

IV - TECHNICAL SPECIFICATIONS

BID NO. LED INTERSECTION LUMINAIRES A-2

Name of Firm

INTENT:

The intent of these specifications is to provide a minimum standard for Light Emitting Diode (LED) outdoor roadway lighting at 120'/120' street intersections. Each LED luminaire shall be replacing two 400W HPS luminaires per pole mounted at a height of 30 to 37 feet. The traffic signal luminaires offered shall be new and unused.

These specifications shall be construed as minimum requirements. Should the manufacturer's current published data or specifications exceed these, as determined and approved by the Owner, they shall be considered as minimum specifications and be furnished by the Bidder.

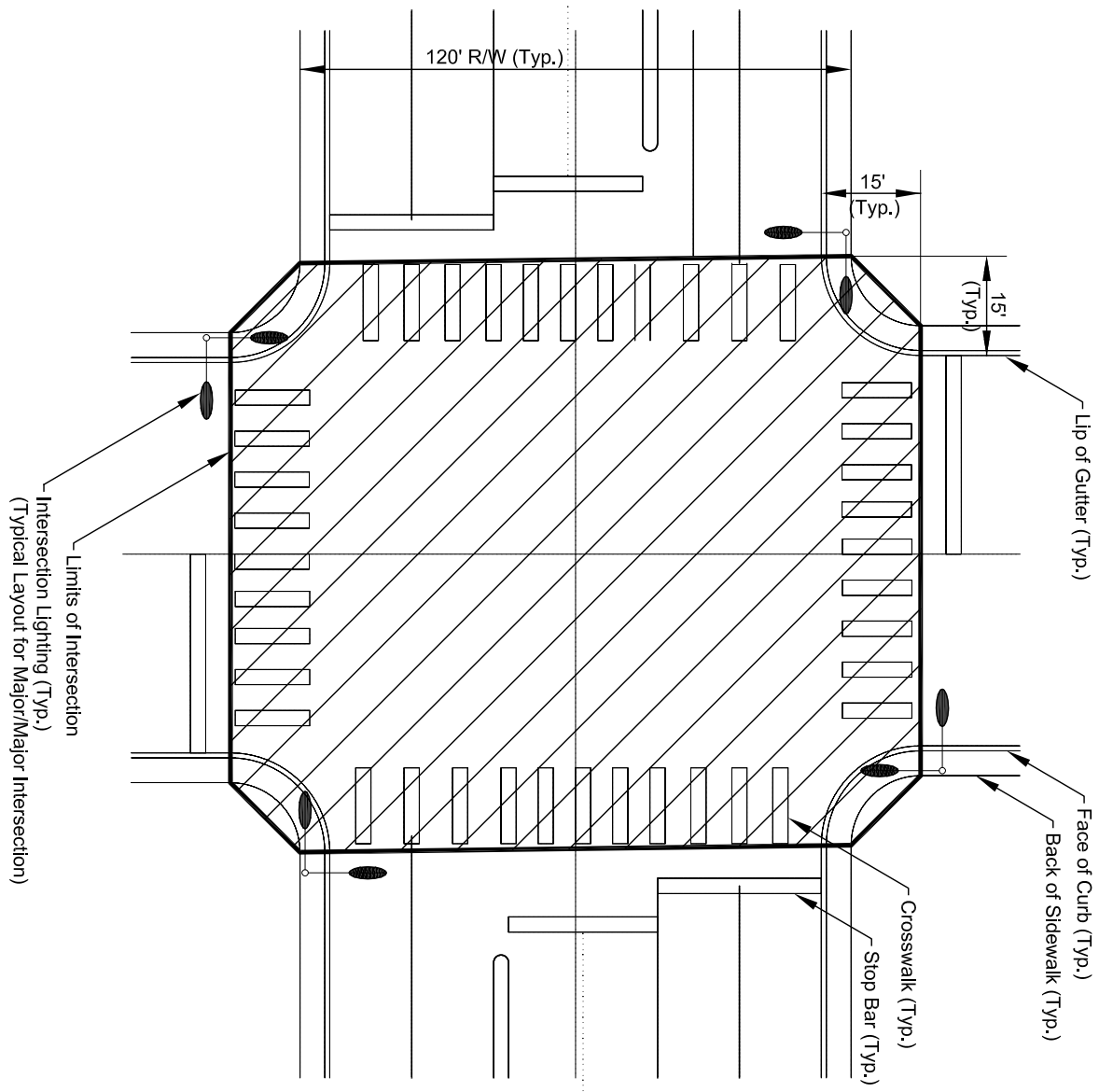
BIDDERS MUST RETURN THE ORIGINAL OR A PHOTOCOPY OF THIS FORM AND MAKE AN ENTRY FOR EACH SPECIFICATION IN THE SPACE PROVIDED OPPOSITE THE SPECIFICATIONS, INDICATING ANY VARIANCES IN THE SPECIFICATION. IF THERE IS NOT ENOUGH SPACE, ATTACH AN ADDITIONAL SHEET OF PAPER.

SPECIFICATION NO. 1 – PHOTOMETRIC:		YES	NO	IF NO, SPECIFY
1.1	Luminaire shall have a normal Correlated Color Temperature (CCT) of 5000°K to 6000°K.			
1.2	Luminaire shall have a Color Rendering Index (CRI) ≥ 65.			
1.3	Luminaire shall have a minimum efficacy ≥ 60 lumen/watts at full output.			
1.4	Luminaire photometric measurement shall be documented by an independent test lab report according to IESNA specification.			
1.5	LED light distribution shall be such that appropriate light levels and uniformity can be achieved while minimizing light trespass outside the limits set forth in these specifications. BUG ratings must also be met.			
1.6	Luminaire must operate at 77°F (25°C) for a minimum of 60,000 hours before the LED light output has decreased to 80% of initial output (L80).			
1.7	Vendor shall submit one model luminaire for a typical intersection lighting for a major/major (120'X120') intersection that shall achieve average minimum foot-candle as outlined in IESNA RP-8 (latest edition), illumination for intersections (High, Medium and Low) within the given limits of the intersection and for the number of luminaires shown in Exhibit A-2. High, medium, and low light levels shall be achieved with user selectable diming settings within the fixture. Lighting luminaire arms are 15 ft in length, with luminaires at the mounting height of 30 and 37 ft. Supplier must provide an illuminance study for each lighting level that proves that lighting luminaire standards are met per IESNA RP-8, with a light loss factor of 0.94, for both 30-ft and 37-ft heights [total of six (6) exhibits]. Each lighting study shall provide the diming setting used to achieve the respective High, medium, and low lighting levels.			
1.8	Per IESNA TM-15-2007 (Revised) Backlight, Uplight, and Glare (BUG) rating shall be B3 U1 G3 or better. A means for the control of backlight, in the form of a physical shield, shall be available for each luminaire.			

SPECIFICATION NO. 2 – ELECTRICAL:		YES	NO	IF NO, SPECIFY
2.1	Luminaire shall have a power factor of ≥ 0.90.			
2.2	Luminaire power supply shall be Class 1 or class 2.			

2.3	Luminaire shall be certified by a nationally recognized testing laboratory.			
2.4	Luminaire operating temperature range of -10°F to 120°F (-23°C to 49°C).			
2.5	Luminaire transient voltage/surge suppression protection must meet or exceed the requirements of ANSI/IEEE C.62.41-1991 Class A operation, which consists of seven strikes of a 100 HZ ring wave, 6 KV level, for both common mode and differential mode.			
2.6	Luminaire power supply shall have a Class A sound rating per ANSI C63.4.			
2.7	Luminaire power supply shall meet FCC 47 CFR 15/18.			
2.8	Luminaire shall have a nominal operating voltage within a range of 120 to 277 volts at 60 HZ $\pm$ 3 HZ.			
2.9	Power supply output operating frequency must be $\geq$ 120 HZ when not using direct current output.			
2.10	Luminaire shall have a prewired heavy-duty barrier type terminal block, with captive screws capable of terminating three (3) #14 to #10 AWG.			
2.11	Total power consumption of the luminaire, including driver/ballast, shall not exceed 150 Watts at full light output.			
2.12	Luminaire shall be supplied with internal controller for adjustment of the lumen output as indicated in section 1.7 above. The controller shall be adjusted using some form of switching such as DIP or rotary switches.			
SPECIFICATION NO. 3 – HOUSING:		YES	NO	IF NO, SPECIFY
3.1	luminaires shall be painted with a 2-mil thick coat of high gloss gray enamel or polyurethane powder coating, free of lead and mercury.			
3.2	Luminaire shall be constructed of die cast aluminum. Stamped and formed aluminum housings shall not be accepted.			
3.3	Luminaire power supply shall be mounted internally and be replaceable.			
3.4	All luminaire components shall be corrosion resistant.			
3.5	Luminaire shall have heat sink integrated into luminaire body, and be resistant to debris buildup that may cause degraded heat dissipation. No fans, pumps or liquids are allowed. Light engines with integrated heat sinks will not be accepted.			
3.6	Luminaire weight $\leq$ 45 Lbs.			
3.7	Luminaire must withstand a minimum vibration of 2Gs per ANSI C136.31-2001.			
3.8	Luminaire shall have a photoelectric receptacle capable of accepting a 3-prong twist-lock per ANSI C136.10. The receptacle (socket) shall be able to rotate to face north direction.			
3.9	The optical assembly of the luminaire shall have a minimum IP-65 rating to protect internal components.			
3.10	The luminaire shall have a slip-fitter capable of adapting to 1-1/4-inch through 2-inch pipe bracket without rearrangement of parts and be adjustable +5° degrees from horizontal. There shall be no more than four (4) 9/16-inch hex bolts to secure luminaire to pipe. Bolts shall be secured from bottom of luminaire and mounted internally. At no point shall wires be exposed to the outside.			
3.11	The maximum effective projected area (calculated from either side) shall not exceed 1.1 square foot. (slim, low profile design to optimize for wind loading).			
3.12	Maximum dimension 24" long X 15" wide X 8" tall and shall be of a cobra head configuration.			
3.14	Luminaire shall have bird guard or wildlife intrusion protection. Knockout panels on luminaire housing will not be accepted.			
SPECIFICATION NO. 4 – LUMINAIRE IDENTIFICATION:		YES	NO	IF NO, SPECIFY
4.1	Each luminaire shall have the manufacturer's name, trademark, model number, serial number/lot number, and date of manufacture			

	(month/year) permanently marked on inside of each unit.			
4.2	The wattage of the luminaire shall be able to be detected visibly from an observer standing at ground elevation at base of pole. Sticker to be consistent with American National Standard for Roadway Lighting Equipment, ANSI C136.15.			
4.3	Operating characteristics should be permanently marked inside each unit: Voltage rating, and luminaire efficiency rating (LER).			
4.4	Each LED light source should be permanently marked with correlated color temperature (CCT) rating in Kelvin, color rendering index (CRI) and wattage driver current.			
SPECIFICATION NO. 5 – MEASUREMENTS AND PERFORMANCE:		YES	NO	IF NO, SPECIFY
5.1	IESNA LM-79-08 Approved method for electrical and photometric measurements of solid-state lighting products. Documentation shall be provided with the shop drawing submittals.			
5.2	IESNA LM-80-08 Approved method for measuring lumen maintenance of LED lighting sources. Documentation shall be provided with the shop drawing submittals.			
5.3	IESNA data files shall be submitted for each luminaire type, and also must include photometric test results for 30 foot and 37 foot mounting heights.			
5.4	Proposer shall provide IESNA/ TM-21 report using the LM-80 data for each luminaire proposed that lists projected L80 rating at 25°C.			
SPECIFICATION NO. 6 – WARRANTY: A warranty must be provided for the replacement or repair of the luminaire due to any electrical failure (including light source and power supplies/drivers) for a minimum of five (5) years after final acceptance of the materials. All other components shall have a warranty for a minimum of one (1) year after final acceptance of the materials. Contractor shall provide all warranty documents to Clark County Public Works Traffic Management Divisions at time of product delivery. Documents shall contain project name, bid number of the project, manufacturer, brand, model, contact information for warranty claim, and quantity of luminaires delivered. Warranty replacement of luminaire shall be delivered within sixty (60) calendar days upon notification by Clark County Public Works.		YES	NO	IF NO, SPECIFY



"EXHIBIT A-2"LIMITS OF INTERSECTION (MAJOR/MAJOR) (N.T.S.)