Internally Illuminated Street Name Sign Supplemental Specifications:

1. The sign assembly standard widths are 48”, 72”, and 96”. The standard height is 18” and 24”. Signs are single or double faced.

2. The body shall be aluminum with a minimum of three LED light bars. The maximum allowable weight of the sign (without hanging brackets) shall be 124 lbs.

3. The Sign shall be designed in such a way as to make it possible to convert the Sign from a single-sided enclosure to a double-sided enclosure (or the reverse), with only a change in the face plates/back plates of the Sign. The enclosure must not change dimensions with this conversion from a single-sided Sign to a double-sided Sign (or the reverse).

4. The body of the sign shall consist of an aluminum one-piece box type enclosure and separate hinged door assembly. The top of the sign body shall include drip rails to prevent water from entering the electrical housing. All seams shall be continuously welded for a watertight seal. A minimum of three 0.25 inch drain holes shall be located in the bottom of the sign body, a maximum of one foot from each side of the sign. The end caps shall be designed so that silicone is not used to seal internal wiring and the power supply ballast from water intrusion.

5. The color of the exterior of the sign assembly shall be glossy black. All exterior surfaces of the sign assembly shall be powder-coated in accordance with Military Standard MIL-C-24712. Finish will meet the requirements of ASTM D 3359, ASTM D 3363, and ASTM D 552. A quality assurance program shall be in place, meeting MIL-1-45208A. Manufacturer must be ISO 9001:2000 compliant. Sign must be guaranteed with a Manufacturer’s Warranty for a minimum of five years.

6. Sides shall have a removable face. The aluminum door shall be one-piece frame construction. The door shall open in a downward motion. The sign face shall be secured by attaching four frame plates, (bottom, top, and two sides), secured by studs and nuts, holding the sign face in place. Slide-in grooves will not be accepted. The door shall have a full-length stainless steel hinge on the bottom edge. Door shall be continuously sealed with a UL listed foam gasket. Gaskets shall be installed continuously on the doorframe to seal the sign face to the doorframe. Another strip shall be installed on the sigh body matching where the door seals. The door shall be secured from opening by a minimum of two stainless steel ¼-20 thumb screws to prevent the door from opening when the sign is flexed. The threaded portion of the thumb screw shall screen into captive nut assembly on the sign body. All hardware shall be type 304 or 316 stainless steel. The Sign shall have a front panel that is UV, weather, abrasion and impact resistant. The front panel shall be replaceable so that maintaining agencies have the option to supply their own sheeting and 3M 1170 series Electrocut film for the Sign faces.

7. The Sign must be supplied with two under hang mounting brackets on the top extrusion of the sign. The under hang mounting brackets will be powder-coat painted to an exact match of the sign extrusions, and shall be in accordance with Military Standard MIL-C-24712. Finish will meet the requirements of ASTM D3359, ASTM D3363, and ASTM D552. The under hang mounting brackets will be designed to connect to approved under hang hardware, such as Pelco SE-5146 or Pelco SE-5015 shall be used for this installation. The Sign must be supplied with rigid back brace mounting brackets on two positions on the back of the sign. The rigid back brace mounting brackets will be powder-coat painted to an exact match of the sign extrusions, and shall be in accordance with Military Standard MIL-C-24712. Finish will meet the requirements of ASTM D3359, ASTM D3363, and ASTM D552. The rigid back brace mounting brackets used to affix the sign to the mast arm pole shall not extend more than 3/16” inch above the top horizontal surface, and the opposite end of that same bracket shall not extend more then 3/16” inch below the bottom horizontal surface of the sign, as viewed from the front. Approved brackets, such as Pelco AS-3004 or AS-3009 shall be used for this installation.

8. The Sign will have no holes drilled though the enclosure's back plate for use in a rigid mount mast arm configuration. Adjustable rigid mount hardware shall securely grasp the top and bottom rails of the sign to provide maximum retention of the sign when installed on the mast arm. All of the Sign's weight will be supported by a bracket which securely grasps both the top and bottom rigid aluminum extrusions. Sign brackets, as provided by the manufacturer, will be designed as to allow adequate vertical travel for adjustable installation on both straight and curvilinear mast arms.

9. Sign faces shall be designed using only current MUTCD approved fonts and font sizes, in addition to the requesting Agency's own preferences and specifications. The Sign shall have a 3mm or 4mm acrylic front panel that is UV, weather, abrasion and impact resistant. The front panel shall be replaceable so that maintaining agencies have the option to supply their own sheeting and 3M 1170 Series Electrocut™ film for the Sign faces. The Sign shall utilize 3M's 1170 Series Electrocut™ Film for the Sign legend and Sign background. 3M 4090 Series ASTM Type IX Diamond Grade™ Sheeting shall be utilized, when specified, to meet minimum levels of the retro-reflectivity of the Sign face, as recommended by the MUTCD, if AC power to sign should fail. The light transmission factor of the Sign panel must provide a letter to background ratio of a minimum of 4:1.The Sign shall utilize impact resistant, match-grade component acrylics (in both 3mm and 4mm variants) with the above-specified 3M Electrocut™ to prevent out-gassing, bubbling, peeling, and cracking of the sign face film, ensuring sign face durability over the life of the sign.

10. The sign shall be designed and constructed to withstand 241 Km/h (150 mph) wind loads in conformance with the requirements of the AASHTO publication, "Standard Specifications for Structural Supports of Highway Signs, Luminaries and Traffic Signals," 4th Edition 2001.The sign and power supply should be able to withstand and operate at temperature extremes of -22 deg F to +140 deg F. Signs shall be tested and certified for use without the use of silicone for the following environmental conditions: Exclusion of Water Test, Strain Relief Test, Temperature Test, and Dielectric Voltage-Withstand Test. A representative sample of the product shall be tested in accordance with the Standards for Electric Signs (UL 48).

11. Sign shall be UL listed and approved. The Sign shall be listed and approved to UL 48 Standards by a Nationally Recognized Testing Laboratory. The outside of the sign shall be marked with a certification mark for Electric Signs UL 48.

12. The sign face shall be constructed of 1/8" polycarbonate.

13. The sign shall have UL approved foam gaskets, to provide a watertight seal between the door and the housing and between the sign panel and the doorframe.

14. The sign shall include a replaceable fuse at the electrical power wire entrance compartment.

15. The sign assembly including sign panel and mounting assemblies shall be design, tested, and constructed so that no permanent deformation, warping or failure will occur when subjected to 110 mph wind loads.

16. The light source for the sign shall be LEDs (light emitting diodes). LEDs shall be mounted along both the top and bottom edges of the sign. The LEDs shall evenly illuminate a light panel that is the same dimensions of the sign face. The LEDs shall have a minimum rated Lumen brightness so as to perform for 60,000 hours before reaching 50% of the Sign's initial brightness. The Sign shall be listed and approved to UL 48 Standards by a Nationally Recognized Testing Laboratory. The outside of the Sign shall be marked with a certification mark for Electric Signs UL 48. Sign panel LEDs shall be wired to ensure that a failure of one LED does not affect the sign's Lux output by more than 10% Lux over the affected area. Sign's LED panels will have one (1) press connection terminal on each end of the replaceable LED panel so that only common hand tools are required for the wiring replacement of said LED panel. LED Single Output Switching Power Supply shall be a fully-encapsulated, constant- current design built to withstand 300VAC surge input for 5 seconds, with inherent short circuit/over current/over voltage protection. The Power Supply shall be a UL

1310 Class 2 power unit, and will be housed in a fully isolated plastic case to prevent water intrusion. The Sign's LED Single Output Switching Power Supply shall be rated for a 1,400 mA (milli-Amps) Rated Current, a DC Voltage Range of 9-42V, a Power Rating of 58.8W, a Voltage Tolerance of +/- 5.0%, an AC Current of 1.2A/115VAC, and Voltage Range of 90-264VDC with 85% Operating Efficiency Rating, plus a working temperature of -30 to +70 degrees Celsius. Safety Standards shall meet the following criteria: UL1310 Class 2, CAN/CSA C22.2 No. 223-M91 (for LPC-60-1750 only), IP67 approved design refer to TUV EN60950-1, EN61347-2-13.

17. The LED sign shall emit a uniform average of 600 lux through the sign face. The light transmission factor of the sign panel must provide a letter to background ratio of a minimum of 4:1.

18. LED junction temperature shall be a maximum of 120 degrees C with an operating ambient temperature of -25 degrees C to 50 degrees C.

Sample Signs Illustrating Color and Logo