

SECTION NO. 23

SPECIAL PROVISION – LED INTERNALLY LIGHTED STREET NAME (ILSN)

SIGN SPECIFICATIONS

NUMERICAL LISTING

Section No.

23-01	GENERAL
23-02	LED INTERNALLY LIGHTED STREET NAME (ILSN) SIGN ASSEMBLY
23-03	MOUNTING BRACKET HARDWARE

SECTION NO. 23

SPECIAL PROVISION – LED INTERNALLY LIGHTED STREET NAME (ILSN) SIGN SPECIFICATIONS

23-01 GENERAL:

- A. Contractor shall furnish, fabricate, and install each light emitting diode (LED) internally lighted street name (ILSN) sign onto each traffic signal mast arm as shown on the plans or as directed by the City. The Contractor will be responsible for installation and fine-tuning the position of each LED ILSN sign. The Contractor will be responsible for providing all materials necessary to install each LED ILSN sign including but not limited to the following: the LED ILSN sign assembly, mounting brackets and hardware, photoelectric cell, conductors, and all other pertinent items required for the complete fully operational installation.
- B. Contractor shall submit an electronic copy of all materials necessary to install each LED ILSN sign (Section 23-01 A) to the City for approval at least three (3) weeks prior to LED ILSN sign installation.
- C. This Item will be measured as each LED ILSN sign installed, fully functional, complete and in place. The work performed and materials furnished in accordance with this Item and measured as indicated will be paid for at the unit bid price for "LED ILSN Sign" of the sizes and types specified. This price is full compensation for furnishing, fabricating, installing, and testing the completed installation LED ILSN sign assembly; mounting bracket hardware; liquid tight flexible metal conduit; and materials equipment, labor, tools, and incidentals. Payment shall be made in accordance with the unit price bid in the PROPOSAL.

23-02 LED INTERNALLY LIGHTED STREET NAME (ILSN) SIGN ASSEMBLY:

- A. The Contractor shall install each LED ILSN sign assembly and associated mounting bracket hardware.
- B. LED ILSN sign assembly standard lengths are between 4-feet and 10-feet. Ensure standard viewable heights are between 15-inches and 30-inches. Use single or double-faced signs as required by plans. Maximum weight of the LED ILSN sign shall not exceed maximum capacity of mounting bracket hardware.

Construct LED ILSN sign fixture housing from 5000 or 6000 series aluminum. Powder-coat paint all exterior fixture housing glossy black or as shown on the plans or as directed. Ensure paint exceeds 1000-hr. salt-spray test in accordance with ASTM B117. Each LED ILSN sign housing must be rated as NEMA type 3R. Use stainless steel screws and hardware.

Ensure LED ILSN sign panels, light sources, light engines, and power supplies can be replaced without LED ILSN sign removal. Each LED ILSN sign must be capable of continuous operation over a range in temperatures from -10°F to +140°F.

- C. LEDs used in each LED ILSN sign shall be high flux that are rated to maintain a minimum 70% of their initial lumens after 60,000 hr. according to IESNA LM-80-08. Ensure each LED array or module will continue to operate if one LED goes out. Provide light engine and LED arrays or modules that are replaceable without removing the LED ILSN sign.
- D. The panel of the LED ILSN sign shall be ultraviolet, weather, abrasion, and impact resistant high impact strength polycarbonate, acrylic or a glass-fiber reinforced polyester fluoride. The panel will be replaceable without removing the LED ILSN sign for future maintenance purposes. Provide translucent reflective type D sheeting and colored transparent acrylic film as per TxDOT DMS-8300, "Sign Face Material."

Each LED ILSN sign panel will have a white legend with a blue background accompanied by the two-color version of the City logo unless specified in the construction plans or by the City. The border will be the same color as the legend. The letter height and sizing shall comply with the Texas Manual on Uniform Traffic Control Devices (TMUTCD) and Standard Highway Sign Design for Texas for overhead signs. The Contractor shall include the LED ILSN sign panel design in the submittal to City for approval (Section 23-01 B).

Each LED ILSN sign located in the Entertainment District shall have a sign panel that will have a white legend with a black background accompanied by the two-color version of the City logo unless specified in the construction plans or by the City. The border will be the same color as the legend. The letter height and sizing shall comply with the Texas Manual on Uniform Traffic Control Devices (TMUTCD) and Standard Highway Sign Design for Texas for overhead signs. The Contractor shall include the LED ILSN sign panel design in the submittal to City for approval (Section 23-01 B).

- E. Contractor must provide LED ILSN signs that will operate at 120 VAC and meet the standard for electric signs UL 48. The on-board circuitry of each LED ILSN sign must include voltage surge protection, to withstand high-repetition noise transients and low-repetition high-energy transients as stated in Section 2.1.8, NEMA Standard TS 2-2003. The power supply must be housed inside the LED ILSN sign enclosure. Power supply must be UL Class 2 limited output voltage and current plus isolation for safe operation, and UL rated for outdoor damp locations. Power supply will be IP 64 Outdoor Rated. The light source must evenly illuminate the LED ILSN sign panel. The average luminance over the entire panel surface shall be uniform.
- F. Contractor must install dedicated 14 AWG conductors to supply power to each LED ILSN sign. Connect the conductors to a dedicated 15-amp circuit breaker located either inside the controller cabinet or inside the electrical service disconnect pedestal. Using the same conduit system for both signal cables and LED ILSN sign conductors is permitted, unless otherwise specified. Install conductors in such a manner as to prevent damage to conductors or conductor insulation. Ensure drilled hole(s) through which conductors pass through are fitted with a tight-fitting rubber grommet. Install continuous lengths of conductors between the dedicated circuit breaker and each LED ILSN sign. Do not splice conductors unless specified in the Contract Documents.

Provide one photoelectric cell to turn on/off all LED ILSN signs at each intersection. Connect

the photoelectric cell to a contactor assembly inside the controller cabinet or electrical service disconnect pedestal to provide switching of the LED ILSN signs. This work shall be considered subsidiary to the LED ILSN sign pay item.

- G. Each LED ILSN sign must be designed and constructed to withstand 110 mph wind loads in conformance with the requirements of the AASHTO publication Standard Specifications for Structural Supports of Highway Signs, Luminaires and Traffic Signals (5th Edition 2009).

Each LED ILSN sign must be supplied with mounting brackets from the manufacturer (swinging or rigid mounting) as shown on the plans or as directed.

23-03 MOUNTING BRACKET HARDWARE:

- A. Mounting brackets shall be the DURALIGHT JXM-STN-BM Series ILSN Back Mounting Hardware or an approved equal. The Contractor must include mounting bracket hardware submittals (Section 23-01 B) for approval prior to installation.

END OF SECTION