

Table 2L-1. Spacing between Message Characters, Words, and Lines of Text

Height of Letters Used on CMS	Spacing between Characters in Words	Horizontal Spacing between Words	Vertical Spacing between Lines of Text
12	3 - 5	9 - 12	6 - 9
18	4 ½ - 7	13 ½ - 18	9 - 13 ½

Note: All units are in inches

Table 2L-2. Example of Units of Information

Question	Answer	Number of Information Units
What happened?	MAJOR CRASH	1
Where?	AT EXIT 12	1
Who is the advisory for?	Drivers heading TO NEW YORK	1
What is advised?	USE ROUTE 46	1

Note: The following is an example of a two-phase message that could be developed from the four information units shown in this table:

**MAJOR CRASH
AT EXIT 12**

Phase 1

**USE ROUTE 46
TO NEW YORK**

Phase 2

Table 2L-3. Examples of Message Construction for CMS

Example	Phase	Potential Message	Improved Message	Comments
1	1	EXIT 10	EXIT 10 CLOSED	Diversionary message: Each message phase should convey a complete thought independent of the other message phase. The entire message should also make sense regardless of which phase is read first.
	2	CLOSED USE EXIT 12	USE EXIT 12	
2	1	ROADWORK AHEAD	ROAD WORK AHEAD	Advance warning message: Condensing ROAD and WORK into single word is not necessary since sign width will accommodate the conventional 2-word message. A general CAUTION message is not specific enough to be actionable by the road user. Message should not be repeated to fill sign. Phase 2 of the improved message can be eliminated without any loss of meaning to Phase 1.
	2	CAUTION CAUTION CAUTION	FINES DOUBLE	
3	1	RIGHT LANE CLOSED	RIGHT LANE CLOSED 1 MILE	Advance warning message: Use of single phase message reduces time necessary to read and glances away from the road. Second phase does not provide a complete message.
	2	1 MILE	N/A Single-Phase Message	
4	1	RT LN CLSD 1 MI	RIGHT LANE CLOSED 1 MILE	Advance warning message: Less common abbreviations (see Table 1D-2) are not warranted when the sign can accommodate the full message. Abbreviations in Table 1D-2 should be limited only to portable CMS where the number of characters per line is limited.
	2	N/A Single-Phase Message	N/A Single-Phase Message	
5	1	9TH AVENUE SOUTHWEST KEEP RIGHT	9TH AVE SW KEEP RIGHT	Directional message: Conventional abbreviations for street name descriptors (see Table 2D-3) are used for consistency with standard signs to improve recognition and reduce the apparent amount of legend.
	2	N/A Single-Phase Message	N/A Single-Phase Message	
6	1	EXPWY CONGESTED USE 101 FOR AIRPORT	US 19 CONGESTED	Diversionary message: Lack of Expressway route number is vague to unfamiliar road user. Adding exit number for diversion route simplifies message. Diversion message is stated in reverse order and requires more words as a result.
	2	N/A Single-Phase Message	AIRPORT USE EXIT 101	
7	1	TRAVEL TIME TO I-89 13 MINUTES	I-89 JCT 12 MILES 13 MINS	Travel time information: TRAVEL TIME legend is extraneous and out of context for the distance message. Changing only one line of legend between phases compromises recognition of the message.
	2	TRAVEL TIME TO I-89 12 MILES	N/A Single-Phase Message	
8	1	SEAT BELTS SAVE LIVES	STATE LAW FASTEN SEAT BELTS	Safety campaign regulatory message: Slogan-type message does not convey the legal requirement. As an alternative, the STATE LAW legend could be eliminated and the fine for violations displayed on a second phase to convey the regulatory nature of the message.
	2	N/A Single-Phase Message	N/A Single-Phase Message	
9	1	DONT TEXT JUST DRIVE	NO HAND-HELD PHONE BY DRIVER	Regulatory message. Slogan-type message does not convey the legal requirement. Phase 2 of the improved message can be eliminated without any loss of meaning to Phase 1.
	2	IT CAN WAIT	\$250 FINE AND POINTS	

Note: Examples shown are for single-color CMS with pixel spacing greater than 20 mm and use all upper-case lettering. Multi-color, full-matrix CMS with pixel spacing of 20 mm or less should use upper- and lower-case lettering where appropriate and proper legend and background colors.

Table 2L-4. Examples of Message Construction for Portable CMS*

Example	Phase	Potential Message	Improved Message	Comments
1	1	EXIT 10	EXIT 10 CLOSED	Diversionary message: Each phase conveys a complete thought.
	2	CLOSED USE EXIT 12	USE EXIT 12	
2	1	ROADWORK AHEAD	ROAD WORK AHEAD	Advance warning message: Condensing ROAD and WORK into a single word is unnecessary because the sign width will accommodate the conventional 2-word phrase. A general CAUTION message is not specific enough to be useful to the road user. Message should not be repeated to fill the sign. Phase 2 of the improved message can be eliminated without any loss of meaning to Phase 1.
	2	CAUTION CAUTION CAUTION	FINES DOUBLE	
3	1	RIGHT LANE CLOSED	RIGHT LN CLOSED 1 MILE	Advance warning message: Separation of the message into 2 phases is unnecessary. Second phase does not provide a complete message.
	2	1 MILE	N/A Single- Phase Message	
4	1	RT LN CLSD 1 MI	RIGHT LN CLOSED 1 MILE	Advance warning message: Less common abbreviations (see Table 1D-2) are not warranted when the sign can accommodate the full message.
	2	N/A Single- Phase Message	N/A Single- Phase Message	
5	1	9TH AVENUE SW	9 AVE SW KEEP RIGHT	Directional message: Conventional abbreviations for street name descriptors (see Table 2D-3) are used for consistency with standard signs to improve recognition and reduce the apparent amount of legend.
	2	KEEP RIGHT	N/A Single- Phase Message	
6	1	ROAD WORK	ROADWORK NEXT 3 MILE	Advance warning message: Condensing ROAD and WORK into single word (see Table 1D-2) accommodates a single-phase message.
	2	NEXT 3 MILES	N/A Single- Phase Message	
7	1	SEAT BELTS	FASTEN SEAT BELTS	Safety campaign regulatory message: Slogan-type message does not convey the legal requirement. As an alternative, the STATE LAW legend could be eliminated and the fine for violations displayed on a second phase to convey the regulatory nature of the message. Phase 2 of the improved message can be eliminated without any loss of meaning to Phase 1.
	2	SAVE LIVES	STATE LAW	
8	1	DONT TEXT	NO HAND- HELD PHONE	Regulatory message: Slogan-type message does not convey the legal requirement.
	2	JUST DRIVE	BY DRIVER	

* Examples shown are for a portable CMS where the display width is generally limited to 8 characters per line of legend.