

ITEM 026090

Item 0260901 - LED TRAFFIC SIGNAL LAMP UNIT RED 12"

Item 0260902 - LED TRAFFIC SIGNAL LAMP UNIT RED 8"

Item 0260903 - LED TRAFFIC SIGNAL LAMP UNIT GREEN 12"

Item 0260904 - LED TRAFFIC SIGNAL LAMP UNIT GREEN 8"

Item 0260905 - LED TRAFFIC SIGNAL LAMP UNIT YELLOW 12"

Item 0260906 - LED TRAFFIC SIGNAL LAMP UNIT YELLOW 8"

Item 0260907 - LED TRAFFIC SIGNAL LAMP UNIT GREEN ARROW 12"

Item 0260908 - LED TRAFFIC SIGNAL LAMP UNIT BICOLORED ARROW 12"

Item 0260909 - LED TRAFFIC SIGNAL LAMP UNIT YELLOW ARROW 12"

Item 0260910 - LED TRAFFIC SIGNAL LAMP UNIT RED ARROW 12"

DESCRIPTION

This item shall consist of furnishing and installing a "LED TRAFFIC SIGNAL LAMP UNIT" of the type specified at locations shown on the plans or as indicated by the Engineer in conformity with these specifications.

REFERENCED ITEMS

None

REQUIRED SUBMITTALS

Material Certificate of Compliance:

Submit 5 copies of material certificate of compliance for the LED traffic signal lamp unit and all associated hardware in accordance with the contract general requirements.

Shop Drawings:

Submit 5 copies of shop drawings for the LED traffic signal lamp unit and all associated hardware in accordance with the contract general requirements.

MATERIALS

The materials for the Light Emitting Diode (LED) Traffic Signal shall conform to the requirements of the State of Connecticut, Department of Transportation, Standard Specification for Roads, Bridges and Incidental Construction, Form 816, 2004, supplemented as follows:

The LED traffic signal lamp shall be the extended view (non-blanking) type. The lamp shall be made up of a smooth surfaced outer shell, multiple LED light

sources, a filtered power supply and a back cover, assembled into a sealed unit. Each LED light source shall be mounted on a temperature resistant positioning plate. The mechanical alignment and assembly mechanism must ensure that each LED is retained in a pre-determined position. Red and yellow LED indications shall be Indium Gallium Phosphide (AlInGaP) type. Green indications shall be Indium Gallium Nitride (GaN) type. LED lamps shall be warranted for a minimum of five years.

(a) Mechanical Requirements:

Diameter:

The LED traffic signal unit shall fit into standard 12" or 8" housing.

Enclosure materials:

UV (Ultraviolet) stabilized polycarbonate backcover.
Clear lens cover.

Operating temperature:

-40 degrees Fahrenheit to 165 degrees Fahrenheit.

The lamp unit shall be sealed and waterproofed to eliminate dirt contamination and be suitable for installation in all weather conditions.

Each lamp unit shall have the following information clearly marked on the housing:

- Manufacturer & model number
- Date of manufacture
- The words "EXTENDED VIEW"

(b) Parallel Circuits:

Red, Green and Yellow Units:

12" Unit shall be comprised of minimum 6 parallel circuits.

8" Unit shall be comprised of minimum 3 parallel circuits.

Arrow Units:

One burned out LED shall not effect more than 5 percent of the total circuit.

(c) Optical Requirement:

Beam Color:

Shall meet ITE Specification.

Beam Intensity:

Red, Green, Green Arrow, Yellow Arrow, Red Arrow and Bicolored Arrow shall meet ITE specifications.

12" and 8" Yellow:

The intensity shall be twice the ITE requirement for reds.

The intensity shall not degrade by more than 10% per year.

Each LED lamp shall be extended view (non-blanking). It shall have a vertical cone of view which remains visible at department approved distance for a 55 mph approach speed during windy conditions, until obscured by the visor.

Each LED lamp shall be capable of flash operation with no restrictions or degradation of performance.

(d) Electrical Requirement:

Operating voltage:

89 to 135 Volts AC

Green LED shall not illuminate with an input voltage less than 35 volts.

Power requirements:

Circular Indications 12" - 14 to 39 Watts

Circular Indications 8" - 12 to 19 Watts

Arrows 12" - 6 to 10 Watts

A filtered power supply shall be engineered to protect the LED's from electrical surges and transient voltages.

CONSTRUCTION METHODS

This method is applicable where the contractor is required to retrofit the LED lamps to existing traffic signal heads.

- Remove standard lens, gasket, incandescent lamp and reflector from housing.
- Install new gasket on the lamp.
- Insert lamp and gasket in housing and tighten holding screws.
- Make sure that the orientation of the lamp unit is proper. Circular indications that have an identification mark (such as an arrow) on the top of the lens, shall be installed with that mark at the 12 O'clock position.

Measure the off-state voltage of all green indications, with the lamp loads attached. An abnormally high reading may indicate a high impedance neutral or a defective load switch. If this condition exists make all necessary corrections prior to leaving the signal in operation.

METHOD OF MEASUREMENT

The quantity to be paid for under this item will be the number of completed, installed and accepted LED TRAFFIC SIGNAL LAMP UNITS of the type specified.

BASIS OF PAYMENT

This work will be paid for at the contract unit price each for "LED TRAFFIC SIGNAL LAMP UNIT" of the type and size specified which price shall include all materials, Lamp Unit miscellaneous fittings and parts, labor and work incidental thereto.

<u>PAY ITEM</u>	<u>DESCRIPTION</u>	<u>PAY UNIT</u>
0260901	LED Traffic Signal Lamp Unit Red 12"	EA
0260902	LED Traffic Signal Lamp Unit Red 8"	EA
0260903	LED Traffic Signal Lamp Unit Green 12"	EA
0260904	LED Traffic Signal Lamp Unit Green 8"	EA
0260905	LED Traffic Signal Lamp Unit Yellow 12"	EA
0260906	LED Traffic Signal Lamp Unit Yellow 8"	EA
0260907	LED Traffic Signal Lamp Unit Green Arrow 12"	EA
0260908	LED Traffic Signal Lamp Unit Bi-Colored Arrow 12"	EA
0260909	LED Traffic Signal Lamp Unit Yellow Arrow 12"	EA
0260910	LED Traffic Signal Lamp Unit Red Arrow 12"	EA