

Street Lighting Selection Criteria and Equipment Inventory

SELECTION AND APPROVAL OF STREET LIGHTING FIXTURES

LED technology is evolving at a rapid pace, improving light output performance at a lower cost per device. To ensure that the City of Ottawa fully benefits from the potential energy and cost savings, the Public Works Department's Street Lighting Asset Management Section in coordination with the City's Community Planning and Urban Design Unit shall evaluate new product offerings from its approved vendors prior to the purchase and installation of the devices. Approval of the devices will be in compliance to the minimum selection criteria for luminaires. Updates to the Street Lighting Selection Criteria and Equipment Inventory will be performed on an as-needed basis as technology continues to evolve.

Prior to putting forward luminaire submission documentation, vendors must confirm with the Street Lighting Asset Management Section the minimum criteria and requirements on which submissions will be evaluated.

Vendors are responsible for all costs associated with testing, product assessment, and other activities related to the submission and evaluation of their product as required by the Street Lighting Asset Management Section.

MINIMUM SELECTION CRITERIA FOR LUMINAIRES:

All new luminaire submissions will be evaluated against the following minimum required criteria:

- LM70 \geq 70,000 hours
- Rated CCT of approximately 3000K to 4000K +/-
- CRI \geq 65
- Fixture to be supplied with a 120V dimming driver with 0-10V dimming input compatible with the LED Roadway Lighting (LRL) wireless control and monitoring node LumenIQ A241
- Luminaire shall meet or exceed requirements outlined in Hydro Ottawa's latest Technical Guideline "ECG0008 - Distribution System Voltage and Power Quality" for each LED and driver combination at all required control lighting levels.
- Operating ambient temperature range of -40C to 40C or better
- Fixture shall be wet location rated or better
- LED and driver shall be IP66 rated or better
- Fixture to be supplied with separate UL1449 3rd edition compliant surge protection device in line with IEEE C62.41 category C, high exposure level
- 10 year warranty on complete luminaire and components including LEDs, driver, paint and lens
- Fixture with no up-light component is preferable except where required for marker and decorative lighting
- Maximum luminaire weight of 25kg
- Power factor greater than 0.9

- Vibration tested as per ANSI C136.31-2001
- Meets salt spray testing as per ASTM B117 std for 1000 hours
- Fixture cooling through passive air exchange only
- CSA, RoHS and ULc listed and compliant
- Design Light Consortium listed is preferable.
- IES LM79, LM80 and TM21 test reports available for all luminaires
- IES photometric data files measured in laboratory available for all luminaires
- Fixture shall accept LED Roadway Lighting (LRL) wireless control and monitoring node LumenIQ A241 within the photocell enclosure if provided, e.g. square lantern cupola. Photocell enclosure, where present, to be of non metallic material.
- Where decorative glass is used, it must not compromise efficiency by more than 4W. Efficiency must be confirmed by comparing products using average illumination on target area.
- Selecting product from more than one vendor per fixture model

IMPORTANT NOTE: Glare is an important factor in street lighting design. The Street Lighting Asset Management Section will review the Backlight, Uplight & Glare (BUG) rating according to recommended IESNA standards for each application.

OTHER REQUIREMENTS

All luminaires must meet other requirements as defined by the Public Works Department's Street Lighting Asset Management Section, by other applicable City of Ottawa departments, local utility companies and legislations, regulations, acts and codes. The Street Lighting Asset Management Section will coordinate with utility companies, when applicable, for approval and installation requirements such as metering and gateway installations for all new designs.

COMMISSIONING OF STREET LIGHTING FIXTURES TO NEW WIRELESS MONITORING AND DIMMING SYSTEM

The City of Ottawa has acquired a wireless remote control monitoring and dimming system for its street lighting plant. This new system allows street lighting designs to be adjusted to a greater level of accuracy which will result in higher energy savings and better lighting uniformity.

The following must occur in order for all street lights to be a part of the new wireless system:

- Street lighting designers must coordinate with the Street Lighting Asset Management Section for approval and installation requirements such as metering and gateway installations. Street lighting designers must confirm with the manufacturers that the correct ordering information is used and must ensure that an LED Roadway Lighting (LRL) wireless control and monitoring node LumenIQ A240 will be supplied for each luminaire and ordered with a 10 year warranty.
- The street lighting designer shall be responsible to optimize the lighting output of each selected luminaire based on simulation in order to achieve the best lighting results and greatest energy savings while meeting the light levels prescribed by this Right of Way Lighting Policy. Street lighting designers shall confirm dimming parameters with each manufacturer.
- The street lighting designer shall submit to the Street Lighting Asset Management Section all street light design information including branch circuit name, asset tag, pole type, pole height, pole finish, pole installation date, number of brackets, bracket types, bracket lengths, bracket finishes, luminaire types, luminaire wattages, luminaire lamp types, and more, when applicable. Additionally, the street lighting designer shall submit to the Street Lighting Asset Management Section all dimming schedules to populate the system's database prior to installation.
- The Street Lighting Asset Management Section shall track the node installation and coordinate the system gateway installation to ensure complete communication with the system server for all new equipment. The Street Lighting Asset Management Section will record all submitted design information to the system's database and configure each street light luminaire with their appropriate dimming schedules following installation.

APPROVED STREET LIGHTING EQUIPMENT

The lists of approved Street Lighting equipment in this document are subject to change as a result of evolving technology. Updates to the lists are performed by the Public Works Department’s Street Lighting Asset Management Section. Any new equipment added must be approved by the Manager of the Public Works Department’s Traffic Services Branch in consultation with the Planning and Growth Management Department’s Policy Development and Urban Design Branch. Any new equipment added must be approved by the Manager of the Public Works Departments’ Traffic Services Branch in consultation with the Planning and Growth Management Departments’ Policy Development and Urban Design Branch.

A.1 “SPECIAL AREAS”

Table A.1 Luminaires For “Special Areas”

Group	Description	Manufacturer	Lumen Output Range	Rated Wattage	Distribution Type	Luminaire Catalogue #	Rated %THD
B1	Square Lantern (top mount)	Lumec	3700	55	II	L40U-SFR-MS2-55W48LED4K-R-LE2	6.5
B2	Square Lantern (Side Mount)	Lumec	3700	55	II	L40U-STM-MS2-55W48LED4K-R-LE2	6.5
B3	Cone Style	Lithonia Lighting	5200	58	V	MRP-LED-1-49B350-40K-SR5	10.5
D1	Square Shoe Box	Gardco	9000	125	III	GL18-1-2-125LA-NW-UNIV	10.5
D2	Square Blade	Lithonia Lighting	13500	106	III	DSX2-LED80C530-40K-T3S	11.4

A maximum of 10 decorative fixtures for special areas shall be approved and available at any given time. New inventory of pedestrian lighting will visually relate to the decorative tall mount lighting options and be available in a range of historic and contemporary styles. Decorative mid height fixture options can stylistically stand on their own as they are not installed in combination with tall or pedestrian scale lighting.

Note: Colour options for special areas: Natural/ Light Grey (pantone 441), Black (pantone 419), Medium Grey (Pantone 430), Bronze/ Dark Brown (Pantone 412), Dark Green (Pantone 553). Colour options for special areas are to be coordinated at time of relighting and matched by manufacturers.

A.2 “ALL OTHER AREAS”

Table A.2 Group A1 – Semi Cut Off Cobra Head Style Fixtures

Manufacturer	Series	Lumen Output Range	Rated Wattage	Distribution Type	Luminaire Catalogue #	Rated %THD
LED Roadway Lighting (LRL)	NXT-24S	3900-5600	54	II	NXT24S-05-2LB-700-GY3GULXXH w/ ** drop lens to be UL certified **	11.8

Table A.3 Group A2 – Full Cut Off Style Cobra Head Style Fixtures

Manufacturer	Series	Lumen Output Range	Rated Wattage	Distribution Type	Luminaire Catalogue #	Rated %THD
CREE	XSPR	1900-3750	41	II	BXSPRA-02FCU	5.5
	XSP	3000-4800	53	II	BXSPA-02GAU	5.2
	XSP2	5000-9500	101	II	BXSPA-02HAU	8.1
	XSP2	7000-13000	160	III	BXSPA-02HL	6.3
	LEDWAY HO	9000-17900	274	III	STRLWY-3MEHT2F-ULSVA40K	7.9
LED Roadway Lighting (LRL)	NXT-24S	3900-5600	54	II	NXT24S-05-2**-700-GY3GULXH	11.8
	NXT-36S	5700-8200	80	II	NXT36S-05-2**-700-GY3GULXH	8.5
	NXT-48S	6500-11700	108	II	NXT48M-05-2**-700-GY3GULXH	8.8
	NXT-60S	8000-14500	133	III	NXT60M-05-3**-700-GY3GULXH	10.3
	NXT-72S	9500-17000	158	III	NXT72M-05-3**-700-GY3GULXH	11.4

Table A.4 Group B – Full Cut Off Lantern Style Fixtures

Manufacturer	Series	Lumen Output	Lamp Wattage (HPS)	Distribution Type	Luminaire Catalogue #	%THD
B1 LUMEC (top mount)	L40U*	3700	55	MC II	L40U-SFR-MS2-55W48LED4K-R-LE2	6.5
	L40U*	5300	80	MC II	L40U-SFR-MS2-80W48LED4K-R-LE2	4.7
B2 LUMEC (Side mount)	L40U*	3700	55	MC II	L40U-STM-MS2-55W48LED4K-R-LE2	6.5
	L40U*	5300	80	MC II	L40U-STM-MS2-80W48LED4K-R-LE2	4.7

* Luminaire is not available in full cut off. Up-light (above 90 degree) for this luminaire is approximately 0.1%.

Table A.5 Group C – Round ‘Shoe Box’ Style Fixtures

Manufacturer	Series	Lumen Output	Lamp Wattage	Distribution Type	Luminaire Catalogue #	%THD
C1 Lithonia Lighting	MR2	5000	58	II MCO	MR2-LED-49B350-40K-T2M	10.5
	MR2	6000	85	II MCO	MR2-LED-49B530-40K-T2M	10.5
	MR2	9000	106	II MCO	MR2-LED-30B530-40K-T2M	7.36
	MR2	17000	205	III MCO	MR2-LED-60C1000-40K-T3M	10.5

Table A.6 Group D – Square ‘Shoe Box’ Style Fixtures

Manufacturer	Series	Lumen Output Range	Rated Wattage	Distribution Type	Luminaire Catalogue #	Rated %THD
D1 Gardco Lighting	Gullwing	6000	95	II MCO	GL18- 2-95LA-NW-UNIV	8.2
	Gullwing	9000	125	III MCO	GL18 -3-125LA-NW-UNIV	10.6
D2 Lithonia Lighting	D-Series	9290	105	II MCO	DSX1-LED-30C-1000-40K-T2M	11.4
	D-Series	13710	143	III MCO	DSX2-LED-80C-530-40K-T3M	7.5
	D-Series	23120	276	III MCO	DSX2-LED-80C-1000-40K-T3M	7.5

Table A.7 Underpass Luminaires

Manufacturer	Series	Lumen Output	Lamp Wattage	Luminaire Catalogue #	%THD
Lithonia	LED Wall Luminaire	2900	55	TWH-LED20C-700-40K-T3M-DMG	7.1

Table A.8 Luminaire Bracket Arms

Manufacturer	Series	Arm Length	Color	Manufacturer's Catalog #
USS	TER	1.8m (6')	Natural	TER6MA
USS	TER	2.4m (8')	Natural	TER8MA
USS	TER	3.0m (10')	Natural	TER10MA
USS	TER	4.6m (15')	Natural	TER15MA
USS	Scroll Arm	1.4m (55")	Natural	S25AU5SCR

Table A.9 Aluminum Poles

Manufacturer	Series	Pole Height	Color	Manufacturer's Catalog #
USS	TER	4.6m (15')	Natural	USS8050D15AB-OTT
USS	TER	6.1m (20')	Natural	USS8050D20AB-OTT
USS	TER	8.2m (27')	Natural	USS8050D27AB-OTT
USS	TER	9.8m (32')	Natural	USS8050D32AB-OTT
USS	TER	11.3m (37')	Natural	USS8050D37AB-OTT

Table A.10 Concrete Poles – USI

Pole Series	Pole Length	Pole Height above Grade	Pole Colour			
			NATURAL (PLAIN GREY)	BLACK (BLACK ECLIPSE)	BROWN (DARK BRONZE)	GREEN (AZTEC JADE)
Hampton	20 Foot	15 Foot	HA-200-B-1-PG-30-X-OTT	OPTIONAL	OPTIONAL	OPTIONAL
Hampton	20 Foot	15 Foot	HA-200-B-1-PG-10-X-OTT	OPTIONAL	OPTIONAL	OPTIONAL
Hampton	30 Foot	25 Foot	HA-300-B-1-PG-30-X-OTT	OPTIONAL	OPTIONAL	OPTIONAL
Hampton	30 Foot	25 Foot	HA-300-B-1-PG-10-X-OTT	OPTIONAL	OPTIONAL	OPTIONAL
Newport	35 Foot	30 Foot	NE-350-B-1-PG-10-X-OTT	OPTIONAL	OPTIONAL	OPTIONAL
Newport	41 Foot	35 Foot	NE-410-D-1-PG-10-X-OTT	OPTIONAL	OPTIONAL	OPTIONAL
Madison	20 Foot	15 Foot	OPTIONAL	MA-200-A-2-BE-10-F-OTT	MA-200-A-2-DB-10-F-OTT	MA-200-A-2-AJ-10-F-OTT
Madison	†25 Foot	20 Foot	OPTIONAL	MA-250-B-2-BE-60-F-OTT	MA-250-B-2-DB-60-F-OTT	MA-250-B-2-AJ-60-F-OTT
Madison	30 Foot	25 Foot	OPTIONAL	MA-300-B-2-BE-60-F-OTT	MA-300-B-2-DB-60-F-OTT	MA-300-B-2-AJ-60-F-OTT
Madison	35 Foot	30 Foot	OPTIONAL	MA-350-B-2-BE-60-F-OTT	MA-350-B-2-DB-60-F-OTT	MA-350-B-2-AJ-60-F-OTT
Cambridge	*27 Foot	22 Foot	OPTIONAL	CA-270-A-2-BE-60-F-OTT	CA-270-A-2-DB-60-F-OTT	CA-270-A-2-AJ-60-F-OTT
Cambridge	30 Foot	25 Foot	OPTIONAL	CA-300-A-2-BE-60-F-OTT	CA-300-A-2-DB-60-F-OTT	CA-300-A-2-AJ-60-F-OTT
Cambridge	32 Foot	27 Foot	OPTIONAL	CA-320-A-2-BE-60-F-OTT	CA-320-A-2-DB-60-F-OTT	CA-320-A-2-AJ-60-F-OTT

†25' Madison for "Special Areas" only

* 27' Cambridge for Solera Subdivision only.

Note: Colour options for special areas: Natural/ Light Grey (pantone 441), Black (pantone 419), Medium Grey (Pantone 430), Bronze/ Dark Brown (Pantone 412), Dark Green (Pantone 553). Colour options for special areas are to be coordinated at time of relighting and matched by manufacturers.

Table A.11 Concrete Poles – StressCrete

Pole Series	Pole Length	Pole Height above Grade	Pole Colour			
			NATURAL (MOLD FINISH)	BLACK (BLACK ECLIPSE)	BROWN (SALUKI BRONZE)	GREEN (AZTEC JADE)
Round	20 Foot	15 Foot	E200-BPR-G-M00-c/w 140-35/40	E200-BPR-G-E11-c/w 140-35/40	E200-BPR-G-E90-c/w 140-35/40	E200-BPR-G-E51-c/w 140-35/40
Round	20 Foot	15 Foot	E200-BPR-G-M00-s/f 120	E200-BPR-G-E11-s/f 120	E200-BPR-G-E90-s/f 120	E200-BPR-G-E51-s/f 120
Round	30 Foot	25 Foot	E300-BPR-G-M00-c/w 140-35/40	E300-BPR-G-E11-c/w 140-35/40	E300-BPR-G-E90-c/w 140-35/40	E300-BPR-G-E51-c/w 140-35/40
Round	30 Foot	25 Foot	E300-BPR-G-M00-s/f 120	E300-BPR-G-E11-s/f 120	E300-BPR-G-E90-s/f 120	E300-BPR-G-E51-s/f 120
Round	35 Foot	30 Foot	E350-BPR2-G-M00-s/f 120	E350-BPR2-G-E11-s/f 120	E350-BPR2-G-E90-s/f 120	E350-BPR2-G-E51-s/f 120
Round	41 Foot	35 Foot	E410-DPR2-G-M00-s/f 120	E410-DPR2-G-E11-s/f 120	E410-DPR2-G-E90-s/f 120	E410-DPR2-G-E51-s/f 120
Octagonal	20 Foot	15 Foot	E200-APO-G-M00-FC-s/f 120	E200-APO-G-S11-FC-s/f 120	E200-APO-G-S90-FC-s/f 120	E200-APO-G-S51-FC-s/f 120
Octagonal	†25 Foot	20 Foot	E250-BPO-G-M00-FC-s/f KA176	E250-BPO-G-S11-FC-s/f KA176	E250-BPO-G-S90-FC-s/f KA176	E250-BPO-G-S51-FC-s/f KA176
Octagonal	30 Foot	25 Foot	E300-BPO-G-M00-FC-s/f KA176	E300-BPO-G-S11-FC-s/f KA176	E300-BPO-G-S90-FC-s/f KA176	E300-BPO-G-S51-FC-s/f KA176
Octagonal	35 Foot	30 Foot	E350-BPO-G-M00-FC-s/f KA176	E350-BPO-G-S11-FC-s/f KA176	E350-BPO-G-S90-FC-s/f KA176	E350-BPO-G-S51-FC-s/f KA176
Classic	*27 Foot	22 Foot	KCH22-M00-FC-s/f KA176	KCH22-S11-FC-s/f KA176	KCH22-S90-FC-s/f KA176	KCH22-S51-FC-s/f KA176
Classic	30 Foot	25 Foot	KCH25-M00-FC-s/f KA176	KCH25-S11-FC-s/f KA176	KCH25-S90-FC-s/f KA176	KCH25-S51-FC-s/f KA176
Classic	32 Foot	27 Foot	KCH27.5-M00-FC-s/f KA176	KCH27.5-S11-FC-s/f KA176	KCH27.5-S90-FC-s/f KA176	KCH27.5-S51-FC-s/f KA176

† 25' Octagonal for "Special Areas" only

* 27' Classic for Solera Subdivision only

Note: Colour options for special areas: Natural/ Light Grey (pantone 441), Black (pantone 419), Medium Grey (Pantone 430), Bronze/ Dark Brown (Pantone 412), Dark Green (Pantone 553). Colour options for special areas are to be coordinated at time of relighting and matched by manufacturers.