**CITY OF COQUITLAM**
**Request for Information & Qualifications**
**RFI No. 12-02-08**

Supply of

# LED Street Lights

Submissions will be received at email: citypurchasing@coquitlam.ca

**On or before 2:00 pm (local time) on Tuesday, May 15, 2012**
("Closing Date and Time")

The City of Coquitlam ("City") is issuing a Qualifications Based Selection ("QBS") process to select Suppliers to provide **LED Street Lights** and product support services for future projects and installations, including a small quantity pilot project.

The City currently uses Cobra/Davit head, Post-top style, and Specialty street light lamp fixtures throughout the municipality. Through this selection process, the City is looking to identify innovative products and companies with current knowledge of industry trends, which will lead to the replacement of existing HPS lamp fixtures. Upon evaluation, a short list will be created and then further assessment will be done on selected fixtures through a pilot project. Successful Suppliers will be added to the City Approved Product List, identifying product to be used for new installations and retrofitting as needed.

This RFI is intended to invite qualified Suppliers that are interested in and have the technical expertise & products to meet the specifications herein, for the supply of these LED Street Lights and support services (refer to **Appendix A** attached).

## Qualifications and Evaluation Criteria

As per instructions in "**Appendix A – LED Streetlight Specifications**", the Statement of Qualifications submitted should be brief, clear and concise and address the following topics (general criteria), as well as other information that respondents deem to be important:

- Company background, key personnel and their roles, technical services
- Product performance, warranties, and quality assurance
- Warehouse and distribution location, lead times
- References and contact information to confirm current product installations and service support
- Product sustainability features– resource, materials, waste and energy efficiencies
- Value Added; innovation, competitive advantage, value and services offered

The evaluation will be confidential and no totals or scores will be released to any of the respondents. We thank all candidates for their interest however only those short listed will be contacted.

Submissions from the short listed Suppliers will remain on file until such a time as the City may release a new request for qualifications. The City makes no representation of any kind as to the volume of LED Street Lights. The City also reserves the right to implement a separate pre-qualification process where more specialized services or projects are involved.

**RFI Submissions**

The City will accept RFI submissions on or before:

**2:00 pm, on Tuesday, May 15th, 2012** sent to email: citypurchasing@coquitlam.ca

File size limit for RFI submissions is 10 MB.

For submissions of 10MB and larger, use the City's file transfer website: http://qfile.coquitlam.ca Enter citypurchasing@coquitlam.ca as the recipients email and enter the Number and Title in the subject field.

Submissions will be deemed to be successfully received when displayed as new email by the recipient at the City. The City will not be liable for any delay for any reason.

**Note:** **Sample Fixture** - To be considered for evaluation, the required fixture or product sample shall be clearly labelled with the company name and contact information and delivered to the City Service Centre (Public Works Yard), preferably before the closing date and time to:

**City of Coqutilam**
**500 Mariner Way**
**Coquitlam, B.C. V3K 7B6**

**Attn: Sean O'Sullivan (Traffic Operations)**

Upon completion of the evaluation, product samples will be available for pick-up at no cost to the City. The City will not be liable for any loss or damage that may occur to the product sample during the evaluation and testing process.

All inquiries are to be submitted in writing and sent to email: citypurchasing@coquitlam.ca referencing the RFI name and number, 3 business days prior to the closing date. The City at its sole discretion will determine which inquiries require a response which will be provided to all interested parties by issue of written addenda and posted on the City's website before the closing date.

Interested parties are required to check the City's website before the closing date and time for any updated information and addenda issued at:
http://www.coquitlam.ca/BidOpportunities

Upon submitting their qualifications, respondents will be deemed to have received notice of all addenda that are posted on the City website and deemed to have considered the information for inclusion in the submission.

Information received by the City will be held in confidence and will become the property of the City. The City is however, bound by the provisions of the Freedom of Information and Protection of Privacy Act, and all parties are advised that submissions will be treated as public documents and their contents may be disclosed if required to do so, pursuant to the Act.

The City reserves the right to accept or reject any or all submissions or cancel this RFI at any time. The City reserves the right to accept submissions that are received after the Closing Date and Time but are under no obligation to evaluate. The City will not be responsible for any costs incurred by the respondents in the preparation of a submission.

D. Trudeau, Purchasing Manager
Email: citypurchasing@coquitlam.ca
Issue Date: April 25, 2012

# Appendix A
# LED Streetlight Specifications V3

## 1 General

The purpose of the specifications is to define LED luminaire requirements and establish a list of suppliers for street lighting projects in the City of Coquitlam. Projects shall include new installations (new poles and luminaires) and retrofits of existing luminaires on existing poles. The goal of using LED's is to reduce power and maintenance costs while maintaining properly illuminated roads and sidewalks.

Each LED luminaire shall include driver (power supply), weather-resistant housing, optical system, and it is preferred all requirements listed in these specifications are met. Alternates will be considered provided they meet or exceed the spirit of the requirement. It is up to the supplier to prove their alternate meets or exceeds what is required in this specification. Documentation and samples (listed below) shall be submitted and reviewed to ensure the product meets quality and performance benchmarks.

The City will use this information to initiate a pilot project, from which it will establish a list of approved products to be used for future lighting projects as well as to develop a retrofit plan for the existing street lights in the City.

Common HPS luminaire types requiring LED replacement:

- 150W and 250W HPS cobra head (drop lens and flat glass) luminaires
- 100W and 150W HPS post top china hat (Powerlite/AEL Twistpak BR2LP/TWT series) style

For these less common lights, the City is looking for LED replacements or LED retrofit kits. Wattages and light sources will vary to suit given applications;

- Lumec Candela 1 Series
- Lumec Candela 2 Series
- Lumec Candela 5240 Series
- Lumec L29 Series
- Lumec DMS50 Series
- Lumec TR series
- Powerlite S-10 series
- Lithonia Aeries AS1 series

# Appendix A
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## Statement of Qualification Submissions

The supplier may elect to submit for one or more of the lighting/roadway scenarios listed in "Table 1 – Parameters for Lighting and UPD Calculations". The supplier shall also state any exception to the specification in writing with their submission.

The submission for review & general approval shall include these items and be categorized in the following order:

1. **Letter** - A letter requesting pre-approval for various luminaires offered (list products). This section shall also include information of a general nature such as company background, key personnel, etc.

2. **Table 3 Product Information** -Technical sheets for each product including any options offered along with a completed "**Table 3 Product Information**" filled out with all required information for each luminaire type submitted.

3. **Table 2 Lighting and UPD Calculations** - Testing, certification, calculations and information results listed under Section 7.0 Certification and Testing. This shall include "**Table 2- Lighting and UPD Calculations**" for each roadway type & fixture scenario.

4. **Experience** - Evidence of no less than 3 years experience in the manufacturing of LED-based lighting products.

5. **References** - Provide a minimum of three references (name, title and phone #) where the LED based lighting product has been operating in North America for at least one year.

6. **Cost** - Budget cost in Canadian dollars for each product along with costs for options.

7. **Supply** - Location of distribution and approximate delivery time.

8. **Sample** - Submit sample of the product(s) for evaluation and possible field testing. Product(s) must be a production unit and not a prototype. Not every product needs to be submitted. Where products are alike in style, mounting or optic, only one sample needs to be submitted. **Sample product is to be delivered before the Closing Date and time to:**

   **City of Coquitlam, Service Centre**
   **500 Mariner Way**
   **Coquitlam BC V3K 7B6**
   **Attn: Sean O'Sullivan (Traffic Operations)**

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The City will evaluate the submissions, product samples and conduct field testing. The results of the evaluation will determine what products meet City approval. When a supplier obtains product approval, their products will be added to the City's Approved Products List. The City will retain all documentation for use in the product auditing process. This documentation will be used to ensure the product meets the minimum quality benchmark as stated by the supplier.

The City may remove a supplier from the City's Approved Products List for any reason, and such supplier/manufacturer will not be eligible to re-apply until all product deficiencies or issues have been corrected to the satisfaction of the City. Where this specification is revised, manufacturer, vendor or supplier products shall conform to the revision to be listed. The manufacturer, vendor or supplier shall demonstrate to the City of Coquitlam that the modified product conforms to the specification.

## 2 Power Supply/Driver

Power supply driver shall be a high reliability system with design features and component sets that provide for a minimum 64,000 hours life (approx 15 years) expectancy at 10° C. Electrolytic capacitors used in the power supply driver shall have a life rating of 60,000 hours or better at 85° C. The LED power supply components shall be soldered to the printed circuit board in a nitrogen environment for high reliability lead free RoHS assembly.

Terminal blocks with high spring tension push-in spring cage connection (or suitable alternate) shall be used to connect the power supply to the light engines or to the main incoming AC power from the electrical grid. Luminaire shall be designed a terminal block for wiring connections to accept #10 to #14 awg feeder wiring and bond conductor.

The power supply shall be capable of operation at 60Hz with a power factor of 90% or better. The driver and related components shall operate normally for input voltage fluctuations of +6% to -10%. The voltage shall be capable of self-adjustment between 120V to 277V. 347V shall also be available.

The power supply and driver shall be designed for reliable operation with the fixture at ambient temperatures between -40°C to +40°C with a maximum case temperature of +90°C. Drivers must be mounted internally, be easily accessible and shall be field replaceable. Driver housing must be rated for wet or damp locations, IP66 or greater ingress protection. Drivers shall have 0-10V dimming capabilities.

The maximum driver current shall be 350mA. For each luminaire, the manufacturer shall provide the following information for each driver current:

- Total fixture power consumption in both Watts (W).
- Fixture efficacy in Lumens per Watt based on an independent laboratory LM-79 report.

For transient voltage and lightning protection; the power supply shall incorporate a surge protection capable of multiple strikes and be rated for 10kV tested in accordance with IEEE/ANSI C62.41-2002.

The power supply shall have a maximum Total Harmonic Distortion (THD) of 20% at full input power and across specified voltage range and shall conform to ANSI C82.77-2002.

Luminaire shall have an internal label per ANSI C136.22. Nominal luminaire input wattage shall account for nominal applied voltage and any reduction in driver efficiency due to sub-optimal driver loading.

# 3 Optical System

The optical system shall be designed to properly illuminate the roadway and sidewalks however shall provide maximum spill light cut-off beyond the sidewalk to reduce spill light and glare impacts on local residents. The optical system must be IDA Dark Sky Compliant. No parts shall be constructed of polycarbonate unless it is UV stabilized (lens discoloration will be considered a failure under warranty). The optical system shall have a rating of IP66 or better. Each luminaire shall have light engine(s) populated with white LED's. Standard colour temperature shall not exceed 5,000K (+/- 10% testing tolerance) with a minimum colour rendering index (CRI) of 60.

The heat sinking system shall be passive. The heat shall have fins to dissipate heat. The heat sink fins shall be designed to resist debris build-up. The heat sink system shall maintain a temperature for the LED's to a minimum 64,000 life (IESNA LM-80) at 10°C.

Luminaires shall be optically efficient. It is preferred luminaires meet a Unit Power Density (UPD) not exceeding 0.2 W/m² or better. Performance of the luminaire shall be based on the design parameters listed in Table 1. Lighting calculations for all proposed luminaires shall meet the photopic luminance criteria from the TAC - Guide for the Design of Roadway Lighting. Calculation for the roadways shall be luminance, uniformity and veiling luminance. Horizontal illuminance sidewalk calculations shall be horizontal illuminance and uniformity (not vertical illuminance). The sidewalk shall be offset 2.5m behind the curb and shall be 1.5m wide (away from the road). Street lights shall be offset 2m behind the curb. Davit pole arm lengths shall be 2.5m.

Calculations shall be for maintained values, Light Loss Factor (LLF) where LLF = LLD x LDD x LATF, and

- Lamp Lumen Depreciation (LLD) shall be determined by the Manufacturer and be based on the percentage of initial output at 64,000 operating hours calculated in accordance with IESNA LM-80 and TM-21. The TM-21 extrapolation can however be up to 8 times;

- Luminaire Dirt Depreciation (LDD) = 0.90, as per IES DG-4 for an enclosed and gasketed roadway luminaire installed in an environment with less than 150 µg/m³ airborne particulate matter and cleaned every ten years;

- Luminaire Ambient Temperature Factor (LATF) = 1.04 (10° C).

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**Table 1: Parameters for Lighting and UPD Calculations**

| Roadway Type ** | Pedestrian Activity Level | Typical Pole Spacing | Luminaire overhang (m) * | Pole Height (m) and Type | | |
|---|---|---|---|---|---|---|
| | | | | 4 – 3.5m lanes, staggered or opposite | 2- 5.5m lanes, staggered | 2 – 4.0m lanes, staggered |
| 1. **Arterial** | Medium | 30-45m | +0.5 | 11m davit (opposite) | | |
| 2. **Arterial** | Medium | 35-38m | +0.5 | 9m davit (staggered) | | |
| 3. Community **Collector** | Medium | 25-30m | +0.5 | 9m davit (staggered) | | |
| 4. Standard **Collector** | Medium | 30-35m | +0.5 | | 9m davit | |
| 5. Standard **Collector** | Medium | 30-35m | -2.0 | | 7.5m post-top | |
| 6. Standard **Local** | Low | 40m | -2.0 | | | 7.5 post top |
| 7. Standard **Local** | Low | 30m | -2.0 | | | 6m post top |
| 8. Standard **Local** | Low | 30m | +0.5 | | | 9m davit |

* + roadway side of curb face, – house side of curb face
** use TAC Arterial, Collector and Local definitions

**Table 1: Parameters for Lighting and UPD Calculations**

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### Table 2: Lighting and UPD Calculations

| Roadway Type | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| **Model No.** | | | | | | | | |
| Total Light Loss Factor Used | | | | | | | | |
| Input Watts | | | | | | | | |
| Efficacy (lumens per watt) | | | | | | | | |
| BUG Rating | | | | | | | | |
| **Roadway Calculation Results** | | | | | | | | |
| Average Luminance (cd/m²) | | | | | | | | |
| Uniformity Ratio Avg / Min | | | | | | | | |
| Uniformity Ratio Max / Min | | | | | | | | |
| Veiling Luminance Ratio | | | | | | | | |
| **Sidewalk Calculation Results** | | | | | | | | |
| Horizontal Average Illuminance | | | | | | | | |
| Uniformity Ratio Avg / Min | | | | | | | | |
| **Pole Spacing and UPD Results** | | | | | | | | |
| Pole Spacing | | | | | | | | |
| Roadway UPD (W/ m²) | | | | | | | | |

**Table 2: Lighting and UPD Calculations**

All photometry must be photopic in IES format. Scotopic or mesopic factors will not be allowed. All photometric files shall be absolute.

# 4 Manufacturing

The manufacturing facility shall be ISO 9001 certified. Alternates QC programs may be considered if they meet of exceed the ISO system.

Each luminaire shall be tested at the factory before assembly as follows:

i. Megger test 2500 V to ground
ii. Luminaire start test with photo electric lighting controller relay cell in place

All electronics (light engines and power supplies) shall be manufactured in accordance to RoHS standards. The manufacturer shall have the ability to provide complete traceability of sub-assemblies and components.

All electronics shall be designed and manufactured to meet or exceed a 15-20 year life. For the power supply and driver, the Mean Time Between Failure (MTFB) analysis shall be undertaken in accordance with the Telecordia SR-332 at 20° C ambient temperature. The City is seeking long life and reliability MTBF therefore the preferred MTBF shall not be less than 2M hours however lower MTBF maybe considered if 2M hours can't be achieved.

All internal screws shall be plated. External screws shall be stainless steel. Captive screws are needed on any components that require maintenance after installation. No slot head screws will be allowed. Thread locking compounds shall not be used.

The supplier shall follow a quality assurance system.

# 5 Housing and Mounting

The housing shall be constructed using a single piece, die-cast, A360 aluminum alloy however extruded construction will also be considered. Mechanical design of protruding external surfaces (heat sink fins) for shall facilitate hose-down cleaning and discourage debris accumulation.

Cobra head style replacement luminaires shall be mounted horizontally on a City standard davit style pole and shall be designed to attach to 60mm (OD) diameter x 180mm long tenon on the pole via bolted attachment. The attachment shall use no more than four (4) bolts and shall allow for a vertical tilt adjustment of ±5°. Cobra head luminaires shall have an EPA of 0.10 square metres or less and a mass not greater than 15kg.

Post top mount luminaires shall be designed to attach to a 100mm (OD) x 115mm long vertical pole tenon. Attachment and leveling shall be via bolted connection. Post top luminaires shall have an EPA of 0.18 square metres or less and a mass not greater than 20kg.

The luminaire shall have a casting designed to accept a photocell receptacle. Where required, luminaires shall have a 3-prong locking ANSI C136.10 photocell receptacle. The PE socket needs to be able to rotate, so that the PE window can always be positioned to face the North direction. Where a photocell is not required the casting shall be solid with no hole for a photocell receptacle. Where no photocell is required a photocell receptacle and shorting cap will not be acceptable.

Electrically test fully assembled luminaires before shipment from factory. Luminaires shall be designed for ease of component replacement and end-of-life disassembly.

Incoming power wire access shall be via tool-less entry.

The LED housing shall contain a NEMA wattage label which shall be visible from the ground. The luminaire shall have a label which shall contain the manufacturer, serial number and date of manufacture in a location which can be viewed when accessing the luminaire for servicing.

Standard finish is powder coat. Powder coat shall be Polyester Triglycidyl Isocyanurate (TGIC) super durable polyester powder coat in a variety of colours with a minimum 1000 hour salt spray rating. The nominal thickness of the powder coat shall be at least 2-3 mils.

## 6 Warranty

A warranty must be provided for the full replacement of the luminaire due to any failure. The inability for a luminaire to operate within specifications is also considered a failure. The warranty shall provide for replacement of defective luminaires for a **minimum of 10 years** from the date of purchase. No pro-rated warranties will be accepted. If a supplier has a longer warranty period or offers an extended warranty, provide details and any associated costs.

Replacement luminaires shall be delivered to the City Service Centre within 30 days of notification. All packaging, shipping costs and arrangements shall be made by the supplier. The City will remove the defective luminaire(s) and re-install the replacement luminaire(s) at their own expense. The defective product shall be picked up and removed from the City Service Centre at the sole expense of the supplier.

In the event of a catastrophic failure the supplier shall be responsible for the full replacement of the luminaires, shipping costs and all labour for removal and installation of luminaires. Catastrophic failures are failures, of a similar nature, that occurs to **5% percent or more** of the luminaires within the first year of operation.

# 7 Certification and Testing

The supplier is to submit testing and certification requirements listed below:

1. Provide level 1 (normal) vibration test results;
2. Provide in-situ junction temperature test results;
3. Provide surge protection test results;
4. Provide evidence of RoHS (lead free) certification;
5. Provide IP test results for driver and optical system;
6. Provide absolute photometric files in accordance with IES LM-79 for each luminaire type, wattage, operating current and photometric distribution submitted;
7. Provide CSA or cUL certifications;
8. Provide test results for total wattage and power factor;
9. Provide salt spray and adhesion test results for powder coat finish;
10. Provide LLF calculations and test results using IES LM-80 and TM-21 methods;
11. Provide lighting calculations and UPD results listed in Table 2. Complete Table 2;
12. Name the capacitor manufacturer and model used in the power supply. Provide the capacitor manufacturer's 85°C rating in hours for its rated lifetime. This lifetime rating should include the influence of ripple current and voltage present during the operation of the power supply in the luminaire for in-the-field operating conditions. Provide the capacitor's case temperature under actual operating conditions with an ambient of 20°C;
13. Provide the third party analysis to define MTBF in accordance with Telcordia SR-332 for the actual operating conditions (operating in the luminaire at actual drive current) of the power supply at an ambient of 20°C. (If not available submit MTBF information using alternate method).

# Appendix A
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### Table 3 – Production Information

| | | |
|---|---|---|
| Luminaire Type | | |
| Manufacturer | | |
| Model number | | |
| Housing finish color | | |
| Tenon nominal pipe size (inches) | | |
| Nominal luminaire weight (lb) | | |
| Nominal luminaire EPA ($ft^2$) | | |
| Make/model of LED light source(s) | | |
| Make/model of LED driver(s) | | |
| Thermal management | ☐ Moving parts | ☐ No moving parts |
| Lumen maintenance testing duration (hr) | | |
| Reported lumen maintenance life (hr) | | |
| Warranty period (yr) | | |
| Parameter | Nominal value | Tolerance (%) |
| Initial photopic output (lm) | | |
| Maintained photopic output (lm) | | |
| Lamp lumen depreciation | | |
| Initial input power (W) | | |
| Maintained input power (W) | | |
| Initial LED drive current (mA) | | |
| Maintained LED drive current (mA) | | |
| Drive current used | | |
| In-situ LED $T_c$ (°C) | | |
| CCT (K) | | |
| Additional product description | | |

**Table 3 – Production Information**