

Special Specification 6011

LED Changeable Speed Limit Sign



1. DESCRIPTION

Furnish, maintain, and operate LED Changeable Speed Limit (CSL) signs. CSL sign is a trailer mounted blank speed limit sign with an all LED numeric display incorporated into the speed limit sign that allows changing the posted speed limit.

Work zone speed limits will be regulatory and established in accordance with the *Procedures for Establishing Speed Zones*. Post reduced work zone speed limit signs in the vicinity of work activity and not throughout the entire project.

Place CSL signs in operation only when approved or directed by the Engineer. The Engineer will direct the speed limit to be posted. The Engineer will document all changes to the posted speed limit, including as a minimum the date, time, location, and speed limit posted.

2. MATERIALS

Furnish new or used material in accordance with the requirements of this Item and the details shown on the plans. Provide self-contained CSL signs with the following:

- All LED (light emitting diode) matrix for speed limit numbers.
- Speed Limit and Work Zone signs.
- Controller for field operation.
- Trailer.
- Power source.
- Radar, if shown on the plans.
- Flashing Lights, if shown on the plans.

Paint the exterior surfaces of the power supply housing, supports, and trailer with Federal Orange No. 22246 or Federal Yellow No. 13538 of Federal Standard 595b.

Sign shall be mounted a minimum of 7 ft. above the roadway surface to the bottom of the speed limit sign.

- 2.1. **Display.** Unless otherwise specified in the plans, provide Type A aluminum blank speed limit sign fabricated with white Type C High Specific Intensity sheeting meeting the requirements of DMS-8300. Sign must be a minimum of 48 in. × 60 in. (FR2-1). Cut out and remove the numeric area of the sign \ to accommodate an LED numeric display. Should a special size sign be required to accommodate the LED matrix panels, submit a sign detail for approval before fabrication.

Unless otherwise specified in the plans, mount a 36 in. × 24 in. "Work Zone" plaque (G20-9) above the speed limit sign blank. Provide Type A aluminum signs, fabricated with Type E Orange Fluorescent Prismatic Sheeting meeting the requirements of DMS-8300.

Provide amber LED speed limit numbers with a minimum 5 × 8 matrix and 20 in. characters. Display must be capable of producing a 2 digit number. The face of the display must be non-glare, UV inhibited, high impact polycarbonate.

Display shall include automatic dimming for ambient light conditions.

- 2.2. **Controller.** Unless otherwise specified in the plans, program the controller in the field.

- 2.3. **Optional Equipment.** Equip the CSL with the following equipment or functions when specified in the plans:
- 2.3.1. **Radar.** Provide directional radar with minimum range of 2000 ft. for measuring the travel speed of approaching vehicles. Radar must be capable of identifying direction of travel and distinguishing between vehicles traveling toward and away from the unit.
- 2.3.2. **Flash Function.** Provide LED display capable of flashing the posted speed limit (digits) when measured travel speeds exceed a preprogrammed threshold. The flash duration and rate of flash shall be field programmed into the controller.
- 2.3.3. **Flashing Lights.** Provide wig-wag or camera like strobe lights. Lights shall flash when measured travel speeds exceed a preprogrammed threshold. The duration of flash shall be field programmed into the controller.
- Controller must allow independent operation of radar unit with or without flash function or flashing lights. Controller must allow selection of either flash function or flashing lights but not a combination of both.
- 2.4. **Power.** Provide a solar powered power source, diesel generator or both. Provide a backup power source as necessary.
- 2.5. **Cabinet.** Cabinet shell must be constructed out of aluminum. Cabinet must be lockable and vandal and tamper resistant.
- 2.6. **Trailer.** Provide a 2 wheel trailer with fenders, 4 leveling jacks, and trailer lights. Do not exceed an overall trailer width of 96 in. Shock mount electronics and sign assembly.
- 2.7. **Construction.** Place or relocate CSL units as shown on the plans or as directed.

When directed by the Engineer, Reduced Speed Ahead (s) sign shall be placed in advance of the CSL. When the CSL is in operation, place a speed limit sign at the end of the work area to resume the regular posted speed limit. These signs will be considered subsidiary to Item 502, "Barricades, Signs, and Traffic Handling."

Maintain the CSL units in good working condition. Repair damaged or malfunctioning CSL units as soon as possible. Clean clear cover panel as necessary to ensure optimal visibility.

CSL units will remain the property of the Contractor.

3. MEASUREMENT

This Item will be measured by each CSL unit by the day used. All CSL units shall be set up on a work area and operational before a day can be considered measurable.

4. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "LED Changeable Speed Limit Sign". This price is full compensation for CSL units; option equipment, set up; relocating; removing; replacement parts; batteries (when required); fuel, oil, and oil filters (when required); and equipment, materials, tools, labor, and incidentals.