



Corporate Supply Arrangement # for LED Street Light Luminaires

THIS CORPORATE SUPPLY ARRANGEMENT is made the **15th** day of **September, 2019**
(the "Offeror")

HEREBY OFFERS TO SUPPLY, AS, IF AND WHEN REQUESTED, THE GOODS DESCRIBED IN SCHEDULE "A", TO HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF BRITISH COLUMBIA AND THE PUBLIC SECTOR ENTITIES, ON THE TERMS AND CONDITIONS DESCRIBED BELOW.

THE OFFER IS AS FOLLOWS:

DEFINITIONS

1.1 In this Corporate Supply Arrangement:

- a) **"Administration Fee"** means the administration fee described in Schedule "D", Section 6;
 - b) **"Contract"** means the contract that is formed on receipt by the Offeror of a Draw Down for the Goods described in the Draw Down, and if applicable, any addendum entered into between Public Sector Entities and the Offeror pursuant to section 3.2 (c);
 - c) **"Contractor"** means the Offeror who is in receipt of a Draw Down requesting the Goods under this CSA;
 - d) **"Corporate Supply Arrangement"** or **"CSA"** means this CSA;
 - e) **"Draw Down"** means a written draw down form issued by a Purchaser to an Offeror against this CSA for the provision of a specified quantity of Goods at the prices set out in this CSA;
 - f) **"Goods"** means those goods described in Schedule "A";
 - g) **"Offeror"** means [Supplier's Legal Name] also identified as [Supplier's dba Name];
 - h) **"Offeror's Representative"** means the representative and designated back-up assigned by the Offeror to administer the CSA;
 - i) **"Prices"** means the prices for the Goods set out in Schedule "B";
 - j) **"Province"** means Her Majesty the Queen in Right of the Province of British Columbia and includes Procurement Services and any ministries of the Province;
 - k) **"Province Representative"** means a Procurement Specialist with the Procurement Services Branch, or such other individual designated from time to time by the Province to administer this CSA on behalf of the Province;
 - l) **"Public Sector Entity"** or **"Entities"** means a broader public sector organization listed at the Procurement Services' website that has been qualified to issue a Draw Down against a CSA, and also such organizations as may be qualified and added to the list from time to time;
 - m) **"Draw Down"** means a written Draw Down issued by a Purchaser to an Offeror against this CSA for the provision of a specified quantity of Goods at the prices set out in this CSA;
 - n) **"Purchase"** means to order Goods by way of a Draw Down against the CSA;
 - o) **"Purchaser"** means the Province or a Public Sector Entity that has issued a Draw Down; and
 - p) **"Procurement Services"** means the Procurement Services Branch, Ministry of Citizens' Services.
- 1.2 All references to dollars, currency, and money must mean Canadian dollars (\$CAD).

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- 1.3 Unless the context otherwise requires, words expressed in the singular include the plural and *vice versa*.

EXPIRY

- 2.1 This CSA will expire on **September 15, 2022** unless withdrawn in accordance with section 3.1 (G) or Section 8, or renewed by the Province for up to two additional one-year periods.

CORPORATE SUPPLY ARRANGEMENT - GENERAL

- 3.1 The Offeror makes the offer set out in this CSA on the following understandings:
- a) the establishment of this CSA does not oblige the Province or any Public Sector Entity to authorize or order all or any of the Goods from the Offeror;
 - b) a Contract is formed only on receipt of a Draw Down by the Offeror;
 - c) a Draw Down will form a Contract only for those Goods in respect of which a Draw Down has been issued by a Purchaser, provided always that such Draw Down is made in accordance with the provisions of this CSA;
 - d) the Contract will be on the terms and conditions set out in this CSA, including all Schedules and if applicable, any addendum entered into between Public Sector Entities and the Offeror pursuant to section 3.2;
 - e) the Province and any Public Sector Entity each reserves the right to procure the specified Goods by any other means, including the use of other agreements, or by other procurement or contracting methods;
 - f) the liability of a Purchaser will be limited to that which arises from a Contract made prior to the expiry date described in Section 2.1;
 - g) the Province reserves the right to set aside this CSA, for whatever reason, and not make it available for any Purchases. The Province will promptly notify the Offeror of such action;
 - h) any changes to this CSA are to be documented by way of a written addendum between the Offeror and the Province;
 - i) the Offeror's Representative, and a designated back-up individual, will be available during the Province's normal business hours, and will have the authority to represent the Offeror with respect to all issues arising under this CSA;

- j) the Offeror will reimburse the Administration Fee in accordance with Schedule "D";
- k) if the Offeror offers a lower price to others in the British Columbia public sector for substantially the same goods and terms and conditions of a Contract during the term of this CSA, that lower price will also apply to this CSA. For the purposes of this section, a lower price is a price that is lower than the unit price in Schedule "B", exclusive of the Administration Fee; and
- l) the Offeror will provide the Province's Representative with 60 days written notice of any changes to the list of Goods included in Schedule "A", and the Province will determine, at its sole discretion, whether to accept such changes.

CORPORATE SUPPLY ARRANGEMENT - PUBLIC SECTOR ENTITIES

- 3.2 With respect to Purchases by Public Sector Entities, the Offeror acknowledges that:
- a) Public Sector Entities are solely responsible for all payments and other obligations to the Offeror incurred through making a Purchase against the CSA;
 - b) nothing in this CSA or any resulting Contract will impose any liability whatsoever on the Province in respect of any obligation of a Public Sector Entity to the Offeror, and the Province disclaims any and all liability in respect of any Purchase made by a Public Sector Entity against this CSA;
 - c) neither a Public Sector Entity utilizing the CSA nor the Offeror will be required to agree to any terms and conditions other than those set out in this CSA. However, Public Sector Entities will have the option of renegotiating the terms and conditions set out in Schedule E, to the extent necessary to address the Public Sector Entity's specific payment, insurance, indemnification, limitation of liability requirements, privacy, confidentiality and security requirements. All changes to the terms and conditions of Schedule E are to be set out in an addendum entered into with the Offeror; and
 - d) the Offeror reserves the right to refuse to enter into an addendum as contemplated in subsection (c) that would vary the terms and conditions of the Contract from that set out in this CSA.

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PURCHASE MECHANISM

- 4. The Goods may be ordered by various methods, including: in person, telephone, facsimile, or email, so long as a written Draw Down is presented that includes at a minimum:
 - a) the reference number for this CSA;
 - b) the name of the Purchaser;
 - c) the complete description and specified quantity of the Goods that are being ordered;
 - d) the delivery address for the Goods (if known at the time of ordering);
 - e) the address for issuance of an invoice, and;
 - f) the maximum amount payable for the Purchase.
- 5. Purchases against a CSA paid for with the Province’s corporate purchasing card must be accorded the same Prices and be subject to the same terms and conditions as any other Purchase.
- 6. If the Purchaser issues a Draw Down to the Offeror prior to the expiry of this CSA and receives the Goods, then the Purchaser will pay to the Offeror the amounts payable as described in Schedule “B”.

- 7. If there is any conflict or inconsistency among any of the provisions of the following documents:

- a) this CSA; and
- b) a Draw Down,

then the order of precedence will be (a) and then (b), unless the Offeror and a Public Sector Entity have entered into an addendum revising the terms of the in accordance with section 3.2(c) of this CSA, in which case, any terms in such addendum stated to apply notwithstanding the terms of Schedule E will take precedence.

NOTIFICATION OF WITHDRAWAL

- 8. In the event that the Offeror wishes to withdraw this CSA, the Offeror will provide no less than thirty (30) days’ prior written notice to the Province Representative, and such withdrawal of this CSA will not be effective until receipt of such notification by the Province Representative and the expiry of such notice period.
- 9. The Offeror will fulfil any Purchase made before the expiry of such notice period.

SIGNED by the Offeror

(Authorized Signatory)

Title

Print Name

SCHEDULE "A"

GOODS

The intention of the CSA is to make the supply and delivery of LED street light luminaires available to the Province and the Entities. The Goods are to be provided on an as, if and when requested basis and no commitments or guarantees are made with respect to the number or value of Draw Downs that may be requested from the Offeror over the Effective Period.

Over the Effective Period it is anticipated that the CSAs will be refreshed at least annually to invite existing Offerors to submit new products or product versions for evaluation. Offerors will be asked to submit a response only to forms substantially the same as Appendices 3 through 6 of this RCSA document for each new submission.

The Province reserves the right to update criteria and scoring structure at time of refreshes, in response to changes in industry standards and/or technology requirements.

1 Goods

See Schedule B - Prices for the list of LED street light luminaire products available through this CSA. Purchasers may also purchase related equipment through the CSA (e.g. external house-side shields, custom powder coat colours).

2 Effective Period

The Effective Period will be 3 years with options to renew, at the sole discretion of the Province, for two additional one-year periods, unless sooner withdrawn in accordance with the terms and conditions of the CSA.

3 Refresh

Over the Effective Period it is anticipated that the CSAs will be refreshed at least annually to invite existing Offerors to submit new products or product versions for evaluation. Offerors will be asked to submit a response only to forms substantially the same as Appendices 3 through 6 of this RCSA document for each new submission.

The Province reserves the right to update criteria and scoring structure at time of refreshes, in response to changes in industry standards and/or technology requirements.

4 Delivery

The Offeror agrees to coordinate delivery with the Purchaser's lighting installation representative.

The delivery lead time should be 9 weeks from issue of a Draw Down (for Draw Downs of 5,000 luminaires or less) unless negotiated otherwise with the Purchaser. Where the order is not received within 3 weeks of the defined delivery date, a liquidated damage cost of \$100 plus \$1.00 per luminaire per day may be applied by way of the Purchaser deducting the liquidated damages cost from the invoice.

5 Payment and Invoicing

Purchasers will issue a Draw Down. Contractors will provide an itemized invoice for Purchaser review and approval. Approval and payment will be made by the Purchaser. The order will be shipped to a single delivery point.

In all instances the Contractor will clearly reference the CSA number on all invoices.

6 Warranty

A warranty is required for the Goods and will be included in the Contract. The warranty will include at a minimum, but is not limited to, the following:

- a. Full replacement of Goods due to any failure. The inability for a luminaire to operate within specifications is also considered a failure;
- b. Replacement of defective Goods for a minimum of 10 years from date of receipt. No pro-rated warranties will be accepted;
- c. Replacement Goods will be supplied within 30 days of notification. The defective Goods will be made available to the Contractor by the Purchaser. All packaging, shipping costs and arrangements will be borne by the Contractor. The Purchaser will remove the defective luminaire(s) and re-install the replacement luminaire(s) at their own expense;
- d. In the event of a catastrophic failure the Contractor will be responsible for the full replacement of the Goods, shipping costs and all labour for removal and installation of luminaires. Catastrophic failures are failures of a similar nature that occur to 2 percent or more of the luminaires within the first year of operation;
- e. Correlated Colour Temperature (CCT) which falls outside an operational tolerance of a +/- 300 Kelvin shall be classed as defective goods and shall be repaired or replaced by the Contractor. This tolerance shall be above and beyond the manufacturing tolerance (e.g. a luminaire with 4000K would have to be over 4600K or under 3400K to be classed as defective product).

See Appendix 1 – Warranty Certificate for additional details.

If any term or condition within the attached Warranty Certificate contradicts any of items 6 a. through e. above, the items above will prevail and be honoured by the Contractor.

7 Defective Goods

- a. Goods found to be defective will be quarantined on location and the Contractor's representative called in to confirm. Once the Contractor has been notified of the quarantine, all shipments of Goods under the Draw Down, potentially affected by the defect, will cease until the cause of the defect has been remedied.
- b. Quarantined Goods will be fully inspected, and defective Goods returned at no cost to the Purchaser.

Refer to the Contractor's complete defective goods procedure for additional details.

If any of the Contractor's defective goods procedure contradicts any of items 7 a. and b. above, the items above will prevail and be honoured by the Contractor.

8 Packaging

Luminaires will be packaged to prevent damage during shipping. Luminaire information and attributes will be listed on exterior of box or duplicate bar code will be provided so exact luminaire can be easily identified and installed in the proper location. Large orders will be attached to pallets for easy off-loading and bulk packaging is encouraged whereby overall packaging waste is reduced.

9 Asset Tracking

In order to track luminaires through supply, installation and maintenance, the Contractor will label each luminaire with a unique bar code. Purchasers will provide data specific to their requirements (e.g. location). Contractors should provide data including:

- Manufacturer and model number
- Date of manufacture
- Colour temperature
- Driver current
- Wattage

10 Exterior Label Visible from Ground

The Contractor, at the request of the Purchaser, will provide a weather-resistant label that can be affixed to the underside of the exterior of each luminaire that lists the lumens and wattage (and any other key information of the luminaire requested by the purchaser) such that it can be visible from the ground while mounted atop a street light pole. This exterior label will be white with black printing and provided by the Contractor at the price per unit submitted in the Options Prices section of Schedule B – Prices (if no price is provided then there is no additional charge for the exterior label). While a viewing aid such as binoculars may be used to view the label from the ground, the font size of the text on the label should ideally not be less than 48 points (approximately 25mm tall). When the above exterior label is provided to a Purchaser the exterior NEMA wattage label described in section 1.7.2 of Appendix 2 – Luminaire Specifications will then no longer be required but may be installed at the option of the Contractor

**SCHEDULE “B”
PRICES**

SCHEDULE "C"
ORDERING AND CONTACT INFORMATION

Offeror's Representative

Ordering Contact Information

SCHEDULE "D"
ADMINISTRATIVE REQUIREMENTS

The Offeror will comply with the following administrative requirements and procedures:

PROCUREMENT SERVICES CSA CONTACTS

1. For further information or clarification regarding:

Representative (Province):
Bryn Johns, Procurement Specialist
Email: bryn.johns@gov.bc.ca
Phone: 250-387-7317

REPORTING PROCEDURES

Quarterly Draw Down Reports

2. The Offeror will submit Draw Down reports to Procurement Services on a quarterly basis as follows:

The Draw Down report for:	Is due:
Quarter 1 (January, February, March)	April 30
Quarter 2 (April, May, June)	July 31
Quarter 3 (July, August, September)	October 31
Quarter 4 (October, November, December)	January 31

3. Quarterly Draw Down reports will be sent via email to bryn.johns@gov.bc.ca and include the CSA # in the subject line.
4. The Draw Down reports will be in MS Excel format and completed in the form of the CSA Draw Down report template as provided and updated from time-to-time by the Province. The contents of the report will be, at a minimum:
- Offeror's Name
 - Offeror's CSA Number
 - The SKU/model number of each CSA-approved Good sold through the CSA during the quarter
 - Date sold
 - Purchaser's name
 - Quantity sold
 - Unit Price
 - Total Price (excluding taxes and shipping)
 - 1% Administration Fee due

5. The Offeror will provide a quarterly Draw Down report whether or not any Draw Downs are received in that quarter. Each quarterly Draw Down report will provide an explanation for any missing data.

Quarterly Fee Remission

6. **Administration Fee.** Each quarter, the Offeror will submit to Procurement Services Branch a cheque for one percent of all sales (exclusive of taxes and transportation charges) that were reported to Procurement Services

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on the quarterly Draw Down report, including sales to any Public Sector Entity. The cheque must be payable to the “Minister of Finance”, and sent to the following address:

Procurement Services Branch
3rd Floor
563 Superior St
Victoria BC V8V 0C5

The cheque must clearly identify each CSA and the months represented in the payment. The cheque must be submitted no later than 1 month following the end of each quarter as follows:

The fee for:	Is due:
Quarter 1 (January, February, March)	April 30
Quarter 2 (April, May, June)	July 31
Quarter 3 (July, August, September)	October 31
Quarter 4 (October, November, December)	January 31

7. Draw Down reports may be checked against provincial financial records to verify accuracy. Procurement Services shall promptly notify the Offeror of any discrepancy, who will be given one month to respond to or rectify the report.
8. More than two occurrences of inaccuracies may result in the CSA being suspended, until such time as the supplier can demonstrate to Procurement Services that they are capable of managing the terms of their CSA agreement.
9. Failure to submit a reimbursement cheque for the Administration Fee within two months of the end of a quarter in which sales were reported may result in the CSA being suspended until such time as reimbursement is received.
10. Failure to submit a Draw Down report within two months of the end of a quarter, whether or not there were any Draw Downs in that quarter, may result in the CSA being suspended until such time as a completed Draw Down report is received.

SCHEDULE "E"
ADDITIONAL TERMS AND CONDITIONS FOR PURCHASES ON A CSA FOR GOODS

- 1) In this Schedule E,
 - a) "CSA" means Corporate Supply Arrangement #;
 - b) "Draw Down" means a written Draw Down issued by a Purchaser to the Offeror against the CSA for the provision of a specified quantity of Goods at the Prices set out in the CSA;
 - c) "Entity" means a broader public sector organization that has been qualified to issue a Draw Down against the CSA and is listed at the Procurement Services website;
 - d) "Goods" means the goods described in Schedule "A" to the CSA;
 - e) "Prices" means the prices as set out in Schedule "B" of the CSA;
 - f) "Procurement Services" means the Procurement Services Branch of the Ministry of Citizens' Services;
 - g) "Purchaser" means the Province or an Entity that has issued a Draw Down; and
 - h) "Supplier" means the Offeror under the CSA who is in receipt of a Draw Down requesting the Goods under the CSA.
- 2) In the event that a Draw Down is issued for Goods, the terms and conditions contained in this CSA and all Schedules will constitute the full and complete agreement between the parties (the "Agreement").
- 3) The Supplier must promptly notify the Purchaser if the order cannot be filled.
- 4) The Purchaser reserves the right to cancel this Agreement, if promised or specified delivery is not met or if Goods fail to meet specification requirements. Over shipments against this order may be returned with all freight charges to the Supplier's account. Order numbers must be shown on all invoices, packing slips and packages. Shipments must be accompanied by a properly completed delivery slip.
- 5) The Purchaser has the right of inspection and approval of all Goods. Inspection by the Purchaser of advance samples will not constitute final acceptance and the Supplier will remain bound by any warranties set out in the specification requirements. No substitutions are permitted unless previously agreed to by the Purchaser and confirmed in writing.
- 6) The Supplier must indemnify the Purchaser against any claim of any person, firm, or corporation alleging that the sale by the Supplier to the Purchaser hereunder constitutes an infringement of patent rights, copyright or any other intellectual property rights.
- 7) The Supplier is an independent contractor and must indemnify, protect, and save harmless the Purchaser, its agents, employees, successors and assigns from any and all damage, liabilities and claims of whatsoever nature arising out of the furnishing by the Supplier, its agents or employees, of the materials and/or performing of the services covered by this order or incidental or ancillary thereto.
- 8) The Supplier must not change the Prices, terms or conditions of this Agreement without the prior written permission of Procurement Services, unless section 3.2(c) of the CSA applies.

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- 9) Any public announcement relating to this Agreement will be arranged by the Province and, if such consultation is reasonably practicable, after consultation with the Supplier.
- 10) The Supplier must not, without the prior written approval of the Province, refer for promotional purposes to the Province being a customer of the Supplier or the Province having entered into this Agreement.
- 11) The Agreement is governed by the laws of the Province of British Columbia.
- 12) Notwithstanding any other provision of this Agreement, the payment of money by the Province to the Supplier, for Purchases made by the Province under this Agreement is subject to:
 - a) there being sufficient monies available in an appropriation, as defined in the *Financial Administration Act*, R.S.B.C. 1996, c.138, as amended from time to time (the "Act"), to enable the Purchaser, in any fiscal year or part thereof when any payment of money by the Purchaser to the Supplier falls due under this Agreement, to make that payment; and
 - b) Treasury Board, as defined in the Act, not having controlled or limited expenditure under any appropriation referred to in subparagraph (a) of this paragraph.
- 13) Time will be of the essence in this Agreement.
- 14) The Supplier must comply with all applicable laws in providing the Goods specified.
- 15) Payment terms are subject to the Province of British Columbia's interest on overdue accounts payable regulations.
- 16) In the event of any dispute between the parties arising out of or in connection with this Agreement, the following dispute resolution process will apply unless the parties otherwise agree in writing:
 - a) the parties must initially attempt to resolve the dispute through collaborative negotiation;
 - b) if the dispute is not resolved through collaborative negotiation within 15 Business Days of the dispute arising, the parties must then attempt to resolve the dispute through mediation under the Mediate BC Society Mediation Rules; and
 - c) if the dispute is not resolved through mediation within 30 business days of the commencement of mediation, the dispute must be referred to and finally resolved by arbitration under the *Commercial Arbitration Act*.

Unless the parties otherwise agree in writing, an arbitration or mediation will be held in Victoria, British Columbia.

Unless the parties otherwise agree in writing or, in the case of an arbitration, the arbitrator otherwise orders, the parties must share equally the costs of a mediation or arbitration other than those costs relating to the production of expert evidence or representation by counsel.

APPENDIX 1 – WARRANTY CERTIFICATE

A warranty is required for the Goods and will be included in the Contract. The warranty will include at a minimum, but is not limited to, the following:

- a. Full replacement of Goods due to any failure. The inability for a luminaire to operate within specifications is also considered a failure;
- b. Replacement of defective Goods for a minimum of 10 years from date of receipt. No pro-rated warranties will be accepted;
- c. Replacement Goods will be supplied within 30 days of notification. The defective Goods will be made available to the Contractor by the Purchaser. All packaging, shipping costs and arrangements will be borne by the Contractor. The Purchaser will remove the defective luminaire(s) and re-install the replacement luminaire(s) at their own expense;
- d. In the event of a catastrophic failure the Contractor will be responsible for the full replacement of the Goods, shipping costs and all labour for removal and installation of luminaires. Catastrophic failures are failures of a similar nature that occur to 2 percent or more of the luminaires within the first year of operation;
- e. Correlated Colour Temperature (CCT) which falls outside an operational tolerance of a +/- 300 Kelvin shall be classed as defective goods and shall be repaired or replaced by the Contractor. This tolerance shall be above and beyond the manufacturing tolerance (e.g. a luminaire with 4000K would have to be over 4600K or under 3400K to be classed as defective product).

If any term or condition within the attached Warranty Certificate contradicts any of items a. through e. above, the items above will prevail and be honoured by the Contractor.

The Warranty Certificate is provided by way of a separate attachment to this CSA.

APPENDIX 2 – LUMINAIRE SPECIFICATIONS

For the CSA the Province seeks luminaires that meet the specifications set out in this appendix.

1. LUMINAIRE PHYSICAL REQUIREMENTS

1.1. Components

- .1 All materials will be new.
- .2 Each LED street light luminaire will include:
 - Driver (power supply);
 - Weather-resistant housing;
 - LED driver; and
 - Optical system.
- .3 LED light source(s) and driver(s) shall be Restriction of Hazardous Substances (RoHS) compliant.

1.2. Aesthetics

- .1 LED luminaires will be aesthetically acceptable to the evaluation team.

1.3. Housing and Finish

- .1 Single piece unit primarily constructed of A360 aluminium alloy (or better), die-cast is preferred. Die-cast is preferred however extruded can be provided. If an aluminium material of a lesser grade than A360 is used then a powder coat or painted finish must be provided. If the material is A360 or better then paint or powder is not mandatory.
- .2 A glass lens is not mandatory however is preferred for ease of cleaning and reduced dirt depreciation as defined in Illuminating Engineering Society of North America (IESNA) RES-1-16. Glass shall have a rating of IK09 or better.
- .3 Will be designed to eliminate emission of noise from wind, and to resist build-up of icicles.
- .4 CSA or ULC rated for wet locations. Shall bare CSA label.
- .5 A minimum 3G vibration rating is required
- .6 All externally exposed screws, bolts and washers shall be stainless steel. Captive screws are required on any components that require maintenance after installation. Screws and bolts inside the housing shall be corrosion resistant.
- .7 The luminaire shall have a casting designed to accept a NEMA 7 pin locking photocell receptacle in accordance with ANSI C136.41. The housing shall be designed so the photocell receptacle can be rotated.
- .8 Where a powder coat or paint is used the luminaire housing surfaces (inside and out) shall meet or exceed a thickness of 2 mils and shall exceed a rating of six (6) per American Society for Testing and Materials (ASTM) D1654 after 1000 hours of testing per ASTM B117. The coating shall exhibit no greater than 30% reduction of gloss per ASTM D523, after 500 hours of testing at ASTM G154 Cycle 6. Paint or powder finish shall be grey.
- .9 Tool-less entry is preferred. The driver will be mounted internally with quick disconnect and be easily replaceable.
- .10 Provision for future use of house-side external or internal shielding specifying attachment means.
- .11 Wiring and grounding, latching and hinging, mounting shall meet requirements of ANSI C136.37.

1.4. Thermal Management System

- .1 Will consist of heat sink fins integrated within the housing with no fans, pumps, or any moving parts and/or liquids, and will be resistant to debris build-up including bird droppings.
- .2 The heat sink system will be designed to maintain a junction temperature for the LED's such that the light engine will achieve a minimum lifespan of 88,000 hours (IESNA LM-80) at 10 degrees C.
- .3 Luminaire shall start and operate in the ambient temperature range of +40 C and -40 C.
- .4 Maximum rated case temperature of driver and other internal components shall not be exceeded when luminaire is operated in ambient temperature range specified.

1.5. Mounting

- .1 Luminaires will be mounted horizontally on a standard davit style pole and will be designed to attach to 60mm (OD) diameter x 180mm long tenon on the pole via bolted attachment. The attachment will use no more than four (4) bolts and will allow for a vertical tilt adjustment of $\pm 5^\circ$.

1.6. Weight

- .1 Will not weigh more than 16kg and maximum EPA of 0.1 m².

1.7. Labelling

- .1 Will have waterproof printed product label with full ratings located inside the housing.
- .2 Will have waterproof NEMA wattage rating label meeting ANSI C136.15-2011 located outside the cover and visible from the ground.

1.8. LED Driver and Optical Assembly

- .1 The optical system will be reviewed as to how easily it can be cleaned of dust and debris after installation.
- .2 Circuiting will be designed so individual LED failures will not impact the operation of the other LED's.
- .3 No parts will be constructed out of polycarbonate or any other synthetic material (unless it can be proved it is UV stabilized). Lens discolouration at any point in the warranty period will be considered a product failure.
- .4 Optical system will be rated IP -66 or better.
- .5 The driver shall be dimmable.
- .6 Maximum driver current is not defined however it must be proven that the driver can meet a Mean Time Between Failure (MTBF) of 2M hours or greater.
- .7 Driver shall be rated for wet locations if installed in IP66 rated housing. If not installed in IP 66 rated housing the driver shall have an IP66 rating.

1.9. Operating Environment

- .1 Luminaire will be able to operate normally in:
 - Ambient temperatures from -40 degrees C to 40 degrees C;
 - Winds up to 160kph;
 - Driving rain;
 - Snow and sleet; and
 - Fog.

2. POWER SUPPLY / DRIVER REQUIREMENTS

1.10. Power Factor

- .1 Power supply will have a minimum Power Factor of 0.90 (lagging).

1.11. Operating Voltage

- .1 Luminaires will operate from 120V-277V, 60 HZ and optional 347V-480V, 60 HZ, as specified by Purchasers at time of Draw Down
- .2 Voltage fluctuation tolerance will be $\pm 10\%$.
- .3 Dimming control signal will be industry standard 0 – 10 volts DC.

1.12. Operating Current

- .1 The operating current with inrush current shall not exceed the maximum allowable chip design current.
- .2 Supplier shall define any in-rush current

1.13. Transient (Surge) Protection

- .1 Stand-alone (easy to be replaced) surge protection device.
- .2 ANSI C136.2 with minimum combined test wave elevated 10kV / 10kA.

1.14. Rated Life

- .1 Minimum 88,000 hrs. The supplier shall define the percent of depreciation at 88,000 hours as part of Lamp Lumen Depreciation factor.

1.15. Operating Temperature

- .1 Power supply will operate between -40 degrees C and 40 degrees C.

1.16. Frequency

- .1 Output operating frequency will be > 120 Hz (to avoid visible flicker) and input operating frequency of 60 Hz.

1.17. Radio Frequency Interference

- .1 Power supplies will meet a US Federal Communication Commission FCC 47 CFR Part 15 Inference Requirements for Class A digital devices as a minimum.

1.18. Total Harmonic Distortion

- .1 Total Harmonic Distortion less than 20%.

1.19. Ingress Protection

- .1 Driver will be rated for wet locations if installed in IP66 rated housing. If not installed in IP 66 rated housing the driver will have an IP66 rating.

1.20. Noise Protection

- .1 Power supply will have a Class A sound rating per ANSI Standard C62.41.

1.21. Controls

- .1 Luminaires will have a 7-pin NEMA standard receptacle and shorting cap and will be wired for adaptive controls.
- .2 PEC/dimming controls must fail in the on state for the luminaire.
- .3 Dimming control signal shall be industry standard 0 – 10 volts DC (International Electrotechnical Commission (IEC) 60929) to be wired to the photocell receptacle for plug and play dimming node operation.

1.22. Power Terminals

- .1 Sized from #14 to #8 AWG wire accessible underside of luminaire (HD brass screw capable of copper to copper connection).
- .2 Shall be located in the luminaire housing.

1.23. Reliability (MTBF)

- .1 MTBF is preferred to be not be less than 2 million hours however lower MTBF will also be considered but will be rated lower than luminaires with a higher MBTF.

2.15. Safety Testing

- .1 Luminaire shall have locality-appropriate governing mark and certification (CSA).
- .2 Luminaire shall meet the performance requirements specified in ANSI C136.2 for dielectric withstand, using the DC test level and configuration.

3. LED PERFORMANCE REQUIREMENTS

1.24. Minimum Luminaire Efficacy

- .1 90 lumen/watt per IES LM-79.

1.25. Correlated Colour Temperature (CCT)

- .1 Manufacturing Nominal CCT tolerance (degree K) 4000K +/- 300 and 3000K +/- 300K.

1.26. Colour Rendering Index (CRI)

- .1 Minimum CRI of 70.

1.27. Lumen Depreciation of LED Light Sources

- .1 Lumen Depreciation (LLD) will be determined by the manufacturer and be based on the percentage of initial output at 88,000 operating hours calculated in accordance with IESNA LM-80 and TM-21.

1.28. Light Distribution

- .1 Roadway luminaires will be in accordance with IESNA Type 1, 2 or Type 3 or type 4 distribution.

1.29. Luminaire Cut Off

- .1 International Dark-Sky Compliant
- .2 BUG rating will be as follows:
 - B – Not used;
 - U - zero (0) up-light rating;
 - G – Not used