



STATE OF LOUISIANA  
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT  
TECHNICAL SPECIFICATIONS FOR

**TOWABLE MESSAGE BOARD - FULL-MATRIX, SOLAR POWERED**

**SERIES NO. 278-000**

**REV. 4/11/2024**

**EQUIPMENT SPECIFICATION 278-000E**

**GENERAL**

This specification sets forth the minimum requirements for a full-matrix solar powered towable message board.

Equipment shall be new, a production model of current manufacture, and must meet all state and Federal safety and emission standards in effect at time of order.

**REPRESENTATIVE SPECIFICATIONS**

An SMC 2000 FM ST with appropriate options and standard features, was used to develop these specifications and establish equivalency evaluation criteria.

Equipment of similar style, type, character, quality, features, and purpose conforming to the following detailed requirements/specifications will be considered. For evaluation purposes, bidders proposing an exception/equivalent option/feature to those specified herein, may be required to provide manufacturer/product information (catalogue sheets, detailed specifications, pictures, etc.). This information will be evaluated against the minimum requirements of this specification. Proposed submittals that are determined not to be equivalent to the established criteria will be rejected.

**LOUISIANA AUTHORIZED DEALER(S)**

Proposed item(s) must be from a manufacturer who has at least one (1) authorized dealer within the State of Louisiana where parts and service can be obtained. Authorized dealer(s) must have properly trained technicians plus all other resources necessary to perform warranty and repair services in complete accordance with the manufacturer's requirements. A letter certifying the ability to meet this requirement, inclusive of the company name(s) and address(es) of the Louisiana authorized dealer(s), should be supplied with the bid submittal and may be required prior to award.

**DELIVERY & ACCEPTANCE**

Vendor shall perform a test run of each unit to verify that all features and capabilities are operating properly at time of delivery. Documentation of testing may be required prior to acceptance by the Department.

Unit(s) must be delivered completely assembled (including all components, accessories, etc.) and ready for operation without any additional preparation including, but not limited to, ensuring all fluid levels are at their full mark, fuel tank(s) is full, all necessary lubrication has been performed, etc. A Louisiana safety inspection shall be performed on each vehicle prior to delivery and a Louisiana safety inspection sticker properly affixed.

Any unit delivered under this specification is subject to rejection if there is evidence of poor workmanship, by either the vendor or the original manufacturer. Noted defects and/or nonconformance findings may

be corrected by the vendor. Corrections must be completed and approved by the Equipment Engineer or his representative prior to final acceptance.

Unit(s) shall be delivered “**on the ground;**” DOTD will not unload nor provide any unloading equipment to the vendor/delivery driver in order to offload the unit(s).

**NOTE:** The Department will have space available for equipment to be unloaded.

**EACH UNIT MUST BE SUPPLIED WITH THE FOLLOWING DOCUMENTATION AT TIME OF DELIVERY:**

1. Notarized Bill of Sale
2. Original Certificate of Origin (MSO), (no photocopy)
3. Dealer's Service Policy
4. Owner's/Operator's Manual(s)
  - a. One (1) Hardcopy
  - b. One (1) Digital Copy
    - i. Acceptable Formats: PDF delivered via USB “Flash Drive”, or E-mail
5. Service Manual(s)
  - a. One (1) Hardcopy
  - b. One (1) Digital Copy
    - i. Acceptable Formats: PDF delivered via USB “Flash Drive”, or E-mail
6. Build Sheet(s) – as applicable
  - a. One (1) Hardcopy
  - b. Build sheets should be written in plain language (not company specific codes) and include, at a minimum, all standard & optional features of the delivered unit.

**NOTE:** Invoices will not be processed for payment until the unit(s) have been inspected by the Equipment Engineer or their representative and deemed in compliance with the specifications.

**BID SUBMITTALS**

Any additions, deletions, or variations from the specifications should be noted in the "Bidder's Exceptions" page of this specification. Exceptions that are noted to be less than a minimum requirement will not be accepted.

Any additions, deletions or variations from the manufacturer's standard published specifications should be noted on the "Bidder's Exceptions" page of this specification. Unless otherwise noted, any items appearing in the manufacturer's standard published specifications furnished by the Bidder are assumed to be included in the Bidder's submittal.

Bidder should note on their submittal any installation(s) to the equipment that will be performed by the vendor instead of the manufacturer.

Failure to note any specification exceptions, manufacturer specification alterations, and/or vendor installations prior to award may result in rejection of the equipment at the time of delivery.

**THE NUMBER OF DELIVERY DAYS AFTER RECEIPT OF ORDER (ARO) MAY BE USED AS A FACTOR IN THE AWARD.**

## EQUIPMENT SPECIFICATIONS

### NOTICE TO BIDDERS

Bidder should review the detailed "Equipment Specification" completely and respond to the compliance question at the end of each section by marking "X", in the space provided, for "Yes" or "No". Mark "Yes" to indicate that the equipment bid meets the section exactly as specified. Mark "No" if there are exceptions to any part of that section. Exceptions/deviations to any part of the specification are to be detailed on the "Bidder's Exceptions" page of this specification.

**IN ORDER TO BE CONSIDERED FOR AWARD, BIDDER SHOULD RETURN THIS SPECIFICATION, COMPLETED IN FULL, WITH THEIR BID SUBMITTAL.**

**Note: All values listed below are minimums unless noted otherwise.**

### 1. Towable Message Board

#### 1.1. Trailer & Lift

- 1.1.1. Frame shall be all welded structural steel
- 1.1.2. Tie-downs on each corner of the frame
- 1.1.3. Shall be coated with oven-baked, safety orange powder-coat finish
- 1.1.4. Single-axle, 3,500lb capacity
- 1.1.5. 2" ball coupler hitch
- 1.1.6. Safety chains with hooks
- 1.1.7. Four (4) 2,000lbs. capacity, swiveling, non-removable leveling jacks – One (1) mounted at each corner of the trailer
- 1.1.8. LED stop/turn/tail lights
- 1.1.9. Trailer must meet all State and Federal safety standards applicable at the time of delivery
- 1.1.10. Leak-resistant electro-hydraulic lift mechanism

Comply: \_\_\_ Yes \_\_\_ No

#### 1.2. Electrical System

- 1.2.1. Batteries are to be AGM type with sufficient total capacity to operate the variable message sign for a minimum of 10 days without solar input.
- 1.2.2. On-board charger to provide the option of solar or AC charging.
- 1.2.3. 140w solar array
- 1.2.4. Electrical system shall be of adequate capacity/design to provide sufficient power to operate the message board continuously for one year at any location in Louisiana without any external inputs.
- 1.2.5. All electrical and electronic devices shall utilize DC input power only. No DC-to- AC voltage conversions are permissible. All devices must be temperature hardened, able to withstand at least 120F.
- 1.2.6. Electrical system to be equipped with all necessary instrumentation, controls, and diagnostics. The following minimum real time diagnostic data as obtained from the sign shall be collected and displayed.
  - 1.2.6.1. Sign ID and firmware version
  - 1.2.6.2. Battery voltage and amperage
  - 1.2.6.3. Solar voltage and amperage
  - 1.2.6.4. Voltage warning

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- 1.2.6.5. Temperature warning
- 1.2.6.6. Message error warning
- 1.2.6.7. Feedback of message displayed

Comply: \_\_\_Yes \_\_\_No

### 1.3. Sign

- 1.3.1. 75" H x 133" W
- 1.3.2. Continuous, full-matrix design
  - 1.3.2.1. Displays messages using text, graphic symbols or both
  - 1.3.2.2. Graphic symbols displayed at 50" height
  - 1.3.2.3. Text messages to be displayed using 18" tall characters with capability of larger heights.
- 1.3.3. Pixel/Lamp – 1.25" – 2" pixel size, minimum 4 LEDs per pixel
- 1.3.4. Any section of the sign face with failed LEDs must be replaceable with interchangeable modules.
- 1.3.5. Message flash rate: variable, from 0.5 to 10.0 seconds per frame.
- 1.3.6. Legibility/Color – Sign shall have a daytime visibility of 1000' and angularity (1/2 angle calculation) of 15 degrees as evidenced by NTPEP field performance evaluation results. Display to be amber in color.
  - 1.3.6.1. Any product that has not been tested by NTPEP is unacceptable. Bidder should provide support documentation with bid packet. Documentation must be provided before an award is made.
- 1.3.7. View angles
  - 1.3.7.1. The sign shall rotate a complete 360 degrees atop the lift mechanism when fully elevated.
  - 1.3.7.2. The sign can be locked into various viewing angles with a positive rotation lock.
  - 1.3.7.3. In the transit position, the sign is rotated parallel to the direction of towing for minimum wind loading.
- 1.3.8. LED brightness is automatically adjusted to accommodate for prevailing ambient lighting conditions.
- 1.3.9. Construction
  - 1.3.9.1. Sign face must consist of a set of individually removable modules that are completely interchangeable with all other modules.
  - 1.3.9.2. Modules must be permanently attached in such a fashion to provide both electrical contact and vibration isolation while being easily replaceable in the field with minimal tools.
  - 1.3.9.3. The message section shall be in a weather tight housing with the front sign face covered with a polycarbonate hinged cover for ease of service.
  - 1.3.9.4. Sun shields, non-glare coatings, etc. are utilized to maximize daytime visibility of messages.

Comply: \_\_\_Yes \_\_\_No

### 1.4. Control Panel/Computer

- 1.4.1. NTCIP – compliant software/computer
- 1.4.2. LCD control console display
- 1.4.3. Menu-based structure, accessed with virtual buttons on the touchscreen display, provides access to all sign functions including programming messages
- 1.4.4. Capable of storing 100 user-created messages
  - 1.4.4.1. Indicators for the following status conditions:
    - 1.4.4.2. Message sign power is on
    - 1.4.4.3. Solar charging system is charging batteries

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1.4.4.4. System power shutdown occurred

1.4.4.5. Programmed schedule is active

1.4.5. The software shall utilize multi-tasking protocol to provide communications support while simultaneously allowing a local operator to input commands for local sign control.

1.4.6. In a default condition, the controller software automatically switches the trailer to a minimum power mode to preserve batteries

Comply:  Yes  No

### 1.5. Communication

1.5.1. Each changeable message sign shall be configured and provided with all necessary hardware to allow future remote communication capabilities.

1.5.2. Modem shall be for operation in harsh environments and shall also have GPS capability with antenna. Vendor will provide modem only.

Comply:  Yes  No

1.6. Electrical Interference - Sign shall be unaffected by any RF interference

Comply:  Yes  No

## BIDDER'S EXCEPTIONS

**Instructions:** Bidder should note all exceptions in space provided below. List the detail number from the aforementioned specification in the column to the left and the exception in the column to the right. Responses may be typed or hand-written. Handwritten responses must be legible. If additional space is needed, please print a duplicate copy of this sheet. "Bidder's Exceptions" page(s) should be returned with the bid submittal.

Examples:

1.6	Engine has 325 horsepower
1.18.3	Batteries have 2000 CCA combined.
2.2.8	Crossmembers are 4" channel on 12" centers.

**Spec./Detail  
Reference**

**Exception**
