SPECIAL SPECIFICATION

6083

Portable Variable Message Sign (Reflective Disk Matrix)

1. **Description.** Provide and maintain a portable trailer mounted variable message sign (VMS) to be operated by the Department. The VMS remains the property of the Contractor upon completion of the contract.

   A. **General Requirements.**

   Provide a portable VMS including, but not be limited to, the following:

   1. Sign controller with sign controller software
   2. Variable message sign
   3. Trailer
   4. Power generator

2. **Sign Controller.** Provide a sign controller with a full alphanumeric keyboard, permanently stored operating system, and an 8 by 40 character liquid crystal display at the sign, to control the sign locally. Ensure it is possible to separately vary the flashing and cycling frequency between 1/2 second and 10 seconds.

   Ensure each character is capable of, as a minimum, displaying any of the 26 letters of the alphabet and any of the 10 numbers from 0 to 9. Provide sign controller software capable of performing the following:

   A. Creating and viewing messages
   B. Cycling a sequence of messages on the sign
   C. Flashing of messages on the sign
   D. Displaying of moving arrows on the sign
   E. Auto-centering of messages on the sign
   F. Provide password entry for entering new messages and displaying stored messages at the sign controller
   G. Diagnostics that, as a minimum, sequence through the columns, rows, alphabet and numbers.

   Provide two security codes at the sign controller: One allowing only display of stored messages and the other allowing creation and display of new messages.
Unless otherwise specified in the plans, pre-program the sign electronics to display the following messages:

1. Ramp/closed/ahead
2. Shoulder/drop-off
3. Detour/ahead
4. Two-way/traffic ahead
5. Form one/line/left
6. Form one/line/right
7. Form two/lines/right
8. Form two/lines/left
9. Center lane closed ahead
10. Left ln/closed/ahead
11. Right ln/closed/ahead
12. Caution/vehicles/crossing
13. Max./speed/xx mph
14. Merge/right
15. Merge/left
16. Freeway/closed/ahead
17. Road/closed/ahead
18. Shoulder/use ok
19. Left/2 lanes/closed
20. Right/2lanes/closed
21. All/traffic/exit
22. Caution/slow/traffic
23. Road/repairs/ahead
24. Detour/next/2 exits
25. Detour/next/exit
26. End/shoulder/use
27. Right/lane/exit
28. Left/lane/exit
29. Left/3 lanes/closed
30. Right/3 lanes/closed
31. Center/lane/closed

It is the responsibility of the Department to input messages to the sign.

3. **Sign Requirements.** Provide a sign capable of displaying 3 separate lines of text with 8 characters per line. Protect each sign line by using a clear 1/4 in. thick polycarbonate Plexiglass window which can open 90 degrees for access to sign components.

Use internal fluorescent fixtures to illuminate the sign at night whenever a message is displayed.

Form the characters with electromagnetic reflective disks. Provide reflective disks that are high intensity reflective yellow on one side and black on the other. Use a letter height of 18 in. Form the letters using a 5 x 7 dot matrix providing a minimum visibility of 750 ft. and a minimum writing speed of 48 characters per second. Submit character fonts to the Engineer for approval. In the event of a power failure, ensure the sign continues to display the last message displayed.

Provide a sign capable of elevating hydraulically to a height of 7 ft. from the bottom of the sign to the ground and capable of rotating 360 degrees and being secured against movement in any position.

4. **Trailer.** Provide a 2-wheel trailer with fenders and leveling jacks to support the sign components. Protect equipment by using a metal housing with appropriate ventilation provisions.

Provide the entire sign housing shall with a heavy duty wire guard cage or other approved protective material which can be removed for sign maintenance. Shock-mount the sign assembly and electronics to reduce the transmission of vibration to these items from the power supply. For exterior metal surfaces of the trailer, power supply housing, supports and signs, clean, prime with zinc chromate, and finish with 2 coats of federal yellow enamel except use flat black for the sign face assembly.

5. **Power Generator.** Provide a heavy duty diesel powered generator with associated starting battery and fuel tank mounted to the trailer. Provide a generator with an output of 120 volts.
AC. Provide a switch to select the generator power supply or an external AC supply. Provide an automatic push button start feature. Assume responsibility to keep the fuel and oil tanks filled.

6. **Training Requirements.** Provide operational training for the system software to designated personnel through the means of practical demonstrations. Provide a minimum of 4 hours of training.

7. **Equipment Failures.** Begin repairs on equipment within 2 hours after notification by the Department of equipment failure. Replace any spare parts used during the period of this contract at no expense to the Department.

8. **Security.** Provide adequate security for the sign, its components and its operation.

9. **Documentation.** Supply one set of operating manuals for the sign control system software.

10. **Measurement and Payment.** The work performed and equipment furnished as prescribed by this Item will not be measured or paid for directly, but is considered subsidiary to Item 502, "Barricades, Signs and Traffic Handling", and is full compensation for the use of the sign, including labor, replacement parts, fuel, oil, oil filters, and software.