

CHAPTER 5: RULES FOR FORMULATING SIGN SIZE AND TEXT

GENERAL

The detailed guidelines on the following pages are the rules that govern the design of text, layout, and overall size for National Park Service signs. The critical determining factor of letter size is the maximum vehicle speed allowed and/or reading time. Minimum letter sizes can be determined for all sign types based on the charts and rules on the following pages.

Where sign size is not extremely critical, it is suggested that the final design be left up to the discretion of the manufacturer. The Park need only determine the message, general layout and size of letters required. In the case of signs ordered from UNICOR, the park shall fill out the appropriate order form and UNICOR will compute the necessary dimensions. If sign size is critical, the detailed steps outlined in this chapter should be followed.

SPECIFIC RULES

The following rules apply to Destination, Direction, and Information signs in Categories 1-5A and OTHER unless otherwise noted.

Position of Arrows

Arrows can be used to point in eight different directions: straight up or down, straight left or right (90 °), oblique right up or down (45 °), or oblique left up or down (45 °).

Arrows are to be positioned to the left of the message when pointing straight up, straight down, straight left, or oblique left up or down. They are to be positioned to the right of the message when pointing straight right or oblique right up or down.

On roads where site conditions dictate a narrow sign, and an arrow positioned to the left or right of the message would result in an overly wide sign, the arrow may be centered below the message. This is not applicable to directional signs with more than one arrow.

On trail signs with numerous destinations, for greater clarity a single arrow may be placed above a group of destinations with common directions. Arrows which are so placed shall take a flush left position for any arrow direction.

Spacing Guide (NPS Modified Clarendon, Categories 1-5A ONLY)

All margins are measured from outside edges of sign panel.

Minimum Horizontal Spaces: Between right or left edge of sign and message, arrow or symbol - one lowercase letter height (see layout chart dimension C).

Between words - factor 16 (Manual Factor Table).

Horizontal spacing between symbol and word, symbol and arrow, and between symbols - factor 16.

Each row of symbols to be centered on the sign.

Between word and arrow - factor 16.

Between number and an abbreviated term, e.g. 22 mi - factor 14 (Manual Factor Table).

Minimum Vertical Spaces: Between top edge of sign and top of an uppercase letter in first line - one lowercase letter height (see layout chart dimension C).

Between lines of legend - one uppercase letter height (see layout chart dimension A).

Between lines in name phrase - one lowercase letter height.

Between bottom of legend and bottom edge of sign - one lowercase letter height (see layout chart dimension C).

Vertical spacing between legend and symbol - one lowercase letter height (see layout chart dimension B).

Vertical spacing between top or bottom edge of sign and symbol - one lowercase letter height (see layout chart dimension C).

NOTE: For minimum horizontal and vertical spacing on Category OTHER signs, refer to layout Chart.

Rules for Capitalization (NPS Modified Clarendon, Categories 1-5A only).

Destinations are always spelled in upper and lowercase letters.

Directions are spelled in uppercase letter unless direction is a part of the destination. If a direction expression is a part of a destination, it will be spelled in uppercase and lowercase letters.

NOTE: All letters on Category OTHER signs are uppercase only.

Punctuation (NPS Modified Clarendon, Categories 1-5A only)

Space between period, comma, etc., and following word - factor 16.

Space between period and following capital letter in an abbreviation, e.g., U.S. - factor 14.

NOTE: Spacing of punctuation on Category OTHER signs to be optical.

Symbols

Symbol plate, arrow plate, and text plaque sizes are shown in Chapter 4.

Fractions

Fractions shall be used only on advanced notice signs on categories 1-3 roads. Advance notice signs with fractions shall be limited to " $\frac{1}{4}$ " or " $\frac{1}{2}$ " exclusively, e.g. "Turkey Run LEFT $\frac{1}{4}$ MILE". All other destination or advance notice signs with distances shall use mileage in decimals or feet, e.g. "1.3 mi" or "600 ft".

Layout and spacing of fractions shall be as follows:

Horizontal space between text and left edge of numerator - factor 16.

Horizontal space between right edge of denominator and text - factor 14.

Horizontal space between numerator (" 1 ") and denominator (" 2 " or " 4 ") - factor 16.

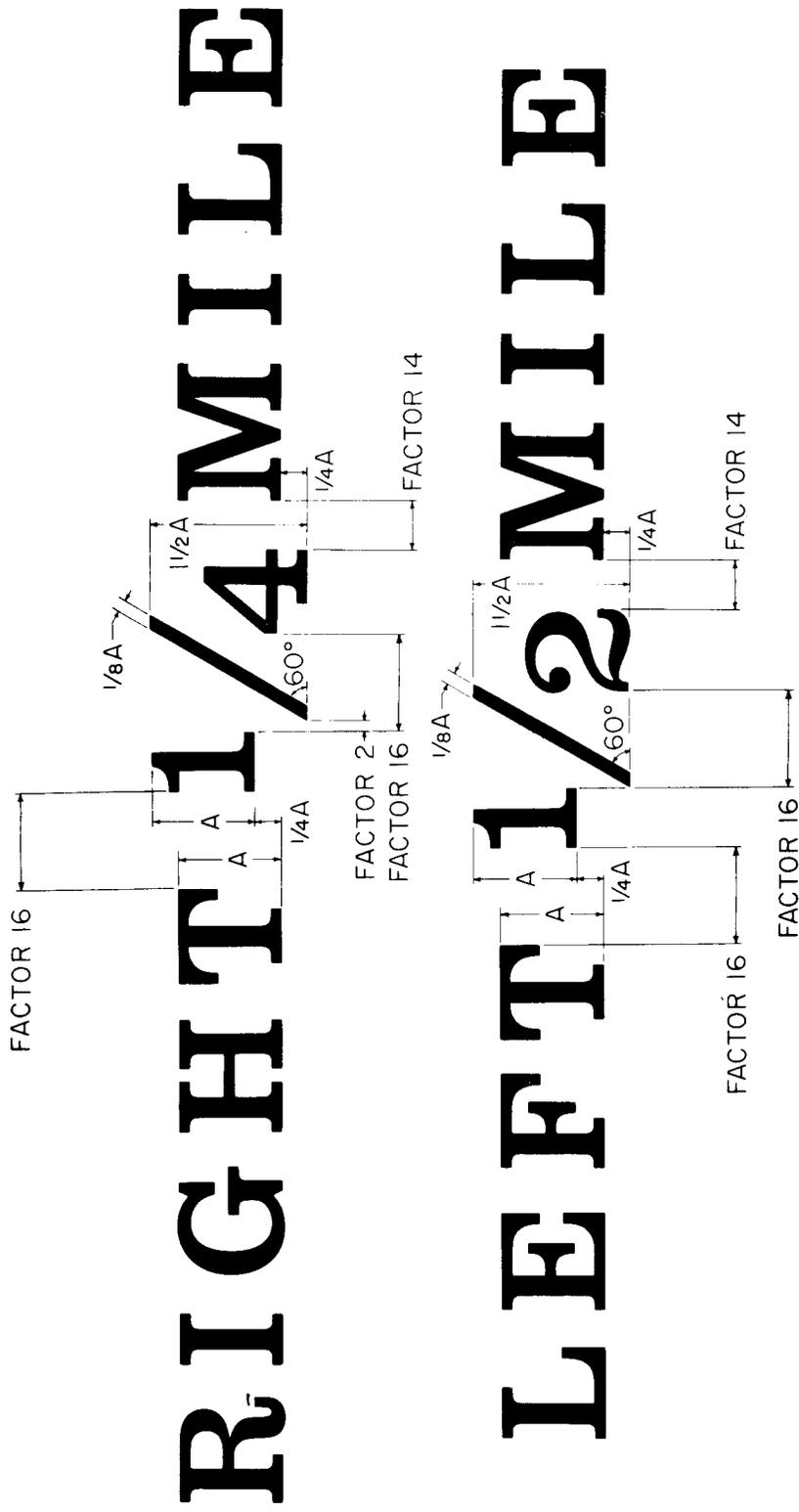
Horizontal space between numerator and left edge of diagonal slash - factor 2 for " $\frac{1}{4}$ " only. Numerator and left edge of diagonal slash line up or " $\frac{1}{2}$ ".

Thickness of diagonal slash between numerator and denominator of fraction - $\frac{1}{8}$ uppercase letter height, A (of adjoining text). Diagonal slash shall be inclined at 60° angle from line of text.

Total height of fraction - one and one-half uppercase letter height, $1\frac{1}{2}A$ (of adjoining text). Fraction is to be centered vertically on text to right and left of the fraction.

Vertical space between first line of text (destination) and second line (direction including fraction) - one uppercase letter height, A (letter size of destination), measured from text, not top of numerator.

Minimum vertical space between direction including fraction and bottom edge of sign - one lowercase letter height, B (letter size of destination), measured from text, not bottom of denominator.



ROAD SIGNS (CATEGORIES 1, 1A, 2 and 3)

Formulating the Message

Road signs are designed for automobile traffic. Under normal driving conditions there is little time between being close enough to read the sign and passing the sign. Consequently, messages must be short. They should be confined to the essential; for example, destination and direction.

Message Rules: (Destination, Direction, and Information Signs)

1. Maximum of eight (8) words per sign.
2. Maximum of four (4) words per message, except where proper names are used (Examples: "Minute Man National Historical Park," and informational signs as "Wilderness Permits Required Pine Ridge.")
3. For signs with more than one message the following applies:
 - a. Maximum of three (3) worded messages per sign
 - b. Maximum of four (4) words per message
 - c. Total words not to exceed eight (8) words
4. If more than eight (8) words are contained in three (3) messages, the third message will be placed on a separate sign.
5. For signs combining worded and symbol messages the following applies:
 - a. Maximum of three (3) symbol plates per sign, each symbol being a separate message.
 - b. Maximum of one worded message per sign (Note: Although this worded message would normally be on one (1) line, it may be on two (2), or rarely three (3), lines if sign layout and unusual siting conditions so require. (See example below.)
 - c. Total of four (4) messages maximum.
6. To keep messages short, certain commonly recognized abbreviations may be used, e.g., "Mt." for "Mount," "Pt." for "Point," "St." for "Street." (Do not abbreviate historic proper names, e.g., "Washington" to "Wash.," "Arlington Cemetery" to "Arl. Cem." Use discretion and tact to avoid antagonizing local groups.)

Determination of Letter Size (Destination, Direction and Information Signs)

The letter size for signs to be used in a given location is determined by the maximum vehicle speed that is allowed at this point on the road system. When selecting the letter size required for road signs, refer to the following guidelines for each specific category.

Category 1: Divided roadways-Speed 50-55 m.p.h.

Major divided roadways and parkways having a moderate to high volume of traffic, such as the Baltimore-Washington Parkway and Suitland Parkway. Minimum size alphabet on guide signs (advance, exit direction and gore signs), uppercase height 9"; lowercase height 6"; arrow length 13⁵/₁₆" and arrow width 9". Symbol size 18" x 18".

Whenever engineering judgment warrants, the size of letter shall be increased to the next larger, uppercase height 12"; lowercase height 8"; arrow length 18¹/₈" and arrow width 12¹/₈". Symbol size 24" x 24".

Category 1A: Roads - Speed 50-55 m.p.h.

Destination, Direction, and Information signs uppercase height 9"; lowercase height 6"; arrow length 13⁵/₁₆" and arrow width 9". Symbol size 18" x 18".

Category 2: Roads-Speed 35-45 m.p.h.

Destination, Direction, and Information signs, uppercase height 6"; lowercase height 4"; arrow length 9" and arrow width 6 1/8". Symbol size 18" x 18".

Category 3: Roads-Up to 30 m.p.h.

Destination, Direction, and Information signs, uppercase height 3.75"; lowercase height 2.5"; arrow length 5 5/8" and arrow width 3.75". Symbol size 12" x 12".

Special Informational Signs

These signs label stream crossings, county and state lines, mountain peaks, elevations, etc. Letter size shall be 3.75" uppercase height, and 2.5" lowercase height, for categories 1-3.

NOTE: All guide signs Categories 1, 1A, 2 and 3 shall be manufactured using die-cut NPS Modified Clarendon letters.

Determination of Size of Message

The Tables of Character Widths, Spacing Charts and Manual Factor Table provide the means for measuring widths of every letter, numeral and punctuation mark in inches; determining the appropriate spacing factors between letters and words; and converting the spacing factors to inches. The values pertaining to a given message are taken from the tables together: the Character Width and Spacing Factor Values, when totalled, provide the length of a legend in inches.

Determination of Size of Sign

After the size of the message is determined, the minimum vertical and horizontal margins, and, in case of multiline messages, line spacing are added. Arrow and symbol spacings are also added, as necessary. Refer to the layout chart below, and examples at the end of this chapter.

LAYOUT CHART - ROAD SIGNS

		UC Letter A	LC Letter B	Margin Space C	Symbol Plate D	Size of Border E	Corner Radius F	Arrow Length (Minimum) G	Arrow Width H
Road Signs	Optional Category 1 50-55	12"	8"	8" min.	24"	1"	6"	18.125"	12.125"
	Categories 1, 1A 50-55	9"	6"	6" min.	18"	1"	6"	13.3125"	9.00"
	Category 2 35-45	6"	4"	4" min.	18"	.75"	4"	9"	6.125"
	Category 3 0-30	3.75"	2.50"	2.50" min.	12"	.75"	2.5"	5.625"	3.75"

Example

The following step-by-step instructions will illustrate the procedure. Sign to have text "Road", and be installed on a Category 2 road. Letter size thus will be 6" uppercase and 4" lowercase.

First Step: Determine the width of the required characters by using the Table of Character Widths on pages 5-14 & 5-15. In our example, the width of the "R" is 6.07 inches.

Second Step: Determine appropriate spacing by (1) selecting the spacing factors from the Spacing Charts on pages 5-16 through 5-27 and (2) determining the Space Factor Value from the Manual Factor Table. In the example, the spacing factor between letters "R" and "o" is 7, and its value is 1.612 inches.

Third Step: Determine legend length by adding the totals of letter widths and Space Factor Values. In our example the total of letter widths, 20.31", plus Space Factor Values, 4.841", equal legend length of 25.151 inches.

Example: Legend "Road"

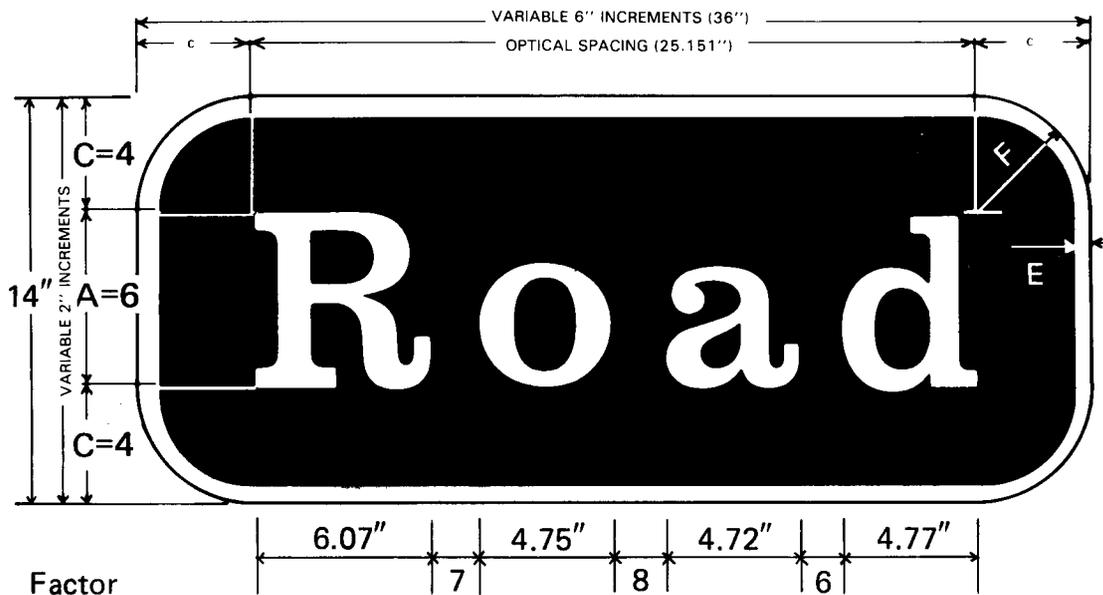
Letter	R	o	a	d	
Letter Width (inches)	6.07"	+ 4.75"	+ 4.72"	+ 4.77"	= 20.31"
Space Factor	7	8	6		
Space Factor Value	1.612"	+ 1.761"	+ 1.468"		= 4.841"
	Legend length (total)				25.151"

Fourth Step: Determine minimum sign size by adding the appropriate margins to legend length and height. One lowercase letter height, in our example 4", is the required minimum margin space at each end, and at top and bottom of sign. Minimum sign width is thus 33.151" (4" + 25.151" + 4"), and minimum sign height is 14" (4" + 6" + 4").

Fifth Step:

Signs are to be rounded off to the nearest 6'' horizontal and 2'' vertical increment. Therefore in this example at 33.151'' total width would be centered on a 36'' sign. The 6'' increments for horizontal measurements and 2'' increments for vertical measurements should be maintained where possible.

Example Layout: (Category 2)



Even though the above is a simple example, the more complex ones follow the same pattern. It is recommended that a few layouts be drawn up for practice, because like every tool, this guide has to be worked with in order to be mastered.

PEDESTRIAN SIGNS (Categories 4, 5, 5A and OTHER)

These signs are used where pedestrian traffic is controlled through the use of sidewalks, trails, paths, etc. Because adequate time to read pedestrian signs is normally available, messages may be considerably more detailed than on road signs. Pedestrian signs may include directions, distances, instructions, listing, name plates, plaques, markers, object identification and descriptive texts.

Message Rules

Pedestrian Signs should be simple and concise. Text should be clear and wherever possible written in a positive, rather than negative sense.

Determination of Letter Size

Letter size for pedestrian signs is determined by location, volume of visitors using the area, and distance at which message is to be viewed.

Category 4: Uppercase height 2.25", lowercase height 1.5"; arrow length 3.5" and arrow width 2³/₈". Symbol size 8" x 8". As a general rule this category letter height can be seen at 75 to 100 feet.

Category 5: Uppercase height 1.5", lowercase height 1"; arrow length 2.25" and arrow width 1.5". Symbol size 6" x 6". As a general rule this category letter height can be seen at 50 to 75 feet.

Category 5A: Uppercase height 1", lowercase height 0.67"; arrow length 1.5" and arrow width 1¹/₃₂". Symbol size 4" x 4". As a general rule this category letter height can be seen at 0 to 50 feet.

NOTE: All pedestrian signs Categories 4, 5 and 5A shall be manufactured with NPS Modified Clarendon alphabet only.

Category OTHER: Letters are uppercase only. Sizes available are:

1"	Arrow length	1.5";	Arrow width	1 ¹ / ₃₂ ";	Symbol size	4" x 4".
³ / ₄ "	Arrow length	1 ¹ / ₈ ";	Arrow width	0.75";	Symbol size	3" x 3".
¹ / ₂ "	Arrow length	0.75";	Arrow width	0.50";	Symbol size	2" x 2".

NOTE: All pedestrian signs Category OTHER shall be manufactured with Engineering Standard alphabet only.

All pedestrian signs Categories 4 and 5 can be manufactured using NPS Modified Clarendon die-cut or routed letters. Category 5A signs can be manufactured only with routed NPS Modified Clarendon letters. All pedestrian signs Category OTHER are available only with routed Engineering Standard letters. (See Pedestrian Sign Requisition, Form 10-84B.)

The minimum size NPS Modified Clarendon letters routed in wood are as follows:

1.5" uppercase, 1" lowercase (Category 5) - when routed in cedar, pine, fir, oak, hemlock, walnut, etc.

1" uppercase, .67" lowercase (Category 5A) - when routed in high density overlay plywood (see Chapter 6 for specification).

Determination of Size of Message

The procedure for pedestrian signs using NPS Modified Clarendon letters shall be as specified for Road Signs.

Spacing for all Engineering Standard routed letters shall be optical. Tables of character width and spacing factors have not been developed to date. Consequently, to determine size of message, test must be laid out and measured manually.

Determination of Size of Sign

Minimum vertical and horizontal margins, and in case of multiline messages, line spacings, are added to size of message. Arrow and symbol spacings are also added as necessary. Refer to layout charts on the following page, and examples at the end of this chapter.

Layout Chart - Pedestrian Signs (NPS Modified Clarendon letters)

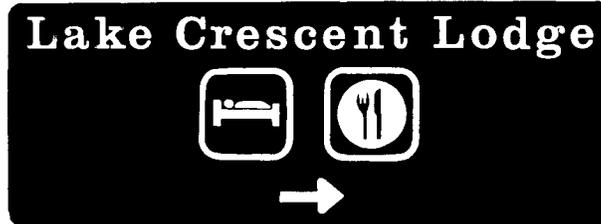
	UC Letter A	LC Letter B	Margin Space C	Symbol Plate D	Size of Border E	Corner Radius F	Arrow Length (Minimum) G	Arrow Width H
Pedestrian and Trail Signs	Category 4	2.25"	1.5"	8"	.50"	1.5"	3.5"	2.375"
	Category 5	1.5"	1" min.	6"	.50"	1.5"	2.25"	1.50"
	Category 5A	1"	1" min.	6"	.50"	1.5"	2.25"	1.50"

Layout Chart - Pedestrian Signs Engineering Standard Letters

UC Letter Size a	Margin Space (minimum) b	Between lines of text; arrow above destination c	Between trail name and first arrow (vert.); next arrow (vert.); destination and distance (horiz.) d	Between words (horiz.) e	Corner Radius f	Arrow Length (Minimum) g	Arrow Width h	Symbol Plate i
1.0"	1.5"	1.0"	1.5"	1.0"	.25"	1.5"	1-1/32"	4" x 4"
0.75"	1.25"	0.75"	1.25"	0.75"	.25"	1-1/8"	0.75"	3" x 3"
0.50"	0.75"	0.50"	0.75"	0.50"	.25"	0.75"	0.50"	2" x 2"

Alternate Sizing

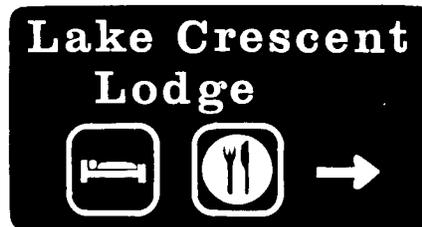
This example of alternate sign layouts combining symbols, a directional arrow and a single text message shows coping with varying site conditions, that may require minimum sign size. Signs are drawn to same scale. Dimensions shown apply to these signs on a category 2 road (35-45 mph: 6" uppercase and 4" lowercase letters, 18" symbols, and 6 1/8" wide arrow. Arrow length shown is greater than standard 9" for visual balance).



A) 10' x 3'10" (38.33 sq. ft.)



B) 7' x 4'8" (32.67 sq. ft.)



C) 7' x 3'10" (26.83 sq. ft.)



D) 4'6" x 5'6" (24.75 sq. ft.)

FINAL LAYOUT

Regional Offices are responsible for reviewing and approving the final design and layout of signs. The Regional Sign Coordinator will provide technical assistance to parks in the preparation of preliminary sign layouts. Chapter 6 contains information on ordering signs. The Regional Office is responsible for ensuring that designs are in conformance with these Specifications. In general, the decisions of sign placement, content, letter size, and so forth, will be made during preliminary planning by the area. Regional Offices will review and recommend adjustments in placement, text, symbols, size, and so forth, to increase their effectiveness.

OTHER METHODS OF DETERMINING SIGN SIZE

Computer

Exact width of individual lines of legends may be determined using a computer. The computer can be programmed with the different letter sizes and spacings. The operator needs only to know the letter height required and the legend desired. Different arrangements of Legend layout can be studied in this manner very easily. Software developed for this purpose has been made available to Regional Sign Coordinators.

Dictionary

The National Capital Region has developed a dictionary of all words that have been used in the Region. All words in the dictionary are shown with their size as determined using 1" uppercase/.67" lowercase letters. The user need only multiply this dimension by the required letter size to determine the exact length of the desired word. Spacing between words and margins are determined in the normal process. As new words are used they are added to the listings.

Quick Method for Estimating Informational Sign Messages

When an exact message length is to be determined, sign coordinators must refer to character width tables, spacing charts and the manual factor table in Appendix B of this sign manual. Many times, however, e.g. when developing alternate sign layouts, estimating sign costs, etc., a close approximation of message length will suffice.

The following quick method is based on a study of relative frequency of letters in common text, relative frequency of letters as first letters of text and an analysis of NPS Modified Clarendon spacing factors. This method generally is accurate to within $\pm 5\%$ of the exact value for words with first letter only capitalized. Do not use this method when sizing messages consisting of all caps.

★ multiply every letter (upper & lower case)	× 5.8"
★ add for every lower case g and w	+ 1"
★ add for every upper or lower case M or m	+ 2"
★ add for every upper case W	+ 4"
★ subtract for every lower case i, j, l or t: upper case J; and/or numeral 1	- 1"
★ subtract for every upper case I	- 3"
★ add for every space between words, when sizing a multiple word message only	+ 5.5"
★ deduct when message consists of lower case letters only (each word)	- 1.5"

The sum total provides the value in inches of a category 2 (6" upper case/4" lower case letter size) message.

To convert message length to other categories, the value must be multiplied by the appropriate factor listed below:

★ category 1 or 1A	(12'' UC/8'' LC)	× 2
★ category 1 or 1A	(9'' UC/6'' LC)	× 1.5
★ category 3	(3¾'' UC/2½'' LC)	× 0.625
★ category 4	(2¼'' UC/1½'' LC)	× 0.375
★ category 5	(1½'' UC/1'' LC)	× 0.25
★ category 5A	(1'' UC/¾'' LC)	× 0.167

MANUAL FACTOR TABLE
NPS Modified Clarendon – Uppercase/Lowercase Letter Heights
PEDESTRIAN SIGNS
ROAD SIGNS

	Category 5A *1" U/C	Category 5 1.50" U/C	Category 4 2.25" U/C	Category 3 (0-30) 3.75" U/C	Category 2 (35-45) 6" U/C	Category 1, 1A (50-55) 9" U/C	Optional Categories 1, 1A* (50-55) 12" U/C
	.67" L/C	1" L/C	1.50" L/C	2.50" L/C	4" L/C	6" L/C	8" L/C
16	.914	1.370	2.056	3.426	5.482	8.223	10.964
15	.730	1.095	1.640	2.737	4.380	6.570	8.760
14	.459	.689	1.034	1.723	2.757	4.135	5.514
13	.416	.625	.937	1.562	2.500	3.750	5.000
12	.384	.576	.865	1.441	2.307	3.460	4.614
11	.365	.548	.822	1.370	2.193	3.289	4.386
10	.350	.525	.787	1.312	2.100	3.150	4.200
9	.318	.477	.716	1.194	1.911	2.866	3.822
8	.293	.440	.660	1.100	1.761	2.641	3.522
7	.268	.403	.604	1.007	1.612	2.418	3.224
6	.244	.367	.550	.917	1.468	2.202	2.936
5	.220	.330	.496	.826	1.323	1.984	2.646
4	.187	.281	.421	.703	1.125	1.687	2.250
3	.138	.208	.312	.520	.833	1.249	1.666
2	.106	.159	.238	.398	.637	.955	1.274
1	.048	.073	.109	.183	.293	.439	.586
0	.000	.000	.000	.000	.000	.000	.000

** Not available in die-cut letter fonts

** To be used whenever engineering judgment warrants.

**CHARACTER WIDTH TABLE (NPS MODIFIED CLARENDON)
UPPER CASE & NUMERALS**

	*1"	1.50"	2.25"	3.75"	6"	9"	12"	
	U/C	U/C	U/C	U/C	U/C	U/C	U/C	
A	1.11	1.66	2.49	4.16	6.65	9.97	13.30	
B	.95	1.42	2.13	3.55	5.68	8.52	11.36	
C	.90	1.34	2.01	3.35	5.37	8.05	10.74	
D	1.02	1.52	2.28	3.80	6.09	9.13	12.18	
E	.95	1.42	2.14	3.56	5.70	8.55	11.40	
F	.89	1.34	2.00	3.34	5.35	8.02	10.70	
G	1.05	1.57	2.35	3.92	6.27	9.40	12.54	
H	1.08	1.62	2.42	4.04	6.47	9.70	12.94	
I	.47	.71	1.06	1.77	2.83	4.24	5.66	
J	.76	1.14	1.70	2.84	4.55	6.82	9.10	
K	1.07	1.61	2.41	4.03	6.45	9.67	12.90	
L	.89	1.33	2.12	3.32	5.32	8.50	10.64	
M	1.30	1.95	2.92	4.87	7.80	11.70	15.60	
N	1.08	1.62	2.42	4.04	6.47	9.70	12.94	
O	1.02	1.53	2.30	3.83	6.13	9.19	12.26	
P	.89	1.33	2.00	3.33	5.33	7.99	10.66	
Q	1.11	1.67	2.50	4.16	6.67	10.00	13.34	
R	1.01	1.52	2.27	3.79	6.07	9.10	12.14	
S	.86	1.28	1.92	3.21	5.13	7.69	10.26	
T	.92	1.37	2.06	3.44	5.50	8.25	11.00	
U	1.02	1.52	2.29	3.81	6.10	9.15	12.20	
V	1.05	1.57	2.36	3.93	6.29	9.43	12.58	
W	1.59	2.38	3.56	5.94	9.51	14.26	19.02	
X	1.11	1.66	2.48	4.14	6.63	9.94	13.26	
Y	1.07	1.60	2.41	4.01	6.42	9.63	12.84	
Z	.86	1.28	1.92	3.21	5.13	7.69	10.26	
1	.57	.86	1.28	2.14	3.43	5.14	6.86	
2	.83	1.24	1.86	3.10	4.96	7.44	9.92	
3	.82	1.23	1.85	3.08	4.93	7.39	9.86	
4	.83	1.24	1.86	3.09	4.95	7.42	9.90	
5	.82	1.23	1.85	3.07	4.92	7.38	9.84	
6	.79	1.19	1.78	2.97	4.76	7.14	9.52	
7	.76	1.14	1.70	2.84	4.55	6.82	9.10	
8	.82	1.25	1.85	3.08	4.93	7.39	9.86	
9	.79	1.19	1.78	2.97	4.76	7.14	9.52	
0	.86	1.29	1.93	3.22	5.16	7.74	10.32	
ampersand	&	1.08	1.61	2.42	4.03	6.45	9.67	12.90
dollar sign	\$.61	.91	1.36	2.27	3.64	5.46	7.28
cent sign	¢	.66	1.00	1.50	2.50	4.00	6.00	8.00
percent sign	%	.98	1.47	2.20	3.67	5.88	8.82	11.76

* Not available in die-cut letters.

**CHARACTER WIDTH TABLE (NPS MODIFIED CLARENDON)
LOWER CASE & PUNCTUATION**

	*.67"	1"	1.50"	2.50"	4"	6"	8"	
	L/C	L/C	L/C	L/C	L/C	L/C	L/C	
	(for	(for	(for	(for	(for	(for	(for	
	1"	1.50"	2.25"	3.75"	6"	9"	12"	
	U/C)	U/C)	U/C)	U/C)	U/C)	U/C)	U/C)	
a	.79	1.18	1.77	2.95	4.72	7.08	9.44	
b	.77	1.15	1.73	2.88	4.62	6.93	9.24	
c	.67	1.00	1.50	2.50	4.00	6.00	8.00	
d	.79	1.19	1.79	2.98	4.77	7.15	9.54	
e	.68	1.02	1.53	2.55	4.08	6.12	8.16	
f	.57	.85	1.28	2.13	3.41	5.11	6.82	
g	.88	1.32	1.99	3.31	5.30	7.95	10.60	
h	.82	1.23	1.85	3.08	4.93	7.39	9.86	
i	.41	.61	.92	1.53	2.45	3.67	4.90	
j	.47	.71	1.07	1.78	2.85	4.27	5.70	
k	.85	1.28	1.91	3.19	5.11	7.66	10.22	
l	.41	.61	.92	1.53	2.45	3.67	4.90	
m	1.26	1.89	2.83	4.71	7.55	11.32	15.10	
n	.82	1.22	1.84	3.06	4.90	7.35	9.80	
o	.79	1.19	1.78	2.96	4.75	7.12	9.50	
p	.79	1.19	1.78	2.96	4.75	7.12	9.50	
q	.79	1.19	1.78	2.96	4.75	7.12	9.50	
r	.60	.90	1.36	2.26	3.62	5.43	7.24	
s	.61	.91	1.36	2.27	3.64	5.46	7.28	
t	.50	.76	1.13	1.88	3.02	4.53	6.04	
u	.79	1.19	1.78	2.96	4.75	7.12	9.50	
v	.79	1.19	1.78	2.96	4.75	7.12	9.50	
w	1.14	1.71	2.57	4.28	6.85	10.27	13.70	
x	.83	1.24	1.86	3.09	4.95	7.42	9.90	
y	.86	1.28	1.92	3.20	5.13	7.69	10.26	
z	.63	.95	1.42	2.37	3.80	5.70	7.60	
comma/ semi-colon	, ;	.25	.37	.56	.93	1.50	2.25	3.00
period/ colon	. :	.22	.33	.50	.83	1.34	2.01	2.68
dash	-	.45	.67	1.00	1.66	2.67	4.00	5.34
question mark	?	.67	1.01	1.51	2.51	4.03	6.04	8.06
exclamation point	!	.24	.36	.53	.89	1.43	2.14	2.86
parenthesis	()	.30	.45	.67	1.11	1.79	2.68	3.58
quotes	" "	.54	.81	1.22	2.03	3.25	4.87	6.50
apostrophe	'	.27	.41	.61	1.02	1.63	2.44	3.25

***Not available in die-cut letters.**

**SPACING CHART
UPPER CASE TO UPPER CASE**

		Second Letter										
		A	BK DL EM FN HP IR	C G O Q	J	S	T	U	V W	X	Y	Z
First Letter	A	7	7	5	6	7	4	5	1	8	1	9
	B	7	11	11	9	14	9	11	6	7	4	13
	C	6	11	13	12	14	13	12	10	9	9	13
	D	5	11	11	8	13	9	8	5	6	3	10
	E	7	13	13	9	14	12	11	7	10	7	14
	F	1	9	9	6	12	9	8	6	8	5	12
	G	4	9	8	6	10	8	6	4	6	3	9
	H,I,M	7	11	11	7	13	10	9	6	7	6	13
	J	2	9	8	5	10	9	9	7	7	6	13
	K	6	7	6	4	7	6	7	4	7	3	8
	L	7	10	8	7	12	5	4	3	7	2	9
	N	3	9	7	4	10	8	8	6	6	4	10
	O	5	11	11	8	13	9	8	5	6	3	10
	P	1	7	8	2	9	8	5	4	4	4	7
	Q	6	8	9	8	12	6	8	2	5	2	10
	R	6	8	9	8	12	6	8	2	5	2	10
	S	6	10	13	8	13	8	8	5	7	4	12
	T	4	7	9	5	11	10	9	7	7	6	10
	U	2	9	8	5	10	9	9	7	7	6	13
	V,W	1	6	5	1	8	7	7	7	6	5	8
	X	6	7	6	4	7	6	7	4	7	3	8
	Y	1	6	4	1	8	6	6	5	3	5	7
	Z	9	13	10	10	14	10	13	8	8	7	13

**SPACING CHART
UPPER CASE TO LOWER CASE**

		Second Letter																									
		a	b h k l	c d e o q	f	g	i	j	m n r	p	s	t	u	v w	x	y	z										
First Letter	A	5	6	4	7	4	5	3	5	4	6	4	3	1	4	2	6										
	B	9	11	8	9	8	8	3	8	8	11	8	8	6	6	6	11										
	C	9	11	9	9	8	9	3	7	12	8	8	9	6	7	5	11										
	D	9	11	9	10	8	9	3	8	9	11	8	6	6	7	4	11										
	E	12	13	10	12	9	11	5	11	10	13	10	10	8	9	8	13										
	F	4	9	3	7	3	7	1	6	4	6	5	4	4	4	4	7										
	G	8	9	7	10	7	7	2	8	8	9	8	6	6	6	5	8										
	H,I,M	7	11	7	8	7	7	3	9	6	11	6	6	4	6	5	9										
	J	5	9	4	5	3	6	1	4	5	7	4	4	3	3	3	6										
	K	5	7	3	6	6	6	3	6	4	3	8	3	3	5	3	8										
	L	9	10	8	10	7	9	6	9	7	12	6	7	4	7	5	10										
	N	4	9	5	6	10	5	1	4	4	7	6	5	3	5	4	7										
	O	9	11	9	10	8	9	3	8	9	11	8	6	6	7	4	11										
	P	3	7	3	4	3	6	1	4	4	5	4	4	4	3	4	4										
	Q	7	8	7	7	6	7	3	5	5	9	5	4	3	5	3	9										
	R	7	8	7	7	6	7	3	5	5	9	5	4	3	5	3	9										
	S	9	10	8	9	8	9	3	8	8	11	8	7	6	6	5	10										
	T	4	7	4	7	4	7	3	6	6	6	5	5	5	5	4	7										
	U	5	9	4	5	3	6	1	4	5	7	4	4	3	3	3	6										
	V,W	1	6	1	3	1	2	0	3	2	3	3	2	2	2	3	3										
	X	5	7	3	6	6	6	3	6	4	3	8	3	3	5	3	8										
	Y	1	6	1	3	0	2	0	1	1	3	2	2	1	1	1	2										
	Z	12	13	10	12	9	11	5	10	8	13	8	9	6	9	7	13										

**SPACING CHART
UPPER CASE TO PUNCTUATION**

		Second Character								
		· :	"	"	!	?	-	()	&
First Letter	A	6	3	3	8	3	6	10	7	4
	B	7	4	4	13	8	10	14	11	9
	C	8	9	9	14	10	10	14	10	10
	D	8	8	8	14	10	13	13	11	13
	E	10	7	7	14	10	13	14	13	12
	F	6	7	7	13	8	6	13	9	8
	G	7	4	4	9	5	10	13	9	9
	H,I,M	6	7	7	13	8	8	14	11	9
	J	5	7	7	11	7	7	12	9	7
	K	6	6	6	8	4	6	8	7	5
	L	9	6	6	11	6	10	14	10	11
	N	5	6	6	10	6	5	12	9	8
	O	8	8	8	14	10	13	13	11	13
	P	4	6	6	11	8	7	11	7	5
	Q	6	4	4	11	6	7	11	8	8
	R	6	4	4	11	6	7	11	8	8
	S	7	4	4	12	7	10	14	10	11
	T	7	7	7	13	8	6	11	7	7
	U	5	7	7	11	7	7	12	9	7
	V,W	3	6	6	10	6	4	10	6	3
	X	6	6	6	8	4	6	8	7	5
	Y	3	6	6	8	6	3	9	6	2
	Z	10	8	8	13	8	11	13	13	11

**SPACING CHART
UPPER CASE TO FIGURES**

Second Figure

First Letter	Second Figure												
	1	2	3	4	5	6	% 7	8	9	0	¢	\$	
A	6	7	6	3	7	5	4	6	5	5	2	5	
B	10	10	9	7	10	9	6	10	9	9	8	10	
C	10	13	12	9	12	13	10	13	12	13	10	13	
D	8	10	8	8	11	9	9	9	9	9	10	13	
E	13	13	13	11	13	13	10	13	13	13	11	13	
F	6	7	7	3	8	7	7	9	9	7	7	8	
G	7	8	9	7	8	9	8	10	9	9	8	10	
H,I,M	9	12	9	6	11	11	8	11	10	11	7	11	
J	7	7	7	6	8	7	7	11	9	8	8	9	
K	5	7	6	3	8	6	7	7	6	6	4	6	
L	8	9	8	7	9	9	6	10	9	9	6	10	
N	6	11	8	4	8	9	7	9	8	9	7	9	
O	8	10	8	8	11	9	9	9	9	9	10	13	
P	6	7	7	3	6	6	6	6	8	6	6	7	
Q	7	8	8	6	9	8	5	8	9	8	7	7	
R	7	8	8	6	9	8	5	8	9	8	7	7	
S	9	10	8	6	11	10	7	10	10	10	8	10	
T	7	7	8	4	8	9	8	9	11	9	7	8	
U	7	7	7	6	8	7	7	11	9	8	8	9	
V,W	5	6	4	2	5	5	5	6	5	5	3	5	
X	5	7	6	3	8	6	7	7	6	6	4	6	
Y	6	6	4	3	7	3	6	4	4	3	4	6	
Z	11	12	13	10	12	10	10	13	10	10	12	12	

**SPACING CHART
LOWER CASE TO UPPER CASE**

	Second Letter										
	A	BK DL EM FN HP IR	C G O Q	J	S	T	U	V W	X	Y	Z
a	5	7	7	6	10	3	5	1	4	1	8
b,e,o,p	4	11	10	8	11	4	4	1	3	1	10
c	6	7	12	9	11	5	7	3	5	3	10
d,l	7	9	10	6	11	7	8	4	7	3	11
f	2	6	7	3	8	6	6	5	5	4	10
g	2	4	8	6	9	5	4	1	3	1	7
h,m,n	6	6	8	6	10	4	6	2	6	1	10
i	7	7	9	6	10	6	4	3	7	3	9
j	7	13	11	10	13	8	9	6	8	4	12
k	4	6	7	6	10	5	3	2	5	1	9
q	4	6	9	7	11	6	6	2	4	1	8
r	3	4	10	5	11	6	5	2	4	2	9
s	7	10	10	8	13	5	9	4	7	1	12
t	6	8	10	6	11	6	7	3	6	2	10
u	5	7	10	7	11	3	7	3	6	2	10
v,w	1	4	6	4	10	5	3	2	3	1	9
x	4	6	7	6	10	5	3	2	5	1	9
y	1	4	6	4	10	5	3	2	3	1	9
z	6	11	11	8	13	7	6	3	8	2	13

SPACING CHART
LOWER CASE TO LOWER CASE

		Second Letter																									
		a	b h k	c d e o	f	g	i	j	m n	p	s	t	u	v w	x	y	z										
First Letter	a	6	6	6	5	5	4	1	4	3	7	3	4	3	5	2	7										
	b,e,o,p	8	7	7	7	9	7	1	7	6	11	6	7	5	5	5	9										
	c	8	7	7	7	9	7	1	7	6	11	6	7	5	5	5	9										
	d,l	6	9	7	7	8	7	2	8	6	10	6	7	4	6	4	9										
	f	3	6	3	4	3	4	1	3	2	4	2	3	3	3	2	6										
	g	6	4	4	6	4	7	3	6	4	7	4	6	4	4	4	7										
	h,m,n	7	6	6	8	6	7	3	7	6	10	5	6	4	6	4	9										
	i	7	7	7	8	6	6	3	6	6	8	6	6	4	4	5	9										
	j	10	13	10	11	9	10	5	10	9	13	9	9	7	8	7	12										
	k	6	6	5	8	6	8	4	7	5	8	6	7	5	6	5	8										
	q	7	6	6	7	8	7	4	8	6	9	5	6	6	5	7	8										
	r	6	4	5	7	5	7	3	7	5	8	7	6	6	5	5	9										
	s	10	10	11	10	9	9	3	9	8	11	9	10	7	8	5	10										
	t	8	8	8	9	8	7	3	9	8	10	7	8	5	6	4	12										
	u	8	7	8	8	8	7	1	7	6	9	6	5	4	5	2	7										
	v,w	5	4	5	6	7	6	1	6	6	7	6	4	5	5	4	7										
	x	6	6	5	8	6	8	4	7	5	8	6	7	5	6	5	8										
	y	5	4	5	6	7	6	1	6	6	7	6	4	5	5	4	7										
	z	10	11	9	10	10	10	4	10	8	12	9	9	7	8	6	11										

**SPACING CHART
LOWER CASE TO PUNCTUATION**

	Second Character								
	:/ :;	" '	" '	!	?	-	()	&
a	6	3	3	8	3	7	12	6	8
b,e,o,p	7	4	4	11	5	10	12	7	11
c	8	4	4	10	6	11	13	7	10
d,l	6	3	3	10	7	8	12	9	8
f	3	6	6	8	7	4	8	6	6
g	7	4	4	10	6	7	11	4	8
h,m,n	6	3	3	10	4	8	13	6	9
i	5	4	4	9	5	8	11	7	8
j	9	7	7	12	9	11	14	13	10
k	7	4	4	8	6	8	10	6	8
q	8	6	6	11	10	9	13	6	8
r	8	4	4	9	7	9	10	4	8
s	9	4	4	12	8	10	13	10	10
t	8	6	6	9	6	9	12	8	12
u	6	3	3	10	4	9	12	7	8
v,w	7	5	5	9	6	7	11	4	7
x	7	4	4	8	6	8	10	6	8
y	7	5	5	9	6	7	11	4	7
z	8	7	7	11	8	12	13	11	10

**SPACING CHART
LOWER CASE TO FIGURES**

Second Figure

		%										
		1	2	3	4	5	6	7	8	9	0	\$
First Letter	a	5	7	7	5	7	6	4	7	5	6	7
	b,e,o,p	7	9	9	6	9	10	5	8	9	10	10
	c	9	12	10	8	11	11	7	10	11	11	10
	d, l	7	10	8	6	10	9	8	9	10	9	9
	f	6	8	8	4	7	7	8	7	7	7	7
	g	4	9	7	5	7	7	6	8	8	7	8
	h,m,n	6	9	6	6	8	7	4	8	8	8	9
	i	6	8	8	4	8	8	5	8	9	8	9
	j	9	12	10	9	11	13	8	13	12	13	12
	k	6	9	8	6	8	7	7	6	8	7	9
	q	7	10	10	7	10	9	8	8	9	9	10
	r	8	9	9	6	9	10	7	9	8	10	10
	s	8	8	10	7	10	10	7	10	9	10	11
	t	10	10	10	8	10	11	8	10	11	11	10
	u	6	9	9	5	9	9	4	9	8	9	10
	v,w	6	9	8	5	7	6	7	6	8	6	10
	x	6	9	8	6	8	7	7	6	8	7	9
	y	6	9	8	5	7	6	7	6	8	6	10
	z	10	12	11	10	12	11	8	11	11	11	12

**SPACING CHART
PUNCTUATION TO PUNCTUATION**

		Second Character								
		⋮ ⋮	” ’	” ’	!	?	—	()	&
First Character	⋮ ⋮	10	6	6	13	7	10	13	6	10
	”	6	10	10	11	8	6	11	7	3
	’	6	10	10	11	8	6	11	7	3
	!	13	11	11	13	10	10	14	13	10
	?	6	6	6	10	8	7	12	9	6
	—	10	6	6	10	5	12	13	8	12
	(	6	7	7	13	8	8	14	11	9
	)	13	11	11	14	12	13	14	14	13
	&	10	6	6	13	8	13	14	11	12

**SPACING CHART
PUNCTUATION TO FIGURES**

		Second Figure										
		1	2	3	4	5	6	%	7	8	9	0
First Character	⋮ ⋮	7	8	8	5	6	7	5	7	8	7	12
	”	8	8	7	3	6	8	6	4	4	8	8
	’	8	8	7	3	6	8	6	4	4	8	8
	!	10	13	13	10	13	14	12	13	13	14	14
	?	8	10	7	6	8	9	9	10	10	9	11
	—	9	11	8	10	13	13	9	10	11	13	11
	(	9	12	9	6	11	11	8	11	10	11	11
	)	10	13	13	12	14	13	13	14	11	13	13
	&	11	11	11	8	10	11	9	10	13	11	13

**SPACING CHART
FIGURES TO LOWER CASE**

Second Letter

First Figure	Second Letter															
	a	b h k l	c d e o q	f	g	i	j	m n r	p	s	t	u	v w	x	y	z
1	6	7	4	7	6	5	1	4	4	7	4	3	2	5	3	8
2	10	10	8	10	9	9	4	8	10	12	8	7	6	7	5	11
3	9	11	8	9	8	8	3	8	8	11	8	8	6	6	6	11
4	9	9	8	9	7	8	3	9	7	10	6	7	4	6	5	10
5	9	10	8	9	7	9	4	9	10	10	7	7	4	6	6	10
6	10	10	9	10	8	9	3	8	9	11	8	8	6	7	6	10
7	3	6	3	5	1	3	1	3	3	3	4	3	2	1	2	4
8	9	11	8	9	8	8	3	8	8	11	8	8	6	6	6	11
0,9	9	11	9	10	8	9	3	8	9	11	8	6	6	7	4	11
¢	9	7	8	10	8	8	3	8	10	9	9	7	6	7	7	10

**SPACING CHART
FIGURES TO UPPER CASE**

Second Letter

First Figure	Second Letter											
	A	BK DL EM FN HP IR	C G O Q	J	S	T	U	V W	X	Y	Z	
1	6	7	4	5	8	3	3	2	6	1	7	
2	7	10	9	7	13	7	9	4	6	2	10	
3	7	11	11	9	14	9	11	6	7	4	13	
4	7	9	8	7	10	4	6	2	5	3	10	
5	4	10	9	7	11	8	7	4	6	3	11	
6	5	10	9	8	13	7	8	5	6	4	10	
7	1	6	5	1	8	4	6	4	3	4	7	
8	7 ¹	11	11	9	14	9	11	6	7	4	13	
0,9	5	11	9	8	13	9	8	5	6	3	10	
¢	4	10	10	9	12	7	8	4	4	3	9	

**SPACING CHART
FIGURES TO PUNCTUATION**

		Second Character								
		· :	”	”	!	?	-	()	&
First Figure	1	6	3	3	8	5	8	9	7	9
	2	8	6	6	11	8	10	14	10	11
	3	7	4	4	13	8	10	14	11	9
	4	8	4	4	10	6	12	14	9	11
	5	9	4	4	11	7	12	14	10	11
	6	10	4	4	12	9	13	11	10	11
	%7	6	7	7	8	7	6	11	6	4
	8	7	4	4	13	8	10	14	11	9
	0,9	8	8	8	14	10	13	13	11	13
	¢	8	4	4	10	6	11	13	10	10

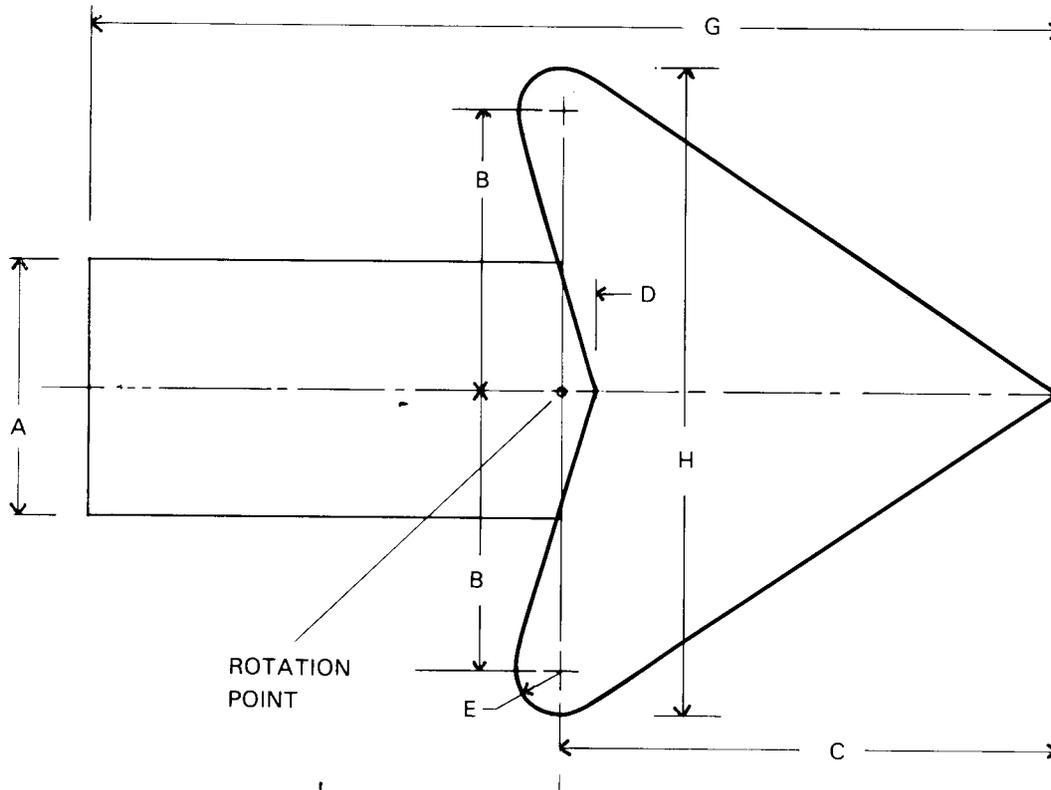
**SPACING CHART
FIGURES TO FIGURES**

		Second Figure												
		1	2	3	4	5	6	%	7	8	9	0	¢	\$
First Figure	1	6	6	6	3	8	4	4	6	5	4	6	6	
	2	10	11	10	7	10	9	7	10	9	9	10	11	
	3	10	10	9	7	10	9	6	10	9	9	8	10	
	4	7	11	8	7	9	8	5	9	8	8	8	9	
	5	8	10	9	7	8	9	7	10	10	9	8	12	
	6	10	8	11	6	11	9	7	9	9	9	9	11	
	7	6	6	5	2	5	5	6	5	5	5	4	5	
	8	10	10	9	7	10	9	6	10	9	9	8	10	
	0,9	9	11	8	7	10	9	8	9	9	9	10	13	
	\$	10	11	11	7	11	10	11	10	11	10	10	11	
	¢	9	12	10	8	10	10	8	11	10	10	9	12	

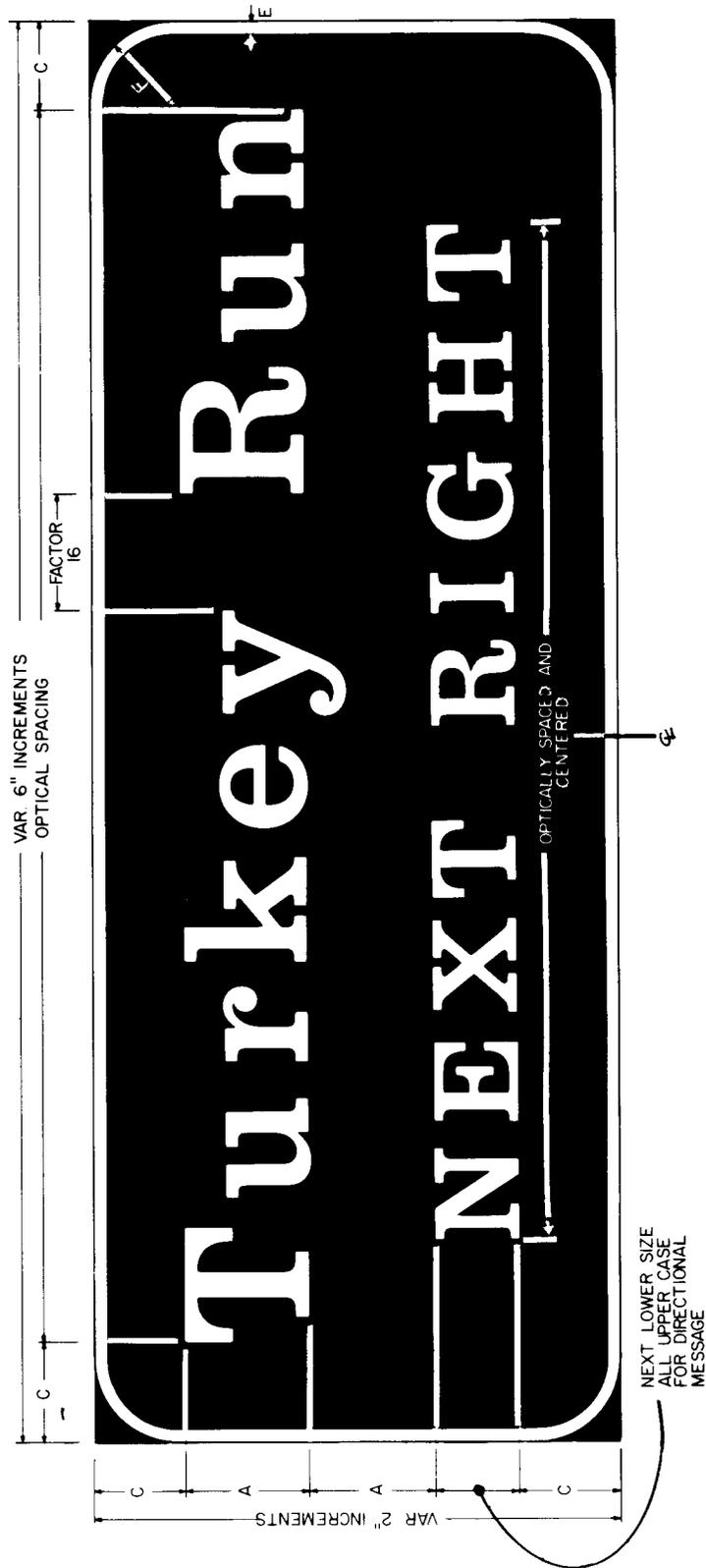
ARROW SPECIFICATIONS

LETTER SIZE (UPPER CASE)	A	B	C	D	E	G	H
1/2"	3/16"	7/32"	3/8"	1/32"	1/32"	3/4"	1/2"
3/4"	9/32"	5/16"	9/16"	3/64"	1/16"	1-1/8"	3/4"
1"	3/8"	7/16"	3/4"	1/16"	5/64"	1-1/2"	1-1/32"
1-1/2"	9/16"	5/8"	1-1/8"	1/8"	1/8"	2-1/4"	1-1/2"
2-1/4"	7/8"	1"	1-3/4"	3/16"	3/16"	3-1/2"	2-3/8"
3-3/4"	1-7/16"	1-5/8"	2-7/8"	3/16"	1/4"	5-5/8"	3-3/4"
6"	2-1/4"	2-5/8"	4-1/2"	3/8"	7/16"	9"	6-1/8"
9"	3-5/16"	3-13/16"	6-11/16"	1/2"	11/16"	13-5/16"	9"
12"	4-1/2"	5-3/16"	9-1/8"	11/16"	7/8"	18-1/8"	12-1/8"

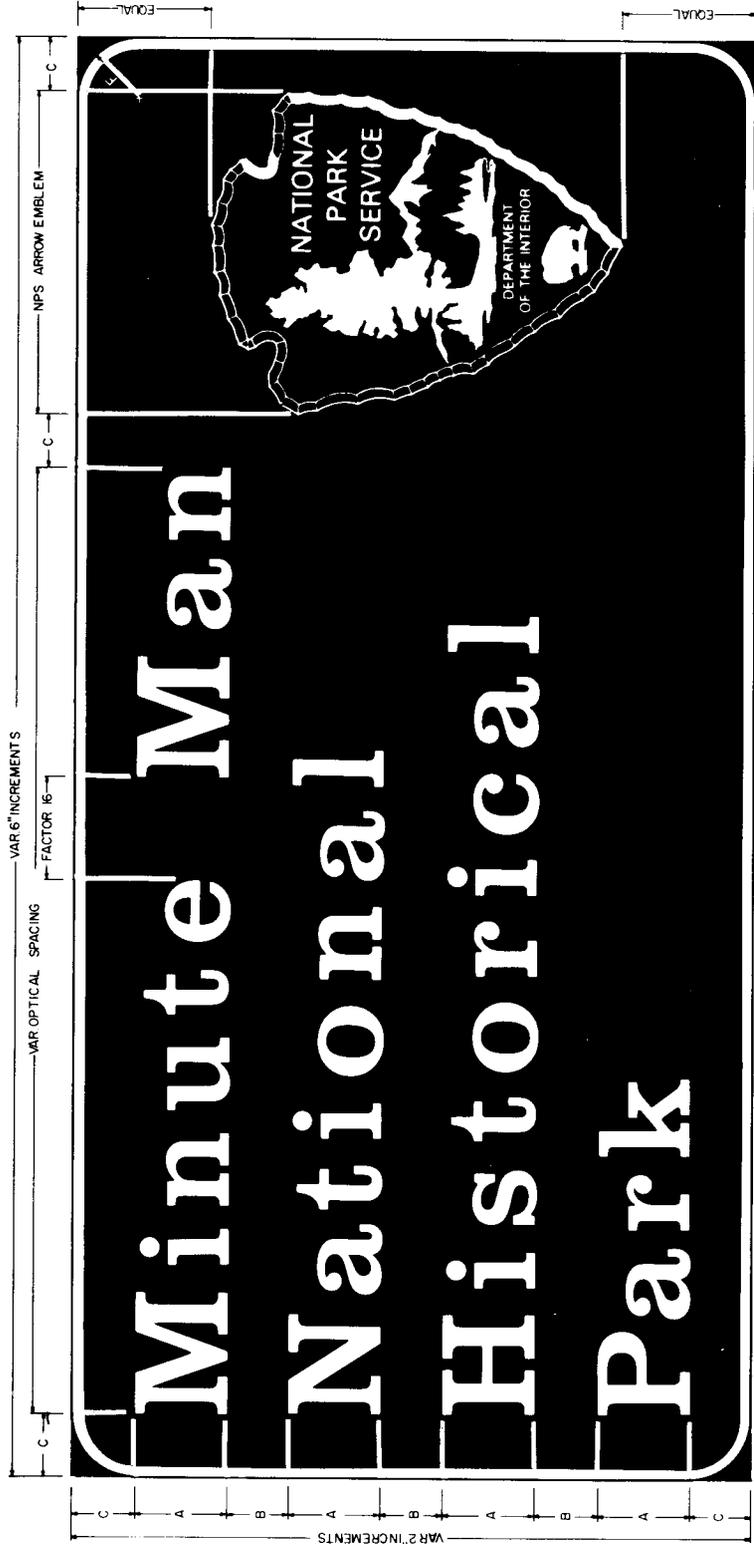
STANDARD HIGHWAY SIGN ARROW DESIGN



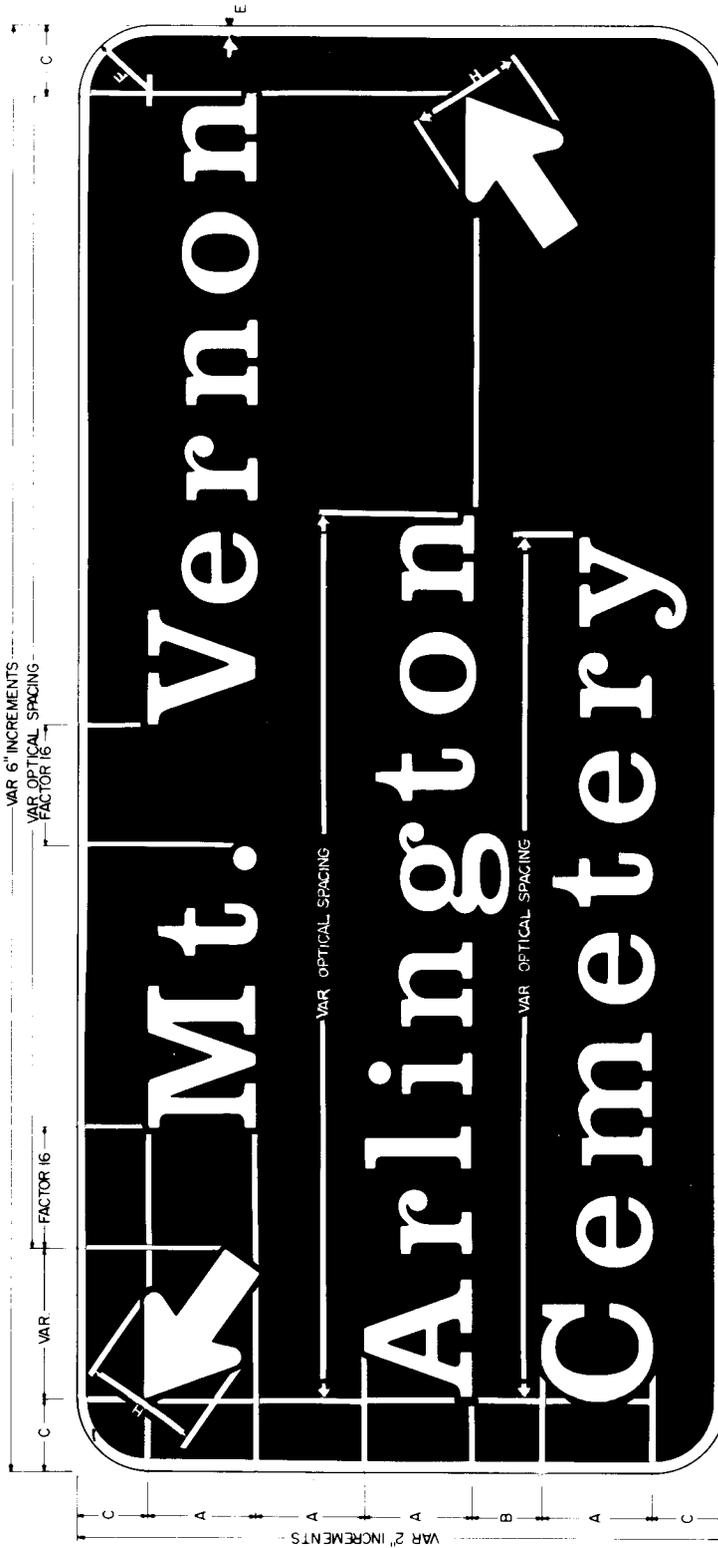
ROAD SIGN - CATEGORY 1-3



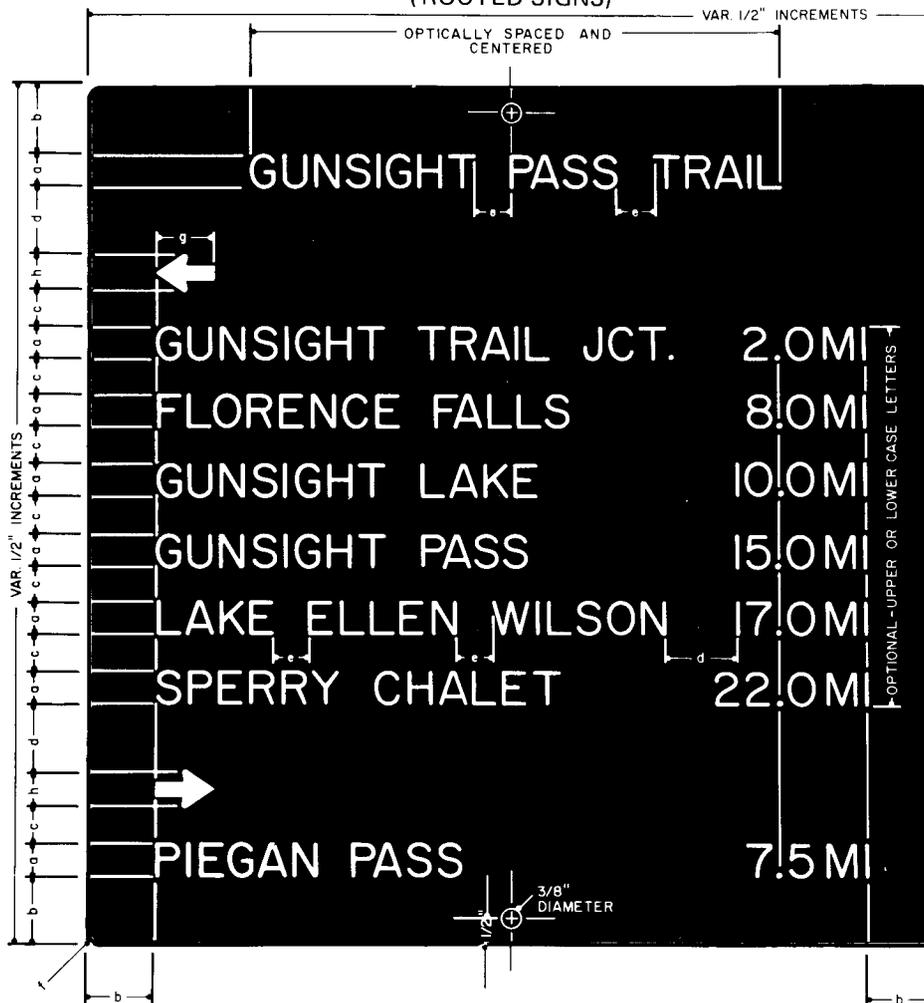
ENTRANCE SIGN - CATEGORY 1-3



ROAD SIGN – CATEGORY 1-3



PEDESTRIAN / TRAIL SIGN – CATEGORY OTHER
(ROUTED SIGNS)



Pickett's Charge

On July 3, 1863 fifteen thousand Confederates, emerging from the woods on the left, attacked the Union line behind the stone wall on the right. The charge, climax of the battle, was repulsed with a loss of nearly ten thousand men.

NATIONAL PARK SERVICE ROUTE MARKER



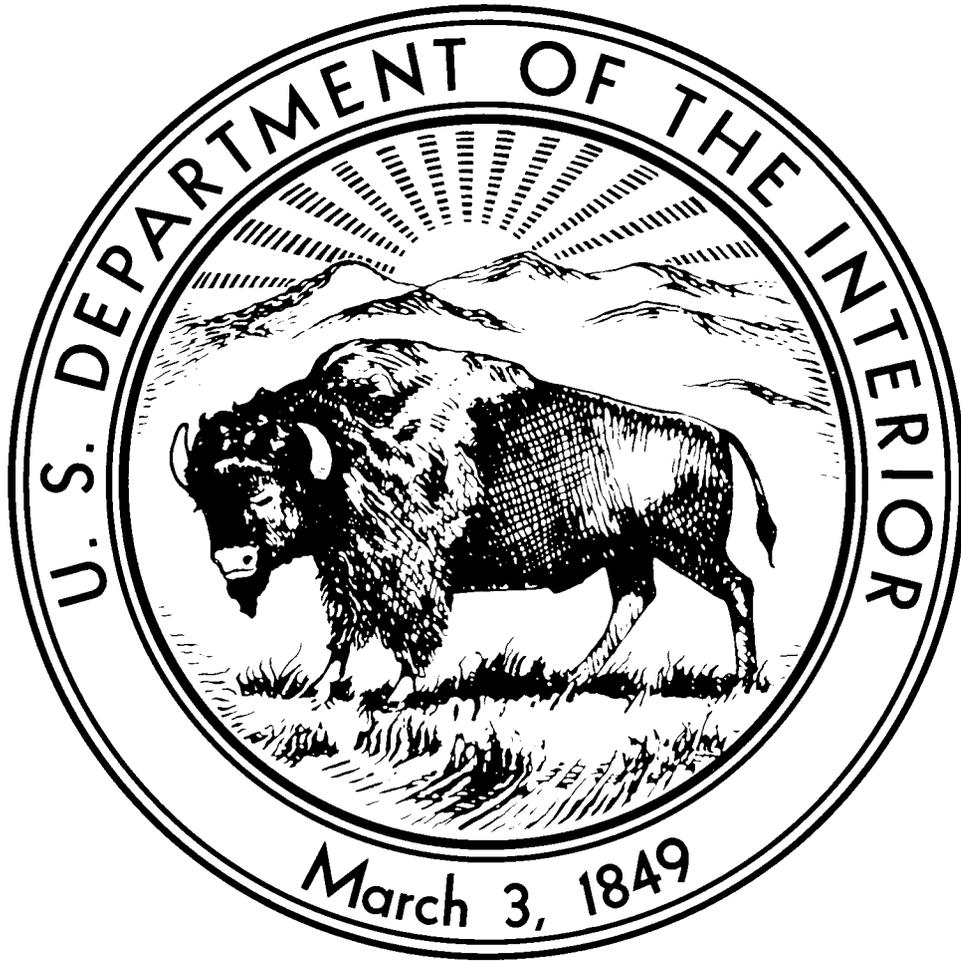
Standard size 15'' diameter 3 $\frac{3}{4}$ '' caps & numerals

1 $\frac{3}{4}$ '' wide border white on brown color

OFFICIAL NATIONAL PARK SERVICE EMBLEM

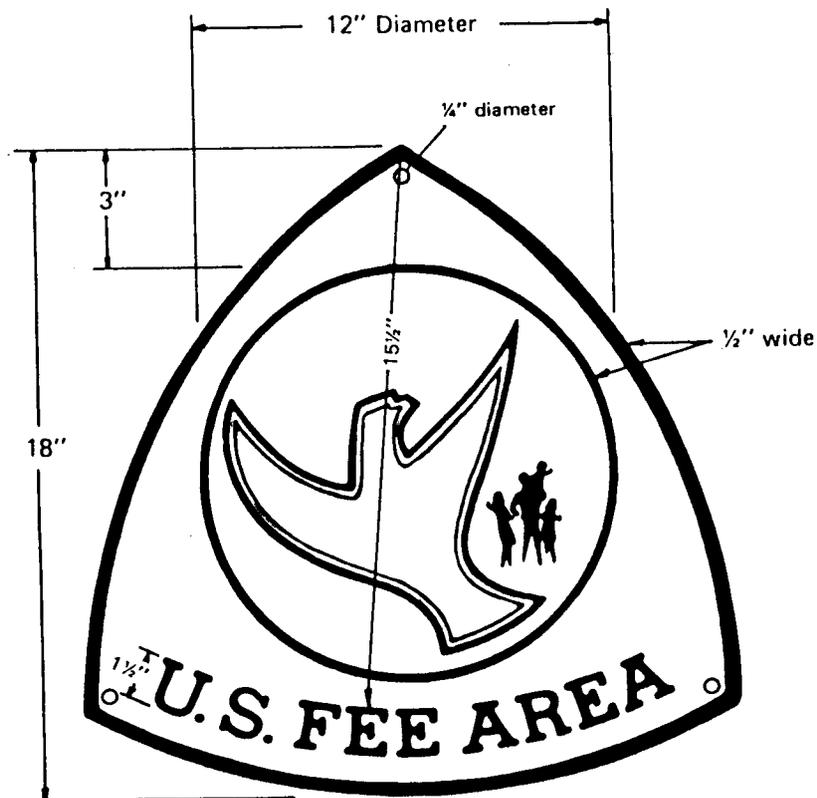


U. S. DEPARTMENT OF THE INTERIOR



U. S. FEE AREA SYMBOL

Available in 18" & 9" sizes



NOTE: For 9" symbol, all dimensions are half of 18" size

COLOR KEY

1. Background and Eagle – Gold Scotchlite / ReflectORIZED Paint / PMS 130
2. Background Circle – White
3. Borders, Figures, and Type – Midnight Blue / PMS 282

SIGN MATERIAL – .032" Aluminum

SOURCE: Federal Register, Vol. 39, No: 180, Monday, Sep. 16, 1974.

PACIFIC CREST TRAIL

Available in 18", 9" & 3½" sizes



APPALACHIAN TRAIL

Available in 18", 9" & 3½" sizes



NORTH COUNTRY TRAIL

Available in 18", 9" & 3½" sizes



