

3. SIGN COMPONENTS

In this Chapter you will be introduced to some of the basic background information related to traffic sign design and practice. The items covered include:

- Panel Size, Radii, Borders, Margins
- Colors
- Font Styles and Font Sizes
- Horizontal and Vertical Lines
- Route Markers
- Arrows
- Fractions
- Abbreviations

Guide signs are developed with numerous components, many of which dynamically change based on their inter-relation.

3.1 Panel Size, Radii, Borders and Margins

The panel size (typically derived from the sign components) will dictate the radii, borders and margins.

3.1.1 Panel Size

Panels for guide signs are sized in 6" increments in all cases. Sign panel sizes are always listed with the horizontal dimension first; e.g., a 96" x 48" sign is 96" wide by 48" high. Panel size is typically determined by the spacing and the final components.

3.1.2 Radii

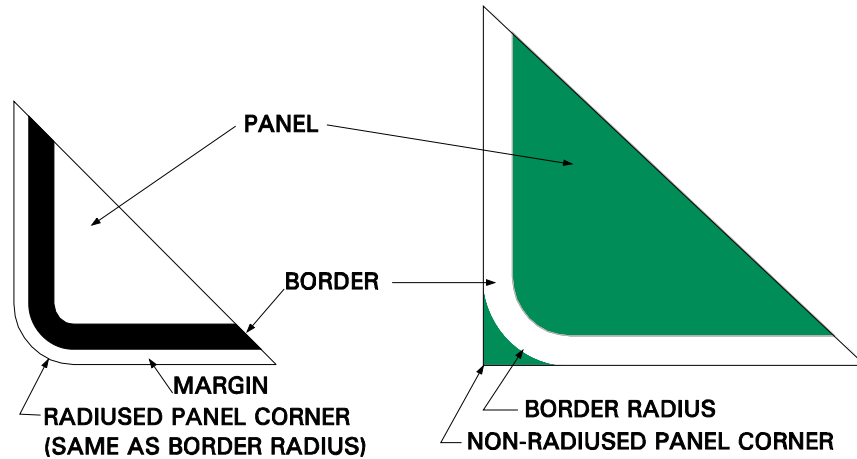
Generally, guide signs do not have radiused corners. The border will be radiused, but the panel will not be. If there is a concern that a pedestrian may be injured by a sharp sign corner then the panel should be radiused.

3.1.3 Borders

Unless specifically stated otherwise, each sign illustrated herein shall have a border of the same color as the legend. The corners of the sign border shall be rounded (radiused), except for stop signs. A dark border on a light background should be set in from the edge, creating a margin between the border and panel edge, while a light border on a dark background should extend to the edge of the panel (no margin).

3.1.4 Margins

The widths of the margins listed in the following tables are based on the length of the SHORTEST sign panel side. To determine whether or not to use a margin follow this rule: If the border and legend have a brighter reflectivity than the background of the sign, DON'T use a margin. If the background is brighter, DO use a margin.



Standard Corner Radii, Margin, and Border for Non-Guide Signs

The following dimensions shall be used for trimming corners and for application of borders on standard sign blanks. Where a complete sign is furnished the radius, margin, and border dimensions shall be as shown on the standard sign drawing.

Table 1: Standard Corner Radii, Margin, and Border for Non-Guide Signs

Length of Shortest Side	Radius	Margin	Border
Under 24"	1.5"	.38"	.38"
24"	1.5"	.38"	.63"
30"	1.88"	.5"	.75"
36"	2.25"	.63"	.88"
42"	2.25"	.63"	.88"
48" – 60"	3"	.75"	1.25"

Table 2: Guide Sign Border and Radii

Length of Shortest Side	Border Width	Border Radius
≤ 36"	1"	3"
42" – 60"	1.25"	6"
66" – 84"	1.5"	9"
≥ 90"	2"	12"

Exceptions for Mn/DOT Signs:

1. A sign having 20" legend shall use a 3" border width and a border radius based on the above table.
2. 16"-12" or 13.3"-10" legend on Type "A" or Type "OH" signs shall use a 2" border width and a border radius based on the above table.

3.2 Colors

General Provisions

Black: Used as legend color for signs with orange, white or yellow backgrounds. Black also is used as the background color for some regulatory signs.

Blue: Indicates services available to road users. It is used as the background color in motorist information signs, interstate, Minnesota, and county route markers, and auxiliary markers. Blue is not used as a legend color except on Adopt-a-Highway signing.

Brown: Indicates recreational and cultural facilities. It is used only as the background color in recreational and cultural interest signs. It is not used as a legend color.

Green: Indicates movement permitted or gives directional guidance. It is used as the background color in guide signs and as the legend color in permissive parking signs.

Orange: Warns of temporary traffic conditions with a higher than normal potential hazard level. It is used as the background color in temporary traffic control signs and is most commonly seen in construction zones. It is not used as a legend color.

Red: Indicates right-of-way control, prohibition or exclusion. It is used as the background color for STOP, DO NOT ENTER, WRONG WAY, and interstate route marker signs and as the legend color for YIELD, parking prohibition and prohibitory (circular with slash) signs.

White: White either indicates a law, regulation or legal requirement in effect at or near the sign or provides directional guidance. It is used as the background color for regulatory signs, route markers and route marker auxiliaries. It also is used as the legend color for signs with a black, blue, brown, green or red background.

Yellow: Warns of a typical potential hazard. It is used as the background color for warning signs and as the legend color for county route marker signs.

Fluorescent-Yellow Green: Designated for use as background color for SCHOOL CROSSING, PEDESTRIAN CROSSING and BICYCLE CROSSING and their auxiliary plaques. SCHOOL plaque is also included.

3.3 Font Styles and Font Sizes

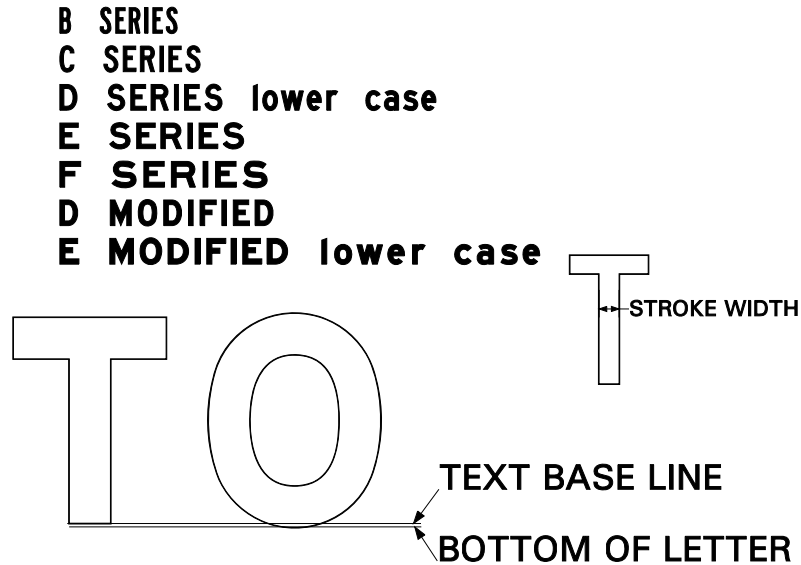
3.3.1 Font Styles

Sign lettering shall be in upper-case letters of the type approved by the Federal Highway Administration (FHWA), except that destination names may be in lower-case lettering with initial upper-case. Standard upper-case and lower-case alphabets have been issued by the FHWA.

Use of the Series B alphabet is restricted to street-name signs, parking signs, and other similar signs where limited breadth and stroke widths are required for design purposes.

As a guide to choice of alphabets, tests have shown that, for any given legend, better legibility can be obtained by using a relatively wide spacing between letters than by using wider and taller letters with a cramped space.

Available letter series are B, C, D, E, F, D modified, and E modified as illustrated in the following graphic:



3.3.2 Font Sizes

Mn/DOT uses highway gothic font styles on highway signs. These range from B to F Series (F Series is only used on "EXIT" panels). As you progress alphabetically through the font series the letters widen and the stroke widths thicken. Two of the series have lower-case lettering - D and E Modified Series. D Series lower-case is typically used on temporary (construction) or unique interest signing (Adopt-A-Highway signing, for example).

With all fonts it should be noted that all characters rounded at the top ("2"), bottom ("U"), or both top and bottom ("S") are slightly taller than the straight characters (See above). This becomes important when fabricating a sign to correctly position the text base line.

Letters and numerals used on guide signs are the E modified font style. This font has a lower-case height which is $\frac{3}{4}$ of the upper-case (capital) height. If the upper-case height is 8" the lower-case will be 6". This particular size is referred to as 8"-6" E Modified. Approved upper-lower letter heights, in inches, are as follows: 4-3, 6-4.5, 8-6, 10.67-8, 13.33-10, 16-12, 20-15.

Proper names are spelled out in upper-lower case, while generic names and other messages use upper-case lettering only. Upper case lettering is also used with cardinal directions: NORTH, SOUTH, EAST, and WEST.

Lettering sizes for specific signs are based on the characteristics of the roadway: facility type, speed, and number of lanes. The tables included here give details of preferred design standards.

Construction, regulatory, and warning signs are designed more often by panel shapes and size restrictions than by the parameters used for guide signs. Hence, narrower and smaller letters are sometimes employed to "squeeze" a message onto these panels. An extreme example of this is an urban parking restriction sign, 12" x 18", which may have letters as small and narrow as 2" B on it.

In all cases, reducing spacing between letters (within words) should be avoided, as that will severely diminish legibility.

Table 3: Guidelines for Guide Sign (Non-Freeway) Font Size

Sign Type		Speed						
		<45 mph		45-50 mph		>50 mph	55 mph	>55 mph
		2 Lane/ 2 Way	4 or More Lanes	2 Lane/ 2 Way	4 or More Lanes	2 Lane/ 2 Way	4 or More Lanes	4 or More Lanes
GROUND MOUNTED:								
Destination	City/Street Name	6-4.5	8-6	8-6	10.7-8	8-6	10.7-8	13.3-10
	Arrow Size	3 or 13 head	5 or 14 head	5 or 14 head	6 or 15 head	5 or 14 head	6 or 15 head	7 or 16 head
Distance	Cardinal Direction	6	6	6	8	6	8	8
	Route Marker	18 OL	18 OL	18 OL	24 OL	18 OL	24 OL	24 OL
	City/Street Name	6-4.5	6-4.5	6-4.5	8-6	6-4.5	8-6	10.7-8
Junction	Cardinal Direction	8	8	8	8	8	10	10
	Route Marker	24 OL	24 OL	24 OL	24 OL	24 OL	24 OL	24 OL
	Action Message	8	8	8	8	8	10	10
Directional	Cardinal Direction	6	8	8	8	8	8	10
	Route Marker	18 OL	24 OL	24 OL	24 OL	24 OL	24 OL	24 OL
	City/Street Name	6-4.5	8-6	8-6	10.7-8	8-6	10.7-8	13.3-10
	Arrow Size with City/Street Name	3 or 13 head	5 or 14 head	5 or 14 head	6 or 15 head	5 or 14 head	6 or 15 head	7 or 16 head
	Arrow Size Without City/Street Name	3 or 13 head	5 or 14 head	5 or 14 head	5 or 14 head	5 or 14 head	5 or 14 head	6 or 15 head
Supplemental (See Note 5)	Generic	6	6	6	8	6	8	8
	Proper Name	6-4.5	6-4.5	6-4.5	8-6	8-6	8-6	10.7-8, 8-6
	Action Message	5	5	5	6	6	6	8
	Arrow Size	3 or 13 head	3 or 13 head	3 or 13 head	5 or 14 head	5 or 14 head	5 or 14 head	6 or 15, 5 or 14 head
SIGNAL MAST ARM MOUNTED:	Cardinal Direction	8	8	8	8	8	8	8
	Route Marker	24 OL	24 OL	24 OL	24 OL	24 OL	24 OL	24 OL
	City/Street Name	8-6	8-6	8-6	8-6	8-6	8-6	8-6
	Arrow Size	5 or 14 head	5 or 14 head	5 or 14 head	5 or 14 head	5 or 14 head	5 or 14 head	5 or 14 head
OTHER OVERHEADS:	Cardinal Direction	8	8	8	8	8	8	10
	Route Marker	24 OL	24 OL	24 OL	24 OL	24 OL	24 OL	24 OL
	City/Street Name	8-6	8-6	8-6	10.7-8	8-6	10.7-8	13.3-10
	Arrow Size	5 or 14 head	5 or 14 head	5 or 14 head	6 or 15 head	5 or 14 head	6 or 15 head	7 or 16 head

Notes:

OL = Overlay

- Letter fonts are E Modified unless otherwise noted.
- 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 (i.e. 6-4.5 to 4-3). D Modified cardinal directions may be used on mast arm signs if load restrictions exist.
- These minimum and recommended sizes are shown in inches.
- For signing on freeway and expressway ramps use the sizes shown under the speed >50 mph, 2 lane/2 way heading.
- 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.

Table 4: Guidelines for Guide Sign (Freeway) Font Size

Sign Type		Type OH Signs	Ground Mount Signs
Distance	Cardinal	10	10
	Route Marker	24 OL	24 OL
	City/Street Name	13.3-10	13.3-10
	Numeral	13.3-10	13.3-10
	Fraction	15	15
Guide	Cardinal	12	12
	Route Marker	36	36
	City/Street Name	16-12	20-15
	Arrow Size	17-36	17-36
	EXIT ONLY	12	--
	Down Arrow Size	22-32	
	Distance	Numeral	15
Fraction		15	18
Word		10	12
Exit Panel	Word	10	10
	Numeral	15	15
	Letter	15	15
Supplemental Guide	Place/Name	13.3-10	13.3-10
	Word	10	10
	Numeral	15	15

Notes:

*For further guidelines see MMUTCD, Section 2-E

3.4 Horizontal Spacing

Spacing between words and symbols and within words is just as important as the font size itself. If interested in the requirements and guidelines for spacing within words and between words and symbols, see Appendix A for the appropriate charts based on font.

Horizontal spacing between objects is typically equal to the font size. An exception is with city names such as La Crosse or Le Roy, where 60% of the font size is used between the two parts of the name. This 60% spacing has been programmed into SignCAD, so no special spacing need be created.

Spacing between objects and borders is usually $\frac{3}{4}$ of the font size (in some cases $\frac{1}{2}$ of the font size is acceptable). An exception to this rule involves freeway distance signs, where the spacing between objects and borders is 13".

When designing freeway distance signs, a minimum of 22" space is required between a destination and its corresponding mileage, while a minimum of 18" horizontal space is maintained between the longest destination line and the longest mileage.

3.5 Vertical Spacing for Freeway Distance Signs

Special vertical spacing for Freeway Distance Signs has been developed by Mn/DOT and is summarized in Table 5.

Table Key: Combinations – Tallest component on each horizontal line.

- 1** = 3 overlays
- 2** = 3 fonts
- 3** = 3 fractions
- 4** = 2 fonts, 1 overlay
- 5** = 2 fractions, 1 overlay
- 6** = 2 overlays, 1 font
- 7** = 2 overlays, 1 fraction
- 8** = 1 overlay, 1 font, 1 fraction
- 9** = 2 fonts, 1 fraction
- 10** = 2 fractions, 1 font

Table 5: Combinations for Freeway Distance Signs

Combination	1	2	3	4	4	4	5	5	5	6	6	6	7	7
Border	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Space	7	10	9	7.5	10	10.4	6.5	9	9	7	9	7.4	7	8.5
Component	24	13.3	15	24	13.3	13.3	24	15	15	24	13.3	24	24	15
Space	6	10	8.5	7	7.6	10.4	6	7	9	6	8.2	8	6	7.5
Component	24	13.3	15	13.3	24	13.3	15	24	15	24	24	13.3	24	24
Space	6	10	8.5	10.4	7.6	7	9.5	7	7	7.7	6	8	7.5	6
Component	24	13.3	15	13.3	13.3	24	15	15	24	13.3	24	24	15	24
Space	7	10	9	10.4	10	7.5	10	9	7	10	7.5	7.3	8.5	7
Border	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Panel height	102"	84"	84"	90"	90"	90"	90"	90"	90"	96"	96"	96"	96"	96"

Combination	7	8	8	8	8	8	8	9	9	9	10	10	10	
Border	2	2	2	2	2	2	2	2	2	2	2	2	2	
Space	7	7	9	10	7	9.6	10	9.6	9.5	9.6	9	9.2	9.2	
Component	24	24	15	13.3	24	13.3	15	13.3	15	13.3	15	13.3	15	
Space	7.5	7	7	9.6	7	7	9.6	9.6	9.6	9.6	9.2	9.2	9.2	
Component	15	13.3	24	15	15	24	13.3	13.3	13.3	15	15	15	13.3	
Space	7.5	9.7	7	7	9	7	7	9.6	9.6	9.5	9.2	9.2	9.2	
Component	24	15	13.3	24	13.3	15	24	15	13.3	13.3	13.3	15	15	
Space	7	10	10.6	7	10.6	10	7	9.5	9.6	9.6	9.2	9	9	
Border	2	2	2	2	2	2	2	2	2	2	2	2	2	
Panel height	96"	90"	90"	90"	90"	90"	90"	84"	84"	84"	84"	84"	84"	

Notes:

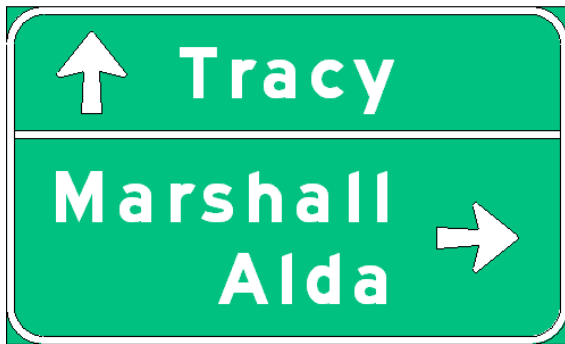
1. All dimensions are in inches.
2. All signs will have 2" borders.
3. All signs of this category have three lines of legend.
4. Components of three different heights may be used: Route markers (24"), standard fonts (13.33"), and fractions (15"). This results in 10 combinations. When taking into account the order from top to bottom of the line possibilities, this is expanded to 27.

3.6 Horizontal and Vertical Lines

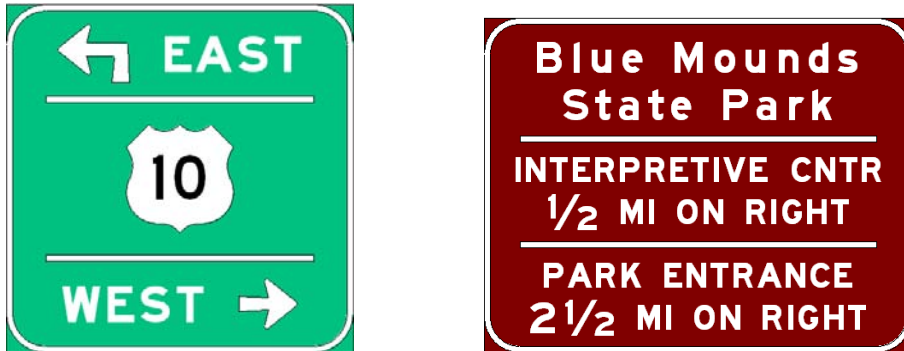
Horizontal lines, border to border, are used to separate independent subjects on a single sign panel. Horizontal lines are used primarily on destination signing. The examples below are the only instances where a horizontal line is needed on a two-destination sign panel.



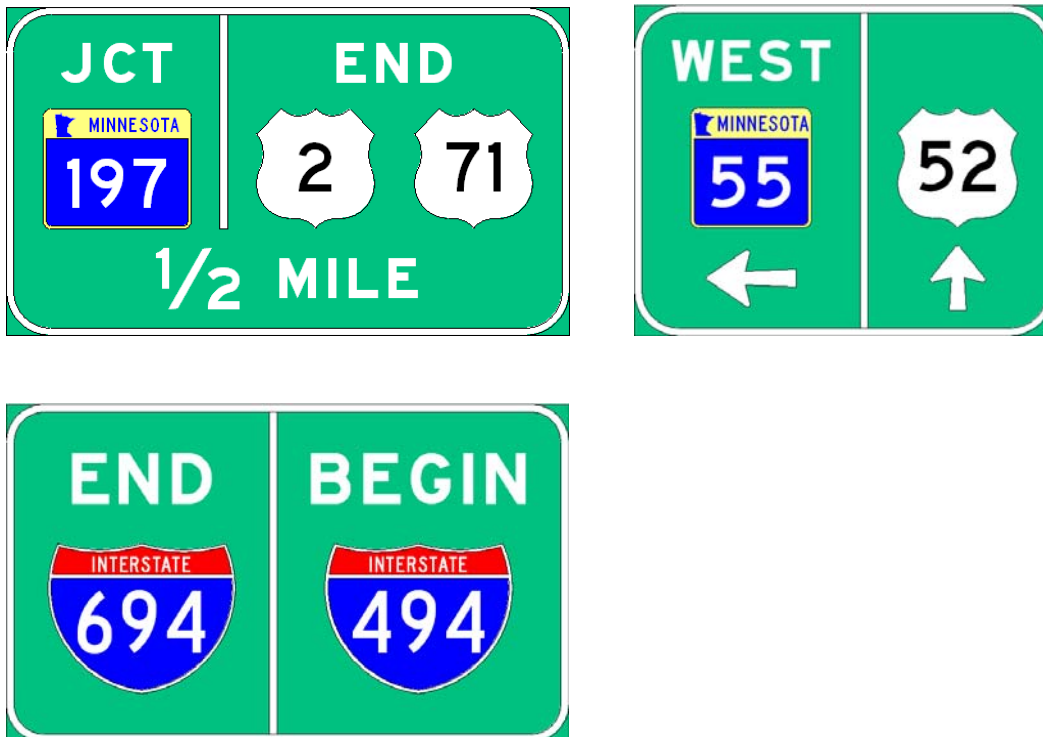
On destination signs with three or more lines of legend a horizontal line is needed if two lines share an arrow. Again, the line is border to border. Examples of this follow.



Indented horizontal lines are used on panels with more than one message about a single subject. They may act as a form of punctuation, separating phrases to avoid confusion.



Vertical lines separate different directional movements and subjects to prevent confusion.



3.7 Route Markers and Sizes

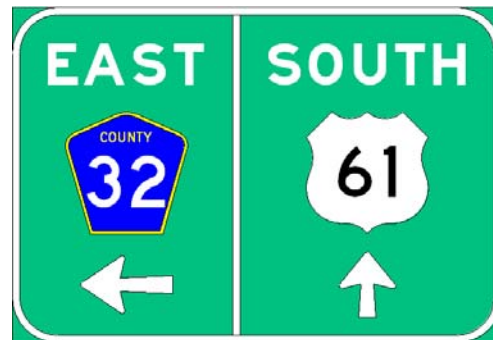
The route markers are listed in the M series of the Standard Signs Manual and the Standard Signs Summary. One or two digit route markers will have the same width and height dimensions, but three digit markers have a width that is 25 percent greater than their height. Route markers attached to the surface of a guide sign panel are referred to as overlays.



On a sign panel containing two or more route marker overlays the more important route marker is placed on the left side in accordance with the MN MUTCD. Interstate routes are the most important, with U.S., state, county, and township in descending order of importance. Where route markers are of equal importance the lowest number will be on the left side. However, arrow placement overrides these rules.



Important marker first



Arrow placement has priority



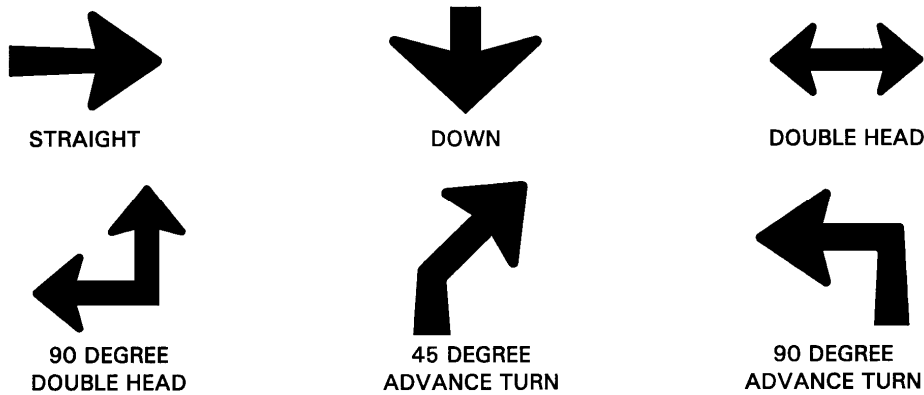
Like markers – Lowest to the left

Cardinal directions are always to the right of Route Markers and Top justified unless on Distance signs, where they are center justified.



3.8 Arrows

Arrows for guide signs are divided into several types:



Straight arrows can be installed at different angles, from 0 to 180 degrees, with 0 degrees designated right, 90 degrees straight up, and 180 degrees left.

Specifically, 60 degree arrows are used for exit ramps, and 45 degree arrows for exit loops.

Down arrows can also be installed at different angles, but are used only on overhead signs where they can be centered directly over a specific lane.

The 90 degree double head, 45 degree advance turn, and 90 degree advance turn arrows are designated left or right.

Advance turn arrows may be used where there is confusion as to where the actual signed turn is. Their use should be kept to a minimum.

When more than one arrow is used on a sign, the arrows, with corresponding legends, are to be placed in the order specified below:



These alignments override route marker placements.

The information on arrow dimensions and the corresponding legends is found on the next page. The legend size can be matched to the appropriate arrow size by using that table.

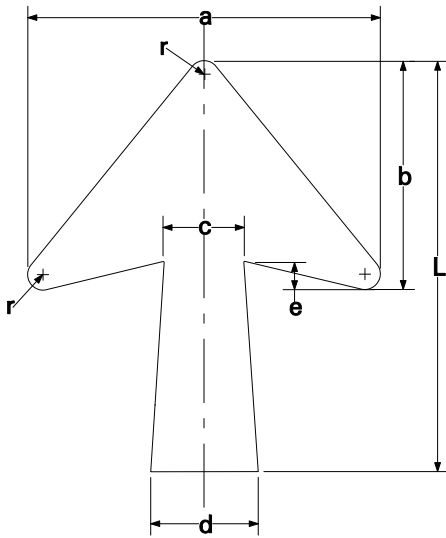


TABLE 1 - SHORT SHAFT ARROWS

Head	Matching Letter Size	Standard Length L	Dimensions in Inches					
			a	b	c	d	e	r
1	4", 4.3"	6"	5.58	3.63	1.28	1.72	.47	.26
2	5"	8"	7.06	4.60	1.61	2.18	.56	.32
3	6", 6-4.5"	10"	8.35	5.44	1.91	2.58	.67	.38
4			9.75	6.35	2.23	3.02	.78	.44
5	8", 8-6"	13"	11.16	7.27	2.55	3.44	.89	.51
6	10", 10.67-8"	17"	15.09	9.83	3.45	4.65	1.21	.69
7	10", 12", 13.33-10"	20"	17.72	11.54	4.05	5.47	1.42	.81
8	16-12"	25"	21.88	14.25	5.00	6.75	1.75	1.00

NOTES:

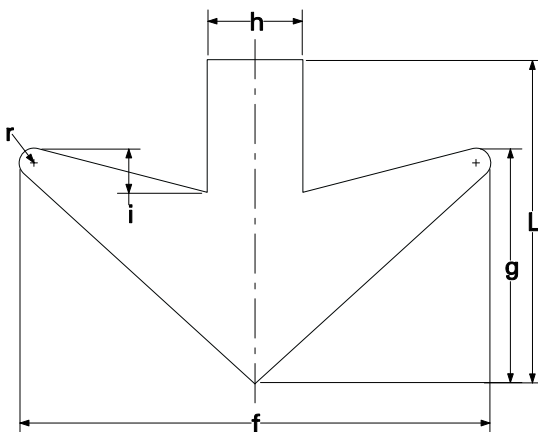
1. Arrow Code: First number specifies the head to be used. Second number specifies the length L. Thus, a 5-13 arrow has head #5 and length 13".
2. For each legend size there is a corresponding short shaft and long shaft arrow.

TABLE 2 - LONG SHAFT ARROWS

Head	Matching Letter Size	Standard Length L	Dimensions in Inches					
			a	b	c	d	e	r
11	4", 4.3"	9"	5.70	4.36	1.38	1.83	.45	.26
12	5"	12"	7.18	5.48	1.74	2.30	.56	.32
13	6", 6-4.5"	14"	8.56	6.54	2.07	2.74	.67	.38
14	8", 8-6"	18"	11.41	8.72	2.76	3.66	.90	.51
15	10", 10.67-8"	24"	15.14	11.56	3.66	4.85	1.19	.68
16	10", 12", 13.33-10"	29"	18.24	13.93	4.41	5.84	1.43	.82
17	16-12", 20-15"	36"	22.25	17.00	5.38	7.13	1.75	1.00
17		42"	22.25	17.00	5.38	8.39	1.75	1.00
18		36"	26.18	20.00	6.33	7.13	2.06	1.18
18		42"	26.18	20.00	6.33	8.39	2.06	1.18

OVERHEAD SIGNS ONLY

Arrow	Letter and Overlay Size	Dimensions in Inches					
		f	g	h	i	L	r
16"	13.33-10", 10" & less	24.0	12.0	4.88	2.25	16.5	.75
22"	16-12", 12" & greater	32.0	16.0	6.5	3.0	22.0	1.00



ARROW SELECTION:

Adjacent to one line of legend - use Table 1 for vertical, horizontal, or diagonal arrow.

Adjacent to two or more lines of legend - use Table 2 for vertical or diagonal arrow; Table 1 for horizontal arrow.

Beneath one or more lines of legend - use Table 2 for horizontal or diagonal arrow ≤ 45°; Table 1 for vertical or diagonal arrow > 45°.

ALL FREEWAY SIGNS & EXPRESSWAY INTERCHANGE SIGNS - use Table 2.

ARROW SIZE:

Arrow head numbers determine which straight arrow corresponds with which advance turn, double head, and double head 90° arrows and legend.

For example, a 5-13 arrow and a 5-24 double head arrow (both have #5 heads) would be appropriate arrows to use with an 8-6" legend.

APPROVED
9/1/73

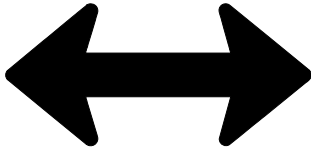
DATE OF REV.
1/1/03

STRAIGHT ARROWS



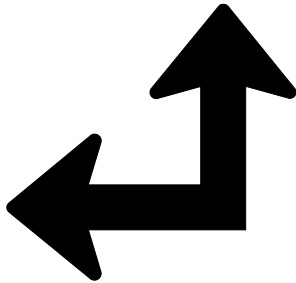
PAGE NUMBER
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DOUBLE HEAD ARROWS



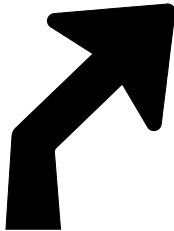
Arrow Designation	1 Head	3 Head	5 Head	6 Head	7 Head
Height	5.58	8.35	11.16	15.09	17.72
L - Minimum	12	18	24	30	36

DOUBLE HEAD 90 DEGREE ARROWS



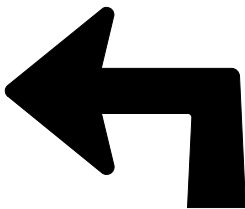
Arrow Designation	1-11	3-16	5-22	6-29
Height	10.5	15.75	21	28
Length	11	16.5	22	29.5

45 DEGREE ADVANCE TURN ARROWS



Arrow Designation	6 X 8	9 X 12	12 X 16	15 X 20	17 X 24
Arrow head	1	3	5	6	7
Height	8	12	16	20	24
Length	6	9	12	15	17

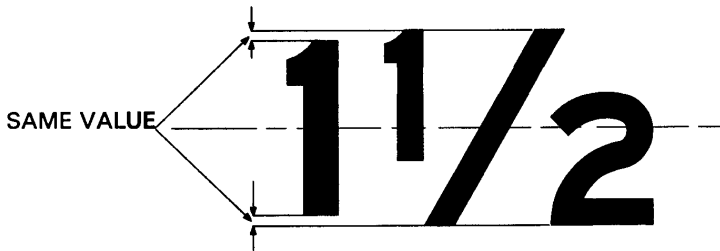
90 DEGREE ADVANCE TURN ARROWS



Arrow Designation	8 X 6.5	12 X 10	16 X 13	18 X 16	22 X 18	25 X 21
Arrow head	1	3	5	14	6	7
Height	6.5	10	13	16	18	21
Length	8	12	16	18	22	25

3.9 Fractions

A fraction is always 1.5 times the height of the numerals used in it. When using a whole number with a fraction see Table 7 below for the correct numeral height. Alignment is shown below. Note that the fraction is centered vertically on the numeral.



If a fraction is used on a line with additional legend (as in “1/2 MILE ON RIGHT”) the fraction numerals should be the same height as the legend letter height, as shown below.

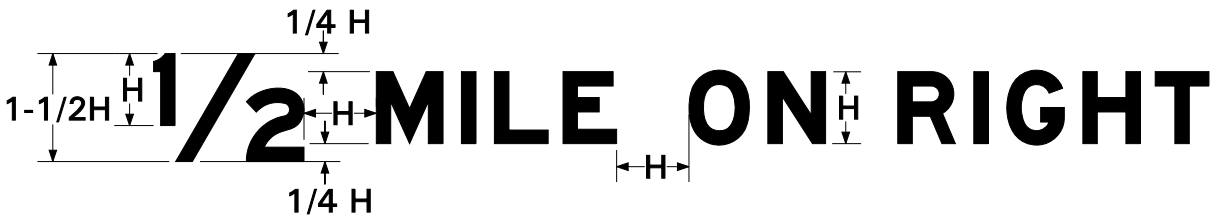


Table 6: Fraction Font Sizes

Fraction Height	Preceding Whole Number Height	Numeral Height in Fraction	Space From Whole Number 1 to Fraction	Space From Whole Numbers 2 - 9 to Fraction
6"	6"	4"	2.5"	2"
9"	8"	6"	3"	2.5"
12"	10.67"*	8"	4.5"	4"
12"	12"	8"	5"	4"
15"	13.33"*	10"	5"	4"
15"	15"	10"	6"	5"
18"	18"	12"	7"	6"

*On distance signs

3.10 Abbreviations

The only approved abbreviations are listed in the following table.

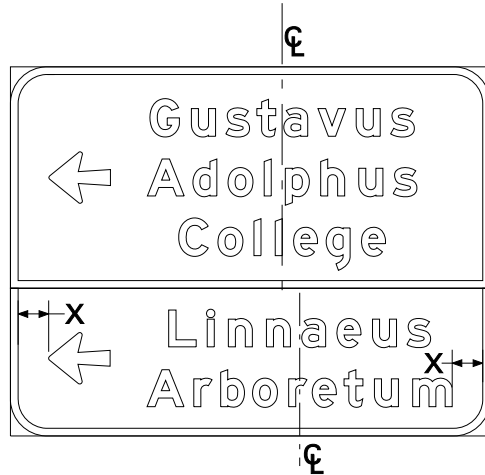
Table 7: List of Abbreviations

Full Word	Abbreviation	Full Word	Abbreviation
Alternate	ALT	Lane	Ln
Avenue	Ave	Mile	MI
Boulevard	Blvd	North	N
Center	Cntr	Parkway	Pkwy
Circle	Cir	Pedestrian	PED
Court	Ct	Place	Pl
Drive	Dr	Road	Rd
East	E	South	S
Expressway	Expwy	Square	Sq
Feet	FT	Street	St
Freeway	Fwy	Trail	Tr
Highway	Hwy	University	Univ
Junction	JCT	West	W

Do not abbreviate Cardinal directions.

3.11 Legend/Layout Justifications

Along with Arrow placements (section 3.8) the wording on a panel is aligned, or justified, left, center, or right. Various suggested layouts are illustrated on the following pages.



A single subject
center justified on itself.

A single subject
center justified on itself.

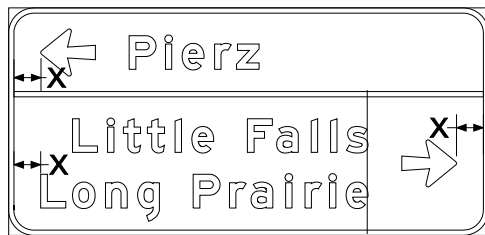
Arrow + Arboretum is the longest line and is centered on panel.



Two subjects
left aligned on arrow side.

Arrow and subject
right justified.

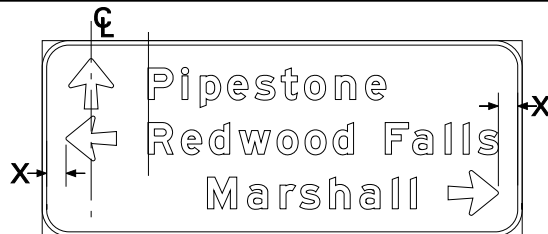
Arrow + Long Prairie is the longest line and is centered on panel.



Arrow and subject
left justified.

Two subjects
right aligned on arrow side.

Arrow + Long Prairie is the longest line and is centered on panel.



Vertical and left arrows
centered on each other.

Two subjects
left aligned on arrow side.

Arrow and subject
right justified.

Arrow + Redwood Falls is the longest line and is centered on panel.



Vertical and left arrows centered on each other.

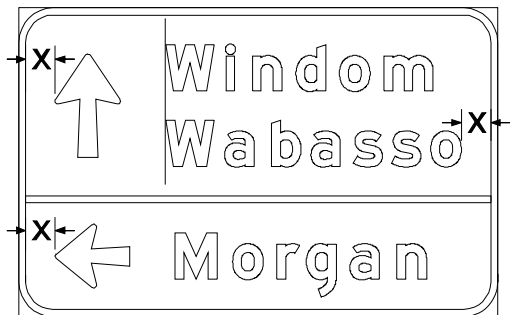
Two subjects left aligned on arrow side.

Horizontal arrow and Pipestone protrude the most on each side and are spaced the same to the border.



Arrow and subject right justified.

Arrow + Redwood Falls is the longest line and is centered on panel.



Two subjects left aligned on arrow side.

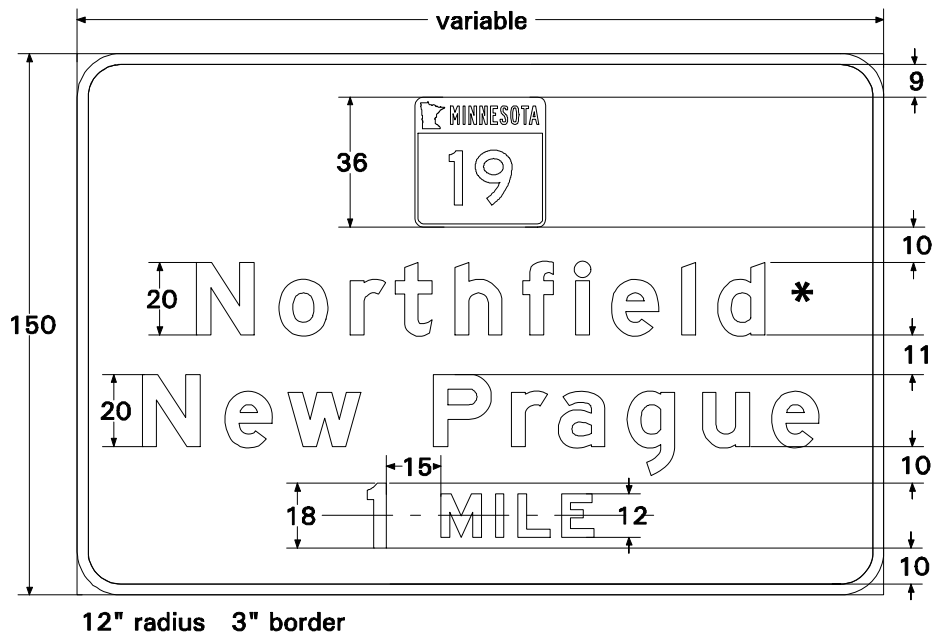
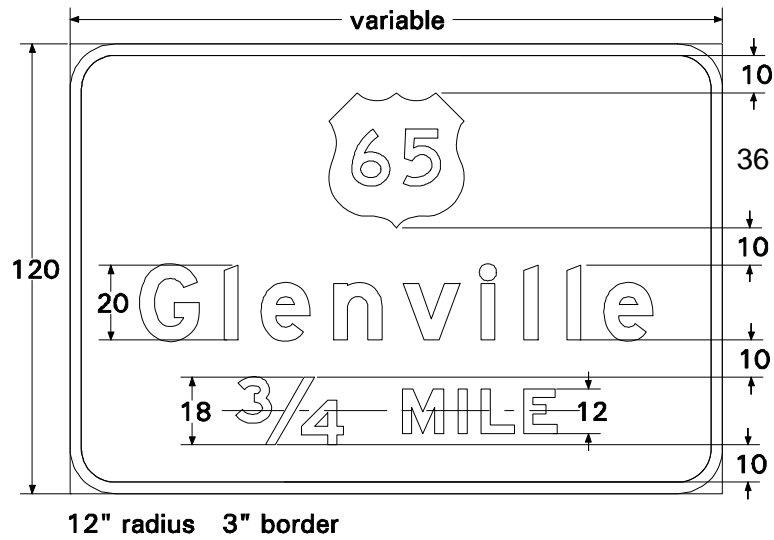
Arrow and subject left justified.

Vertical arrow + Wabasso is the longest line and is centered on panel. Because of horizontal bar it is not necessary to center arrows on each other.

3.12 Typical Freeway Signs

3.12.1 Freeway Advance Guide Type A Signs

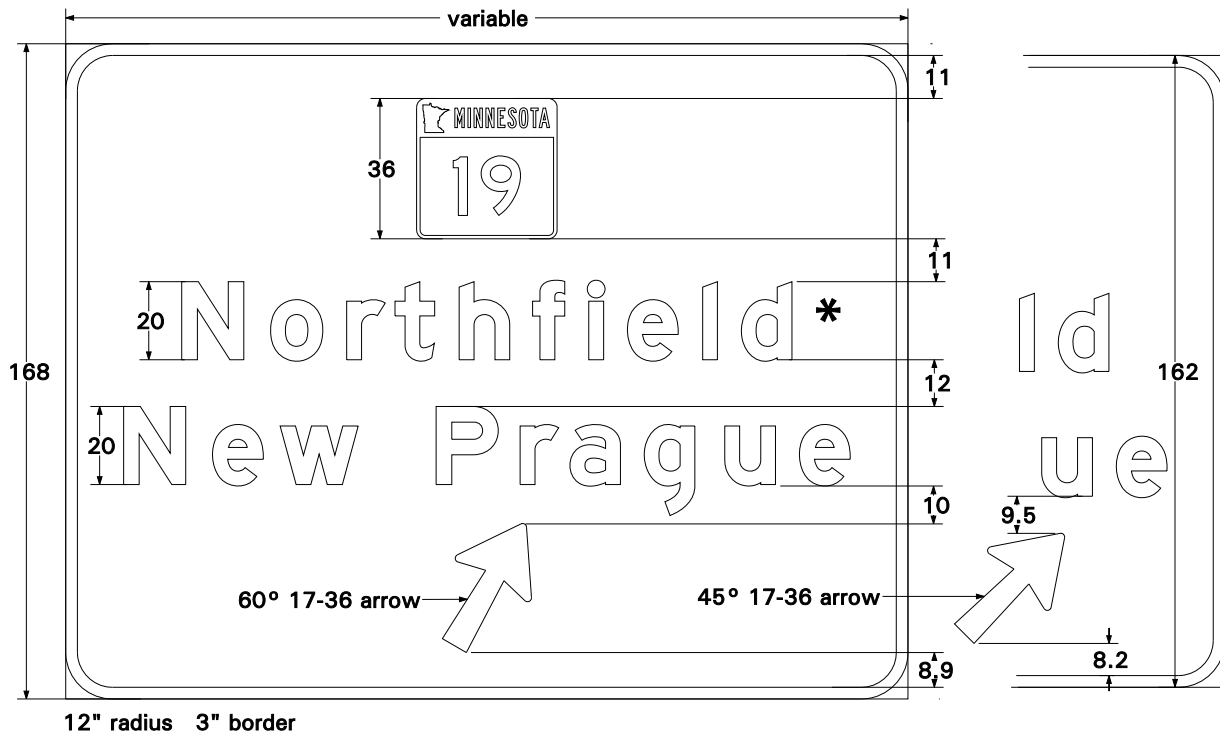
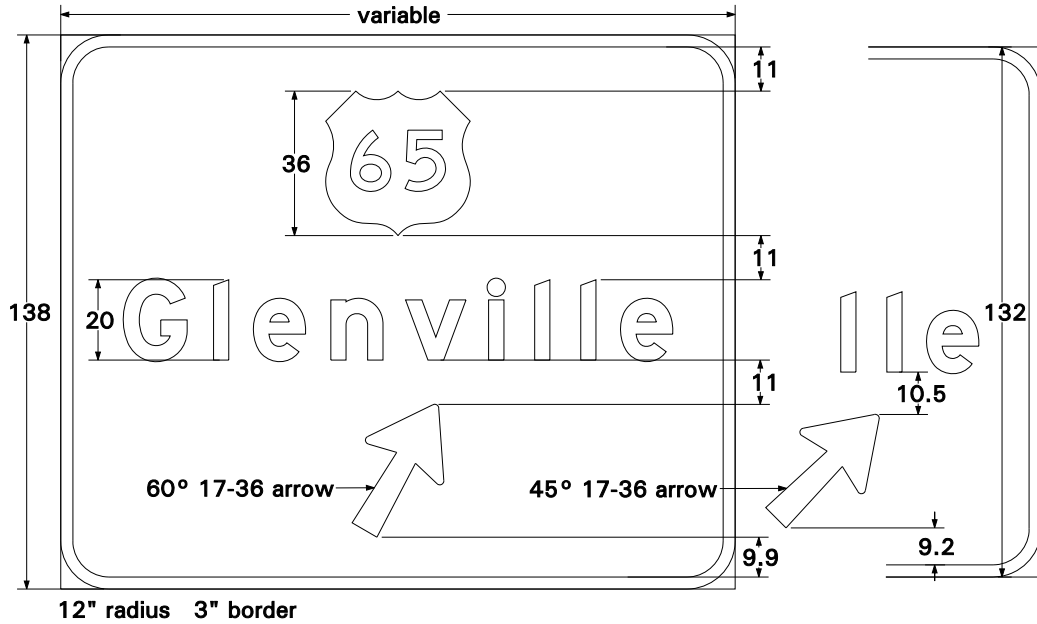
There are two formats to this classification, one or two city names. The border shall be three inches wide due to the use of 20-15" legend (complies with Table 2, Note 1). The spacing is standardized, as follows:



* City names shall appear in the same order as those on the ramp destination guide sign.

3.12.2 Freeway Exit Direction Type A Signs

There are two formats to this classification, one or two city names. The border shall be three inches wide due to the use of 20-15" legend (complies with Table 2, Note 1). The spacing is standardized, as follows:



* City names shall appear in the same order as those on the ramp destination guide sign.

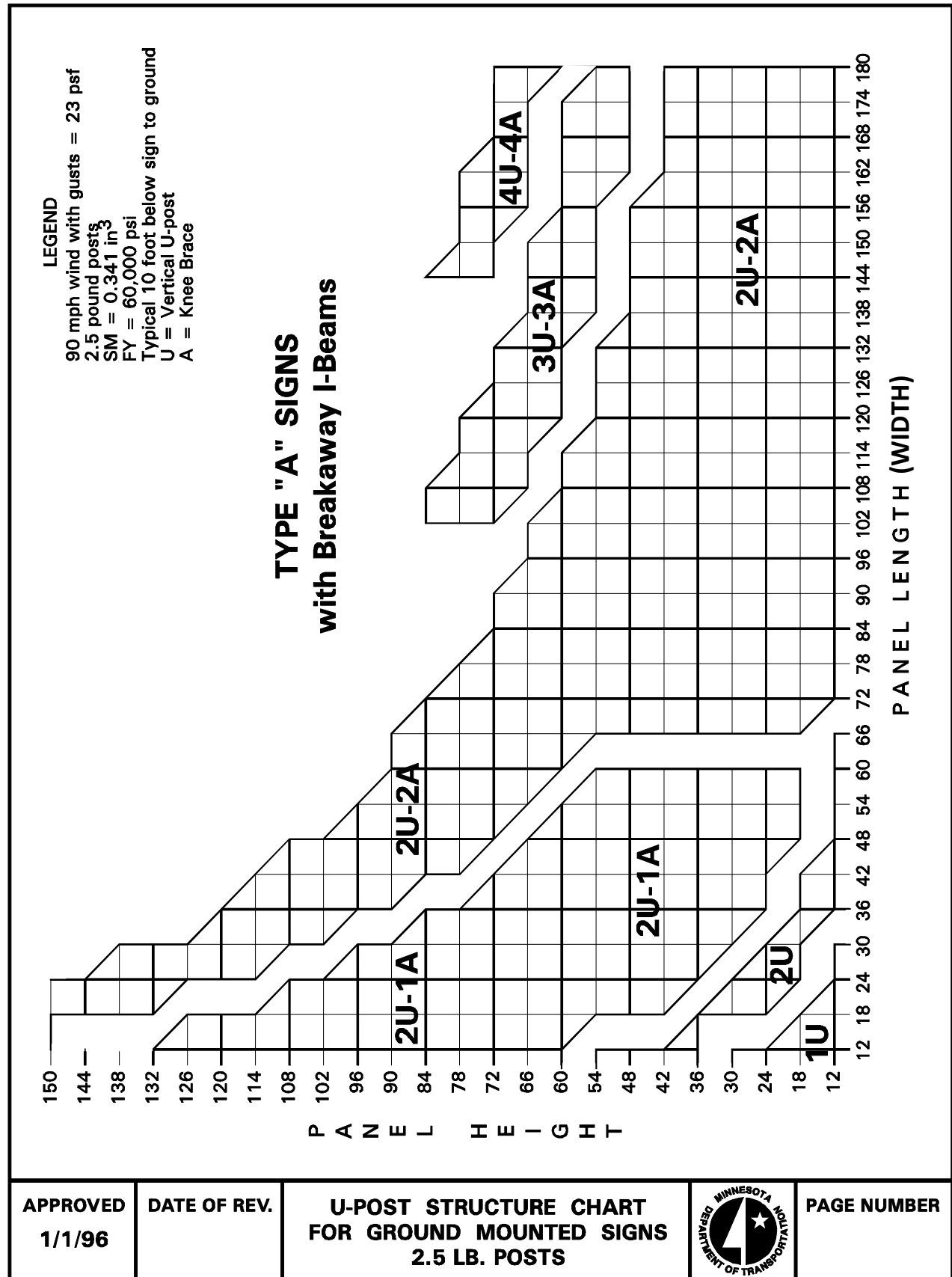
3.13 U-Post and Post Spacing

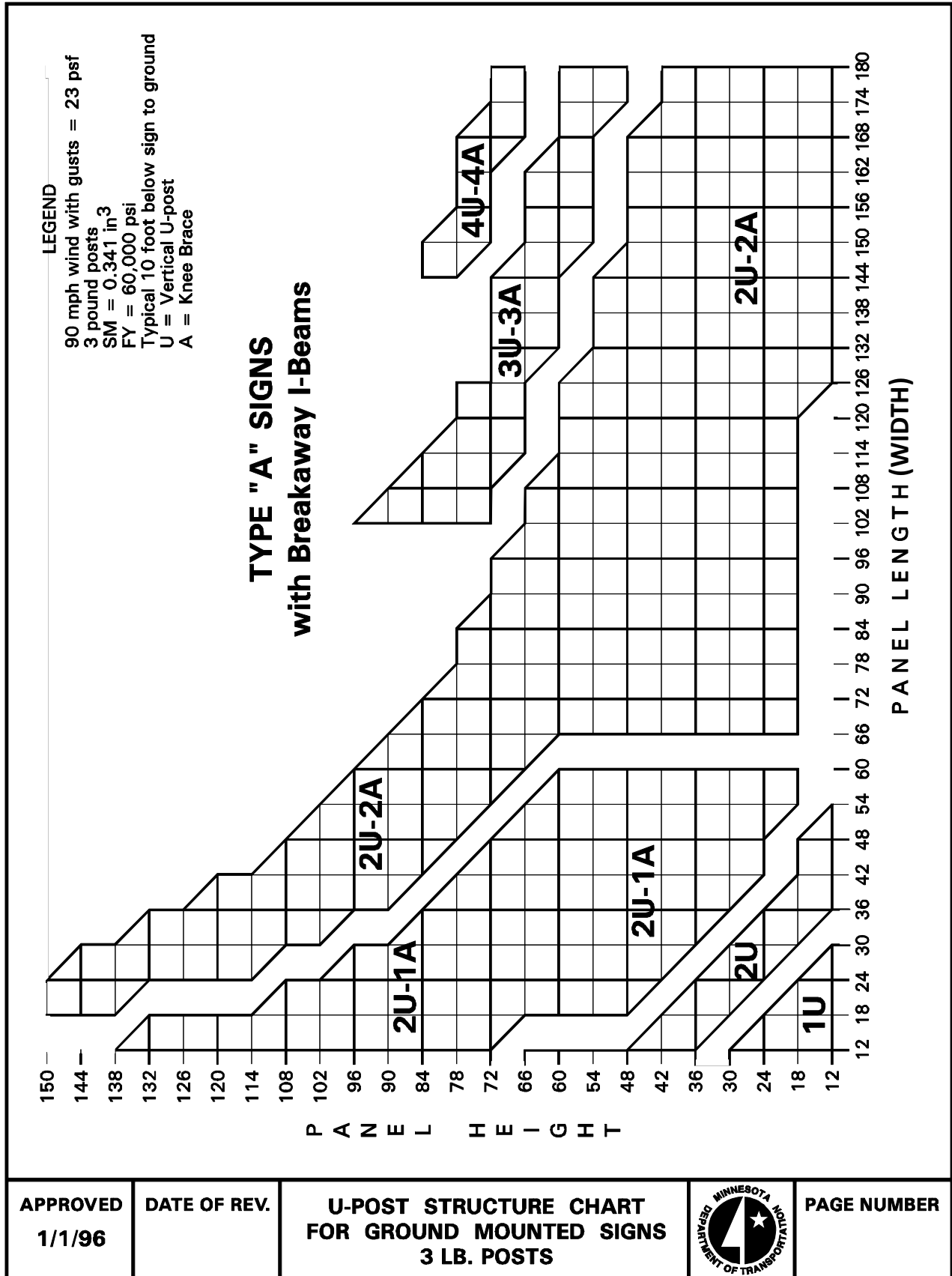
3.13.1 U-Post Structure Charts for Ground Mounted Signs

The following charts determine the number of posts and knee braces needed to erect a sign panel so the sign and structure can adequately resist wind loads. Note the Type "A" sign areas that require I-beam sign posts which are installed under contract.

While adhering to the required letter height for a sign panel, it is desirable to stay within the U-post area of the tables due to cost and ease of installation and maintenance. This may be possible by simply designing the sign panel with a greater width, which can create horizontal space for an additional U-post. For example, a 102" x 84" sign panel (on the 2 ½ #/ft chart), which is more square footage than a 90" x 84" sign panel, can be installed on U-posts, while the smaller area sign panel becomes a Type "A" sign on I-beam sign posts.

Signs designed for signing contracts use 3 #/ft sign structures to accommodate the largest sign panel possible on a U-channel sign post structure. Signs designed for installation by Mn/DOT forces may use either 3 #/ft or 2 ½ #/ft risers to which the sign panel is attached. Contact the area sign supervisor to determine which post selection chart to use. More information on sign structures is available in Chapter 6 of the Traffic Engineering Manual.





3.13.2 Sign Post Spacing Chart

Proper U-post spacing is essential for sign structures to meet FHWA breakaway requirements. It is also important when redesigning a sign panel to determine if the existing U-post sign structure will be reused. For example, an existing 2 post (54" spacing) sign structure with an 84" x 48" sign panel could accommodate a 78", 84", 90" or 96" sign panel that is 48 inches high on the existing sign structure without moving the vertical posts.

See the following chart for proper sign post spacing.

Panel Length	Post Spacing		
	2 Posts	3 Posts	4 Posts
36	24		
42	30		
48	30		
54	30		
60	36		
66	42		
72	42		
78	54		
84	54		
90	54		
96	54		
102	60	45	
108	66	45	
114	66	45	
120	72	45	
126	78	45	
132	78	45	
138	78	48	
144	90	51	45
150	90	54	45
156	90	54	45
162	96	57	48
168	96	60	48
174	102	63	54
180	108	63	54

Notes:

1. All dimensions are in inches.
2. Use this chart only if punch codes can't be found in the Standard Signs Manual.

Sign Post Spacing Chart for Exit Panels (Type EA and EO)

Use this chart when mounting exit panels to the upper edges of Type A signs and Type OH signs.

Panel Length (inches)	Post Spacing (inches)		
	2 Posts	3 Posts	4 Posts
48	30		
54	30		
60	36		
66	36		
72	42		
78	48		
84	48		
90	54		
96	54		
102		36	
108		36	
114		42	
120		42	
126		48	
132		48	
138		54	
144			42
150			42
156			42
162			42
168			48
174			48
180			