

ALLEGAN COUNTY ROAD COMMISSION

SPECIFICATIONS FOR PORTABLE CHANGEABLE MESSAGE BOARDS

The following is a list of Minimum Acceptable Requirements for boards that are to be bid under this proposal. All blank spaces listing options or dimensions are to be filled in. If it is impossible to provide certain items that are required list all exceptions and options below. All bids are to include delivery of units to the Road Commission.

Portable Changeable Message Signs (PCMS) consist of a message board, controller, and power supply, mounted on a heavy-duty towable trailer as specified below.

1. **Message Board.**

- a. Measure at least 75 inches high by 114 inches long.
- b. Have a character height of 18 inches with 8 characters per line and a pixel matrix that is 5 pixels wide and 7 pixels high.
- c. Provide spacing between characters at least twice the element stroke width.
- d. Be either disk matrix, or LED, or both disk matrix and LED, capable of displaying three message lines.
- e. Include a photocell to regulate the internal lighting system.
- f. Include a sighting device to ensure required alignment.
- g. Disk matrix PCMS must have fluorescent lighting at the top and bottom of each message line.
- h. LED PCMS must have with forced air ventilation and with filtered inlets to maintain the interior temperature within temperature limits for LEDs.

2. **Legibility.**

- a. PCMS must have an average legibility of 1,000 feet if viewed head-on and 10 degrees off center.

3. **Controller.** Controllers for PCMS must be equipped with the following:

- a. Micro-processor based unit with a storage capacity of at least 50 preprogrammed messages.
- b. Non-volatile memory capable of holding the keyboard created messages in memory during a non-power period.
- c. Password security feature to prevent unauthorized use.
- d. Message display capable of displaying a variable message at a rate of 0.25 second increments or correlated to 0.25 second increments.
- e. Message display panel showing the message on the sign or created on the keyboard, and capable of giving the operator programming instructions.

4. **Electrical/Electronics.** Control cabinet for PCMS must be equipped with the following:

- a. Lockable door and an interior light for night operations
- b. Ventilated cabinet with screen covering on the vents to prevent damage from insects.
- c. NEC 400-10 and NEC 400-14 compliant connections to control cabinets and sign board.
- d. International Municipal Signal Association Wiring and Cable Specifications 20-1, 20-2, 20-5, and 20-6 compliant external electrical wiring.
- e. Shock-mounted sign electronics, to reduce vibration. Provide shock mountings in the circuit designs, mechanical supports for drive transistors, and in the type of conformal coating.

f. Printed circuit boards mounted with spring-load tension screws for ease of access and removal.

5. **Power Supply.** Power supply to the PCMS must be a maintenance free battery with one of the following backup systems:

- a. Generator with electric start, capable of continuous operation without refueling for 72 hours; and
- b. Solar, with a built-in 115 VAC battery charger, capable of sequencing a message for 18 days to 21 days consecutively without sun in 16 °F weather conditions.

6. **Trailer.**

- a. The PCMS trailer must be painted in highway orange.
- b. Delineate the trailer with a 4-inch by 18-inch strip, or an equivalent area of reflectorized red and white conspicuity tape, installed on each of the four sides of the trailer. Locate these strips at each corner of the trailer.
- c. The trailer must conform to the Michigan Vehicle Code with a nonskid upper surface.
- d. The PCMS must be mounted to the trailer with a sign panel support that moves up, down, and rotates 360 degrees, with a safety bolt to prevent the sign panel from lowering once in the raised position.
- e. The support must be equipped with a hydraulic system that includes a manual pump with manual release for use as a backup for the electric hydraulic pump.
- f. The bottom of the sign panel must be at least 7 feet above the roadway when in operating mode.
- g. 2 inch Reese style ball hitch for towing

6. **Manuals and software.**

- a. Shop, parts and maintenance manuals will be provided
- b. All cables and connections required for communication will be provided

EXCEPTIONS:

OPTIONS:

WARRANTY:

- 1. Message Board _____
- 2. Control Systems _____
- 3. Electronics _____
- 4. Battery / charging _____
- 5. Chassis _____

The Allegan County Road Commission reserves the right to request any specification or component measurements

The Allegan County Road Commission reserves the right to request any specification reviews with the county, manufacturer and finishing fabricators