

TOWN OF GANANOQUE

LED STREET LIGHT PROPOSAL
MARCH 23, 2015



*Photo courtesy of Cree Inc.

Tuesday, March 23, 2015

Stephen Hohner
Rick Cooper
Town of Gananoque
30 King Street East, P.O. Box 100
Gananoque, ON K7G 2T6

Thank you for your interest in upgrading your street lighting network with RealTerm Energy and LAS. Our team at RealTerm Energy brings energy experts, financial analysts, lighting designers and boots-on-the-ground lighting technicians, working together to achieve smart solutions that will deliver approximately 35% cost savings on your streetlight energy bill in the first year. We are passionate about helping communities immediately realize the savings that LED lights can offer and we're proud to offer this service to Gananoque.

Our turn-key service offering includes:

- An initial assessment of your existing streetlight network
- A comprehensive Investment Grade Audit
- Complete photometric designs to optimize energy efficiency and minimize costs
- New LED installation and recycling of old fixtures
- Creation and transfer of data management tools and software
- Transfer of all warranties at commissioning
- Financial options including Energy Performance Contracting, where RealTerm Energy undertakes all project costs and maintains the network over a fixed term, typically sharing the savings with the municipality

On behalf of the team at RealTerm Energy, LAS and Cree Canada, we are pleased to submit this proposal for your review. We strive to be as accurate as possible in our initial projections and cost estimates, and look forward to meeting with you soon to discuss any questions you may have.

Yours truly,



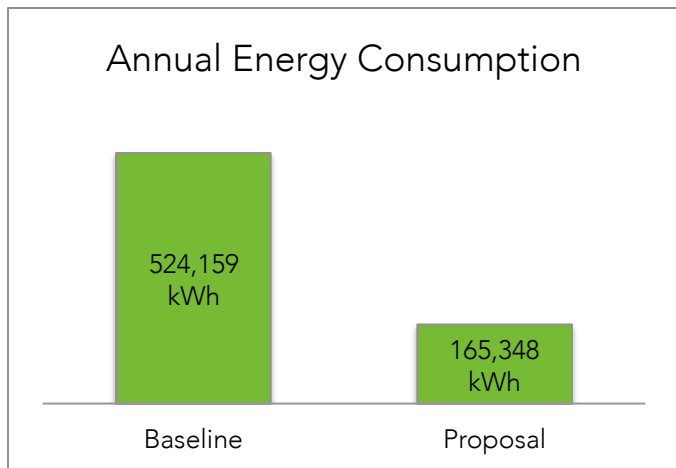
Sean Neely,
President

EXECUTIVE SUMMARY

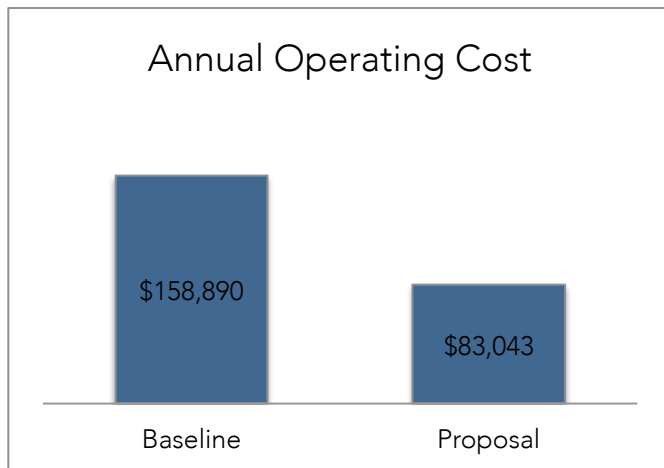
CONSUMPTION, GHG AND COST SAVINGS OF LED STREETLIGHT CONVERSION

CURRENT STATUS	BEFORE UPGRADE	POST UPGRADE	VARIANCE	PERCENT
Number of Fixtures	602	602		
Annual Electricity Consumption (kWh)	524,159	165,348	358,811 ↓	68% ↓
Annual Electricity Costs	\$113,387	\$73,943	\$39,445 ↓	35% ↓
Annual Maintenance Cost (5 yr. avg.)	\$45,503	\$9,101	\$36,402 ↓	80% ↓
Total Street Lights Expenditures	\$158,890	\$83,043	\$75,847 ↓	48% ↓
Average Annual Cost per Fixture	\$264	\$138	\$126 ↓	48% ↓

LED PROJECT LIFE STATISTICS	
Application Life	100,000 hours
Projected Lifetime Savings	\$2,330,110
GHG Reduction First Year	36 tonnes
GHG Reduction Lifetime	825 tonnes



Energy Consumption ↓ 68%



Maintenance Costs ↓ 80%
 Energy Costs (billing) ↓ 35%

EXECUTIVE SUMMARY (continued)

OVERVIEW OF FINANCING OPTIONS

We have presented two financing options for you. See pages 14-16 for details.

1. DESIGN, UPGRADE & TRANSFER (Financed by Municipality), and
2. ENERGY PERFORMANCE CONTRACT (RealTerm Energy Financed)

DESIGN, UPGRADE & TRANSFER OPTION		ENERGY PERFORMANCE CONTRACT OPTION	
Total Project Cost	\$448,097	Municipality's Portion	13.3%
IESO Incentive	-\$68,290	RealTerm Energy's Portion	86.7%
Net Project Cost	\$379,807	Contract Period	10 years
Simple Payback (years)	4.77	Annual Maintenance	Included



ABOUT US



RealTerm Energy Corp., a RealTerm Global Company, is redefining the municipal street lighting market with intelligent LED lighting systems, service offerings and financing options that deliver unmatched energy and maintenance savings. Our mission is to create and foster long term partnerships with forward-thinking private, public and government market leaders to deliver innovative and cost-effective lighting solutions. Our parent company, RealTerm Global, operates a dynamic series of asset and infrastructure platforms on three continents that deliver innovative and responsive solutions to our clients.

For more information please visit us at www.realtermenergy.com



Local Authority Services (LAS), a wholly owned subsidiary company of the Association of Municipalities of Ontario (AMO), is a preferred provider of competitively-priced and sustainable business services for Ontario municipalities and the broader public sector. LAS helps its customers “save money, make money, and build capacity.”

A Unique Partnership That Benefits Ontario Municipalities



After an exhaustive RFP process in the fall of 2014, LAS selected Cree Canada to be its manufacturing partner in offering this street light solution to Ontario municipalities. LAS’s competitive process identified both RealTerm and Cree as offering the best value and the highest quality of services available, in order to offer its members an alternative to engaging in a lengthy and expensive RFP process.

Since the program’s inception, more than 85 Ontario Municipalities have chosen the LAS/RealTerm Energy/Cree partnership to upgrade their streetlight networks.

For more information, contact Scott Vokey, Energy Services Manager, Local Authority Services.

PROJECT TEAM

EXPERTISE IN TECHNOLOGY



Mark Gibson – Associate Director, Business Development - Based in Kingston, Ontario, Mark is responsible for RealTerm Energy's partnerships in cities and towns like yours across eastern, central and northern Ontario. His background in solar power development and installation builds upon his technical and small business growth expertise.



Michael Miller – Project Installation Manager – Michael is your face-to-face contact with RealTerm Energy from initial evaluation, through installation, to final completion of the project. His 30+ years in the municipal and construction sectors gives Michael the expertise to ensure the smooth transition to LEDs for your project. Michael also evaluates and works with our installation partners to ensure quality and consistency across the entire project.



Dan Kirkby - GIS Engineering Manager – Dan manages our Geospatial Information Systems (GIS), as well as the development of RealTerm Energy's GIS-enabled Smart City management tools for local municipalities. He also created our custom app which monitors Smart City connectivity. Dan developed his background in geospatial project engineering while serving in the Canadian Army.



Csaba Demzse - Senior Energy Efficiency Engineer – Csaba is one of a handful of energy efficiency experts in the world at his level. He brings to our team more than 20 years of experience in energy analysis and project management in North America and across Europe in the energy services industry.

PRELIMINARY REPLACEMENT FIXTURES

Prior to working with your lighting officials and with our lighting design experts, we have constructed this initial assessment for illustrative purposes based upon a basic “one-for-one” replacement technique, selecting a Cree LED fixture with comparative light outputs for each existing HPS fixture. This analysis is meant to be used only as a starting point, and allows us to show the energy savings that are possible using LED technology, employing industry standard roadway practices.

Our estimates are conservative. Once our Investment Grade Audit is completed, along with the photometric analysis, we have typically been able to improve the efficiency levels and project costs associated with the LED upgrade.

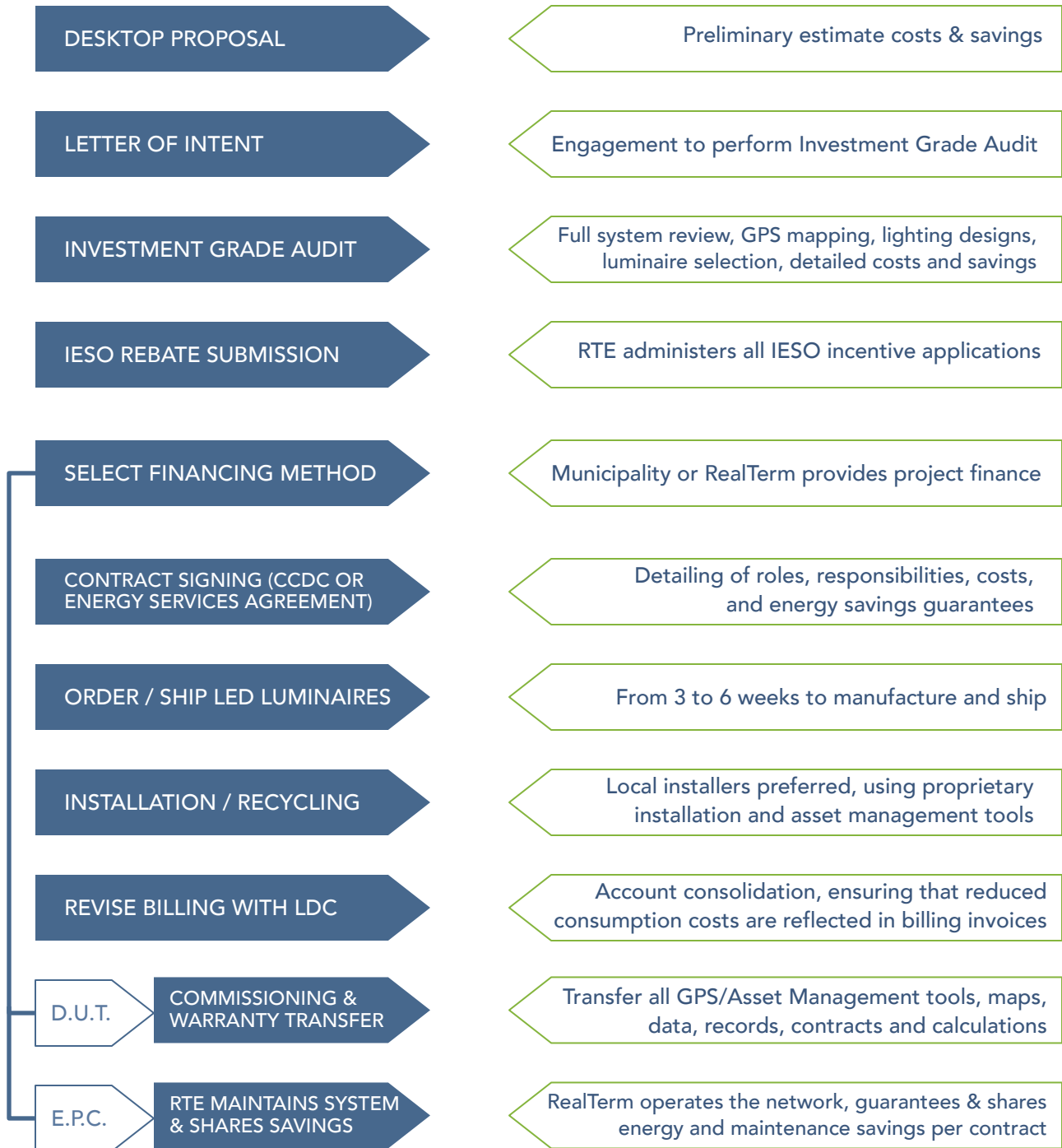
COBRAHEAD FIXTURES								
OLD QTY	OLD FIXTURES	WATTS	TOTAL WATTS	NEW QTY	NEW FIXTURES ¹	WATTS	TOTAL WATTS	SAVINGS
59	HPS 100W	130	7,670	59	CREE - XSP-1 - 38W	38	2,242	71%
116	HPS 150W	198	22,968	116	CREE - XSP-2 - 65W	65	7,540	67%
54	HPS 250W	295	15,930	54	CREE - XSP-2 - 101W	101	5,454	66%
37	MV 175W	230	8,510	37	CREE - XSP-2 - 73W	73	2,701	68%
164	MV 250W	295	48,380	164	CREE - XSP-2 - 83W	83	13,612	72%
21	MV 400W	460	9,660	21	CREE - XSP-2 - 101W	101	2,121	78%
11	INCAND 100W	150	1,650	11	CREE - XSP-2 - 65W	65	715	57%
462			114,768	462			34,385	70.0%
DECORATIVE FIXTURES								
OLD QTY	OLD FIXTURES	WATTS	TOTAL WATTS	NEW QTY	NEW FIXTURES ¹	WATTS	TOTAL WATTS	SAVINGS
140	L61-100HPS-GL-C-SE3-120-SF61-COLTX	130	18,200	140	VX600-48-A-F-N-A LED	54	7,560	58%
140			18,200	140			7,560	58.5%
602			132,968	602			41,945	64.3%

¹ The fixtures shown above indicate the energy savings potential of LEDs given the current inventory. The application of photometric designs conducted during our Investment Grade Audit typically indicate similar or greater energy savings.

Relying solely on a “one-for-one” replacement technique has limitations:

- It can only prescribe the LED replacement wattage for what we believe is installed today,
- It is limited to existing inventory records that are often outdated and inaccurate,
- No consideration is made for a proper lighting design, updated for current roadway conditions,
- Without lighting designs, over lit or under lit streets today will continue to be so, even with LEDs

PROJECT SCOPE OF WORK



THE REALTERM DIFFERENCE

HOW MATTERS.

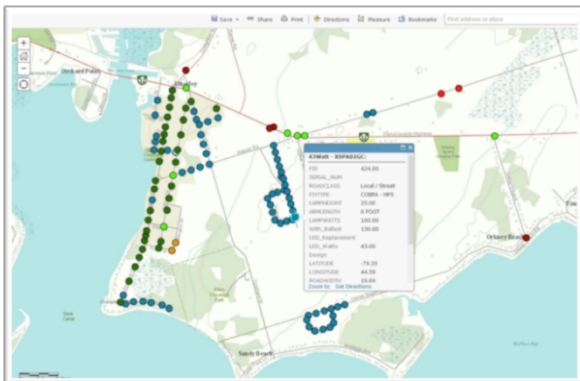
TWO EXCLUSIVE FEATURES OF A REALTERM ENERGY/LAS LED UPGRADE

At RealTerm, we are committed to extracting the maximum benefit for our municipal clients when upgrading their street lighting networks. The economic benefits are so compelling in terms of cost savings and energy efficiencies, that there simply is no reason to cut corners. However, doing it right still takes innovation and a dedication to detail in order to take full advantage of this technology.

The following pages highlight two of the elements included in the Project Scope of Work items listed on the preceding page that make the difference for our clients.

INVESTMENT GRADE AUDIT

Our Investment Grade Audit is often the first definitive study of this critically important asset in your community, and we stand behind the results. RealTerm is unique in the marketplace in that LAS is able to review our findings, estimates, costs and margins thereby assuring that the project as presented, is the most competitive in Ontario.



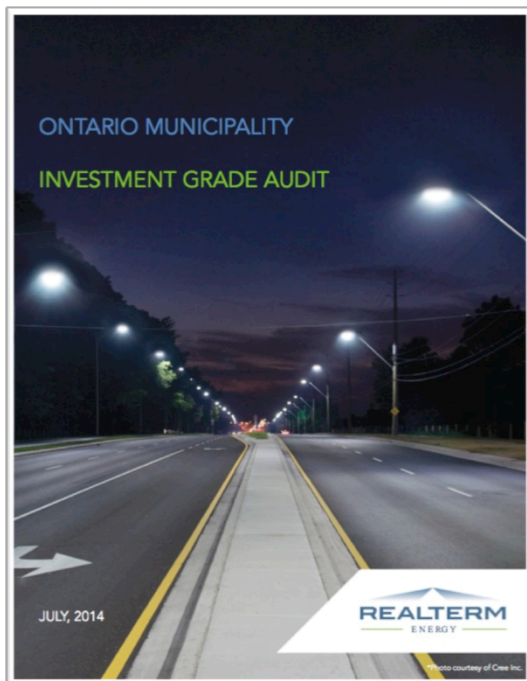
CUSTOM INSTALLATION TOOLS

We have created custom apps and installation tools to equip each Installation Team. These enable us to not just monitor progress daily, but also to record field results that become the basis of your asset management system for the future.

INVESTMENT GRADE AUDIT

THE VALUE OF DOING IT RIGHT THE FIRST TIME

- ✓ Uses GIS/GPS technology to carefully map every streetlight in the municipality
- ✓ Clarifies asset ownership (Town vs. Region vs. MOT, etc.)
- ✓ Obtains exact technical data from each light, used in photometric analysis
- ✓ Detailed analysis of energy and maintenance bills to identify anomalies
- ✓ Conducts photometric analysis (lighting design) to determine optimum lighting solutions that maximize roadway and pedestrian safety, maximize savings and minimize project costs
- ✓ Generates the data sets required by the municipality to perform detailed ongoing asset management
- ✓ Becomes the basis for the business case to staff and council



Sample Roadway with Preliminary Design



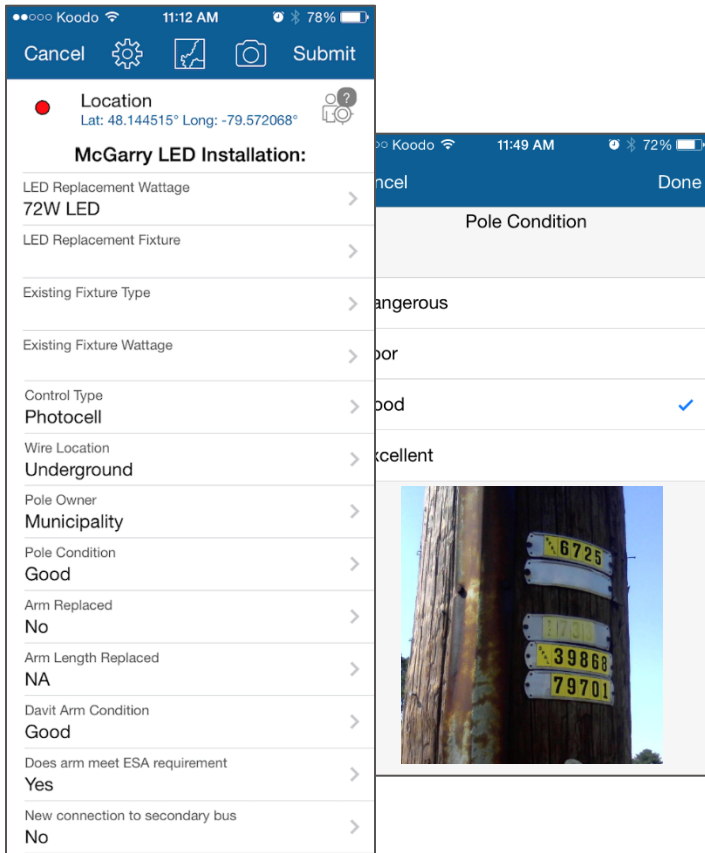
Final Photometric Layout Indicating RP-8 Achieved

In a recent project, the detailed photometric analysis conducted during our IGA phase enabled us to select luminaires that increased energy efficiency by a further 15%, and lowered the fixture costs by an additional 23% over 'the one-for-one' replacement method while still meeting RP – 8.

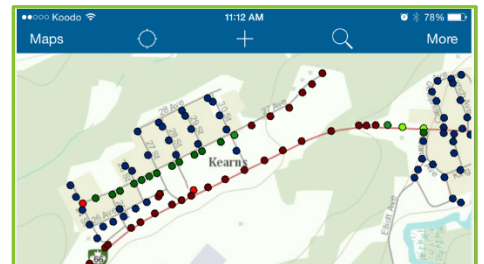
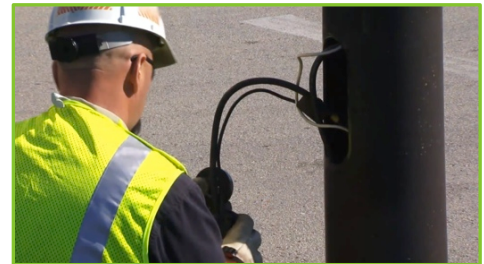
INSTALLATION

REWIRING AND REFUSING POLICIES AT INSTALLATION

- Service calls typically cost a municipality a minimum of \$250 per occurrence, plus materials
- After burn-outs and photocells, the leading cause of service calls is fuse-related
- Replacing the fuse and fuse holder, and if necessary, rewiring the connection to the main during the installation minimizes the likelihood of service calls during the fixture’s life
- This ensures years of maintenance-free operation of the luminaires
- We also provide for 2% of the davit arms to be replaced at installation due to metal fatigue
- Variances in any of the above during actual installation will be adjusted on final billing
- Local contractors are favoured, with our staff supervising the entire installation using custom tools and apps to monitor daily progress
- Asset management reports on pole condition, tree canopy and other site conditions
- All data transferred to Municipality upon commissioning



Custom Installation App



METHODOLOGY

DESIGNING TO RP-8 GUIDELINES

Upon receipt of accurate field measurements, our lighting designers provide as many unique solutions as it takes to customize the results to conform to the maximum extent possible to RP-8, the recommended lighting practice used in throughout the industry. We do so utilizing the current coordinates of each fixture location and road condition. Where RP-8 cannot be met, it is typically due to inadequate pole spacing, which cannot be remedied without adding additional poles and fixtures. It is also true that if RP-8 cannot be met in these applications using LEDs, RP-8 is not being met currently. Our customized design methodology assures that whenever possible, RP-8 levels are met using LED technology, while minimizing the energy usage per fixture.

INSTALLATION ESTIMATES

Based upon our experience in other Ontario municipalities, our installation estimates are meant to be as accurate as we can make them at this stage. The parameters used in this proposal for installation costs and activities are as follows:

- Refusing: Each new LED fixture to include a new fuse
- Rewiring: 35% of inventory to require rewiring
- Disposal: Included at no additional cost
- Arm Replacement: 2% of fixtures

SMART CONTROL READY

At this stage, we have not incorporated smart control technology into the proposal, with the exception of incorporating the cost of an ANSI 5-pin receptacle with each fixture; this allows you to add smart controls at any later time. Once we begin conducting our IGA, we will be happy to add smart solution options to our analysis.

MAINTENANCE ESTIMATES

Different manufacturers propose varying estimates for ongoing maintenance costs for LED fixtures. While it is unrealistic to assume that no annual maintenance will be required, the fixtures themselves do not contain components that require periodic replacement (such as HPS bulbs and ballasts). In order to be conservative, our maintenance savings estimate is modeled at **80%** of the average of the last five years maintenance costs. While actual maintenance costs are likely to be a mere fraction of this estimate in any given year, we recommend incorporating this figure into municipal budgets to account for periodic cleaning or other eventualities over the life of the fixture not covered under the manufacturer's 10 year warranty.

Thus, actual vs. budgeted maintenance savings are likely to be much higher during any given year than what we have modeled here.

COMPARING FINANCING OPTIONS

Regardless of financing type, RealTerm Energy delivers a full turn-key program to manage the entire project, including design, procurement, installation and final commissioning. Our street lighting experts coordinate the entire process to free up your internal resources for other projects.

Option 1

Design, Upgrade and Transfer
(Self-financed)

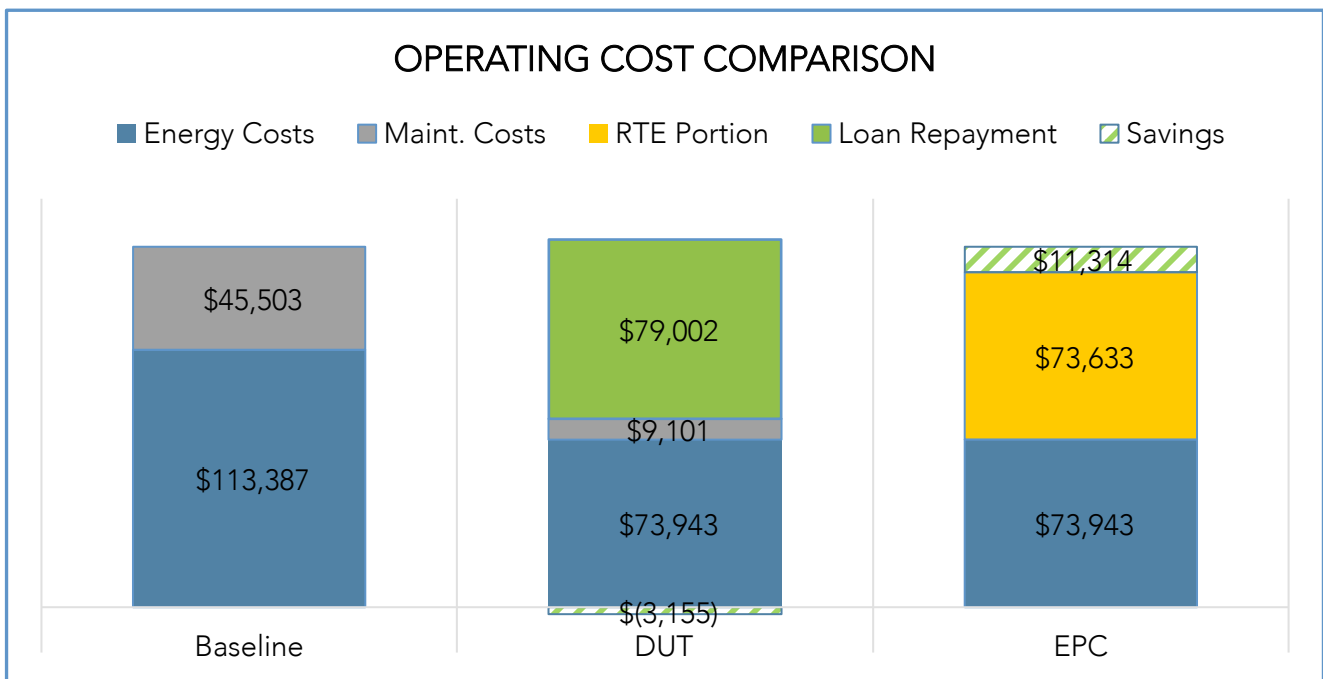
Sources of funds include:

- Infrastructure Ontario (up to 100% of the total amount to be financed),
- Existing local resources (endowments, dedicated funds),
- Federal Gas Tax or other senior level government transfers,
- Special purpose levies, and
- Mill rate adjustments.

Option 2

Energy Performance Contract
(RealTerm Energy Financing)

- RealTerm Energy finances 100% of project costs
- RealTerm maintains the streetlight network for a period of 10 years
- The municipality and RealTerm jointly share in the energy and maintenance savings
- Operating risks transferred to RealTerm
- Guaranteed energy and maintenance savings throughout the term
- Asset ownership remains with municipality.



Please note that in the above chart the loan repayment period is 5 years (DUT Option)

OPTION 1: DESIGN, UPGRADE & TRANSFER

PROJECT COSTS, SAVINGS AND INVESTMENT RETURN

PROJECT COSTS		PROJECT SAVINGS		
Number of Fixtures	602	VALUE	VARIANCE	
Total Project Costs	\$448,097	LED Energy Consumption	165,348 kWh	68% ↓
IESO Incentive	-\$68,290	Year 1 LED Energy Costs	\$73,943	35% ↓
Net Project Costs	\$379,807	Year 1 Maintenance Costs	\$9,101	80% ↓
Price per Fixture	\$631	Year 1 Operating Costs	\$83,043	\$75,847 ↓
		Year 1 Cost per Fixture	\$138	\$126 ↓

Please note that the IESO Incentive in the table above was calculated based on the saveONenergy Program rules in force from December 16, 2014. Under the new rules, the IESO Incentive of \$48,365 presented in our previous proposal has increased to \$68,290.

INVESTMENT RETURN

The simple payback period of the project, before including any financing costs is **4.8 years**.

INFRASTRUCTURE ONTARIO LOAN

Infrastructure Ontario offers loans at favorable rates to most municipalities seeking to improve their civic infrastructure. Interest rates vary with market conditions and are set at the prevailing rate at the time the loan is advanced. The table below summarizes payment options which would be available to fund the project through Infrastructure Ontario

CAPITAL COST	TERM (YEARS)	INTEREST RATE	ANNUAL PAYMENT	COST OF BORROWING
\$379,807	5	1.56%	\$79,002	\$15,202
\$379,807	10	2.21%	\$42,346	\$43,654
\$379,807	15	2.62%	\$30,618	\$79,458

NET SAVINGS AFTER FINANCING COSTS:

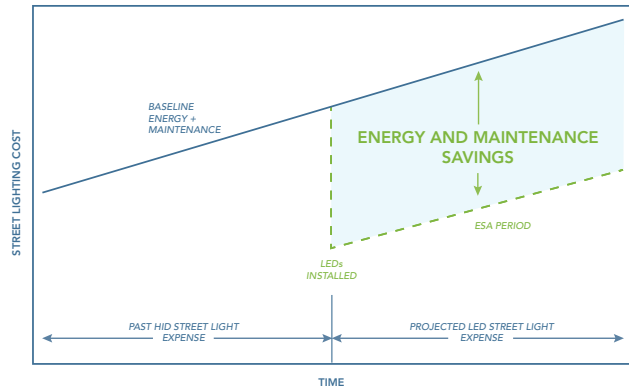
Year	1	2	3	4	5	6-20
Annual Savings	\$75,847	\$77,758	\$79,720	\$81,732	\$83,798	\$964,290
Loan Repayment	\$79,002	\$79,002	\$79,002	\$79,002	\$79,002	\$0
Net Savings	(\$3,155)	(\$1,244)	\$718	\$2,731	\$4,796	\$964,290

OPTION 2: ENERGY PERFORMANCE CONTRACT

GUARANTEED ENERGY SAVINGS AND PROPORTIONAL SHARING

Under an Energy Performance Contract, RealTerm Energy finances 100% of the up-front project costs, freeing up capital for other municipal projects .

In turn, the municipality and RealTerm jointly share in the energy and maintenance savings (shaded area, at right) generated over a fixed Term, usually 10 years.



Shared Savings after Upgrade

Guaranteed Energy Savings

Energy savings are guaranteed by RealTerm, which will maintain the system over a contract Term of ten years. At the end of the Term, operations revert back to the municipality, which then receives 100% of the savings for the remainder of the life cycle.

For this project, details of the split between Gananoque and RealTerm appear at right. The split was calculated with the \$68,290 IESO Incentive being paid to RTE, and applied directly in reduction of the Project Costs.

ENERGY PERFORMANCE CONTRACT OPTION	
Up-front Capital Requirement	Nil
Municipality's Savings Portion	13.3%
RTE's Savings Portion	86.7%
Annual Savings to Client*	\$11,314
Contract Period	10 years
Annual Maintenance	Included

**Year One Combined Electricity and Maintenance Savings*

What is Included in the Energy Performance Contract Option

The same deliverables included in the Design, Upgrade and Transfer Option PLUS

- Guaranteed Energy Savings throughout the Term
- RealTerm ensures that the network operates to established parameters
- RealTerm is responsible for all maintenance over the Term
- At end of Term, operations revert back to Municipality who then enjoys 100% of the savings
- Asset ownership rests with Municipality throughout

CALCULATION ASSUMPTIONS

1. In the calculation of the energy cost of the LED lighting system we assumed that there will be no savings on the distribution volumetric rate, because this will be a matter for negotiation between the municipality and Eastern Ontario Power. This is the reason why although the energy consumption savings will be 68%, the energy cost savings is listed as only 35%. We have adopted this very conservative approach to protect the interests of the municipality as it plans ahead.
2. The annual energy savings and the new LED street lighting system were calculated based on the data provided by the municipality and/or the LDC's. Any changes in the data below will change the energy consumption savings and the energy cost savings.
3. During the Investment Grade Audit, we will work with your staff to identify the decoratives that are best suited to your situation. The ones we have included in our calculations above are typical of the ones chosen to match your current decorative fixtures.

Type of Light	# of Lights	Total Demand Before (kW)	Total Demand After (kW)	Annual Operating Hours
Cobra Head	462	114,8	34,4	3,942
Decorative	140	18,2	7.6	3,942

OPPORTUNITY COST

Sometimes, postponing the decision to buy something today is rewarded by a lower price tomorrow.

With LED streetlights, postponing doesn't just mean waiting, it also means continuing to operate the existing inefficient system and missing out on material energy and maintenance savings while waiting for the prices to drop. In other words, if your waiting, you're wasting energy.

Energy experts and our LED production partners have determined that the big gains that have been realized in LED manufacturing, and that the major price reductions or efficiency advances that we've seen in the past 5 years aren't likely to be seen again.

An illustration of a ten percent (10%) reduction in the price of the fixtures over the next year appears at the right.

As you can see, postponing a decision to upgrade costs the municipality each year in foregone savings and wasted money spent on maintaining an inefficient and costly system.

OPPORTUNITY COST	
Foregone Energy/Maintenance Savings (1 Year)	\$75,847
LED Luminaire Cost (today)	\$362,656
Hypothetical Price Reduction (10%)	-\$36,266
Opportunity Cost of Waiting (12 months)	\$39,581

GREENHOUSE GAS REDUCTION

ESTIMATED GREEN HOUSE GAS REDUCTION	
Current Annual Energy Consumption (kWh)	524,159
Projected LED Annual Energy Consumption (kWh)	165,348
Annual kWh Savings	358,811
Estimated Annual GHG Reduction (metric tonnes)	36
GHG Reduction over Luminaire Life of 100,000 hours (metric tonnes)	825

CONCLUSIONS & NEXT STEPS

There is no doubt that LED technology offers significant energy and maintenance savings over current HID street lighting systems. Continuing to invest in maintaining this inefficient technology wastes labour and materials, wastes energy and contributes to climate change.

We are available to meet with municipal staff either in person or by video conference to review this proposal, to answer any questions you may have, and also gain a more thorough understanding of your lighting needs and objectives.

The next steps to start the implementation of this new technology and start seeing energy and maintenance savings are as follows:

- 1) **Recommendation from Staff to Council to proceed** (RealTerm Energy Personnel are available to make a presentation to Council on the contents of this proposal)
- 2) Letter of Intent (LOI)
- 3) RealTerm Energy commences our Investment Grade Audit of your Streetlight network
 - Data Collection (GIS/GPS mapping and physical parameters)
 - Review of Energy and Maintenance Records
 - Photometric Analysis and Detailed Lighting Designs
 - Final Fixture Selection
 - Economic Models and Savings Forecasts
 - Preparation of Financial Options
 - Final Costing and Timetable for Completion
- 4) Presentation of Findings to Staff/Council
- 5) Approval by Council (if required)

APPENDIX A

- PROPOSED MAINTENANCE SCHEDULE

PROPOSED MAINTENANCE SCHEDULE

OUR OEM PARTNER, CREE LIGHTING GUARANTEES ALL OF ITS LUMINAIRES FOR A PERIOD OF 10 YEARS FROM THE DATE OF INSTALLATION.

A detailed Maintenance schedule for the Energy Performance Contract proposed in Option 2, will be included as an integral part of the EPC. However, prior to the finalization of network design parameters, RealTerm Energy's proactive maintenance obligations are generally inclusive of the following items:

- Annual reporting
- Periodic technical diagnostics to determine network effectiveness
- Defective photocell replacement
- System troubleshooting
- Prompt system repairs
- Cleaning as required

APPENDIX B

- CREE LED PRODUCT SPECIFICATIONS

Field Adjustable Output

For use with XSP1™, XSP2™, XSP2L™, LEDway® High Output and OSQ™ LED Street and Area Luminaires

Description:

The Field Adjustable Output option enables the XSP Series, LEDway® High Output and OSQ™ street and area luminaires to be tuned to the exact needs of a particular application. With multiple levels of adjustment, the XSP Series, LEDway® High Output and OSQ Series luminaires offer maximum flexibility to best meet a variety of applications using a single luminaire. When N or U options are ordered (XSP Series, LEDway® High Output), the luminaires will have the field adjustable option as well as a wattage label that indicates the maximum available wattage of the luminaire.

XSP1™ Street/Area Luminaires

Input Power Designator	System Watts		Lumen Multipliers		Optics Qualified on the DesignLights Consortium Qualified Products List	
	120-277V	347-480V	Types II, II Short, II Long and III Including BLS	Types V and V Short	4000K	5700K
A	53	59	1.00	1.00	2, G, 3, H	2, G, 3, H
B	48	54	0.91	0.92	2, G, 3, H	2, G, 3, H
C	43	50	0.86	0.85	2, G, 3, H	2, G, 3, H
D	38	46	0.77	0.78	2, G, 3, H	2, G, 3, H
E	34	41	0.70	0.70	2, G, 3, H	2, G, 3, H
F	29	36	0.61	0.59	2, G, 3, H	2, G, 3, H
G	27	34	0.52	0.49	N/A	N/A
H	19	26	0.40	0.37	N/A	N/A
I	15	21	0.29	0.27	N/A	N/A

XSP2™ Street/Area Luminaires

Input Power Designator	System Watts		Lumen Multipliers		Optics Qualified on the DesignLights Consortium Qualified Products List	
	120-277V	347-480V	Types II, II Short, II Long and III Including BLS	Types V and V Short	4000K	5700K
A	101	106	1.00	1.00	2, G, 3, H	2, G, 3, H
B	91	99	0.91	0.95	2, G, 3, H	2, G, 3, H
C	83	90	0.86	0.88	2, G, 3, H	2, G, 3, H
D	73	79	0.77	0.80	2, G, 3, H	2, G, 3, H
E	65	71	0.70	0.73	2, G, 3, H	2, G, 3, H
F	56	62	0.61	0.63	2, G, 3, H	2, G, 3, H
G	53	59	0.52	0.52	N/A	N/A
H	37	43	0.40	0.40	N/A	N/A
I	29	34	0.29	0.29	N/A	N/A

XSP2L™ Street/Area Luminaires

Input Power Designator	System Watts		Lumen Multipliers		Optics Qualified on the DesignLights Consortium Qualified Products List	
	120-277V	347-480V	Types II, II Short, II Long and III Including BLS	Types V and V Short	4000K	5700K
L*	168	N/A	1.00	N/A	2, 3	2, G, 3, H
M	153	N/A	0.91	1.00	2, 3	2, G, 3, H
N	134	N/A	0.85	0.91	2, G, 3, H	2, G, 3, H
O	112	N/A	0.75	0.81	2, G, 3, H	2, G, 3, H
P	94	N/A	0.64	0.70	N/A	N/A
Q	76	N/A	0.51	0.57	N/A	N/A
R	56	N/A	0.37	0.42	N/A	N/A

* Input power designator L not available on XSP Series Area Luminaires



US: www.cree.com/lighting T (800) 236-6800 F (262) 504-5415

Rev. Date: 05/22/2014

Canada: www.cree.com/canada



T (800) 473-1234 F (800) 890-7507



For use with XSP1™, XSP2™, XSP2L™, LEDway® High Output and OSQ™ LED Street and Area Luminaires

LEDway® High Output Luminaires – Single Module

Input Power Designator	System Watts		Lumen Multipliers Types II Medium and III Medium	Optics Qualified on the DesignLights Consortium Qualified Products List	
	120-277V	347-480V		4000K	5700K
A	136	140	1.00	2ME, 3ME	2ME, 3ME
B	130	133	0.97	2ME, 3ME	2ME, 3ME
C	123	126	0.94	2ME, 3ME	2ME, 3ME
D	117	119	0.91	2ME, 3ME	2ME, 3ME
E	107	109	0.86	2ME, 3ME	2ME, 3ME
F	97	99	0.81	2ME, 3ME	2ME, 3ME
G	87	89	0.76	2ME, 3ME	2ME, 3ME
H	78	79	0.67	2ME, 3ME	2ME, 3ME
I	68	69	0.61	2ME, 3ME	2ME, 3ME

LEDway® High Output Luminaires – Double Module

Input Power Designator	System Watts		Lumen Multipliers Types II Medium and III Medium	Optics Qualified on the DesignLights Consortium Qualified Products List	
	120-277V	347-480V		4000K	5700K
A	274	279	1.00	2ME, 3ME	2ME, 3ME
B	265	265	0.97	2ME, 3ME	2ME, 3ME
C	252	251	0.94	2ME, 3ME	2ME, 3ME
D	238	237	0.91	2ME, 3ME	2ME, 3ME
E	214	217	0.86	2ME, 3ME	2ME, 3ME
F	198	198	0.81	2ME, 3ME	2ME, 3ME
G	172	177	0.76	2ME, 3ME	2ME, 3ME
H	153	157	0.67	2ME, 3ME	2ME, 3ME
I	136	137	0.61	2ME, 3ME	2ME, 3ME



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Canada: www.cree.com/canada T (800) 473-1234 F (800) 890-7507



For use with XSP1™, XSP2™, XSP2L™, LEDway® High Output and OSQ™ LED Street and Area Luminaires

OSQ™ LED Area Luminaires – Input Power Designators A & J

Q Option Setting	System Watts 120-480V		Lumen Multipliers	Optics Qualified on the DesignLights Consortium Qualified Products List		
	Input Power Designator A	Input Power Designator J		3000K	4000K	5700K
Q9 (Standard)	112	168	1.00	N/A	N/A	N/A
Q8	107	160	0.98	N/A	N/A	N/A
Q7	101	152	0.94	N/A	N/A	N/A
Q6	96	143	0.91	N/A	N/A	N/A
Q5	87	131	0.85	N/A	N/A	N/A
Q4	79	120	0.80	N/A	N/A	N/A
Q3	71	108	0.73	N/A	N/A	N/A
Q2	64	96	0.68	N/A	N/A	N/A
Q1	56	84	0.61	N/A	N/A	N/A

OSQ™ LED Area Luminaires – Input Power Designator S

Q Option Setting	System Watts 120-277V	Lumen Multipliers	Optics Qualified on the DesignLights Consortium Qualified Products List		
	Input Power Designator S		3000K	4000K	5700K
Q9 (Standard)	223	1.00	N/A	N/A	N/A
Q8	213	0.98	N/A	N/A	N/A
Q7	202	0.94	N/A	N/A	N/A
Q6	191	0.91	N/A	N/A	N/A
Q5	175	0.85	N/A	N/A	N/A
Q4	160	0.80	N/A	N/A	N/A
Q3	144	0.73	N/A	N/A	N/A
Q2	128	0.68	N/A	N/A	N/A
Q1	112	0.61	N/A	N/A	N/A

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XSP1™ — XSPA02/G

Cree® LED Street/Area Light – Single Module – Horizontal Tenon Mount – Type II and Type II w/Backlight Control

Product Description

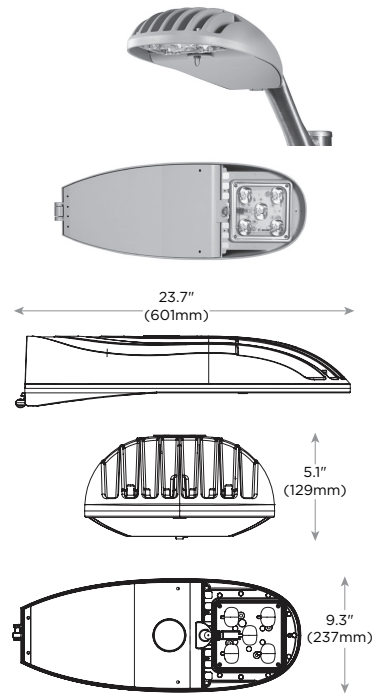
Designed from the ground up as totally optimized LED street and area lighting system, the XSP Series delivers incredible efficiency without sacrificing application performance. Beyond substantial energy savings and reduced maintenance, Cree achieves better optical control with our NanoOptic® Precision Delivery Grid™ optic than a traditional cobra head luminaire. The Cree® XSP Series LED luminaires are the better alternative for traditional street and area lighting with better payback and better performance.

Performance Summary

- Utilizes BetaLED® Technology
- NanoOptic® Precision Delivery Grid™ optic
- Made in the U.S.A. of U.S. and imported parts
- CRI:** Minimum 70 CRI
- CCT:** 4000K (+/- 300K), 5700K (+/- 500K)
- Limited Warranty:** 10 years on luminaire/10 years on Colorfast DeltaGuard® finish

Accessories

Field Installed Accessories	
XA-SPIBLS Backlight Control Shield - Provides 1/2 Mounting Height Cutoff XA-SPIBRDSPK Bird Spikes	XA-XSP4TMNT Four Point Mounting Kit - Includes Large Bracket for mounting to 2" (51mm) IP, 2.375" (60mm) O.D., Small Bracket for mounting to 1.25" (32mm) IP, 1.66" (42mm) O.D. tenon, and mounting bolts
Tenons (must specify color)	
Square Internal Mount Tenons - Mounts to 4" (102mm) square aluminum or steel poles PD-1H4 – Single PD-2H4(180) – 180° Twin PD-2H4(90) – 90° Twin PD-3H4(90) – 90° Triple PD-4H4(90) – 90° Quad	Round External Mount Tenons - Mounts to 2-3/8 – 3" (60 – 76mm) round aluminum or steel poles or tenons PT-1H – Single PT-3H(90) – 90° Triple PT-2H(90) – 90° Twin PT-4H(90) – 90° Quad PT-2H(180) – 180° Twin
Wall Mount Tenon WM-2L	Direct Arm Pole Adaptor Bracket - Mounts to 3 – 6" (76 – 152mm) round or square aluminum or steel poles XA-TMDA8



Ordering Information

Example: XSPA02GA-US

Product	Version	Mounting	Optic	Modules	Input Power Designator	Voltage	Color Options	Options
XSP	A	0 Horizontal Tenon	2 Type II G Type II w/BLS	G 4000K N 5700K	A 53W	- U Universal 120-277V V 347-480V*	S Silver T Black Z Bronze B Platinum Bronze W White	F Fuse - When code dictates fusing, use time delay fuse - Not available with V voltage G Small Four Point Mounting - Mounts to 1.25" (32mm) IP, 1.66" (42mm) O.D. horizontal tenon J Large Four Point Mounting - Mounts to 2" (51mm) IP, 2.375" (60mm) O.D. horizontal tenon K Occupancy Control - Refer to Occupancy Control spec sheet for details N Utility Label and NEMA Photocell Receptacle - Includes Q option - Refer to Field Adjustable Output spec sheet for details Q Field Adjustable Output - Refer to Field Adjustable Output spec sheet for details R NEMA Photocell Receptacle - Photocell by others U Utility - Label per ANSI C136.15 - Includes exterior wattage label that indicates the maximum available wattage of the luminaire - Includes Q option - Refer to Field Adjustable Output spec sheet for details

* See www.cree.com/canada/warranty for warranty terms
 * 347-480V utilizes magnetic step-down transformer. For input power for 347-480V, refer to the Lumen Output, Electrical, and Lumen Maintenance data table



Rev. Date: 03/03/14



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XSP1™ — XSPA02/G
LED Street/Area Light

Product Specifications

CONSTRUCTION & MATERIALS

- Die cast aluminum housing
- Tool-less entry
- Mounts on 1.25" (32mm) IP, 1.66" (42mm) O.D. or 2" (51mm) IP, 2.375" (60mm) O.D. horizontal tenon (minimum 8" [203mm] in length) and is adjustable +/- 5° to allow for fixture leveling (includes two axis T-level to aid in leveling)
- Luminaire secured with two mounting bolts standard; optional four point mounting available
- Designed with 0-10V dimming capabilities. Controls by others
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Silver, black, bronze, platinum bronze and white are available

ELECTRICAL SYSTEM

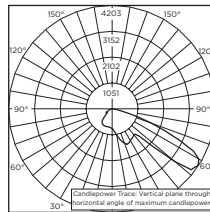
- **Input Voltage:** 120-277V or 347-480V, 50/60Hz
- Class 2 output
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Integral 10kV surge suppression protection standard
- To address inrush current, slow blow fuse or type C/D breaker should be used
- Compatible with control systems; consult factory for details

REGULATORY & VOLUNTARY QUALIFICATIONS

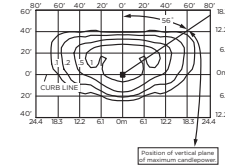
- cULus Listed
- Suitable for wet locations
- Product qualified on the DesignLights Consortium ("DLC") Qualified Products List ("QPL") when ordered with 2, G, 3 or H optics. Exceptions apply when N, U, or Q options are ordered - see Field Adjustable Output spec sheet for details
- Certified to ANSI C136.31-2001, 3G bridge and overpass vibration standards
- Meets CALTrans 611 Vibration testing
- 10kV surge suppression protection tested in accordance with IEEE/ANSI C62.41.2
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- Meets Buy American requirements within ARRA
- Dark Sky Friendly, IDA Approved when ordered with the Type II and Type III optics

Photometry

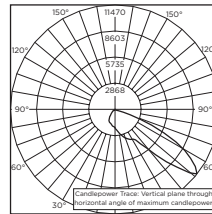
All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP certified laboratory.



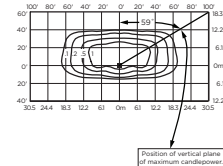
ITL Test Report #: 76664
BXSPA*2GA-U
Initial Delivered Lumens: 4,891



BXSPA*2GA-U
Mounting Height: 25' (7.6m)
Initial Delivered Lumens: 4,806
Initial FC at grade



ITL Test Report #: 76042
BXSPA*GHL-U
Initial Delivered Lumens: 11,092



BXSPA*GGA-U
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 4,209
Initial FC at grade

EPA and Weight

Weight 120-277V	Weight 347-480V	EPA				
		1@90°	2@90°	2@180°	3@90°	4@90°
18.0 lbs (8kg)	22.0 lbs (9kg)	0.71	1.02	1.43	1.74	2.04

Lumen Output, Electrical, and Lumen Maintenance Data

XSP1™ Street/Area Lights													
Input Power Designator	4000K		5700K		System Watts 120-277V	System Watts 347-480V	Total Current					50K Hours Projected Lumen Maintenance Factor @ 15° C (59° F)***	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11			120V	208V	240V	277V	347V		480V
Type II Distribution													
A	4,806	BI U0 G1	5,340	BI U0 G1	53	59	0.44	0.25	0.22	0.20	0.17	0.15	99%
Type II Distribution w/BLS													
A	4,209	BI U0 G1	4,674	BI U0 G1	53	59	0.44	0.25	0.22	0.20	0.17	0.15	99%

*Actual production yield may vary between -4 and +10% of initial delivered lumens
 ** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit www.iesna.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf
 *** For recommended lumen maintenance factor data see TD-13. Projected L₈₀ based on 11,088 hours LM-80-08 testing: > 150,000 hours

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XSP2™ — XSPA02/G

Cree® LED Street/Area Light – Double Module – Horizontal Tenon Mount – Type II and Type II w/Backlight Control

Product Description

Designed from the ground up as totally optimized LED street and area lighting system, the XSP Series delivers incredible efficiency without sacrificing application performance. Beyond substantial energy savings and reduced maintenance, Cree achieves better optical control with our NanoOptic® Precision Delivery Grid™ optic than a traditional cobra head luminaire. The Cree® XSP Series LED luminaires are the better alternative for traditional street and area lighting with better payback and better performance.

Performance Summary

Utilizes BetaLED® Technology

NanoOptic® Precision Delivery Grid™ optic

Made in the U.S.A. of U.S. and imported parts

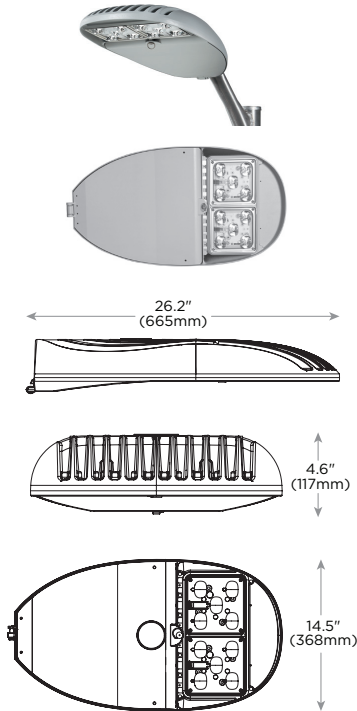
CRI: Minimum 70 CRI

CCT: 4000K (+/- 300K), 5700K (+/- 500K)

Limited Warranty¹: 10 years on luminaire/10 years on Colorfast DeltaGuard® finish

Accessories

Field Installed Accessories	
XA-SP2BLS Backlight Control Shield - Provides 1/2 Mounting Height Cutoff XA-SP2RDSPK Bird Spikes	XA-XSP4TMNT Four Point Mounting Kit - Includes Large Bracket for mounting to 2" (51mm) IP, 2.375" (60mm) O.D., Small Bracket for mounting to 1.25" (32mm) IP, 1.66" (42mm) O.D. tenon, and mounting bolts
Tenons (must specify color)	
Square Internal Mount Tenons - Mounts to 4" (102mm) square aluminum or steel poles PD-1H4 – Single PD-2H4(180) – 180° Twin PD-2H4(90) – 90° Twin PD-3H4(90) – 90° Triple PD-4H4(90) – 90° Quad	Round External Mount Tenons - Mounts to 2-3/8 – 3" (60 – 76mm) round aluminum or steel poles or tenons PT-1H – Single PT-3H(90) – 90° Triple PT-2H(90) – 90° Twin PT-4H(90) – 90° Quad PT-2H(180) – 180° Twin
Wall Mount Tenon WM-2L	Direct Arm Pole Adaptor Bracket - Mounts to 3 – 6" (76 – 152mm) round or square aluminum or steel poles XA-TMDA8



Ordering Information

Example: XSPA02HA-US

Product	Version	Mounting	Optic	Modules	Input Power Designator	Voltage	Color Options	Options
XSP	A	0 Horizontal Tenon	2 Type II G Type II w/BLS	H 4000K P 5700K	A 101W	- U Universal 120-277V V 347-480V*	S Silver T Black Z Bronze B Platinum Bronze W White	F Fuse - When code dictates fusing, use time delay fuse - Not available with V voltage G Small Four Point Mounting - Mounts to 1.25" (32mm) IP, 1.66" (42mm) O.D. horizontal tenon J Large Four Point Mounting - Mounts to 2" (51mm) IP, 2.375" (60mm) O.D. horizontal tenon K Occupancy Control - Refer to Occupancy Control spec sheet for details N Utility Label and NEMA Photocell Receptacle - Includes Q option - Refer to Field Adjustable Output spec sheet for details Q Field Adjustable Output - Refer to Field Adjustable Output spec sheet for details R NEMA Photocell Receptacle - Photocell by others U Utility - Label per ANSI C136.15 - Includes exterior wattage label that indicates the maximum available wattage of the luminaire - Includes Q option - Refer to Field Adjustable Output spec sheet for details

¹ See www.cree.com/canada/warranty for warranty terms

* 347-480V utilizes magnetic step-down transformer. For input power for 347-480V, refer to the Lumen Output, Electrical, and Lumen Maintenance data table



Rev. Date: 03/03/14



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XSP2™ — XSPA02/G
LED Street/Area Light

Product Specifications

CONSTRUCTION & MATERIALS

- Die cast aluminum housing
- Tool-less entry
- Mounts on 1.25" (32mm) IP, 1.66" (42mm) O.D. or 2" (51mm) IP, 2.375" (60mm) O.D. horizontal tenon (minimum 8" [203mm] in length) and is adjustable +/- 5° to allow for fixture leveling (includes two axis T-level to aid in leveling)
- Luminaire secured with two mounting bolts standard; optional four point mounting available
- Designed with 0-10V dimming capabilities. Controls by others
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Silver, black, bronze, platinum bronze and white are available

ELECTRICAL SYSTEM

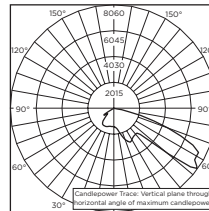
- **Input Voltage:** 120-277V or 347-480V, 50/60Hz
- Class 2 output
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Integral 10kV surge suppression protection standard
- To address inrush current, slow blow fuse or type C/D breaker should be used
- Compatible with control systems; consult factory for details

REGULATORY & VOLUNTARY QUALIFICATIONS

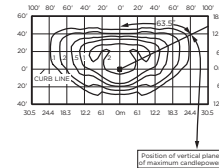
- cULus Listed
- Suitable for wet locations
- Product qualified on the DesignLights Consortium ("DLC") Qualified Products List ("QPL") when ordered with 2, G, 3 or H optics. Exceptions apply when N, U, or Q options are ordered - see Field Adjustable Output spec sheet for details
- Certified to ANSI C136.31-2001, 3G bridge and overpass vibration standards
- Meets CALTrans 611 Vibration testing
- 10kV surge suppression protection tested in accordance with IEEE/ANSI C62.41.2
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- Meets Buy American requirements within ARRA
- Dark Sky Friendly, IDA Approved when ordered with the Type II and Type III optics

Photometry

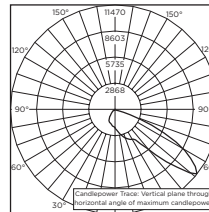
All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP certified laboratory.



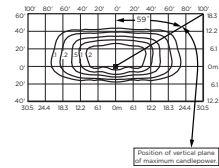
ITL Test Report #: 76663
BXSPA*2HA-U
Initial Delivered Lumens: 9,532



BXSPA*2HA-U
Mounting Height: 25' (7.6m)
Initial Delivered Lumens: 9,612
Initial FC at grade



ITL Test Report #: 76042
BXSPA*GHA-U
Initial Delivered Lumens: 11,092



BXSPA*GHA-U
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 8,417
Initial FC at grade

EPA and Weight

Weight 120-277V	Weight 347-480V	EPA				
		1@90°	2@90°	2@180°	3@90°	4@90°
26.0 lbs (12kg)	29.0 lbs (13.2kg)	0.69	1.14	1.38	1.83	2.28

Lumen Output, Electrical, and Lumen Maintenance Data

XSP2™ Street/Area Lights													
Input Power Designator	4000K		5700K		System Watts 120-277V	System Watts 347-480V	Total Current					50K Hours Projected Lumen Maintenance Factor @ 15° C (59° F)***	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11			120V	208V	240V	277V	347V		480V
Type II Distribution													
A	9,612	B2 U0 G2	10,680	B2 U0 G2	101	106	0.86	0.49	0.43	0.38	0.30	0.23	99%
Type II Distribution w/BLS													
A	8,417	BI U0 G1	9,352	BI U0 G1	101	106	0.86	0.49	0.43	0.38	0.30	0.23	99%

*Actual production yield may vary between -4 and +10% of initial delivered lumens
 ** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit www.iesna.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf
 *** For recommended lumen maintenance factor data see TD-13. Projected L₈₀ based on 11,088 hours LM-80-08 testing: > 150,000 hours

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APPENDIX C

- CREE WARRANTY

**CANADIAN LIMITED WARRANTY FOR CREE® LED LIGHTING FIXTURES
(INCLUDING BETALED® TECHNOLOGY; TRUEWHITE® TECHNOLOGY; AND ESSENTIA® FIXTURES)**

This limited warranty is provided by the Cree company described below ("Seller") to the original purchaser of the LED lighting product that is identified on Seller's invoice ("you") reflecting its original purchase (the "Product") in Canada. The Seller is the Cree company identified as such on the invoice. This limited warranty may be transferred to subsequent purchasers of the Product, provided that such Product is resold in new condition and in its original packaging. Seller warrants that the Product, when delivered in new condition and in its original packaging, will be free of defects in material and workmanship for a period of **TEN (10) YEARS** from the date of original purchase. The determination of whether the Product is defective shall be made by Seller in its sole discretion with consideration given to the overall performance of the Product. A Product shall not be considered defective solely as a result of the failure of individual LED components to emit light if the number of inoperable components is less than 10% of the total number of LED components in the Product.

If Seller determines the Product is defective, Seller will elect, in its sole discretion, to refund you the purchase price of the Product, repair the Product or replace the Product.

Exclusions:

1. This limited warranty will not apply to loss or damage to the Product caused by: negligence; abuse; misuse; mishandling; improper installation, storage or maintenance; damage due to fire or acts of God; vandalism; civil disturbances; power surges; improper power supply; electrical current fluctuations; corrosive environment installations; induced vibration; harmonic oscillation or resonance associated with movement of air currents around the Product; alteration; accident; failure to follow installation, operating, maintenance or environmental instructions prescribed by Seller or applicable electrical codes; or improper service of the Product performed by someone other than Seller or its authorized service provider.
2. This limited warranty excludes field labour and service charges related to the repair or replacement of the Product.
3. **THIS LIMITED WARRANTY IS VOID IF THE PRODUCT IS NOT USED FOR THE PURPOSE FOR WHICH IT IS DESIGNED.**
4. **THERE ARE NO REPRESENTATIONS, WARRANTIES OR CONDITIONS, WHETHER EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OR CONDITIONS AGAINST INFRINGEMENT OR OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR DURABILITY FOR A REASONABLE PERIOD OF TIME, OTHER THAN THOSE EXPRESSLY CONTAINED IN THIS LIMITED WARRANTY AND THOSE LEGAL WARRANTIES PROVIDED UNDER PROVINCIAL LAW WHICH CANNOT BE WAIVED.**
5. IN NO EVENT SHALL SELLER BE LIABLE FOR INCIDENTAL, COMPENSATORY, CONSEQUENTIAL, INDIRECT, SPECIAL OR OTHER DAMAGES. SELLER'S AGGREGATE LIABILITY WITH RESPECT TO A DEFECTIVE PRODUCT SHALL IN ANY EVENT BE LIMITED TO THE MONIES PAID TO SELLER FOR THAT DEFECTIVE PRODUCT. THE LIMITATIONS CONTAINED IN THIS SECTION APPLY REGARDLESS OF THE BASIS OF THE CLAIM OR THE FORM OF ACTION INCLUDING, WITHOUT LIMITATION, NEGLIGENCE OR OTHER TORT, OR BREACH OF CONTRACT.

Seller reserves the right to utilize new, reconditioned, refurbished, repaired or remanufactured products or parts in the warranty repair or replacement process. Such products and parts shall be comparable in function and performance to an original product or part, as determined by Seller in its sole discretion, and warranted as set out in this limited warranty for the remainder of the original warranty period.

In order to make a warranty claim, you must notify Seller in writing within sixty (60) days after your discovery of the defect, provide proof of purchase such as the invoice and comply with Seller's other warranty requirements as set out in this limited warranty. Upon receiving that notice, Seller may require you to promptly return the Product to Seller, or its authorized service provider, freight prepaid. Your warranty claim should be addressed to Cree Canada Corp., 3-6889 Rexwood Road, Mississauga, ON L4V 1R2.

This limited warranty only applies to specified LED fixtures set out above. Any warranties applicable to finish, poles, lamps, CR Series downlights, LR24™ troffers, certain BetaLED® Technology outdoor fixtures (specifically Class II as defined per IEC/EN60598), backup batteries, controls, occupancy sensors, photocells and other fixture accessories can be found at www.cree.com/canada/warranty.

This limited warranty is effective for purchases of Product on or after the effective date set forth below. Seller reserves the right to modify this warranty from time to time. Any modification of this warranty shall be effective for all orders placed with Seller on or after the effective date of such revised warranty.

The parties acknowledge that they have required that this document be prepared in English. Les parties reconnaissent avoir exigé que les présents soient rédigés en anglais.

Effective Date: September 24, 2012

DISCLAIMER

This confidential Proposal ("Proposal") is being provided to Gananoque for the sole purpose of demonstrating various options for the municipality to consider in designing and upgrading its street lighting network to LED technology, (the "Project") including evaluating a possible shared energy savings partnership, and is not to be used for any other purpose or made available to any other party without the prior written consent of RealTerm Energy Corp. ("RealTerm Energy").

This Proposal contains select information about the Project and the LED Street Lighting market, but does not contain all of the information necessary to evaluate the exact energy savings potential of the Project. The financial projections contained herein (or in any other Evaluation Material, including any computer diskettes) are for general reference only. They are based on assumptions relating to the overall market and historical data, among other factors. Accordingly, actual results may vary materially from such projections.

While the information contained in this Proposal and any other Evaluation Material is believed to be reliable, RealTerm Energy cannot guarantee its accuracy or completeness. Prospective clients or other parties authorized by the prospective client to use such material solely to facilitate the prospective client's investigation are advised to make their own independent investigations, projections and conclusions regarding the energy savings of the Project without reliance on this Proposal or any other Evaluation Material. Although additional Evaluation Material, which may include engineering, system design or other reports, may be provided to qualified parties as the evaluation period proceeds, prospective clients should seek advice from their own attorneys, accountants, engineers and street lighting experts.

RealTerm Energy expressly reserves the right, at its sole discretion, to reject any offer to partner or to terminate any negotiations with any party at any time upon written notice to the client. RealTerm Energy shall have no legal commitments or obligations to any prospective client unless and until a written term sheet has been fully executed, delivered and approved by RealTerm Energy.

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