5) with appropriate arrow.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>* Modified according to #3 under installation guidelines.</td>
</tr>
<tr>
<td><strong>AMTRAK/Train Stations</strong></td>
<td>I-7</td>
<td>1 1</td>
<td>• Freeway • Expressway • Conventional</td>
</tr>
<tr>
<td></td>
<td>E10-3*</td>
<td></td>
<td>Signs should be installed in accordance with the following: 1. Signing from one trunk highway may be allowed if the AMTRAK station is located within 10 miles. 2. At interchanges, a green version of the E10-3 sign design (with the word AMTRAK replacing the word HOSPITAL) shall be installed on the mainline. 3. Ramp signing should be done in accordance with the following: a. If a custom guide sign is used, the message on the ramp sign shall match the message on the mainline sign. b. If a Federal passenger station symbol sign panel (I-7) is used, it shall have a plaque including the word AMTRAK mounted below it. 4. Trailblazing signing on local roads, when needed, shall utilize the Federal passenger station symbol (I-7) with a plaque including the word AMTRAK mounted below it.</td>
</tr>
<tr>
<td>Facility Type</td>
<td>Sign</td>
<td>Sign Design</td>
<td># of Miles from an Intersection or Interchange</td>
</tr>
<tr>
<td>---------------</td>
<td>------</td>
<td>-------------</td>
<td>-----------------------------------------------</td>
</tr>
</tbody>
</table>
| Amusement Park | D9-X6 | **Paul Bunyan Land** | N/E 15 | • Expressway  
• Conventional | See Specific Services - Tourist Oriented Business |
| Brown Custom Design | | | 10 10 | • Freeway  
• Expressway  
• Conventional | |
| Antiques/ Gift Shops | D9-X6 | **Aunt Addie’s Antiques** | N/E 15 | • Expressway  
• Conventional | See Specific Services - Tourist Oriented Business |
| Arboretum | Brown Custom Design | **University of Minnesota Landscape Arboretum** | 3 3 | • Expressway  
• Conventional | In addition to the general criteria for theMinor Traffic Generator Signing Program, all of the following criteria apply. The facility should provide:  
1. Parking for at least 50 vehicles.  
2. Walking or driving trails along with viewing facilities.  
3. An interpretive program, and/or audio/visual self-guiding presentations. |
| Archery Range | D9-X6 | **Archie’s Archery** | N/E 15 | • Expressway  
• Conventional | See Specific Services - Tourist Oriented Business |
| Attractions | Logo Sign | | 3 15 | • Freeway | For the Logo Sign Franchise Program refer to TEM 6-7.09.01 and [http://www.dot.state.mn.us/logosigns/](http://www.dot.state.mn.us/logosigns/)  
Refer Applicants to: Dave DeSutter of Minnesota Logos, Inc.  
Toll Free: 800-769-3197, Phone: 952-895-8079  
Email: ddesutter@interstatelogos.com  
Website: [http://www.minnesota.interstatelogos.com/state/](http://www.minnesota.interstatelogos.com/state/) |
| Bait and Tackle | D9-X6 | **Minnow’s Live Bait** | N/E 15 | • Expressway  
• Conventional | See Specific Services - Tourist Oriented Business |
| Bed and Breakfasts | D9-X6 | **HomeTime B&B** | N/E 15 | • Expressway  
• Conventional | See Specific Services - Motel |
| Boat Launch | D7-X7 | **Lobster Lake** | 1 10 | • Expressway  
• Conventional | See Public Access to Lakes/Rivers |
<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Sign</th>
<th>Sign Design</th>
<th># of Miles from an Intersection or Interchange</th>
<th>Roadway Type</th>
<th>Sign Program and Facility-Specific Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bookstore</td>
<td>D9-X6</td>
<td><img src="image" alt="GOOD READS" /></td>
<td>N/E 15</td>
<td>• Expressway • Conventional</td>
<td>See Specific Services - Tourist Oriented Business</td>
</tr>
<tr>
<td>Bus Station</td>
<td>I-6</td>
<td><img src="image" alt="Bus Sign" /></td>
<td>1 1</td>
<td>• Expressway • Conventional</td>
<td>See Minor Traffic Generator</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>This facility is a bus terminal with staffed ticket counters and public waiting rooms providing inter-city and inter-state motor coach bus services.</td>
</tr>
<tr>
<td>Business District</td>
<td>D1-X1</td>
<td><img src="image" alt="BUSINESS DISTRICT" /></td>
<td>N/E 3</td>
<td>• Expressway • Conventional</td>
<td>See Downtown</td>
</tr>
<tr>
<td>Camping</td>
<td>E10-1</td>
<td><img src="image" alt="Camping Exit 234A" /></td>
<td>N/E 10</td>
<td>• Freeway • Expressway</td>
<td>In addition to the criteria under the General Motorist Service Signing Program, the business shall meet the following requirements: 1. Have a State Department of Health license as required by Minnesota Statutes, Chapter 327.15. 2. Provide at least 20 spaces available for camping and parking. 3. Provide modern sanitary facilities (flush, chemical, or incinerator toilets). 4. Provide services 24-hours per day, seven days per week. 5. Be located within ten miles of the interchange via an all-weather road with adequate trailblazing signing provided by the operator to enable the traveler to reach the site. See Resorts for the Resort and Camping Signing Program defined by <a href="https://www.revisor.mn.gov/statutes/text/160s283.htm">Minnesota Statute 160.283</a></td>
</tr>
<tr>
<td></td>
<td>D9-X4</td>
<td><img src="image" alt="Camping Sign" /></td>
<td>N/E 15</td>
<td>• Expressway • Conventional</td>
<td>See Specific Services - Recreational Camping Area</td>
</tr>
<tr>
<td></td>
<td>D9-X6</td>
<td><img src="image" alt="GREAT BEAR CAMPGROUND" /></td>
<td>N/E 15</td>
<td>• Expressway • Conventional</td>
<td>See Resorts</td>
</tr>
</tbody>
</table>

*Unless otherwise indicated, the General Criteria apply for all facilities. See MnDOT’s Traffic Engineering Manual for placement of signs.*
<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Sign</th>
<th>Sign Design</th>
<th># of Miles from an Intersection or Interchange&lt;br&gt;N/E = Not Eligible</th>
<th>Roadway Type</th>
<th>Sign Program and Facility-Specific Criteria</th>
</tr>
</thead>
</table>
| Camps, Private       | Brown     | Custom Design | N/E 10                                                              | Urban Expressway • Conventional | This facility is generally a specialized, rural summer camp. It is operated or sponsored by church, fraternal, scouting, or similar organizations and is not open to the general public for overnight camping. The facility generally accommodates prearranged sessions of several days duration and is oriented toward recreation, education, training, or combinations thereof. Visitors are usually not familiar with the camp location. In addition to the general criteria for the [Minor Traffic Generator Signing Program](#), all of the following criteria apply. The facility shall:
1. Provide full-time staff on site to accommodate clientele.
2. Be a private operation.
3. Accept prearranged accommodations only.
4. Not allow public, overnight camping.
For a seasonal camp, MnDOT may incorporated signing indicated periods of closure where appropriate. |
<table>
<thead>
<tr>
<th>Facility Type</th>
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<th># of Miles from an Intersection or Interchange</th>
<th>Roadway Type</th>
<th>Sign Program and Facility-Specific Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Casinos</td>
<td>Brown Custom Design</td>
<td>10 10</td>
<td>• Freeway • Expressway • Conventional</td>
<td>In order to be considered for signing, the following criteria shall be met by the requesting facility: 1. Events or activities shall be held continuously throughout the year. 2. Events or activities shall be non-local in scope and draw visitors from outside the local area. 3. The facility shall provide adequate on-site parking or parking in the immediate area of the facility. 4. The facility shall provide seating for at least 200 people. The facility should be located within ten miles of the trunk highway intersection or interchange where signs are requested. Casino signs should be installed in accordance with all of the following: 1. Distances to casinos located two miles or more from the trunk highway intersection or interchange shall be shown on the sign. 2. Signs shall only be allowed from the nearest trunk highway and signs shall not be provided if the facility is readily visible or if effective off right-of-way directional signing is present or can be provided. 3. Additional proposed signing locations on other trunk highways are to be processed with MnDOT in accordance with the following procedures (developed and concurred with the Indian Affairs Council in 2003): a. The Tribe assembles the proposed signing package (road system map, locations of proposed signing, and casino business local panel design). b. The Tribe assembles the proposed signing package to the MnDOT District Engineer for evaluation (including field review of roadway network and existing signing). This may include coordination with local road authorities (county, city) if any proposed signing is to be installed on local roads. c. In order to assist in the decision making process, the MnDOT district office will contact the State Traffic Engineer and State Signing Engineer to field review the proposed signing locations. d. After completion of the field review and evaluation, MnDOT staff shall assemble a response package (sign panel designs, private sign company contracts, sign fabrication specifications) and meet with the Tribe to present MnDOT’s proposed sign locations. e. Upon concurrence of acceptable sign locations by the Tribe, the Tribe shall submit completed application form(s) and business logo panel design to the District Traffic Engineer for review and approval. f. After approval by MnDOT, the Tribe shall submit sign panel designs, business logo panel design, and fabrication specifications to a private sign company(ies) for bid(s). g. The private sign vendor will invoice the Tribe and fabricate and deliver sign panel(s) to the Tribe. h. The Tribe coordinates with the MnDOT district office to arrange for installation of signs. Sign installation costs are to be paid for by the Tribe. 4. In place casino signs shall be replaced through attrition in accordance with both the general and above criteria. Existing casino signs should remain eligible for signing.</td>
</tr>
<tr>
<td>Churches</td>
<td>D9-X6</td>
<td>LUTHERAN NEW LIFE CHURCH</td>
<td>Urban Rural</td>
<td>Urban Rural</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Sign</th>
<th>Sign Design</th>
<th># of Miles from an Intersection or Interchange</th>
<th>Roadway Type</th>
<th>Sign Program and Facility-Specific Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Civic/Convention Centers</td>
<td>Green Custom Design</td>
<td><img src="image" alt="Civic Center Sign" /></td>
<td>1 Urban 1 Rural</td>
<td>• Expressway • Conventional</td>
<td>This facility accommodates various types of activities and is primarily oriented toward conventions, meetings, expositions, and performances. In addition to the general criteria for the Minor Traffic Generator Signing Program, all of the following criteria apply. The facility shall:&lt;br&gt;1. Hold events or activities that are non-local in scope and draw visitors from outside the local area.&lt;br&gt;2. Hold events or activities continuously throughout the year on an average of at least once a month (rural environment) and three times a month (urban environment).&lt;br&gt;3. Provide adequate on-site parking or parking in the immediate area of the facility.&lt;br&gt;4. Provide seating for at least 1000 people (urban environment).</td>
</tr>
<tr>
<td>Colleges</td>
<td></td>
<td><img src="image" alt="College Sign" /></td>
<td>N/E</td>
<td>• Expressway • Conventional</td>
<td>See Educational Institutions</td>
</tr>
<tr>
<td>Commodity Storage/Elevators</td>
<td>D9-X6</td>
<td><img src="image" alt="Commodity Storage Sign" /></td>
<td>15 N/E</td>
<td>• Expressway • Conventional</td>
<td>See Specific Services - Rural Agricultural Business</td>
</tr>
<tr>
<td>Community Centers</td>
<td></td>
<td><img src="image" alt="Community Center Sign" /></td>
<td>• Conventional</td>
<td></td>
<td>See Multi-Purpose Facilities</td>
</tr>
<tr>
<td>Community Wayfinding</td>
<td>Custom Design</td>
<td><img src="image" alt="Community Wayfinding Sign" /></td>
<td>• Conventional</td>
<td></td>
<td>Signs shall comply with the Community Wayfinding Signs section of the Minnesota Manual on Uniform Traffic Control (MN MUTCD), Part 2D.50 and the MnDOT policy found in Section 6-8.03 of the Traffic Engineering Manual (TEM).</td>
</tr>
<tr>
<td>Correctional Institutions</td>
<td>Green Custom Design</td>
<td><img src="image" alt="Correctional Institution Sign" /></td>
<td>3 Urban 3 Rural</td>
<td>• Expressway • Conventional</td>
<td>This facility may be a state or federal penal institution that generates a significant number of non-local visitors. The general criteria for the Minor Traffic Generator Signing Program apply to this type of facility.</td>
</tr>
<tr>
<td>County Fairgrounds</td>
<td>D7-X16</td>
<td><img src="image" alt="County Fairground Sign" /></td>
<td>1 Urban 5 Rural</td>
<td>• Expressway • Conventional</td>
<td>The general criteria for the Minor Traffic Generator Signing Program apply to this type of facility.</td>
</tr>
<tr>
<td>Demolition Landfills</td>
<td></td>
<td><img src="image" alt="Demolition Landfill Sign" /></td>
<td>• Conventional</td>
<td></td>
<td>See Sanitary Landfills</td>
</tr>
<tr>
<td>Facility Type</td>
<td>Sign</td>
<td>Sign Design</td>
<td># of Miles from an Intersection or Interchange</td>
<td>Roadway Type</td>
<td>Sign Program and Facility-Specific Criteria</td>
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<td>---------------------------------------------</td>
</tr>
<tr>
<td>Disc Golf Course</td>
<td>D7-X22</td>
<td>DISC GOLF COURSE</td>
<td>N/E</td>
<td>• Expressway</td>
<td>In addition to the general criteria for the Minor Traffic Generator Signing Program, all of the following criteria apply. The facility shall: 1. Be its own entity located on its own property (not located on or in another facility that can be signed as a minor traffic generator). 2. Have at least 18 holes. 3. Be listed with the Professional Disc Golf Association (PDGA). <a href="https://www.pdga.com/course-directory">https://www.pdga.com/course-directory</a>.</td>
</tr>
<tr>
<td>Downtown</td>
<td>D1-X1</td>
<td>BUSINESS DISTRICT</td>
<td>N/E</td>
<td>• Expressway</td>
<td>Signing may be provided to direct motorists to the primary business district of a rural city when a conventional highway does not pass through it. In addition to the general criteria for the Minor Traffic Generator Signing Program, all of the following criteria apply. 1. Signing is allowed to designate the primary business center, NOT to designate any other business or shopping area. 2. The signs shall use either the legend &quot;DOWNTOWN&quot; or &quot;BUSINESS DISTRICT&quot;, based on the preference of the city administration. See also <a href="#">Business District</a>.</td>
</tr>
<tr>
<td></td>
<td>D1-X1a</td>
<td>DOWNTOWN</td>
<td>N/E</td>
<td>• Expressway</td>
<td>This facility shall be a permanent site. In addition to the general criteria for the Minor Traffic Generator Signing Program, all of the following criteria apply. The facility shall: 1. Provide a complete staff, including road testing of drivers. 2. Be an official facility operated or designated by the Minnesota Department of Public Safety.</td>
</tr>
<tr>
<td>Drivers License/</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Road Test Exam</td>
<td>Green</td>
<td>DRIVERS LICENSE</td>
<td>1</td>
<td>• Expressway</td>
<td></td>
</tr>
<tr>
<td>Stations</td>
<td>Custom</td>
<td>EXAM STATION</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Design</td>
<td></td>
<td></td>
<td>• Conventional</td>
<td></td>
</tr>
</tbody>
</table>

Unless otherwise indicated, the General Criteria apply for all facilities. See MnDOT's Traffic Engineering Manual for placement of signs.
<table>
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<tr>
<th>Facility Type</th>
<th>Sign</th>
<th>Sign Design</th>
<th># of Miles from an Intersection or Interchange</th>
<th>Roadway Type</th>
<th>Sign Program and Facility-Specific Criteria</th>
</tr>
</thead>
</table>
| Educational Institutions (post secondary schools)| Green      | Custom Design                                                              | 5                                             | Freeway, Expressway, Conventional                           | All of the following criteria apply to the Educational Institution Signing Program.  
1. The school grants two or four-year degrees and is accredited by the North Central Association of colleges and schools. Examples are the University of Minnesota, state universities, state community colleges, private two and four-year colleges, private professional schools, private vocational schools, and technical colleges.  
2. The minimum on-campus average daily student enrollment for credit shall be 400 students except in the Metro District where the minimum enrollment shall be 1500 students.  
3. In rural districts, schools which front directly on trunk highways may be allowed signs to assist the motorist in making proper entrance turns.  
4. In the Metro District, signs shall only be allowed from the nearest trunk highway intersection. Signs directing motorist from one trunk highway to another trunk highway shall not be allowed.  
Educational Institution signs should be installed in accordance with the following:  
1. Signs on freeways shall have the institution name on the top line and EXIT XXX on the bottom line if the exit is numbered. If the exit is not numbered, the bottom line shall read NEXT (or SECOND) RIGHT.  
2. Signs on freeway ramps shall display the institution name and appropriate arrow without extraneous legend.  
3. Distances to schools located two miles or more from the trunk highway intersection or interchange shall be shown on the ramp or intersection sign. |
| Electric Vehicle (EV) Charging                    | E10-1      | EV-CHARGING                                                                | N/E                                           | Freeway, Expressway                                        | EV charging stations must meet the following requirements:  
1. High powered charging station.  
2. Located within 2 miles of the interchange.  
3. Available to the public 12 hours per day 7 days per week.  
4. The route leading to the EV charging station and the charging station itself should be clearly identified with EV charging station signs.  
5. Parking spaces identified with regulatory signs for electric vehicle charging only.  
6. The EV charging station and parking facilities are lit.  
7. Installation and maintenance of trailblazing signs beyond the exit ramp and on site facility signing will be the responsibility of the local road authority and requester.  
8. Trailblazing signs located on local roads may use either white legend on blue background or the D9-11b (alternate) symbol. |
<p>| Fairgrounds                                       | D9-X6      | FARMER'S BEST RESOURCE                                                     | N/E                                           | Expressway, Conventional                                   | See County Fairgrounds                                                                                                                                   |
| Farm Implement Dealers                            | D9-X6      | Logo Sign                                                                  | N/E                                           | Expressway, Conventional                                   | See Specific Services - Rural Agricultural Business                                                                                                     |
| Feed, Seed, Fertilizer Stores                    | Logo Sign  | FEED AND SEEDS                                                              | N/E                                           | Expressway, Conventional                                   | See Specific Services - Rural Agricultural Business                                                                                                     |</p>
<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Sign</th>
<th>Sign Design</th>
<th># of Miles from an Intersection or Interchange N/E = Not Eligible</th>
<th>Roadway Type</th>
<th>Sign Program and Facility-Specific Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>E10-1</td>
<td>GAS DIESEL E85 LP-GAS FOOD LODGING CAMPING EXIT 234A</td>
<td>2 N/E 2</td>
<td>• Freeway • Expressway</td>
<td>In addition to the criteria under the General Motorist Service Signing Program, the business shall meet the following requirements: 1. Serve three meals each day, seven days per week. 2. Be licensed by the State and/or the appropriate political subdivision. 3. Be located within two miles of the interchange.</td>
</tr>
<tr>
<td></td>
<td>E10-6</td>
<td><img src="image" alt="Food Sign Image" /></td>
<td>N/E 15</td>
<td>• Expressway • Conventional</td>
<td>See Specific Services - Restaurant</td>
</tr>
<tr>
<td></td>
<td>D9-X6</td>
<td><img src="image" alt="Food Sign Image" /></td>
<td>N/E 15</td>
<td>• Expressway • Conventional</td>
<td>See Specific Services - Restaurant</td>
</tr>
<tr>
<td>Facility Type</td>
<td>Sign</td>
<td>Sign Design</td>
<td># of Miles from an Intersection or Interchange</td>
<td>Roadway Type</td>
<td>Sign Program and Facility-Specific Criteria</td>
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<td>------------------------------------------</td>
</tr>
<tr>
<td>E10-1</td>
<td>E10-1</td>
<td>![E10-1 Sign Image]</td>
<td>N/E 2</td>
<td>• Freeway • Expressway</td>
<td>In addition to the criteria under the General Motorist Service Signing Program, the business shall meet the following requirements: 1. Provide vehicle services including fuel and oil. 2. Provide restroom facilities and drinking water. 3. Provide continuous staffed operation for at least 12 hours per day, 7 days per week. 4. Provide public access to a telephone. 5. Be located within two miles of the interchange.</td>
</tr>
<tr>
<td>E10-5</td>
<td>← GAS →</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E10-10</td>
<td>← DIESEL →</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E10-11</td>
<td>← LP-GAS →</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E10-12</td>
<td>← E85 →</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D9-X6</td>
<td>← GREG'S GAS →</td>
<td>N/E 15</td>
<td>• Expressway • Conventional</td>
<td>See Specific Services - Gasoline Service Station</td>
<td></td>
</tr>
<tr>
<td>Facility Type</td>
<td>Sign</td>
<td>Sign Design</td>
<td># of Miles from an Intersection or Interchange N/E = Not Eligible</td>
<td>Roadway Type</td>
<td>Sign Program and Facility-Specific Criteria</td>
</tr>
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<td>---------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Urban</td>
<td>Rural</td>
<td>Freeway</td>
</tr>
<tr>
<td>General Motorist Service</td>
<td>E10-1</td>
<td><img src="image" alt="Sign Design" /></td>
<td>N/E</td>
<td>Varies</td>
<td>• Freeway</td>
</tr>
<tr>
<td>Facility Type</td>
<td>Sign</td>
<td>Sign Design</td>
<td># of Miles from an Intersection or Interchange N/E = Not Eligible</td>
<td>Roadway Type</td>
<td>Sign Program and Facility-Specific Criteria</td>
</tr>
<tr>
<td>---------------</td>
<td>------</td>
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<td>---------------------------------------------------------------</td>
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<td>---------------------------------------------</td>
</tr>
<tr>
<td>Gifts, Crafts, Art Sales</td>
<td>D9-X6</td>
<td><img src="image" alt="D9-X6" /></td>
<td>N/E 15</td>
<td>• Expressway  • Conventional</td>
<td>See Specific Services - Tourist Oriented Business</td>
</tr>
</tbody>
</table>
| Golf Courses (public) | D7-X21 | ![D7-X21](image) | 3 10 | • Expressway  • Conventional | In addition to the general criteria for the Minor Traffic Generator Signing Program, all of the following criteria apply.  

The facility shall:  
1. Have at least nine holes.  
2. Be open to the public.  

See also Miniature Golf/Driving Ranges, and Disc Golf Course. |

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 24" x 36" mounted on stone work pedestals or walls.

Many geological markers exist in MnDOT rest areas, wayside rests, scenic overlooks, and/or wayside historical marker sites. The markers detail the geological significance of the area near their location. Signing of the sites began in 1997 and continues in accordance with the following guidelines.

Criteria:
1. Sites shall be approved by the GSM.
2. Sites shall be easily accessible as part of a wayside development such as wayside rests, scenic overlooks, historical marker sites, adjacent city parks, or similar sites.
3. Sites within state parks shall not be signed.

Signing Method:
1. Sites with geological markers only:
   a. Install advance sign D7-X1 GEOLOGICAL MARKER 1/2 MILE on RIGHT/LEFT.
   b. Install sign D7-X2 GEOLOGICAL MARKER with arrow at the entrance road or turnoff.
2. Sites located in other facilities (as listed above):
   a. Install sign D5-X1c beneath the in place advance sign.
   b. If there is no advance sign in place for the facility, install sign D5-X1c below the directional sign.
3. Sign fabrication, installation, and maintenance costs will be paid by MnDOT.
<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Sign</th>
<th>Sign Design</th>
<th># of Miles from an Intersection or Interchange</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Great River Road Amenity Sites</td>
<td>M1-X1</td>
<td>Brown Custom Design</td>
<td>1</td>
<td>• Expressway • Conventional</td>
<td>This facility includes parks, boat/canoe access sites, picnic areas, campsites, historic sites, and other points of interest that are directly related to the officially designated national Great River Road (GRR) route. In addition to the general criteria for the <strong>Minor Traffic Generator Signing Program</strong>, all of the following criteria apply for a GRR amenity site: 1. Only those sites directly tied to the national GRR system and identified on GRR maps or brochures may be signed. 2. The sign format and size shall be determined by MnDOT’s Office of Traffic Engineering. 3. The district traffic office should coordinate sign requests with the Office of Environmental Services.</td>
</tr>
<tr>
<td></td>
<td>Brown</td>
<td>Custom Design Design</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greenhouses</td>
<td>D9-X6</td>
<td>GREENHOUSE PLANTING</td>
<td>N/E</td>
<td>• Expressway • Conventional</td>
<td>See <strong>Specific Services - Rural Agricultural Business</strong></td>
</tr>
<tr>
<td></td>
<td>D7-X19</td>
<td>HIGH SCHOOL</td>
<td>1</td>
<td>• Expressway • Conventional</td>
<td>This is a multi-purpose facility which hosts a variety of activities throughout the year. Some of these facilities may have a remote stadium or athletic complex which generates traffic and also qualifies for signing. In addition to the general criteria for the <strong>Minor Traffic Generator Signing Program</strong>, all of the following criteria apply. The facility shall: 1. Hold events or activities that are non-local in scope and draw visitors from outside the local area. 2. Provide adequate on-site parking.</td>
</tr>
<tr>
<td></td>
<td>Walker</td>
<td>High School</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Facility Type

**Historic District**

### Sign Design

**Sign**

- D7-X11a

**Sign Program and Facility-Specific Criteria**

Unless otherwise indicated, the General Criteria apply for all facilities. See MnDOT’s Traffic Engineering Manual for placement of signs.

### Roadway Type

- Expressway
- Conventional

### # of Miles from an Intersection

**Urban**

- 1

**Rural**

- 10

Listing in the National Register of Historic Places means that the district has been judged by professional historians to be worthy of preservation because its significance speaks to the broad themes of human history and because it retains enough integrity to accurately document that experience. Historic Districts so listed are worthy of public attention and serve the useful purpose of cultural heritage education.

In addition to the general criteria for the **Minor Traffic Generator Signing Program**, the following criteria apply:

1. Requests for signs will be accepted from a local government agency.
2. Requests for directional signage shall include:
   a. Location: Historic District boundaries must be distinguishable through local street signage. The application must include a map of the district and photographic evidence of distinguishing signage.
   b. Interpretation: Historic Districts shall provide information regarding the district in a publicly accessible location within the district such as a self-service kiosk or welcome center. A copy of that information must be included with the application. The information must supplement the National Register nomination with new information.
3. Requests for signing of Historic Districts shall be submitted to the State Signing Engineer, OTE. These requests shall be forwarded to the Minnesota Historical Society (MHS) for recommendations. The MHS recommendations shall govern MnDOT’s approval or denial of requests.
4. The Historic District shall be listed in the National Register of Historic Places, a federal program of the National Park Service. The MHS will confirm whether a district is listed.

### Signing Method

1. A city could potentially qualify for a Downtown or Business District sign and a Historic District sign. The Historic District may or may not include the whole city. Therefore, directions to different locations may be required. Signing for both would be accepted if both qualify and there is space. If spacing is an issue, both requests could be combined on the same sign if signed at the same trunk highway intersection.
2. Three sizes of Historic District signs have been developed and included in the Standard Signs and Markings Manual.
3. Optional guide signs (other than the standard sign design) may be used:
   a. “[City Name] Downtown & Historic District”
   b. “[City Name] Historic & Business District” with directional arrow(s)
<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Sign Design</th>
<th>Sign Program and Facility-Specific Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historical Markers and State Monuments</td>
<td><strong>HISTORICAL MARKER</strong></td>
<td><strong>Minor Traffic Generator Signing Program</strong></td>
</tr>
<tr>
<td><strong>D5-X1b</strong></td>
<td>1</td>
<td><strong>In addition to the general criteria for the Minor Traffic Generator Signing Program, all of the following criteria apply:</strong></td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>1. Minnesota Historical Society (MHS) sites and monuments:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>a. Requests for signing to State historical markers and monuments maintained by the MHS shall be submitted to the State Signing Engineer, OTE.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. All costs for MHS historical marker and monument signs shall be paid by MnDOT.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Non-MHS sites and monuments:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>a. Requests for the signing of non-MHS historical markers and monuments shall be submitted to the State Signing Engineer, OTE. These requests shall be forwarded for the MHS for recommendations. The MHS recommendations shall govern MnDOT’s approval or denial of the request.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. A historical marker or monument shall:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I. Document a topic with historical significance. Fifty years is a general rule of thumb of the time require to develop historical perspective and to establish significance. Topics that explain the recent past shall be exceptionally significant to be considered for approval. To establish significance, requesters should explain why a topic played a role or why it made a difference in the context of local, regional, or state history. Requesters shall provide a copy of the text and a photograph of the historical marker. As a general rule, signing shall not be approved for historical markers or monuments that represent ubiquitous historical phenomena or places that were common everywhere. Examples of these places include: the sites of towns, communities, or settlements that no longer exist; the birthplaces or grave sites of significant individuals; and cemeteries.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>II. Be located on public land and accessible to the public.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>III. Be legible using letters at least 5/8 inches high (typically a font size 22 or greater).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>c. The requester shall be responsible for maintaining and ensuring access to the historical marker or monument.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>d. There shall be at least three year-round parking spaces located off the road or street. Within city limits, parking spaces may be located on-street.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>e. All costs shall be paid by the requester.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>f. See National Monuments as applicable.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Sign Design</th>
<th>Sign Program and Facility-Specific Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historical Markers and State Monuments</td>
<td><strong>HISTORICAL MARKER</strong></td>
<td><strong>Historical Markers and State Monuments</strong></td>
</tr>
<tr>
<td><strong>D7-X5</strong></td>
<td>½ MILE ON RIGHT</td>
<td><strong>Roadway Type</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Expressway</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Conventional</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Sign Design</th>
<th>Sign Program and Facility-Specific Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historical Markers and State Monuments</td>
<td><strong>HISTORICAL MARKER</strong></td>
<td><strong>Historical Markers and State Monuments</strong></td>
</tr>
<tr>
<td><strong>D7-X6</strong></td>
<td></td>
<td><strong>Roadway Type</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Expressway</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Conventional</td>
</tr>
<tr>
<td>Facility Type</td>
<td>Sign</td>
<td>Sign Design</td>
</tr>
<tr>
<td>--------------</td>
<td>------</td>
<td>-------------</td>
</tr>
<tr>
<td></td>
<td>D7-X5a</td>
<td><img src="image1" alt="Historic Site Sign" /></td>
</tr>
<tr>
<td>Historic Sites</td>
<td>D7-X11</td>
<td><img src="image2" alt="Historic Site Sign" /></td>
</tr>
</tbody>
</table>

Facility Type Sign Sign #’s refer to designation in the MnDOT Standard Signs and Markings Summary

Urban Rural

# of Miles from an Intersection or Interchange N/E = Not Eligible

Historic Sites

D7-X5a

1 10

• Expressway
• Conventional

In addition to the general criteria for the Minor Traffic Generator Signing Program, requests for signing of historic sites shall be submitted to the State Signing Engineer, OTE. These requests shall be forwarded to the Minnesota Historical Society (MHS) for recommendations. The MHS’s recommendations shall govern MnDOT’s approval or denial of the request.

Historic Sites

D7-X11
<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Sign</th>
<th>Sign Design</th>
<th># of Miles from an Intersection or Interchange N/E = Not Eligible</th>
<th>Roadway Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Urban Rural</td>
<td></td>
</tr>
<tr>
<td>Hospitals</td>
<td>D9-2a</td>
<td><img src="image" alt="H sign 4 BLKS" /></td>
<td>10 10</td>
<td>• Freeway • Expressway • Conventional</td>
</tr>
<tr>
<td></td>
<td>D9-2b</td>
<td><img src="image" alt="H sign right" /></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>E10-1</td>
<td><img src="image" alt="Gas Diesel E85 LP-Gas Food Lodging Camping" /></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>E10-3</td>
<td><img src="image" alt="Hospital Exit 34 A" /></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>E10-4</td>
<td><img src="image" alt="Hospital 4 Miles" /></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>E10-8</td>
<td><img src="image" alt="Hospital" /></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In addition to the general criteria for all signing programs, the following criteria apply.

1. Hospitals requesting signing shall meet all of the following criteria:
   a. Accept all emergency cases without discrimination for any reason (including ability to pay).
   b. Be readily accessible from the nearest intersection or interchange (normally within a ten mile radius).
   c. Provide 24-hour emergency medical care with a physician on the premises (metropolitan area) or on-call (rural areas).
2. The costs of fabrication, installation, and maintenance of signs shall be paid by MnDOT.
3. Signing directing motorists from one trunk highway onto another may be allowed if the facility is within ten miles of the intersection of the two trunk highways. Signs directing motorists from one freeway to another freeway shall not be allowed.
4. In place EMERGENCY HOSPITAL signs shall be removed through attrition and replaced with HOSPITAL signs. Mainline signing and ramp signing at an interchange shall be replaced at the same time.
5. HOSPITAL signs should be installed in accordance with the following:
   a. Interchange signs E10-1, E10-3, E10-4, and E10-8
      i. At urban interchanges where General Motorist Service signs (E10-1) are in place, the word HOSPITAL (E10-1 Supplement) may be included on the General Motorist Service sign if the word CAMPING is not displayed.
      ii. At urban or rural interchanges where General Motorist Services are not signed, the E10-3 sign shall be installed at the interchange nearest the hospital. The appropriate signing (E10-4 or E10-8) shall be installed on the ramp(s).
      iii. If the hospital is located less than two miles from an interchange, the E10-8 sign shall be installed on the ramp(s). If the hospital is located two miles or more from an interchange, the E10-4 sign shall be installed on the ramp(s).
      iv. Trailblazing signs on trunk highways shall display the number of miles in one mile increments (E10-8 or E10-4 if mileage is required).
      v. Trailblazing signs (D9-2a) on local roads shall display the number of blocks from the trunk highway to the facility.
   b. At-grade intersection signs (D9-2a and D9-2b)
      i. The D9-2b sign shall be ground-mounted in advance of the intersection (or on a traffic signal mast arm at the intersection) with the road leading to the hospital.
      ii. Trailblazing signing (D9-2a) on trunk highways and/or local roads shall display either the number of blocks or miles (in one mile increments) to the facility. Trailblazing signs on local roads directing motorists to the facility shall display the appropriate distance and arrow.
<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Sign</th>
<th>Sign Design</th>
<th># of Miles from an Intersection or Interchange</th>
<th>Sign Program and Facility-Specific Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>N/E</td>
<td>See Lodging</td>
</tr>
<tr>
<td>Hotels</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household Hazardous Waste Site</td>
<td></td>
<td></td>
<td></td>
<td>See Sanitary Landfills</td>
</tr>
<tr>
<td>Humane Societies</td>
<td>D9-X6</td>
<td>TWIN METRO HUMANE SOCIETY</td>
<td>N/E</td>
<td></td>
</tr>
<tr>
<td>Indoor Ice Arenas</td>
<td></td>
<td>Brown Custom Design</td>
<td>1</td>
<td>See Specific Services - Rural Agricultural Business</td>
</tr>
<tr>
<td>Industrial Parks</td>
<td>D7-X17</td>
<td>INDUSTRIAL PARK</td>
<td>N/E</td>
<td>In addition to the general criteria for the Minor Traffic Generator Signing Program, all of the following criteria apply. The facility shall: 1. Be in a rural environment. 2. Be serviced mainly by non-local delivery vehicles. 3. Be open to both local and non-local customers.</td>
</tr>
<tr>
<td>Interpretive Centers</td>
<td></td>
<td>Brown Custom Design</td>
<td>1</td>
<td>This facility provides explanations and interpretations of historical, cultural, and educational subject matter. In addition to the general criteria for the Minor Traffic Generator Signing Program, the facility shall have on premise staff and/or guides to present continuing service to visitors.</td>
</tr>
<tr>
<td>Kennels</td>
<td>D9-X6</td>
<td>POODLE PALACE</td>
<td>N/E</td>
<td>See Specific Services - Rural Agricultural Business</td>
</tr>
<tr>
<td>Landfills</td>
<td></td>
<td></td>
<td></td>
<td>See Sanitary Landfills</td>
</tr>
<tr>
<td>Libraries</td>
<td>I-8</td>
<td></td>
<td>1</td>
<td>The general criteria for the Minor Traffic Generator Signing Program apply to this type of facility.</td>
</tr>
</tbody>
</table>

Unless otherwise indicated, the General Criteria apply for all facilities. See MnDOT's Traffic Engineering Manual for placement of signs.
<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Sign</th>
<th>Sign Design</th>
<th># of Miles from an Intersection or Interchange</th>
<th>Sign Program and Facility-Specific Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock and Dam Sites</td>
<td>Brown Custom Design</td>
<td><img src="image" alt="Lock and Dam No 5" /></td>
<td>1 5</td>
<td>This facility is operated and maintained by the US Army Corps of Engineers. The visitors to this facility are interested in viewing boating operations through the locks and/or utilizing other available recreational facilities. The following criteria apply for a lock and dam site: 1. The facility shall provide viewing provisions for the public. 2. The facility should provide parking for at least 15 vehicles. 3. The facility should provide restroom facilities. 4. The facility should have a telephone available.</td>
</tr>
<tr>
<td>Lodge</td>
<td>E10-1</td>
<td><img src="image" alt="E10-1" /></td>
<td>N/E 10</td>
<td>In addition to the criteria under the General Motorist Service Signing Program, the business shall meet the following requirements: 1. Provide lodging 24-hours per day throughout the year. 2. Be licensed by the State and/or the appropriate political subdivision. 3. Be located within ten miles of the interchange.</td>
</tr>
<tr>
<td>Lodge</td>
<td>E10-7</td>
<td><img src="image" alt="E10-7" /></td>
<td>N/E 15</td>
<td>See Specific Services - Motel, Resort</td>
</tr>
<tr>
<td>Lodge</td>
<td>D9-X6</td>
<td><img src="image" alt="D9-X6" /></td>
<td>N/E 15</td>
<td>See Specific Services - Motel, Resort</td>
</tr>
<tr>
<td>Facility Type</td>
<td>Sign Design</td>
<td># of Miles from an Intersection or Interchange</td>
<td>Roadway Type</td>
<td></td>
</tr>
<tr>
<td>--------------</td>
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<td>-----------------------------------------------</td>
<td>--------------</td>
<td></td>
</tr>
<tr>
<td>Major Traffic Generators</td>
<td>Natl Sports Center</td>
<td>10 10</td>
<td>Freeway, Expressway, Conventional</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Canterbury Park</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sign Program and Facility-Specific Criteria**

Unless otherwise indicated, the General Criteria apply for all facilities. See MnDOT’s Traffic Engineering Manual for placement of signs.

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. Predominately retail, business or manufacturing centers are not normally eligible for signing.

The business shall meet the following criteria:

1. Parking for at least 1000 vehicles.
2. A minimum of ten events per year.
3. Average event attendance of at least 5000 persons.

Signs should be installed in accordance with the following:

1. Distances to major generators located two miles or more from the trunk highway intersection or interchange shall be shown on the sign approaching the intersection or on the ramp at an interchange.
2. Signs directing motorists from one trunk highway to another trunk highway may be allowed except when they direct a motorist from one freeway to a second freeway.
3. In the Metro District, Major Traffic Generator signs may have a dynamic element specifying an alternate route for the purpose of traffic management and in accordance with the following criteria:
   a. Alternate Route Guidance:
      i. The alternate route must be a direct route to the facility.
      ii. The alternate route exit/turn must be located within the next two interchanges/intersections.
      iii. There needs to be verification of traffic data showing that the alternate route is a better option than the primary signed route. Some things to consider are travel times, construction impacts, signal timing, train schedules, etc.
   b. Sign Location:
      i. Only one structure is allowed per direction of travel. A second structure will not be installed on the mainline at the alternate route exit/turn.
      ii. Signing is required on both the primary exit ramp and alternate route exit ramp.
      iii. Trailblazing is required on both the primary and alternate routes.
   c. There must be an agreement between MnDOT and another government agency for these types of signs. The agreement will include:
      i. All costs to be paid by the requester, including fabrication, installation, maintenance, replacement, relocation, utility, etc.
      ii. MnDOT will operate the signs. Another government agency may operate the signs, but the message must be approved by MnDOT and they must supply the alternate route traffic data for MnDOT to approve before the signs are changed.
      iii. Maintenance of the signs is the responsibility of the requester.
      iv. Replacement of the signs and associated elements is the responsibility of the requester. The life of the static sign and dynamic elements should be the same as MnDOT’s guidelines for service life replacement.
      v. Relocation of the signs and associated elements is the responsibility of the requester.
      vi. For example, if a construction project needs to relocate the signs, the requester is responsible for relocating it.
<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Sign</th>
<th>Sign Design</th>
<th># of Miles from an Intersection or Interchange</th>
<th>Roadway Type</th>
<th>Sign Program and Facility-Specific Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Sign #’s refer to designation in the MnDOT Standard Signs and Markings Summary</td>
<td>N/E = Not Eligible</td>
<td></td>
<td>Unless otherwise indicated, the General Criteria apply for all facilities. See MnDOT’s Traffic Engineering Manual for placement of signs.</td>
</tr>
<tr>
<td>Mall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>See Regional Shopping Centers and Outlet Malls</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Conventional</td>
<td>See Specific Services - Tourist Oriented Business</td>
</tr>
<tr>
<td>Miniature Golf and Driving Range</td>
<td>D9-X6</td>
<td>PUTT PUTT COUNTRY CLUB</td>
<td>15</td>
<td>• Expressway</td>
<td>See Specific Services - Tourist Oriented Business</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Conventional</td>
<td></td>
</tr>
</tbody>
</table>
**Minor Traffic Generator Signing Program**

1. Minor Traffic Generator signs may be installed on conventional highways, at at-grade intersections on expressways, and on rural bypasses that have interchanges at non-trunk highways. In order to be considered for signing, the following criteria must be met by the minor traffic generator requesting signing:
   a. Unless specified otherwise, facilities shall be open at least 40 hours per week and a minimum of five days per week.
   b. For seasonal generators, MnDOT may incorporate signing indicating periods of closure where appropriate.
   c. Signing shall not be permitted within the corporate limits of one city directing motorists to a facility located in another city.
   d. Generators shall be located within specified distances from the trunk highway intersection or interchange at which signing is permitted. These distances vary depending on the type of generator and whether the signed intersection is located within an urban or rural environment.
   i. 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 a more complicated driving environment.
   ii. Rural Environment - typical characteristics are relatively undeveloped or agricultural lane, 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. The local governing body(ies) shall prioritize which facilities may be signed when MnDOT determines that the number of qualifying generators that a community is requesting signing for cannot all be accommodated on signing at the same intersection due to driver information overload and sign spacing guidelines.

2. Signs shall only be allowed from the nearest trunk highway intersection. Signs may be allowed from two trunk highways if they serve different travel directions (i.e. north-south and east-west). Signs directing motorists from one trunk highway to another trunk highway shall not be allowed.

3. Signing shall not be provided if the facility is readily visible or if effective off right-of-way directional signing is present or can be provided. Visibility from the approach to an intersection may be determined by adding 175 feet to Condition B (deceleration to 10 mph from the posted speed) in MN MUTCD Table 2C-4. Signing is not allowed if the facility can be readily identified or if effective off highway right-of-way directional signing is legible at or beyond this distance.

Minor Traffic Generator Signs should be designed in accordance with the following:

1. Distances to generators are to be shown in one-mile increments.
2. When designing sign panels to be installed on rural expressways for private minor generators:
   a. Use the appropriate chart (Charts 6.1A, 6.1B, or 6.1C in MnDOT’s Traffic Engineering Manual) to determine the required font size for guide signs on expressways.
   b. The next smaller font size may be used to design the sign panels for private generators if existing guide signing to other private generators on the highway section were designed with one font size smaller than that specified in the charts.
<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Sign</th>
<th>Sign Design</th>
<th># of Miles from an Intersection or Interchange</th>
<th>Roadway Type</th>
<th>Sign Program and Facility-Specific Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motels</td>
<td></td>
<td></td>
<td>N/E</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multi-Purpose Facilities</td>
<td>Green Custom Design</td>
<td>COMMUNITY CENTER</td>
<td>N/E 3</td>
<td>Expressway • Conventional</td>
<td>The general criteria for the <strong>Minor Traffic Generator Signing Program</strong> apply to this type of facility. This facility includes but is not limited to public community centers and National Guard Armories. A public community center is a public building designed for a community's social, cultural, educational, and recreational activities. A National Guard Armory is a facility where arms and military equipment are stored and/or is used for training military reserve personnel. It is frequently used for other public purposes.</td>
</tr>
<tr>
<td></td>
<td>D7-X12</td>
<td>COUNTY MUSEUM</td>
<td>Urban 1 4</td>
<td>Expressway • Conventional</td>
<td>In addition to the general criteria for the <strong>Minor Traffic Generator Signing Program</strong>, all of the following criteria apply: 1. Requests for signing shall be submitted to the State Signing Engineer, OTE. These requests shall be forwarded to the Minnesota Historical Society (MHS) for recommendations. The MHS recommendations shall govern MnDOT's approval or denial of the requests. 2. Seasonal museums may qualify but shall have a CLOSED plaque installed on signs during the months that they are not open for business. 3. A non-profit museum is required to be a Federal Tax Exempt Organization, Internal Revenue Code [IRC] 501(c)(3).</td>
</tr>
<tr>
<td></td>
<td>Brown Custom Design</td>
<td>Paul Bunyan Logging Museum</td>
<td>15</td>
<td>Freeway • Expressway • Conventional</td>
<td>General Criteria Only</td>
</tr>
<tr>
<td>National Monuments</td>
<td>Brown Custom Design</td>
<td>Pipestone National Monument ¼ MI ON LEFT</td>
<td>N/E 15</td>
<td>Expressway • Conventional</td>
<td>See <strong>Specific Services - Rural Agricultural Business</strong></td>
</tr>
<tr>
<td>Nurseries/ Tree Farms</td>
<td>D9-X6</td>
<td>EVERGREEN FIELD AND FARM</td>
<td>N/E 15</td>
<td>Expressway • Conventional</td>
<td>See <strong>Specific Services - Rural Agricultural Business</strong></td>
</tr>
<tr>
<td>Orchards/ Produce Sales</td>
<td>D9-X6</td>
<td>GREEN FOREST ORCHARD</td>
<td>N/E 15</td>
<td>Expressway • Conventional</td>
<td></td>
</tr>
<tr>
<td>Outlet Malls</td>
<td>Green Custom Design</td>
<td>Albertville Outlet Center EXIT 201</td>
<td>2</td>
<td>Freeway • Expressway • Conventional</td>
<td>In order to be considered for signing, all of the following criteria shall be met by the outlet mall: 1. At least 400,000 square feet of retail floor space available for lease. 2. Minimum of 100 stores. 3. Primary function of the mall is to house tenants who are manufacturers that sell their stock directly to the public. 4. Located outside of the downtown or central business district except in the Metro District.</td>
</tr>
<tr>
<td>Facility Type</td>
<td>Sign</td>
<td>Sign Design</td>
<td># of Miles from an Intersection or Interchange</td>
<td>Roadway Type</td>
<td>Sign Program and Facility-Specific Criteria</td>
</tr>
<tr>
<td>---------------</td>
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<td>-----------------------------------------------</td>
<td>--------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>Parks</td>
<td>D7-X10</td>
<td><img src="image" alt="CITY PARK" /></td>
<td>3 Urban 10 Rural</td>
<td>• Expressway • Conventional</td>
<td>This is a recreational facility, open to the public, of varying size, type, and purpose. It can be operated by various agencies or jurisdictions. The facility typically provides picnic tables, playground equipment, drinking water, trash barrels, and restroom facilities. In addition to the general criteria for the Minor Traffic Generator Signing Program, all of the following criteria apply: 1. The facility shall meet Minnesota Department of Health standards regarding water supply and restroom facilities. 2. The facility shall be maintained in a sanitary and park-like condition.</td>
</tr>
<tr>
<td></td>
<td>D7-X15</td>
<td><img src="image" alt="COUNTY PARK" /></td>
<td><img src="image" alt="" /></td>
<td>• Freeway • Expressway • Conventional</td>
<td>General Criteria Only</td>
</tr>
<tr>
<td>Parks</td>
<td>Brown Custom Design</td>
<td><img src="image" alt="Voyageurs National Park" /></td>
<td>15 Urban 15 Rural</td>
<td>In addition to the general criteria for the Minor Traffic Generator Signing Program, all of the following criteria apply. The facility shall: 1. Meet Minnesota Department of Health standards regarding water supply and restroom facilities. 2. Be maintained in a sanitary and park-like condition. 3. Have water, restrooms, and picnic areas. 4. Have accommodations for at least 35 overnight camp sites.</td>
<td></td>
</tr>
<tr>
<td>Parks</td>
<td>D7-X9</td>
<td><img src="image" alt="STATE PARK" /></td>
<td>15 Urban 15 Rural</td>
<td>• Freeway • Expressway • Conventional</td>
<td></td>
</tr>
<tr>
<td>Pharmacy</td>
<td>Logo Sign</td>
<td><img src="image" alt="NEW LIFE CHURCH LUTHERAN" /></td>
<td>3 Urban 3 Rural</td>
<td>• Freeway</td>
<td></td>
</tr>
<tr>
<td>Places of Worship</td>
<td>D9-X6</td>
<td><img src="image" alt="NEW LIFE CHURCH LUTHERAN" /></td>
<td>N/E 15 Rural</td>
<td>• Expressway • Conventional</td>
<td>See Specific Services - Places of Worship</td>
</tr>
<tr>
<td>Facility Type</td>
<td>Sign</td>
<td>Sign Design</td>
<td># of Miles from an Intersection or Interchange</td>
<td>Roadway Type</td>
<td>Sign Program and Facility-Specific Criteria</td>
</tr>
<tr>
<td>---------------</td>
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<td>-------------</td>
<td>-----------------------------------------------</td>
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<td>--------------------------------------------</td>
</tr>
<tr>
<td>Trunk Highways</td>
<td>D7-X7</td>
<td>Lobster Lake</td>
<td>1</td>
<td>10</td>
<td>Expressway • Conventional</td>
</tr>
<tr>
<td></td>
<td>D7-X7a</td>
<td>Lobster Lake</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local Roads</td>
<td>D7-X8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>D7-X8A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Access to Lakes/Rivers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DNR Sign</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>DNR NRM 8.2.35</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Public Office Buildings</td>
<td>Green Custom Design</td>
<td>Dakota County Government Center</td>
<td>1</td>
<td>3</td>
<td>Expressway • Conventional</td>
</tr>
<tr>
<td>Recreational Rentals: Bikes, Boats, Canoes, Jet Skis, Snowmobiles</td>
<td>D9-X6</td>
<td>STEWART’S JET BOATS</td>
<td>N/E</td>
<td>15</td>
<td>Expressway • Conventional</td>
</tr>
</tbody>
</table>

See Section 21.5.1 of the MN MUTCD for Public Water Access Signs including the Minnesota Department of Natural Resources (DNR) sign (DNR NRM 8.2.35).

In addition to the general criteria for the **Minor Traffic Generator Signing Program**, all of the following criteria apply:

1. All requests for signing to State provided public access sites shall be approved by the Department of Natural Resources (DNR). Requests for signing to all other access sites shall be approved by MnDOT.
2. The facility shall have:
   a. An access road that is maintained in passable condition.
   b. A parking area at the access site with a gravel, bituminous, or concrete surface.
   c. The parking area should have space for at least 20 vehicles. A smaller parking area is acceptable at remote access sites.
   d. A concrete boat launching ramp or equivalent for trailered boats.
   e. Free admission.
3. The public access sign shall be one of the following:
   a. Trunk Highway: Standard D7-X7 or D7-X7A.
   b. Local Road/Trailblazing: Standard Sign D7-X8 or D7-X8A
   c. DNR Public Water Access Sign

The DNR may continue its current sign replacement program (replacing exiting 12” x 18” signs with new 18” x 24” signs) in accordance with all of the following:

1. DNR staff will remove any PUBLIC WATER ACCESS sign panel attached to a MnDOT sign structure and install it on its own structure which shall be an FHWA accepted breakaway sign support.
2. The location of the DNR sign structure shall be authorized by the MnDOT district traffic office.
3. The sign installation shall not hide from view nor interfere with the effectiveness of any official traffic control device

See Specific Services - Tourist Oriented Business

This facility includes public administrative offices (federal, state, and local) where the general public visits on a regular basis to conduct business.

The general criteria for the **Minor Traffic Generator Signing Program** apply to this type of facility.
<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Sign</th>
<th>Sign Design</th>
<th># of Miles from an Intersection or Interchange</th>
<th>Roadway Type</th>
<th>Sign Program and Facility-Specific Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recycling Centers</td>
<td>D1-X6</td>
<td><img src="image" alt="Reycling Center" /></td>
<td>1 5</td>
<td>• Expressway</td>
<td>This facility shall comply with the permit rules of, and be officially designated by, the Minnesota Pollution Control Agency (MPCA). Reference Minnesota Statute 173.086 and 115A.555.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Green Custom Design</td>
<td></td>
<td>• Conventional</td>
<td>In addition to the general criteria for the <strong>Minor Traffic Generator Signing Program</strong>, all of the following criteria apply for a recycling center. The facility shall: 1. Be open to receive materials at least 12 hours per week, 12 months per year. 2. Accept at least four different types of recyclable materials. 3. Comply with Minnesota Rule 7035.2845 regarding the permitting of recycling facilities.</td>
</tr>
<tr>
<td>Regional Human Services/Treatment Centers</td>
<td></td>
<td>Green Custom Design</td>
<td></td>
<td>• Expressway</td>
<td>This is a public treatment facility operated by the Minnesota Department of Human Services. Reference Minnesota Statutes Chapters 252, 253, and 254.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><img src="image" alt="Green Custom Design" /></td>
<td>1 3</td>
<td>• Conventional</td>
<td>The general criteria for the Minor Traffic Generator Signing Program apply to this type of facility.</td>
</tr>
<tr>
<td>Regional Shopping Centers</td>
<td><img src="image" alt="Maplewood Mall Exit" /></td>
<td>Green Custom Design</td>
<td>2 2</td>
<td>• Freeway</td>
<td>In order to be considered for signing, all of the following criteria shall be met by the regional shopping center: 1. At least 600,000 square feet of retail floor space, all under one roof, available for lease. 2. At least two major department stores owned by a national or regional chain organization. 3. Located outside of the downtown or central business district, except in the Metro District.</td>
</tr>
<tr>
<td>Facility Type</td>
<td>Sign</td>
<td>Sign Design</td>
<td># of Miles from an Intersection or Interchange</td>
<td>Roadway Type</td>
<td>Sign Program and Facility-Specific Criteria</td>
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<tr>
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<td>-------------------------------------------</td>
</tr>
<tr>
<td>Resorts</td>
<td>D9-X3</td>
<td><img src="image" alt="Resorts Sign" /></td>
<td>N/E</td>
<td>• Expressway</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><img src="image" alt="Camping Sign" /></td>
<td></td>
<td>• Conventional</td>
<td>Resort and Camping Signing Program</td>
</tr>
<tr>
<td></td>
<td>D9-X4</td>
<td><img src="image" alt="Resort Sign" /></td>
<td>15</td>
<td>• Expressway</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><img src="image" alt="Campground Sign" /></td>
<td></td>
<td>• Conventional</td>
<td></td>
</tr>
<tr>
<td>Riding Stable</td>
<td>D9-X6</td>
<td><img src="image" alt="Riding Stable Sign" /></td>
<td>15</td>
<td>See Specific Services - Resorts</td>
<td></td>
</tr>
</tbody>
</table>

Resort and Camping Signing Program
Signs direct the motorist to campgrounds or resorts in rural areas where the Advertising Regulation Law has restricted the installation of private advertising signs off the highway right-of-way. These signs may only be installed where resort information (or County Slat Sign Program) are in place on local roads in accordance with Minnesota Statutes 160.283-160.285. See Figure 6.26.

In addition to the general criteria for all signing programs, the following criteria apply:

1. Signs may be installed in rural areas on conventional highways and at at-grade intersections on expressways.
2. Signs shall only be allowed from the nearest trunk highway intersection. Signs directing motorists from one trunk highway to another trunk highway shall not be allowed.
3. The cost of fabrication, installation, and maintenance of the signs shall be paid by MnDOT.
4. One guide sign from each direction in advance of a private road or entrance is allowed 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.
5. Where the access to resorts or private campgrounds is via county, township, or other public road, and the road is identified with a road name or destination sign, the sign panel or panels may be combined with the in place sign. Minimum height to the bottom of the lowest sign panel shall be seven feet.
6. Businesses signed under this signing program shall not be signed under the Specific Service Signing Program. Normally, these signs are installed where SPECIFIC SERVICE signs are not erected at intersections.
7. Resorts shall have a State Department of Health license as required by Minnesota Statute 157.16. A resort is defined in Minnesota Statute 157.15, subd. 11.
8. Private campgrounds shall have a State Department of Health license as required by Minnesota Statute 327.15, modern sanitary facilities (flush, chemical, or incinerator toilets), and no restrictions on type of camping (tent, RV, trailer, etc.).
<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Sign Design</th>
<th># of Miles from an Intersection or Interchange</th>
<th>Roadway Type</th>
<th>Sign Program and Facility-Specific Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sanitary Landfills</td>
<td>SANITARY LANDFILL</td>
<td>3 5</td>
<td>Expressway Conventional</td>
<td>These facilities shall be approved by the Minnesota Pollution Control Agency (MPCA). MPCA literature refers to a household hazardous waste site as a HHW Center.</td>
</tr>
<tr>
<td>Solid Waste Transfer Stations</td>
<td>SOLID WASTE TRANSFER STATION</td>
<td></td>
<td></td>
<td>In addition to the general criteria for the Minor Traffic Generator Signing Program, all of the following criteria apply:</td>
</tr>
<tr>
<td>Household Hazardous Waste Sites</td>
<td>HHW CENTER</td>
<td></td>
<td></td>
<td>1. The facility shall be open to the public as well as commercial and governmental users.</td>
</tr>
<tr>
<td>Demolition Landfills</td>
<td>DEMOLITION LANDFILL</td>
<td></td>
<td></td>
<td>2. Compost sites shall not be signed.</td>
</tr>
<tr>
<td>Scientific and Natural Areas</td>
<td>Carpenter Nature Area</td>
<td>1 10</td>
<td>Expressway Conventional</td>
<td>These facilities offer various types of displays in a natural setting. They are developed by the Department of Natural Resources or other state or federal agencies.</td>
</tr>
<tr>
<td>Schools</td>
<td></td>
<td></td>
<td></td>
<td>In addition to the general criteria for the Minor Traffic Generator Signing Program, all of the following criteria apply:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1. The facility shall provide viewing areas.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2. The facility should provide:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>a. Parking for at least 20 vehicles.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>b. An on-site explanation (audio, visual, or staff person) of the subject matter.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>c. Restroom facilities.</td>
</tr>
</tbody>
</table>

See Educational Institutions or High Schools
<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Sign</th>
<th>Sign Design</th>
<th># of Miles from an Intersection or Interchange</th>
<th>Roadway Type</th>
<th>Sign Program and Facility-Specific Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ski Areas</td>
<td>D7-X13</td>
<td><img src="image" alt="D7-X13" /></td>
<td>5 10</td>
<td>Expressway, Conventional</td>
<td>This is a public or private winter recreational site which provides downhill and/or cross-country skiing. In addition to the general criteria for the Minor Traffic Generator Signing Program, all of the following criteria apply for a ski area: 1. The facility shall be open to the public. 2. The facility should provide parking for at least 100 vehicles at downhill sites and at least 30 vehicles at cross-country sites. 3. Downhill skiing facilities shall provide adequate staff in case of an emergency. 4. Cross-country facilities shall have trails which are maintained with trail guide signs or maps placed at key locations indicating location and distances. 5. The message on the ski area signs shall be as follows: a. Trunk highway signing: SKI AREA or name of ski area with left (right) arrow at an intersection or NEXT RIGHT at an interchange. b. Local road trailblazing signing: downhill symbol sign (D7-X13) or cross-country symbol sign (D7-X14) with appropriate arrow.</td>
</tr>
<tr>
<td></td>
<td>D7-X14</td>
<td><img src="image" alt="D7-X14" /></td>
<td>Brown Custom Design</td>
<td>Conventional</td>
<td>See Sanitary Landfills</td>
</tr>
<tr>
<td>Solid Waste Transfer Stations</td>
<td>D9-X6 Series</td>
<td><img src="image" alt="D9-X6 Series" /></td>
<td>N/E 15</td>
<td>Expressway, Conventional</td>
<td>See the Traffic Engineering Manual, Chapter 6, for more information on the history of the Specific Signs Program in Minnesota and for definitions, sign installations, and sign panel design. See the last page of this appendix for a list of ineligible facilities.</td>
</tr>
<tr>
<td>Facility Type</td>
<td>Sign Design</td>
<td># of Miles from an Intersection or Interchange</td>
<td>Urban</td>
<td>Rural</td>
<td>Roadway Type</td>
</tr>
<tr>
<td>-----------------------</td>
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<td>--------------</td>
</tr>
<tr>
<td>Star Lake or River Sign</td>
<td>Star Lake or River Sign</td>
<td>N/E = Not Eligible</td>
<td></td>
<td></td>
<td>• Expressway • Conventional</td>
</tr>
<tr>
<td>State Recreational Areas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Expressway • Conventional</td>
</tr>
<tr>
<td>Tourist Information</td>
<td>D9-10a</td>
<td>1</td>
<td></td>
<td></td>
<td>• Expressway • Conventional</td>
</tr>
<tr>
<td>Travel Information Center</td>
<td>D9-10</td>
<td>3</td>
<td></td>
<td></td>
<td>• Expressway • Conventional</td>
</tr>
<tr>
<td>Facility Type</td>
<td>Sign</td>
<td>Sign Design</td>
<td># of Miles from an Intersection or Interchange</td>
<td>Roadway Type</td>
<td>Sign Program and Facility-Specific Criteria</td>
</tr>
<tr>
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<td>---------------------------------------------</td>
</tr>
<tr>
<td>Township Hall</td>
<td>D1-X9</td>
<td>TOWN HALL</td>
<td>2</td>
<td>Urban 2</td>
<td>In addition to the General Criteria in the Minor Traffic Generator Signing Program, the following criteria apply. The facility:</td>
</tr>
<tr>
<td></td>
<td>Green</td>
<td>Custom</td>
<td></td>
<td>Rural 2</td>
<td>1. Shall hold monthly meetings that are open to the public. Township halls are not required to be open eight hours per day, five days per week.</td>
</tr>
<tr>
<td></td>
<td>Custom</td>
<td>Town Hall</td>
<td>10</td>
<td>Freeway *</td>
<td>2. Shall be primarily intended for use as a town hall.</td>
</tr>
<tr>
<td></td>
<td>Green</td>
<td>Syl van</td>
<td></td>
<td>Conventional</td>
<td>3. Should provide adequate on-site parking or parking in the immediate area.</td>
</tr>
<tr>
<td></td>
<td>Green</td>
<td>Town Hall</td>
<td></td>
<td></td>
<td>4. Shall post contact information that is visible from the exterior of the building.</td>
</tr>
<tr>
<td></td>
<td>Green</td>
<td>Sylvan</td>
<td></td>
<td></td>
<td>Signing Method:</td>
</tr>
<tr>
<td></td>
<td>Green</td>
<td>Town Hall</td>
<td></td>
<td></td>
<td>1. All costs associated with township hall signing shall be paid by the township.</td>
</tr>
<tr>
<td></td>
<td>Green</td>
<td>Sylvan</td>
<td></td>
<td></td>
<td>2. The sign shall have the legend “TOWN HALL” with directional arrow.</td>
</tr>
<tr>
<td></td>
<td>Green</td>
<td>Town Hall</td>
<td></td>
<td></td>
<td>3. If a township hall is in close proximity to another township hall, and the district traffic engineer determines that using the standard sign could be confusing for motorists, the name of the township may be included on the sign.</td>
</tr>
<tr>
<td></td>
<td>Brown</td>
<td>Custom</td>
<td>10</td>
<td>Freeway *</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>Brown</td>
<td>Design Access</td>
<td></td>
<td>Conventional</td>
<td>In addition to the general criteria for all signing programs, the following criteria apply:</td>
</tr>
<tr>
<td>Trail Access</td>
<td>Brown</td>
<td>Custom</td>
<td></td>
<td></td>
<td>1. Trail Access signs may be installed on all trunk highways, except in the Metro District where signs shall not be installed on freeways.</td>
</tr>
<tr>
<td></td>
<td>Brown</td>
<td>Design Access</td>
<td></td>
<td></td>
<td>2. Parking shall be provided at the site or within the immediate vicinity. The parking facility shall be surfaced and maintained year-round. Parking shall be provided for at least 40 vehicles at freeway signed sites and at least 20 vehicles at other sites. Smaller lots are acceptable at remote areas with the approval of the district traffic engineer.</td>
</tr>
<tr>
<td></td>
<td>Brown</td>
<td>Design Access</td>
<td></td>
<td></td>
<td>3. The minimum trail length shall be five miles.</td>
</tr>
<tr>
<td></td>
<td>Brown</td>
<td>Design Access</td>
<td></td>
<td></td>
<td>4. All requests for signing to DNR provided public trails shall be approved by the DNR and MnDOT. Signing for other trails is at the discretion of MnDOT.</td>
</tr>
<tr>
<td></td>
<td>Brown</td>
<td>Design Access</td>
<td></td>
<td></td>
<td>Signing Method:</td>
</tr>
<tr>
<td></td>
<td>Brown</td>
<td>Design Access</td>
<td></td>
<td></td>
<td>1. Signing shall only be allowed from the nearest trunk highway intersection or interchange. Signs directing motorists from one trunk highway to another trunk highway shall not be allowed.</td>
</tr>
<tr>
<td></td>
<td>Brown</td>
<td>Design Access</td>
<td></td>
<td></td>
<td>2. The format of the Trail Access signs should be as follows:</td>
</tr>
<tr>
<td></td>
<td>Brown</td>
<td>Design Access</td>
<td></td>
<td></td>
<td>a. Freeway - the official trail name and the freeway exit number.</td>
</tr>
<tr>
<td></td>
<td>Brown</td>
<td>Design Access</td>
<td></td>
<td></td>
<td>b. Expressway interchanges - the official trail name and the message NEXT RIGHT</td>
</tr>
<tr>
<td></td>
<td>Brown</td>
<td>Design Access</td>
<td></td>
<td></td>
<td>c. At-grade intersections - the official trail name, the word ACCESS and a directional arrow.</td>
</tr>
<tr>
<td>Trap and Skeet</td>
<td>D9-X6</td>
<td>COYOTE SKEET SHOOTING</td>
<td>N/E</td>
<td>Urban 15</td>
<td>See Specific Services – Tourist Oriented Business</td>
</tr>
<tr>
<td>Shooting Ranges</td>
<td>D9-X6</td>
<td>COYOTE SKEET SHOOTING</td>
<td></td>
<td>Rural 15</td>
<td></td>
</tr>
<tr>
<td>Tree Farms/ Nurseries</td>
<td>D9-X6</td>
<td>TOWERING TREES</td>
<td>N/E</td>
<td>Urban 15</td>
<td>See Specific Services – Rural Agricultural Business</td>
</tr>
<tr>
<td>Universities</td>
<td></td>
<td></td>
<td></td>
<td>Rural 15</td>
<td>See Educational Institutions</td>
</tr>
<tr>
<td>Facility Type</td>
<td>Sign</td>
<td>Sign Design</td>
<td>Sign Program and Facility-Specific Criteria</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Veterans and War Memorials</td>
<td>Brown Custom Design</td>
<td>Korean War Memorial</td>
<td>This is an independently located outdoor site built to commemorate veterans of U.S. military actions and/or the actions themselves. In addition to the general criteria for the Minor Traffic Generator Signing Program, all of the following criteria apply:  1. The facility shall provide adequate on-site parking or parking in the immediate area of the memorial.  2. The facility should:  a. Be of a unique size and presence.  b. Be easily available for public viewing.  c. Not be part of any other building or facility.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Veterinary Clinics</td>
<td>D9-X6</td>
<td>PETS VETS</td>
<td>See Specific Services - Rural Agricultural Business</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Welding and Machine Shops for Agricultural</td>
<td>D9-X6</td>
<td>WEST WELDING</td>
<td>See Specific Services - Rural Agricultural Business</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equipment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wildlife Park/Animal Park</td>
<td>D9-X6</td>
<td>SAFARI MINNESOTA</td>
<td>See Specific Services – Tourist Oriented Business</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wildlife Refuges and Wildlife Management Areas</td>
<td>Brown Custom Design</td>
<td>Cormorant Lake Wildlife Refuge</td>
<td>This is a facility which is open to the public and offers viewing of a variety of wildlife. In addition to the general criteria for the Minor Traffic Generator Signing Program, all of the following criteria apply:  1. The facility shall provide interpretive facilities or programs or provide viewing areas or nature trails.  2. The facility should provide:  a. Parking for at least 20 vehicles in rural areas and at least 50 vehicles in urban areas.  b. Restroom and telephone facilities.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Workforce Centers</td>
<td>D7-X18</td>
<td>WORKFORCE CENTER</td>
<td>This facility is formed through a partnership between locally based community, county, and state agencies that the general public visits on a regular basis to obtain employment and training services. In addition to the general criteria for the Minor Traffic Generator Signing Program, the facility shall have adequate on-premise signing visible to the motorist.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facility Type</td>
<td>Sign</td>
<td>Sign Design</td>
<td># of Miles from an Intersection or Interchange</td>
<td>Roadway Type</td>
<td>Sign Program and Facility-Specific Criteria</td>
</tr>
<tr>
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<td>--------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>Zoos</td>
<td>Brown Custom Design</td>
<td><img src="image" alt="Spirit River Zoo" /></td>
<td>5 10</td>
<td>Expressway Conventional</td>
<td>This is a zoological garden or park where a wide variety of living wild animals are kept and safely displayed for public exhibition. In addition to the general criteria for the Minor Traffic Generator Signing Program, all of the following criteria apply: 1. The facility shall be registered and approved by the American Association of Zoological Parks and Aquariums. 2. The facility shall provide identification and explanation of displays and wildlife.</td>
</tr>
</tbody>
</table>

Unless otherwise indicated, the General Criteria apply for all facilities. See MnDOT’s Traffic Engineering Manual for placement of signs.
# Logo Attraction Sign Categories and Criteria

### Historic Sites or Districts
Historic Sites shall have definite historical significance as determined and approved by the Minnesota Historical Society (MHS) and State Signing Engineer. Requests shall be forwarded to the State Signing Engineer. Historic District requests shall be listed on the National Register of Historic Places. Requests will be accepted from a local government agency and shall contain the following:

- A map of the district.
- Photographic evidence of street signage. Historic District must be distinguishable through local street signage.
- Evidence that the district is providing information regarding the district in a publicly accessible location within the district such as a self-service kiosk or welcome center. Include the location of the kiosk, hours open to the public, and a copy of the information provided to the public, such as a pamphlet. Requests shall be forwarded to the State Signing Engineer.

### Cultural Sites
Sites shall be limited to include any facility for the live performing arts, exhibits, or concerts. In lieu of hours of operation, the facility must have a seating capacity of 2,500 seats and hold at least 50 events per year.

### Recreational Sites
- **Recreational Area**
  Areas that include recreational activities such as: hiking, bicycling, boating, fishing, kayaking, rafting, public golfing, skiing, and off-highway vehicle riding.

- **Amusement Park**
  A permanent area which is open to the general public for entertainment rides and foods services.

- **Arenas**
  A stadium, sports complex, auditorium, fairgrounds, civic or convention center or racetrack. In lieu of hours of operation, the facility must have a seating capacity of at least 2,500 seats and hold at least 50 events per year.

- **Natural Interest Area**
  An area of natural or scenic beauty shall be limited to a naturally occurring area of interest to the general public, including State or National Parks, forests, nature preserve, wilderness areas, or mountain ranges. A feature created by nature or naturally occurring area of outstanding interest to the general public. Examples include, but are not limited to, unusual rock formations, caves, lakes, rivers, fossil beds, waterfalls, and similar areas.

### Educational Sites
- **Zoo, Aquarium or Botanical Park**
  A non-retail facility in which living animals, insects, fish, or plants are kept and exhibited to the public.

- **Facility Tour Location**
  A facility such as a factory, institution, or plant which conducts daily public tours on a regular scheduled basis during hours of operations.

- **Museum**
  A museum shall be limited to facilities open to the public in which works of historic, artistic, or scientific value are cared for and exhibited. Requests for signing shall be submitted to the State Signing Engineer. These requests will be forwarded to the MHS for recommendations. The Society’s recommendations shall govern the Minnesota Department of Transportation’s approval or denial of requests. A non-profit museum is also required to be a Federal tax exempt organization [IRC (Internal Revenue Code) 501 (c) (3)].
Specific Services Signing Program

Specific Services signs may be provided for the following (Minnesota Statute Sections 160.292-160.296).

1. **Gasoline Service Station or other retail motor fuel business** - defined in Minn. Stat. Sec. 160.292, Subd. 13 as “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.”

2. **Motel** - defined in Minn. Stat. Sec. 157.15, Subd. 7 as “a building, structure, enclosure, or any part thereof used as, maintained as, advertised as, or held out to be a place where sleeping accommodations are furnished to the public and furnishing accommodations for periods of less than one week.” It shall be licensed by the State Department of Health. Bed and breakfast facilities were previously allowed signing as a tourist-oriented business that met the motel criteria, but are now eligible for signing as a motel.

3. **Resort** - defined in Minn. Stat. Sec. 157.15, Subd. 11 as “a building, structure, enclosure, or any part thereof located on, or on property neighboring, any lake, stream, skiing or hunting area, or any recreational area for purposes of providing convenient access thereto, kept, used, maintained, or advertised as, or held out to the public to be a place where sleeping accommodations are furnished to the public, and primarily to those seeking recreation for periods of one day, one week, or longer and having for rent five or more cottages, rooms, or enclosures.”

4. **Place of Worship** (no legislative definition provided) - MnDOT defines a place of worship as any church, chapel, temple, synagogue, mosque, 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.

Minnesota Statute 173 allows religious notices signs to be permitted in areas adjacent to trunk highway right-of-way. If this type of signing is permissible and effective, specific service signs shall not be installed.

5. **Recreational Camping Area** - defined in Minn. Stat. Sec. 327.14, Subd. 8 as “any area, whether privately or publicly owned, used on a daily, nightly, weekly, or longer basis for the accommodation of five or more tents or recreational camping vehicles free of charge or for compensation. “Recreational camping area” excludes:
   - Children’s camps
   - Industrial camps
   - Migrant labor camps as defined in Minnesota Statutes and state commissioner of health rules.
   - United States Forest Service camps
   - State Forest Service camps
   - State wildlife management areas or state-owned public access areas which are restricted in use to picnicking and boat landing, and
   - Temporary holding areas for self-contained recreational camping vehicles created by and adjacent to motor sports facilities if the chief law enforcement officer of an affected jurisdiction determines that it is in the interest of public safety to provide a temporary holding area.

The recreational camping area shall meet the following criteria:
   I. Be licensed by the State Department of Health.
   II. Provide at least 15 camping spaces.
   III. Provide modern sanitary facilities (flush, chemical, or incinerator toilets) and drinking water.
   IV. Services available 24-hours per day.
   V. Accept all forms of campers (tent, trailer, motor home, etc.) unless restriction is included in the official name (“Smith’s Tent Camping” or “Joe’s RV Camping”).

6. **Restaurant** – defined in Minn. Stat. Sec. 157.15, Subd. 12 as “a food and beverage service establishment, whether the establishment serves alcoholic or nonalcoholic beverages, which operates from a location for more than 21 days annually. Restaurant does not include a food cart or a mobile food unit.” A restaurant shall meet the following criteria:
   a. Provide a continuously staffed food service operation open at least four hours per day, five days per week except holidays as defined in Minn. Stat. Sec. 645.44, Subd. 5, and except as provided for seasonal restaurants.
   b. Provide seating for at least 20 people.
   c. Serve meals prepared on the premises (reheated, prepackaged, ready-to-eat food is not food prepared on the premises.
   d. Possess any required state or local licensing or approval.
7. **Rural Agricultural Business** - defined in Minn. Stat. Sec. 160.292, Subd. 20, as “includes but is not limited to (1) a grain-handling facility, (2) a business providing care and well-being to animals, and (3) the sale of feed or seed.”

MnDOT further defines a rural agricultural business as 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 or providing for the care and well-being of animals. Year-round businesses shall be open a minimum of eight hours per day, six days per week, and 12 months per year. Seasonal businesses shall be open eight hours per day and six days per week during the normal seasonal period.

Agriculture is 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. Rural agricultural businesses shall be located in rural areas in order to be eligible.

The following is a list of eligible rural agricultural businesses (see last page of this appendix for a list if ineligible facilities):

- Agricultural Equipment
- Commodity storage/elevator
- Farm implement dealer
- Food, seed, fertilizer store
- Greenhouse
- Humane society
- Kennel
- Orchard/produce sales
- Tree farm, nursery
- Veterinary clinic
- Welding and machine shop for agricultural equipment

8. **Tourist Oriented Business** – Minn. Stat. Sec. 160.292, Subd. 25 defines a tourist-oriented business as “(a) a business, service, or activity that receives a major portion of its income or visitors during the normal business season from motorists not residing in the immediate area of the business or activity. (b) Tourist-oriented business includes, but is not limited to (1) a greenhouse or nursery, (2) a bait and tackle shop, (3) a marina, and (4) a gift or antique shop.”

A Tourist Oriented business shall have a majority of its retail floor space dedicated to the specific type of business for which signing is being requested. Year-round businesses shall be open a minimum of eight hours per day, six days per week, and 12 months per year. Seasonal businesses shall be open eight hours per day and six days per week during the normal seasonal period.

The following is a list of businesses that are eligible for signs (see last page of this appendix for a list of ineligible facilities):

- Amusement park
- Antiques, antique shop (where greater than 50% of total inventory is 50+ years old)
- Archery range
- Bait and tackle
- Bookstore (where greater than 25% of total inventory is 50+ years old)
- Gift, craft, art sales
- Marina, boat launch, guide service
- Miniature golf
- Recreational rentals (bicycle, boat, canoe, jet ski, snowmobile)
- Riding stable
- Trap and skeet shooting range
- Wildlife park, animal park.
In addition to the general criteria for all signing programs, all of the following criteria apply for the Specific Service Signing Program:

1. Specific Service signs may be installed in rural areas at at-grade intersections on conventional highways and expressways, and on rural bypasses of outstate municipalities that have interchanges at intersections of trunk highways with local roads or with other trunk highways (Minn. Stat. Sec. 160.293, Subd. 1).

2. A Specific Service sign is allowed on an approach to an intersection if either one or both sides of the approach meets less than four of the following factors:
   a. Within corporate limits
   b. Curb and gutter
   c. Sidewalk
   d. Street lighting
   e. Posted speed limit of 45 mph or less
   f. Zoning (commercial, industrial, retail, residential)
   g. Platted development
   h. Multi-lane divided highway
   i. Established local road system
   j. Frontage road

3. Minnesota Statutes are not perfectly clear on urban qualifying businesses to be signed from rural intersections. The general authorization for each of the four basic combinations of specific service/intersection locations is summarized as follows:
   a. Service rural, intersection rural - authorized
   b. Service rural, intersection urban - not qualified
   c. Service urban, intersection urban - not qualified
   d. Service urban, intersection rural - need consideration of the following:
      I. The environment of the rural intersection as well as municipal boundaries.
      II. Straight ahead signing if overlapping routes are involved and one route does not serve the municipality.

4. In order be considered for signing on trunk highways, the following criteria shall be met by the specific service requesting signing:
   a. Businesses shall conform with all applicable laws and rules concerning the provisions for public accommodation without regard to race, religion, color, sex, or national origin (Minn. Stat. Sec. 160.295, Subd. 1).
   b. Businesses shall be located within 15 miles of the signed intersection or interchange (Minn. Stat. Sec. 160.295, Subd. 2).

5. Signing shall not be provided if the facility is readily visible or if effective off right-of-way directional signing is present or can be provided (Minn. Stat. Sec. 160.293, Subd. 2). Visibility from the approach to an intersection may be determined by adding 175 feet to Condition B (deceleration to 10 mph from the posted speed) in MN MUTCD Table 2C-4. If the facility can be readily identified or if effective off right-of-way directional signing is legible at this distance or beyond, then signing is not allowed (Minn. Stat. Sec. 160.293, Subd. 2).

6. Signing is allowed at the number of intersections or interchanges as follows (Minn. Stat. Sec. 160.293, Subd. 3):
   a. Unless as provided in paragraph b., a facility is limited to signing at one intersection or interchange on the trunk highway system.
   b. Signing is permitted at two intersections or interchanges on the trunk highway system if the place of business is located between trunk highways and within 15 miles of each qualifying intersection or interchange.

7. When a place of business is located off a conventional highway and can be served by two intersections with a local road (e.g. a bypass), one sign may be installed at each of the two intersections to provide the shortest route for motorists on the conventional highway. See Figure 6.36B.

8. A facility that meets eligibility criteria from only one approach to an intersection or interchange shall only be signed from that approach.
### Ineligible Facilities

**NOTE:** This list is not all-inclusive. It only contains frequently requested signs that are routinely denied or have been determined by MnDOT to be ineligible for signing.

<table>
<thead>
<tr>
<th>“Fraternal” Organization” Facilities</th>
<th>Live Theater (orchestra, band concert)</th>
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<tbody>
<tr>
<td>Athletic Fields</td>
<td>Lumber Yards</td>
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<tr>
<td>Barber Shops</td>
<td>Movie Theaters</td>
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<tr>
<td>Bowling Alleys</td>
<td>Nursing/Senior Citizens Homes or Centers</td>
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<tr>
<td>Butcher Shops</td>
<td>Office Buildings or Facility (Private)</td>
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<tr>
<td>Car Sales/Service/Rentals</td>
<td>Office Parks</td>
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<tr>
<td>Car Washes</td>
<td>Performing Arts Theaters</td>
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<tr>
<td>Carpet Sales</td>
<td>Pet Shops</td>
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<tr>
<td>Cemeteries (except national cemeteries)</td>
<td>Post Offices</td>
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<tr>
<td>Compost Sites</td>
<td>Recreation Equipment Sales/Service</td>
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<tr>
<td>Convenience Stores</td>
<td>Recreational Vehicle sales/rental</td>
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<tr>
<td>Correctional Facilities (local and regional)</td>
<td>Rehabilitation Centers</td>
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<tr>
<td>Dance Halls/Wedding Venues</td>
<td>Repair Business</td>
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<tr>
<td>Day Care Centers</td>
<td>Road Maintenance Facilities</td>
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<tr>
<td>Drive-In Theaters</td>
<td>RV sales/service/rental</td>
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<tr>
<td>Fish Hatcheries</td>
<td>Schools (Elementary, Junior High)</td>
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<td>Flea Markets</td>
<td>Second Hand Stores</td>
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<tr>
<td>Forest Preserves (county, state, or federal)</td>
<td>Shopping Centers (other than regional malls)</td>
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<tr>
<td>Game Farms and Preserves</td>
<td>Softball, Baseball, Soccer Fields</td>
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<tr>
<td>Grocery Stores</td>
<td>Sportsman Clubs</td>
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<tr>
<td>Gun Shops</td>
<td>Storage Facilities</td>
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<tr>
<td>Half-way House/Shelter Houses</td>
<td>Swimming Beaches/Pools</td>
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<tr>
<td>Hardware Stores</td>
<td>Tennis Courts</td>
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<tr>
<td>Health Clubs</td>
<td>Veterans Homes</td>
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<tr>
<td>Ice Cream Shops</td>
<td>Wildlife Treatment Facilities</td>
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<tr>
<td>Laundromats</td>
<td>Any other predominately retail, business or manufacturing center</td>
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