Procurement Procedures

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The height and width of sign panels for most of the signs in this manual are based on the size of the lettering (legend size) and length of the longest message line. The legend size, known as A, is determined by the viewing distance required. Using the sign format grid for the given sign type, the panel height can then be established.

Legend length depends on the amount and length of words in the legend. Standardized signs have established legends; their lengths have been measured and the panel widths calculated. The dimensions are shown in the matrix for each sign. For site specific signs (identification and directionals), legend lengths must be calculated on an individual basis. The system explained below will accurately determine the length of a given legend.

Step 1: Using the worksheet for the appropriate typeface (Helvetica Bold, page D.3; Helvetica Medium, page D.5), write out the legend, placing one character in each of the legend squares. A character is a letter-form, number or punctuation mark. Leave a blank square between each word. Write out the legend exactly as it will appear on the sign panel, using upper and lower case letters.

Because Helvetica Regular is used primarily for Office Interior signs, where copy-fitting is less critical, no worksheet is provided for this weight of type. To estimate legend length on Participation Credit sign use Worksheet for Helvetica Medium.

Letter-space															
Legend	J	.		P	e	r	c	y		P	r	i	e	s	t
Letter-width															

Letter-space															
Legend		D	a	m		&		L	a	k	e				
Letter-width															

Step 2: In the space under each letter, put in the corresponding letter-width dimension from the table on the left of the worksheet. In the area above the space between letters, put in the value from the letter-spacing matrix for that typeface, (Helvetica Bold, page D.9; Helvetica Medium, page D.12). Note that some of the values in the matrix are negative. Below the blank space between words put the value for the spacing square for that typeface (Helvetica Bold, .63; Helvetica Medium, .44). Treat the spacing square like any other character, putting in the appropriate letter-space from the matrix before and after it.

Letter-space	.23	.09	.38	.19	.23	.14	.05	.23	.38	.19	.23	.23	.19	.09	.33
Legend	J	.		P	e	r	c	y		P	r	i	e	s	t
Letter-width	1.48	.56	.63	1.77	1.58	1.06	1.52	1.64	.63	1.77	1.06	.55	1.58	1.47	1.0

Letter-space	.38	.19	.33	.38	.23	.05	.38	.19	.33	.05					
Legend		D	a	m		&		L	a	k	e				
Letter-width	.63	1.89	1.52	2.42	.63	2.0	.63	1.48	1.52	1.58	1.58				

Step 3: Add up all of the values in the top and bottom squares for each word. For long legends, it is helpful first to make subtotals for each word and word-space, mark them down, and then total all of the word lengths plus the word-spaces. This way, if the legends must be placed on more than one line, or the line break changes, the calculations for the new lines will be simple.

Letter-space	.23	.09	.38	.19	.23	.14	.05	.23	.38	.19	.23	.23	.19	.09	.33
Legend	J	.		P	e	r	c	y		P	r	i	e	s	t
Letter-width	1.48	.56	.63	1.77	1.58	1.06	1.52	1.64	.63	1.77	1.06	.55	1.58	1.47	1.0
	2.27	1.1	8.18					1.24	8.69						

Letter-space	.38	.19	.33	.38	.23	.05	.38	.19	.33	.05					
Legend		D	a	m		&		L	a	k	e				
Letter-width	.63	1.89	1.52	2.42	.63	2.0	.63	1.48	1.52	1.58	1.58				
	1.34	6.35			1.24	2.0	1.06	6.73							

Step 4: Add up all of the subtotals, both words and word-spaces. Divide this sum by 2. The result represents the legend length in relationship to A, legend size.

Total : 40.2

40.2 ÷ 2 = 20.1 A

Step 5: To determine panel sizes for identification signs, use the worksheet on page D.4. For directional signs, use the worksheet on page D.6. For other signs, multiply the legend length by the legend size, A, to be used on the sign; round off to the nearest .125″. This total will be the actual legend length. Refer to the appropriate grid to determine the actual panel size.

If A = 4″ ; 20.1 × 4″ = 80.4″

Round off to 80.5″

Upper case		Lower case	
A	2.08	**a**	1.52
B	1.80	**b**	1.59
C	1.94	**c**	1.52
D	1.89	**d**	1.59
E	1.70	**e**	1.58
F	1.58	**f**	1.03
G	1.94	**g**	1.55
H	1.81	**h**	1.52
I	0.63	**i**	0.55
J	1.48	**j**	0.55
K	2.02	**k**	1.58
L	1.48	**l**	0.56
M	2.16	**m**	2.42
N	1.83	**n**	1.53
O	2.03	**o**	1.60
P	1.77	**p**	1.58
Q	2.05	**q**	1.59
R	1.80	**r**	1.06
S	1.78	**s**	1.47
T	1.73	**t**	1.00
U	1.83	**u**	1.52
V	1.92	**v**	1.64
W	2.77	**w**	2.48
X	2.16	**x**	1.61
Y	2.06	**y**	1.64
Z	1.73	**z**	1.38

Numerals		Punctuation	
1	1.05	**$**	1.63
2	1.63	**&**	2.00
3	1.63	**–**	0.89
4	1.72	**:**	0.56
5	1.69	**,**	0.56
6	1.72	**.**	0.56
7	1.55		
8	1.69		
9	1.69		
0	1.75		

Spacing Square
☐ 0.63

Letter-space															
Legend	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Letter-width															

Letter-space															
Legend	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Letter-width															

Letter-space															
Legend	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Letter-width															

Letter-space															
Legend	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Letter-width															

Letter-space															
Legend	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Letter-width															

Letter-space															
Legend	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Letter-width															

Letter-space															
Legend	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Letter-width															

Letter-space															
Legend	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Letter-width															

Identification sign panels are available at set increments of A. To determine the correct panel width for use for a given legend, first calculate the lengths of both the primary and secondary legends (see page D.2). Then, on a piece of graph paper, measure out the number of squares equal to the primary legend length. Write the legend out in squares. Repeat this for the secondary legend.

The legend length of any given line can be no longer than 16.5A for Standard Identification signs and 12A for Secondary Identification Signs. If a legend is longer than this, it must be placed on two lines. Sometimes a legend can be placed on two lines to create a more pleasing panel. Compare the layout to the signs displayed on pages 5.9-11. Check that the legends have logical line-breaks and look balanced on the panel.

Refer to the example below, which shows how a Standard Identification sign is laid out. Then, refer to the layout grids in Section 5 to determine panel width and height.

Step 1: Write out the primary and secondary legends. Calculate their lengths and divide by 2 (see page D.2, up to and including step 4) to get their values in terms of A.

Visitor Center = 10.18 A

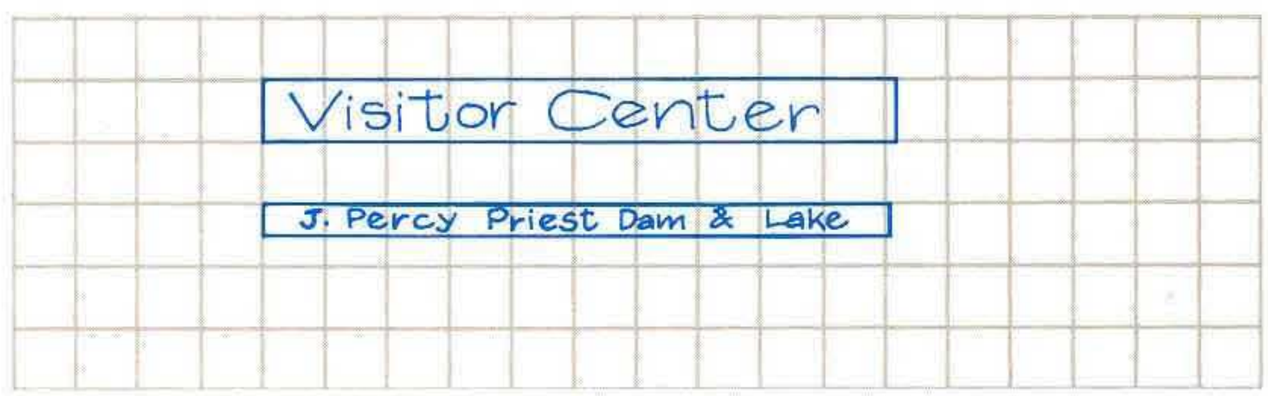
J. Percy Priest Dam & Lake = 20.1 A

Step 2: On an actual sign panel, the size of the primary legend is A and the size of the secondary legend is .5A, half the size of the primary legend. Therefore, the length of the secondary legend must be divided by 2 to put its length in relation to the length of the primary legend. (The value of 20.41A for "J. Percy Priest Dam & Lake" is valid if it is the primary legend).

Visitor Center = 10.18

J. Percy Priest Dam & Lake = 10.05

Step 3: On a piece of graph paper, measure out the number of squares equal to the length of each legend, leaving a line between each. The primary legend will be a full square high; the secondary legend will be one-half square high. Check that the panel looks balanced.



Step 4: Refer to the grids in section 5 to determine actual panel sizes (pages 5.13-14 for Standard Identification signs; page 5.23 for Secondary Identification signs). The maximum length of legend increment which a given legend falls into will indicate the panel width for that legend. The number of primary and secondary legend lines will determine panel height.

Maximum Legend Line = 10.18 A

Panel Width = 16 A

Uses Grid 1-1

Panel Height = 4.5 A

Step 5: Multiply the panel length by the size chosen for A for that particular sign. This figure will be the actual panel width for this legend. Multiply the panel height by the size of A; this figure will be the actual panel height for this combination of primary and secondary legend lines.

A = 6″ 16 × 6″ = 96″ Panel Width

4.5 × 6″ = 27″ Panel Height

Upper case		Lower case	
A	1.81	**a**	1.34
B	1.64	**b**	1.45
C	1.88	**c**	1.41
D	1.70	**d**	1.44
E	1.51	**e**	1.47
F	1.45	**f**	0.84
G	1.88	**g**	1.44
H	1.64	**h**	1.33
I	0.44	**i**	0.38
J	1.3	**j**	0.39
K	1.75	**k**	1.44
L	1.40	**l**	0.39
M	2.00	**m**	2.16
N	1.66	**n**	1.33
O	1.94	**o**	1.52
P	1.53	**p**	1.45
Q	1.94	**q**	1.45
R	1.59	**r**	0.83
S	1.67	**s**	1.31
T	1.66	**t**	0.88
U	1.61	**u**	1.30
V	1.70	**v**	1.36
W	2.56	**w**	2.10
X	1.78	**x**	1.48
Y	1.70	**y**	1.42
Z	1.70	**z**	1.27

Numerals		Punctuation	
1	0.91	**$**	1.63
2	1.44	**&**	1.78
3	1.53	**–**	0.78
4	1.59	**:**	0.44
5	1.53	**,**	0.44
6	1.59	**.**	0.44
7	1.41		
8	1.59		
9	1.56		
0	1.66		

Spacing Square
☐ 0.44

Letter-space															
Legend	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Letter-width															

Letter-space															
Legend	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Letter-width															

Letter-space															
Legend	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Letter-width															

Letter-space															
Legend	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Letter-width															

Letter-space															
Legend	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Letter-width															

Letter-space															
Legend	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Letter-width															

Letter-space															
Legend	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Letter-width															

Letter-space															
Legend	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Letter-width															

Letter-space															
Legend	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Letter-width															

The height and width of a directional sign panel is based on the size of A and the number and length of messages. To determine the panel size for a given legend, first calculate the lengths of the individual messages (see pages D.2 and D.5). Then, on a piece of graph paper, measure out the number of squares equal to the message length. Write the message out in the squares, adding the appropriate arrows to the left or right. Repeat this for all the messages. If a message is longer than 16A, it must be placed on two lines. Sometimes, however, a message should be placed on two lines to create a more pleasing panel. Refer to the example below, which shows how a typical directional sign is laid out.

Step 1: Write out the messages in the order that they will appear on the sign panel. Calculate their lengths and divide by 2 (see pages D.2 and D.5). In this example, the first message, "Blue Springs Lock and Dam", is much longer than the other two messages. It is also over the maximum allowable legend length of 16A; therefore, it will need to be put on two lines.

Blue Springs Lock and Dam = 19.93
Scenic Overlook = 13.875
Lone Rock Camp = 12.125

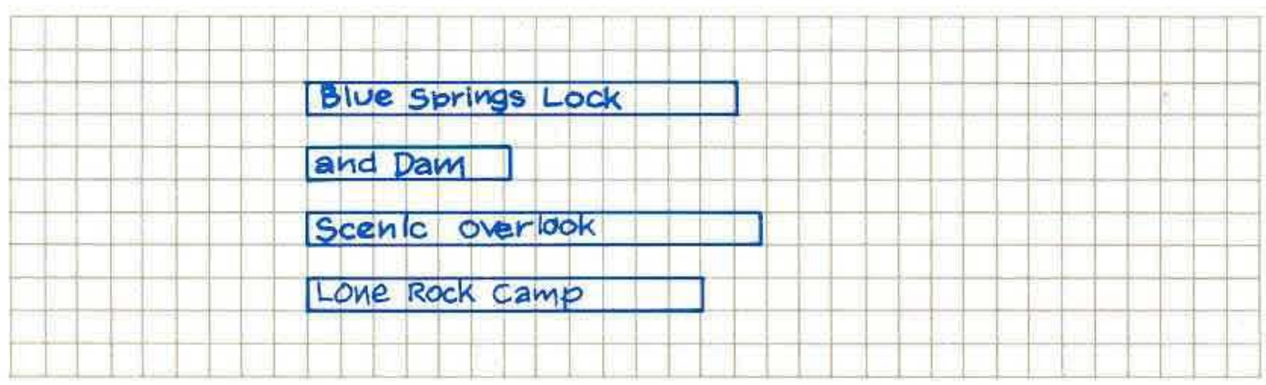
Step 2: Rewrite the messages with the first message on two lines and recalculate the lengths. These two lines are now shorter than the other two messages. In addition, the second line is longer than the first; it is easier to read a two-line legend if the first line is longer than the second.

Blue Springs = 9.05
Lock and Dam = 10.185

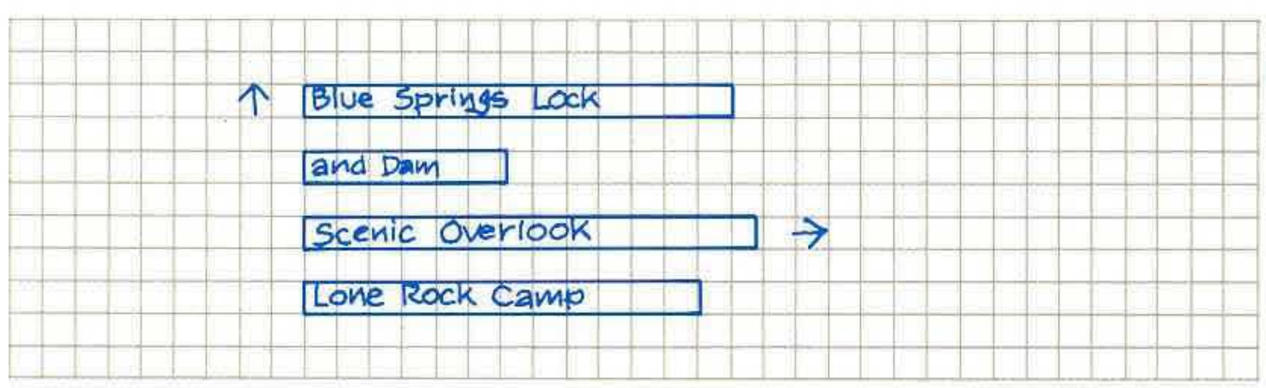
Step 3: Change the line-break in the first message to create a longer first line. Recalculate the lengths. "Blue Springs Lock" is now very close in length to the other two messages, as well as being longer than "and Dam".

Blue Springs Lock = 13.05
and Dam = 6.22

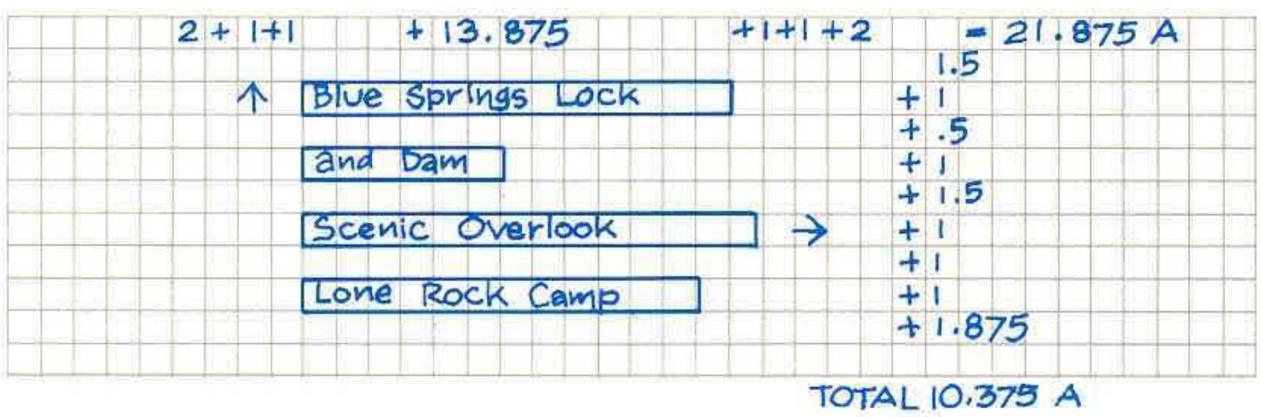
Step 4: On a piece of graph paper, measure out the number of squares equal to the length of each message, leaving a line between each. Then write in the message in those squares. Check that the line-breaks make sense and that the panel looks balanced.



Step 5: Add the appropriate arrows in their proper locations one square to the right or left of the message.



Step 6: Referring to the grid for that type of directional sign (page 6.6 for Approach Roadway and page 6.14 for Project Roadway), indicate the required line space between each message and between two lines of a continued message. Indicate the space for the top and the bottom of the sign panel, including borders. Total the number of legend lines and the spaces between them. This will give you the panel height in terms of A. Again referring to the appropriate grid, indicate the left and right margins. Add these dimensions to the length of the longest line. This will give you the panel width in terms of A.



Step 7: Multiply the panel height and width by the size chosen for A for the particular sign. These totals will be the actual dimensions for the sign panel.

A = 6″

10.375 × 6″ = 62.25″ = Panel Height
21.875 × 6″ = 131.25″ = Panel Width

In cases where computer-generated letter systems are not available, a letter-spacing guide and legend preparation system may be obtained through the Corps national sign coordinator.

The Corps letter-spacing guide uses a transparent letter assembly system. Letters, numerals and punctuation are printed on separate pieces of acetate. The capital letters are 2″ high; the lower case letters and punctuation are at their corresponding sizes. The legends are assembled at this capital letter height and photographically enlarged or reduced to create camera-ready artwork for any size sign. The acetate cells can be re-used indefinitely.

On the letter cells, printed above and below the letters are alignment lines with marks indicating the right and left outermost edges of each letter (see Illustration a). The illustrations and instructions below will explain how to use the cells.

Please be sure to indicate the weight of Helvetica required (Bold, Medium, Regular) when requesting a set of cells.

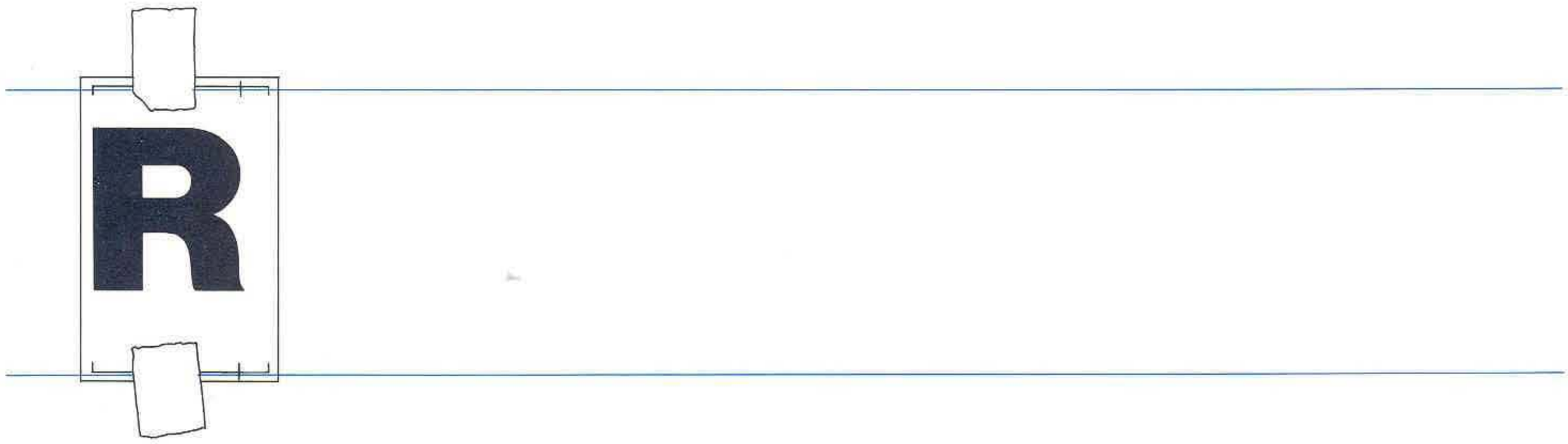


Illustration a

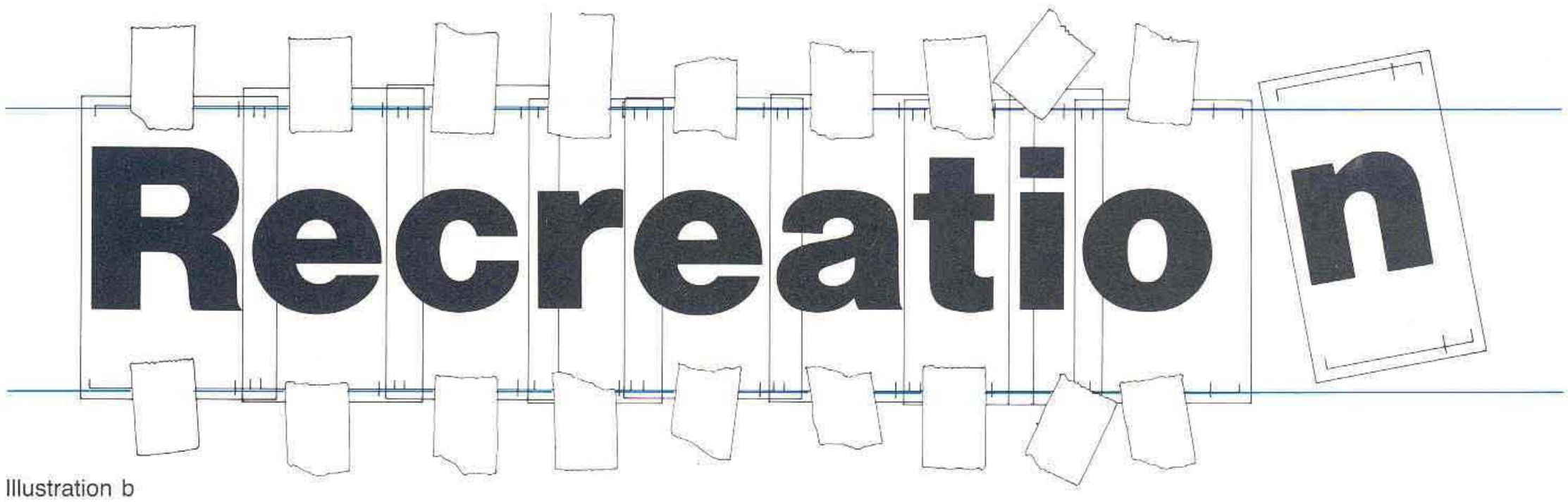


Illustration b

Illustration c

Letter-spacing Guide Instructions

Step 1: Draw two horizontal parallel lines, 3.5″ apart and long enough to accommodate the words to be assembled. These lines will serve as a guide for aligning the corresponding lines on the acetate cells.

Step 2: Tape the first letter in place by aligning the lines on the acetate cells with the lines drawn in step one.

Step 3: Tape each subsequent letter in place by referring to the letter-spacing matrix for that typestyle: Helvetica Bold (page D.9), Helvetica Medium (page D.12), and Helvetica Regular (page D.15).

Example: The first letter is capital "R". The next is a lower case "e". The matrix for Helvetica Bold on page D.9 indicates that the proper space between the "R" and the "e" is .19″. Place the mark on the left side of the "e" .19″ from the mark on the right side of the "R" cell. The next letter is a "c". The space between a "c" and an "e" is .19″. Place the "c" so the left mark is .19″ from the "e". Be sure that the lines above and below the letters are aligned with the lines drawn on the page.

Continue taping down all of the letters in place inserting the values shown in the matrix between each letter.

Please note that a few of the values in the matrix are negative (such as "A" to "w"). In this case, the left mark of the "w" is to the left of the right mark of the "A", a distance of .13″. Some values are zero (such as "v" to "e"). In this case, the left mark in the "e" will sit directly on the right mark of the "v"

Step 4: The taped acetate letters are then photographed with a photostat camera and the track lines are blocked out on the film negative. Illustration c shows the finished piece of photostat art.

To place one word after another with the proper word-space, place the spacing square (□), with the spacing indicated on the matrix, after the last letter of the first word, as shown in Illustration a below. Place the first letter of the second word the appropriate distance from the square, as indicated in the matrix (Illustration b). After the first letter of the second word is in place, remove the square (Illustration c).

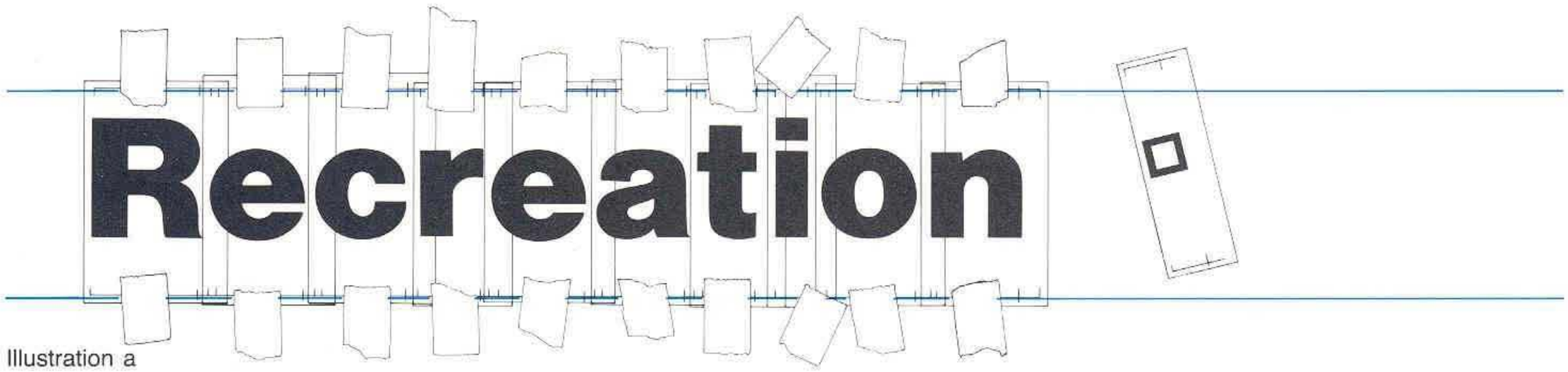


Illustration a

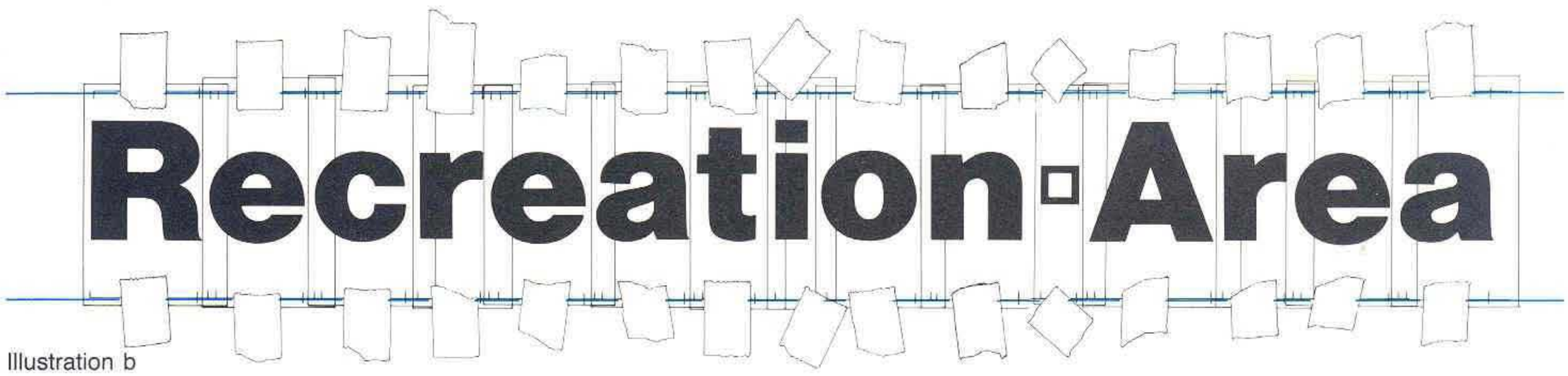


Illustration b

Recreation Area

Illustration c

Flush left alignment: When making a flush left alignment between two lines of type, a visual compensation must be made for certain letter forms. For example, if a line of type begins with a capital "N" and a second line of type begins with a capital "C", the second line will have to be positioned farther to the left than the first line in order to appear as though it is aligning (see Illustration d). All letters that require a compensation have a special increment on the letter cell marked "FL" for flush left (see Illustration e).

Flush Left Alignment

Illustration d

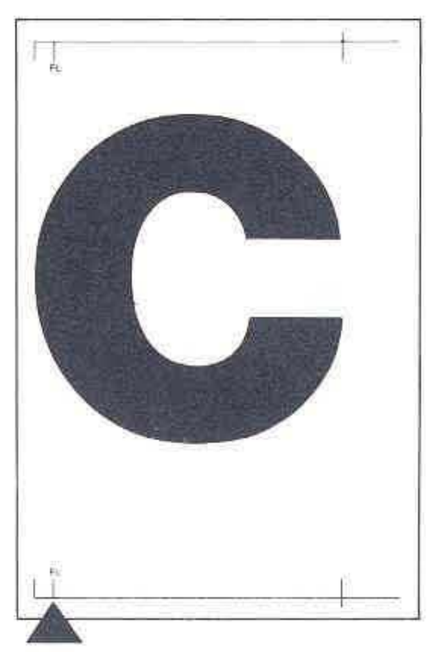


Illustration e

This typeface is used for secondary legends on interpretive, boundary and construction signs with Helvetica Bold primary legends. Helvetica Regular is also used on all building interior signs and as a text face for interpretive signs and exhibit captions.

A full display of this alphabet is shown on the inside of this foldout.

Use only the Helvetica Regular typeface as specified in this manual. Do not substitute another typestyle or any other typeface when preparing signs that specify Helvetica Regular.

Use only the specified methods for typesetting. All enlargements and/or reductions are to use a high-quality photographic process. All letter forms are to be sharp, crisp, and distortion-free.

	acd ego qs	bhi jkl	mnp ru	vwy	ft	x	z	1	2	356 890	4	7	&	—	.,	:	$	□	BDE FHI KLM NPR UZ	CGO QS	VW	A	J	T	Y
aghmnqu	.28	.38	.38	.19	.23	.23	.33	.33	.33	.28	.33	.33		.28	.28	.28		.38	.33	.23	0	.09	.19	−.09	−.14
bceops	.23	.28	.28	.09	.19	.09	.23	.33	.33	.28	.33	.33		.19	.14	.19		.33	.33	.23	0	.09	.19	−.09	−.14
vwy	.09	.28	.23	.14	.19	.14	.19	.33	.33	.28	.33	.33		.09	−.09	.09		.28							
ftz	.19	.33	.33	.23	.23	.19	.23	.33	.33	.28	.33	.33		.14	.19	.23		.38							
kx	.09	.23	.19	.05	.09	.09	.14	.33	.33	.28	.33	.33		−.14	.19	.19		.33							
r	.14	.23	.23	.14	.19	.09	.14	.33	.33	.28	.33	.33		0	−.09	.19		.28							
dlij	.28	.38	.38	.23	.28	.23	.33	.33	.33	.28	.33	.33		.28	.28	.28		.38							
14	.33	.38	.38	.28	.33	.28	.33	.33	.33	.28	.33	.33		.28	.28	.33		.38							
2356890	.19	.33	.33	.23	.19	.23	.23	.19	.19	.23	.23	.23		.14	.19	.28		.38							
7	.05	.23	.19	.09				.05	.05	.09	.09	.33		.19	−.19	.09		.33							
&																		.14							
—	.23	.28	.28	.14	.14	0	.09	.23	.23	.14	.09	.14						.38							
.,								.19	.28	.19	.09	.14						.14							
:								.19	.28	.23	.19	.23						.14							
$								.28	.28	.23	.23	.28						.28							
□	.33	.38	.38	.28	.33	.28	.33	.33	.38	.28	.33	.33	.28	.38	.28		.28	.33	.33	.23	0	.09	.19	−.09	−.14
GHIJMNU	.33	.38	.38	.28	.33	.28	.33	.33		.28	.33	.33			.28										
BCDOQS	.23	.28	.28	.19	.23	.09	.19	.23		.19	.19	.23			.05										
R	.23	.33	.33	.19				.23		.19					.23										
VW	0	.28	.14	0				0		0					−.19										
KX	.05	.19	.19	−.09				.05		−.09					.19										
A	.09	.23	.23	−.09	.04	.09	.19	.09		−.09	.19	.04			.19										
E	.19	.28	.28	.09	.19	.14	.23	.19		.09	.23	.19			.28										
F	0	.23	.09	0				0		0					−.14										
L	.14	.33	.19	.09				.14		.09					.28										
P	.05	.23	.19	.09				.05		.09					−.19										
T	−.09	.28	.09	−.14				−.09		−.14					−.14										
Y	−.14	.18	.05	−.14	0	−.14	−.09	−.14		−.14	−.09	0			−.14										
Z	.14	.33	.23	.05				.14		.05					.28										

Lake

Area

River

Park

Trail

Notice

Boat

Beach

Trail

Notice

Boat

Beach

Lake

Area

River

Park

Exit

Women

Room

Men

Office

District

Division

Branch

Over the past few years many computerized type generating systems have been developed to produce lettering for signs. These new systems can cut, burn, or draw full-size legends on vinyl sheeting, metal, or paper at any size desired. When properly programmed, individual words and full sign legends can be prepared in any desired format. The refinement of this technology has revolutionized sign making by reducing fabrication costs while increasing quality and consistency.

The Corps' sign standards system has been designed to use this new technology. However, as with any new technology, not all of the systems are capable of preparing sign legends to Corps' specifications. Systems must use versions of the Helvetica typeface family that are licensed from the Haas Type Foundry and distributed by authorized type producers (URW, ITC, Berthold, and Mergenthaler). The actual production equipment must also have the proper interface and output equipment capable of preparing (cutting, plotting, or routing) sign legends to Corps specifications. With the proper equipment such as the Aristo Signas or SignTronic machines the Corps' sign legends will be accurately reproduced in the character and form of the letters as they were designed. Please note that letter-spacing and word-spacing software for various systems will require some adjustment to match Corps standards. A current list of type generating and output systems that meet Corps standards for signs may be obtained by contacting the National Sign Program Manager.

Through the early implementation of the Corps sign standards, Sign Program Managers noted that some sign legends did not look like they were supposed to, and in other related cases the sign legends did not fit within the panel size as specified in the manual, though they thought they were doing everything correctly. The problems were generally that pirated, or unlicensed versions of this typeface were being used. As a result, the letters were distorted enough to cause a significant difference in the layout of the sign. Most commonly this problem occurs with sign legends prepared on the Gerber Signmaker machine because this equipment uses a copied version of the Helvetica alphabet.

Ask the supplier to specify the type of equipment and typeface supplier being used. When using a fabricator not approved by the Corps, verify that they use a type generating system that is in compliance with Corps standards. If the system is not one of those described above, use the below listed test procedure and review with the District Sign Program Manager. Signs manufactured using systems that do not comply are to be rejected. To test any system use alphabet displays, and word displays for each of the three weights of Helvetica type provided for reference in the back of this section.

To verify the accuracy of a type system, have the supplier prepare sample words on a positive weeded ruby or amberlith film (on a clear acetate base) at 1.375″ (capital letter height). Lay the sample over the printed examples in the manual. To verify, the width of all vertical strokes must match exactly. As well, the overall width of each letter must be precisely the same.

If it is an approved system, using the full word displays provided will be a helpful guide when calibrating the system to match Corps standards.

If there is any doubt or you feel that a second opinion would be helpful, contact the District Sign Program Manager for assistance.

This typestyle is used for the legends of identification, recreation area, landside viewed safety signs and industrial safety signs, and as a headline typeface for construction, property markers, and regulatory panels. Refer to each respective section for examples of its use on the various types of signs.

A full display of this alphabet is shown on the inside of this foldout. For use of the letter-spacing guide, follow instructions on pages D.7 and 8.

Use only the Helvetica Bold typeface as specified in this manual. Do not substitute another typestyle or any other typeface when preparing signs that specify Helvetica Bold.

Use only the specified methods for typesetting. All enlargements and/or reductions are to use a high-quality photographic process. All letter forms are to be sharp, crisp, and distortion-free.

	acd ego qs	bhi jkl	mnp ru	vwy	ft	x	z	1	2	356 890	4	7	&	—	.,	:	$	□	BDE FHI KLM NPR UZ	CGO QS	VW	A	J	T	Y
aghmnqu	.23	.33	.33	.14	.19	.19	.28	.28	.28	.28	.32	.28		.28	.28	.28		.38	.28	.19	−.05	.05	.14	−.05	−.19
bceops	.19	.23	.23	.05	.09	.05	.19	.28	.28	.28	.32	.28		.23	.23	.23		.28							
vwy	.05	.23	.19	.05	.19			.28	.28	.28	.32	.28		.09	−.05	.23		.23							
ftz	.19	.33	.33	.23	.19		.28	.28	.28	.28	.32	.28		.19	.28	.28		.33							
kx	.05	.28	.19	.09	.14			.28	.28	.28	.32	.28		.0	.23	.23		.33							
r	.14	.23	.23	.19	.14			.28	.28	.28	.32	.28		.14	.09	.23		.28							
dlij	.23	.32	.32	.19	.23	.23	.33	.28	.28	.28	.32	.28		.28	.28	.28		.38							
14	.28	.37	.37	.28	.28	.23	.33	.28	.28	.28	.32	.28		.23	.23	.23		.38							
2356890	.19	.33	.33	.23	.19	.09	.19	.19	.19	.23	.23	.19		.19	.23	.33		.33							
7	.05	.23	.19	.14				.05	.05	.14	.05	.28		.14	−.14	−.05		.38							
&																		.05							
—	.23	.28	.28	.09	.19	0	.23	.23	.23	.09	.23	.19						.19							
.,								.14	.23	.28	.09	.33						.09							
:								.28	.23	.33	.19	.33						.09							
$								.28	.28	.23	.28	.28													
□	.28	.38	.38	.28	.28	.23	.33	.28		.28	.33	.28	.23	.19	.23		.23	.23	.38	.23	.23	.19	.19	.28	.14
GHIJMNU	.28	.38	.38	.28	.28	.23	.33	.28		.28	.33	.28			.23										
BCDOQS	.19	.23	.23	.14	.19	.09	.19	.19		.14	.19	.19			.09										
R	.19	.23	.23	.14	.19	.09	.19	.19		.14	.19	.19			.19										
VW	−.05	.23	.09	.05				−.05		.05					−.14										
KX	0	.19	.05	0				0		0					.09										
A	.05	.19	.19	−.09	0	.09	.19	.05		−.09	.19	0			.14										
E	.19	.33	.33	.19	.23	.19	.28	.19		.19	.28	.23			.23										
F	.05	.28	.19	.19				.05		.19					−.09										
L	.19	.28	.23	.14				.19		.14					.23										
P	.05	.23	.19	.14				.05		.14					−.14										
T	−.05	.28	.19	.14				−.05		.14					−.14										
Y	−.19	.14	0	−.09	0	−.14	−.09	−.19		−.09	−.09	0			−.18										
Z	.23	.33	.28	.19				.23		.19					.23										

Helvetica Medium is a highly legible medium stroke width typeface. This letterstyle is used on all highway and project directionals (section 6), and overhead building interior directional panels (section 18). Do not use this typeface on any other types of signs in the Corps Sign Standards Program.

A full display of the alphabet is shown on the inside of this foldout. For use of the letter-spacing guide, follow the instructions on pages D.7 and 8.

Use only the Helvetica Medium typeface as specified in this manual. Do not substitute another typestyle or any other typeface when preparing signs that specify Helvetica Medium.

Use only the specified methods for typesetting. All enlargements and/or reductions are to use a high-quality photographic process. All letter forms are to be sharp, crisp, and distortion-free.

For signs viewed from the water, refer tc the extended letter-spacing guidelines for Helvetica Medium provided on pages D.29 through D.34.

	acd ego qs	bhi jkl	mnp ru	vwy	ft	x	z	1	2	356 890	4	7	&	—	.,	:	$	□	BDE FHI KLM NPR UZ	CGO QS	VW	A	J	T	Y
aghmnqu	.38	.50	.50	.25	.31	.31	.44	.44	.44	.38	.44	.44		.38	.38	.38		.50	.44	.31	0	.13	.25	−.13	−.19
bceops	.31	.38	.38	.13	.25	.13	.31	.44	.44	.38	.44	.44		.25	.19	.25		.44	.44	.31	0	.13	.25	−.13	−.19
vwy	.13	.38	.31	.19	.25	.19	.25	.44	.44	.38	.44	.44		.13	−.13	.13		.38							
ftz	.25	.44	.44	.31	.31	.25	.31	.44	.44	.38	.44	.44		.19	.25	.31		.50							
kx	.13	.31	.25	.06	.13	.13	.19	.44	.44	.38	.44	.44		−.06	.25	.25		.44							
r	.19	.31	.31	.19	.25	.13	.19	.44	.44	.38	.44	.44		0	−.13	.25		.38							
dlij	.38	.50	.50	.31	.38	.31	.44	.44	.44	.38	.44	.44		.38	.38	.38		.50							
14	.44	.50	.50	.38	.44	.38	.44	.44	.44	.38	.44	.44		.38	.38	.44		.50							
2356890	.25	.44	.44	.31	.31	.25	.31	.25	.25	.31	.31	.31		.19	.25	.38		.50							
7	.06	.31	.25	.13				.06	.06	.13	.13	.13		.25	−.25	.13		.44							
&																		.19							
—	.31	.38	.38	.19	.19	0	.13	.31	.31	.19	.13	.19						.50							
.,								.25	.38	.25	.15	.19						.19							
:								.25	.38	.31	.25	.31						.19							
$								.38	.38	.31	.31	.38						.38							
□	.44	.50	.50	.38	.44	.38	.44	.44	.50	.38	.44	.44	.38	.50	.38		.38	.38	.50	.38	.38	.38	.38	.31	
GHIJMNU	.44	.50	.50	.38	.44	.38	.44	.44		.38	.44	.44		.50	.38										
BCDOQS	.31	.38	.38	.25	.31	.13	.25	.31		.25	.25	.31			.64										
R	.31	.44	.44	.25				.31		.25					.31										
VW	0	.38	.19	0				0		0					−.25										
KX	.06	.25	.25	−.13				.06		−.13					.25										
A	.13	.31	.31	−.13	.06	.13	.25	.13		−.13	.25	.06			.25										
E	.25	.38	.38	.13	.25	.19		.25		.13		.25			.38										
F	0	.31	.13	0				0		0					−.19										
L	.19	.44	.25	.13				.19		.13					.38										
P	.06	.31	.25	.13				.06		.13					−.25										
T	−.13	.38	.13	−.19				−.13		−.19					−.19										
Y	−.19	.25	.06	−.19	0	−.19	−.13	−.19		−.19					−.19										
Z	.19	.44	.31	.06				.19		.06					.38										

Helvetica Medium is a highly legible medium stroke width typeface. This letterstyle is used on all highway and project directionals (section 6), and overhead building interior directional panels (section 18). Do not use this typeface on any other types of signs in the Corps Sign Standards Program.

A full display of the alphabet is shown on the inside of this foldout. For use of the letter-spacing guide, follow the instructions on pages D.7 and 8.

Use only the Helvetica Medium typeface as specified in this manual. Do not substitute another typestyle or any other typeface when preparing signs that specify Helvetica Medium.

Use only the specified methods for typesetting. All enlargements and/or reductions are to use a high-quality photographic process. All letter forms are to be sharp, crisp, and distortion-free.

For signs viewed from the water, refer to the extended letter-spacing guidelines for Helvetica Medium provided on pages D.29 through D.34.

	acd ego qs	bhi jkl	mnp ru	vwy	ft	x	z	1	2	356 890	4	7	&	—	.,	:	$	□	BDE FHI KLM NPR UZ	CGO QS	VW	A	J	T	Y
aghmnqu	.38	.50	.50	.25	.31	.31	.44	.44	.44	.38	.44	.44		.38	.38	.38		.50	.44	.31	0	.13	.25	−.13	−.19
bceops	.31	.38	.38	.13	.25	.13	.31	.44	.44	.38	.44	.44		.25	.19	.25		.44	.44	.31	0	.13	.25	−.13	−.19
vwy	.13	.38	.31	.19	.25	.19	.25	.44	.44	.38	.44	.44		.13	−.13	.13		.38							
ftz	.25	.44	.44	.31	.31	.25	.31	.44	.44	.38	.44	.44		.19	.25	.31		.50							
kx	.13	.31	.25	.06	.13	.13	.19	.44	.44	.38	.44	.44		−.06	.25	.25		.44							
r	.19	.31	.31	.19	.25	.13	.19	.44	.44	.38	.44	.44		0	−.13	.25		.38							
dlij	.38	.50	.50	.31	.38	.31	.44	.44	.44	.38	.44	.44		.38	.38	.38		.50							
14	.44	.50	.50	.38	.44	.38	.44	.44	.44	.38	.44	.44		.38	.38	.44		.50							
2356890	.25	.44	.44	.31	.31	.25	.31	.25	.25	.31	.31	.31		.19	.25	.38		.50							
7	.06	.31	.25	.13				.06	.06	.13	.13	.13		.25	−.25	.13		.44							
&																		.19							
—	.31	.38	.38	.19	.19	0	.13	.31	.31	.19	.13	.19						.50							
.,								.25	.38	.25	.15	.19						.19							
:								.25	.38	.31	.25	.31						.19							
$								.38	.38	.31	.31	.38						.38							
□	.44	.50	.50	.38	.44	.38	.44	.44	.50	.38	.44	.44	.38	.50	.38		.38	.38	.50	.38	.38	.38	.38	.31	
GHIJMNU	.44	.50	.50	.38	.44	.38	.44	.44		.38	.44	.44		.50	.38										
BCDOQS	.31	.38	.38	.25	.31	.13	.25	.31		.25	.25	.31			.64										
R	.31	.44	.44	.25				.31		.25					.31										
VW	0	.38	.19	0				0		0					−.25										
KX	.06	.25	.25	−.13				.06		−.13					.25										
A	.13	.31	.31	−.13	.06	.13	.25	.13		−.13	.25	.06			.25										
E	.25	.38	.38	.13	.25	.19		.25		.13		.25			.38										
F	0	.31	.13	0				0		0					−.19										
L	.19	.44	.25	.13				.19		.13					.38										
P	.06	.31	.25	.13				.06		.13					−.25										
T	−.13	.38	.13	−.19				−.13		−.19					−.19										
Y	−.19	.25	.06	−.19	0	−.19	−.13	−.19		−.19					−.19										
Z	.19	.44	.31	.06				.19		.06					.38										

Legend Sizing Worksheet: Helvetica Medium
Extended Letter Spacing Matrix for Water Viewing

Upper Case		Lower Case	
A	1.81	**a**	1.34
B	1.64	**b**	1.45
C	1.88	**c**	1.41
D	1.70	**d**	1.44
E	1.51	**e**	1.47
F	1.45	**f**	0.84
G	1.88	**g**	1.44
H	1.64	**h**	1.33
I	0.44	**i**	0.38
J	1.30	**j**	0.39
K	1.75	**k**	1.44
L	1.40	**l**	0.39
M	2.00	**m**	2.16
N	1.66	**n**	1.33
O	1.94	**o**	1.52
P	1.53	**p**	1.45
Q	1.94	**q**	1.45
R	1.59	**r**	0.83
S	1.67	**s**	1.31
T	1.66	**t**	0.88
U	1.61	**u**	1.30
V	1.70	**v**	1.36
W	2.56	**w**	2.10
X	1.78	**x**	1.48
Y	1.70	**y**	1.42
Z	1.70	**z**	1.27

Numerals		Punctuation	
1	0.91	**$**	1.63
2	1.44	**&**	1.78
3	1.53	**-**	0.78
4	1.59	**:**	0.44
5	1.53	**,**	0.44
6	1.59	**.**	0.44
7	1.41		
8	1.59		
9	1.56		
0	1.66		

Spacing Square
☐ 0.44

Letter-space																
Legend	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Letter-width																

Letter-space																
Legend	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Letter-width																

Letter-space																
Legend	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Letter-width																

Letter-space																
Legend	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Letter-width																

Letter-space																
Legend	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Letter-width																

Letter-space																
Legend	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Letter-width																

Letter-space																
Legend	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Letter-width																

Letter-space																
Legend	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Letter-width																

Letter-space																
Legend	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Letter-width																

To increase legibility for all signs viewed from the water, an alternate letter and word spacing guide has been incorporated in the size formula for these signs. In this version the space between the letters has been increased thirty percent for signs with Helvetica Medium typeface legends from the standard letter and word spacing shown for all other signs in this manual.

This alternate letter and word-spacing guide is provided below with Helvetica Medium waterway word display reproduction art on pages D.30-31. This alternate letter and word spacing system has been incorporated into the Sign Manager software (version 2.1) so that any sign specified from this program will be correct. To prepare any large waterway sign, use the software to determine the length of the word or multi-word line legend.

There is no change for signs with Helvetica Bold legends, other land viewed signs, or information and identification signs within a navigation lock.

	acd ego qs	bhi jkl	mnp ru	vwy	ft	x	z	1	2	356 890	4	7	&	–	.,	:	$		BDE FHI KLM NPR UZ	CGO QS	VW	A	J	T	Y
aghmnqu	.49	.65	.65	.33	.40	.40	.57	.57						.49	.49	.49	.57	.65	.57	.40		.17	.33	-.17	-.25
bceops	.40	.49	.49	.17	.33	.17	.40	.57						.33	.25	.33		.57	.57						
vwy	.17	.49	.40	.25	.33	.25	.33							.17	-.17	.17		.49							
ftz	.33	.57	.57	.40	.40	.33	.40							.25	.33	.40		.65							
kx	.17	.40	.33	.08	.17	.17	.25							-.08	.33	.33		.57							
r	.25	.40	.40	.25	.33	.17	.25								-.17	.33		.49							
dlij	.49	.65	.65	.40	.49	.40	.57							.49	.49	.49		.65							
14	.57	.65	.65	.49	.57	.49	.57	.57	.57	.49	.57	.57		.49	.49	.57		.65							
2356890	.33	.57	.57	.40	.40	.33	.40	.33	.33	.40	.40	.40		.25	.33	.49		.65							
7	.08	.40	.33	.17				.08	.08	.17	.17	.17		.33	-.33	.17		.57							
&																		.25							
–	.40	.49	.49	.25	.25		.17	.40	.40	.25	.17	.25						.65							
.,								.33	.49	.33	.20	.25						.25							
:								.33	.49	.40	.33	.40						.25							
$								.49	.49	.40	.40	.49						.49							
□	.57	.65	.65	.49	.57	.49	.57	.57	.65	.49	.57	.57	.49	.65	.49		.49		.65	.49	.49	.49	.49	.49	.49
GHIJMNU	.57	.65	.65	.49	.57	.49	.57	.57	.65	.49	.57	.57	.65	.65	.49		.49								
BCDOQS	.40	.49	.49	.33	.40	.17	.33	.40		.33	.33	.40			.83										
R	.40	.57	.57	.33				.40		.33					.40										
VW		.49	.25												-.33										
KX	.08	.33	.33	-.17				.08		-.17					.33										
A	.17	.40	.40	-.17	.08	.17	.33	.17		-.17	.33	.08			.33										
E	.33	.49	.49	.17	.33	.25		.33		.17		.33			.49										
F		.40	.17												-.25										
L	.25	.57	.33	.17				.25		.17					.49										
P	.08	.40	.33	.17				.08		.17					-.33										
T	-.17	.49	.17	-.25				-.17		-.25					-.25										
Y	-.25	.33	.08	-.25		-.25	-.17	-.25		-.25					-.25										
Z	.25	.57	.40	.08				.25		.08					.49										