

## Lighting Committee Summary

### Goals of Lighting Committee

- Reduce street light electric bills
- Reduce repair costs
- Reduce impact on environment
- Provide optimal lighting conditions

### Proposal:

Replace existing high pressure sodium light fixtures with more efficient LED lights

### Benefits:

- LED life expectancy is up to 6 times that of current lighting
- LEDs do not lose their brightness over time as much as our existing lights
- Projected watt usage with LEDs is 5560/kWh compared with current wattage use at 8875/kWh, over 1/3 less than what we use now
- Approximate cost savings is 13,707kWh /yr= \$2,056.00/yr
- No repair cost for minimum of 10 years
- Replacement warranty covers LEDs to 50,000 hours/approx 10 years
- LED is directional so less light is wasted
- Light quality is higher

Note: City of Ann Arbor is aggressively moving to replace lighting to LEDs for cost savings

### Recommendation:

Arbor Hills Subdivision vote on proposal to replace existing street lights.

### Summary: LED Streetlight Replacement Investment

Capital Investment (\$)	LED Lights	\$26,400.00	\$26,400.00	Without DTE incentive
	Labor	\$5,400.00	\$5,400.00	
DTE Incentives (\$)*		\$2,420.00	\$0.00	
Net Investment (\$)		\$29,380.00	\$31,800.00	
Electrical Savings (\$/year)		\$2,056.00	\$2,056.00	
Repair Savings (\$/year)**		\$1,800.00	\$1,800.00	
Payback (years)		7.6	8.2	

\* DTE program currently on hold pending renewal this Fall.

\*\* 6 year average of repair expenses (2006 – 2010)



**LIGHTING  
QUOTATION**

**ANN ARBOR HILLS SUBDIVISION\_LED  
LIGHTING**

**McNaughton-McKay**

4670 Runway Blvd  
Ann Arbor, MI 48108  
Tel: (734) 995-9515  
Fax: (734) 327-6281

**To:**

ANN ARBOR HILLS SUBDIVISION  
HOME OWNERS ASSOCIATION  
ANN ARBOR, MI 48104

Date Printed: August 8, 2011  
Quote Number: 104055  
PO Number:  
Customer Number: 20021  
Sales Person: Ray Smith

Item	Qty	Type	Mfg	Part Number	Description	Price	Ext. Price
1	38		BETA	STR-LWY-2M-HT-06-D-UL-SV-700	LED STREETLIGHT, TYPE II DISTRIBUTION	660.00E	\$25,080.00
2	2		BETA	STR-LWY-5M-HT-06-D-UL-SV-700	LED STREETLIGHT, TYPE 5 DISTRIBUTION	660.00E	\$1,320.00
3			BETA	-R (ADDER)	ADDER FOR NEMA PHOTO CONTROL RECEPTACLE OPTION, IF REQUIRED	15.00E	
4	1		MCMC	LIGHTING SERVICES			

**\$26,400.00**

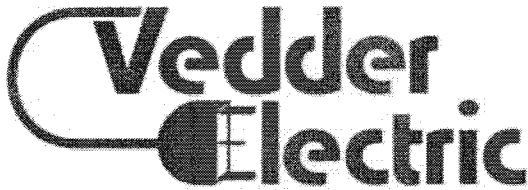
ALL LAMPS & STANDARD FREIGHT CHARGES ARE INCLUDED IN PRICING SHOWN, BASED ON QUANTITIES AS LISTED. PRICING BASED ON "DROP SHIPMENT" TO JOBSITE. STANDARD MANUFACTURER'S WARRANTIES APPLY. LEAD TIME IS APPROXIMATELY 3 - 4 WEEKS AFTER FACTORY RECEIPT OF ORDER (AND APPROVAL DRAWINGS, WHERE REQUIRED) NOTE\* LEAD TIMES ARE ESTIMATES ONLY.

The sale of products and services by Seller is subject to Seller's general terms and conditions of sale ("Seller's Term") as attached to this document or as otherwise posted on Seller's website at <http://terms.mc-mc.com/mi> Seller objects to and rejects any terms or conditions that may appear on or are referenced in Customer's purchase order or other document that are in addition to or otherwise inconsistent with Seller's Terms. Customer's receipt or acceptance of delivery of any ordered item above will constitute its acceptance of Seller's Terms. The above link also includes Seller's Return Policy for customer reference.

Please do not hesitate to call with any questions.

Best Regards,  
Ray Smith  
Phone: (734) 327-6208  
Fax: (734) 327-6281

*Quotes valid for 30 days.  
Lamps are included unless otherwise noted.*



P.O. BOX 2077 ANN ARBOR, MI 48106-2077  
 (734) 662-6220 FAX (734) 662-6224  
 www.VedderElectric.com

# PROPOSAL

TO: **Shireen Williams**  
**Select Community Services**  
**4045 Stone School**  
**Ann Arbor, MI 48108**

PHONE <b>(734)663-1900</b>	DATE <b>08/02/2011</b>
JOB NAME / LOCATION <b>Arbor Hills</b> <b>Ann Arbor, MI 48105</b> <b><u>swilliams@thecondopros.com</u></b>	
JOB NUMBER <b>734-663-0809 Fax</b>	JOB PHONE <b>734-663-1900 x 229</b>

We hereby submit specifications and estimates for:

**Disconnect and dispose of 40 Cobra street light fixtures and lamps.**

**Install 40, customer provided Led fixture in place of the existing Cobra street lights.**

**The furnished light fixtures are to be the type that will attach directly to the existing arms.**

**A one year warrantee is provided for labor only.**

**We Propose** hereby to furnish material and labor — complete in accordance with the above specifications, for the sum of:  
**Five Thousand Four Hundred and No/100** dollars (\$) **5400.00**

Payment to be made as follows:

**Net 10 Days, Invoiced monthly on that portion of the completed job. Overdue invoices are subject to a finance charge of 1/5% per month on the unpaid balance.**  
**Visa and Mastercard accepted.**

All material is guaranteed to be as specified. All work to be completed in a professional manner according to standard practices. Any alteration or deviation from above specifications involving extra costs will be executed only upon approval, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. Owner to carry fire, tornado, and other necessary insurance. Our workers are fully covered by Worker's Compensation Insurance.

Authorized Signature \_\_\_\_\_

Note: This proposal may be withdrawn by us if not accepted within **30** days.

**Acceptance of Proposal** — The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payment will be made as outlined above.

Signature \_\_\_\_\_

Date of Acceptance: \_\_\_\_\_

Signature \_\_\_\_\_

**Suburban Electric Services, Co.**  
 PO Box 880  
 Hamburg, MI 48139  
 T) 810-360-6262 F) 810-360-6263  
 suburbanelectricservices@charter.net

# Proposal

Proposal # 9061

Date 8/8/2011

McNaughton-McKay Electric  
 Chris Mydock

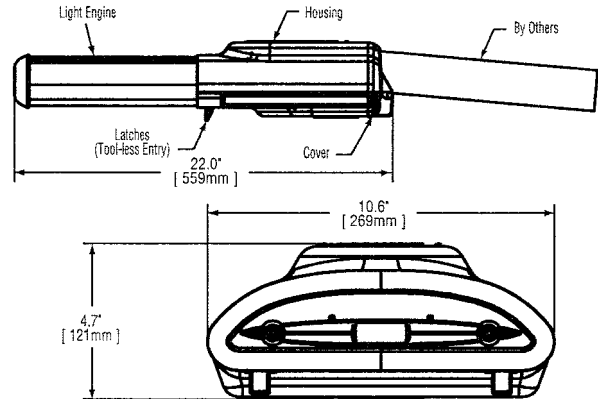
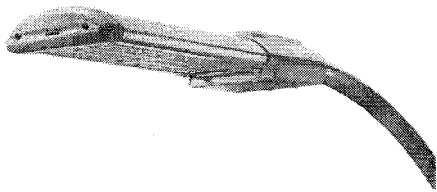
**Project:**

Ann Arbor Hills Subdivision Street Light

Description	Total
Please review the following work to be performed upon approval:  1. Remove 40 existing street light heads.  2. Install 40 new heads supplied by others.  -SES will recycle old heads and lamps  <i>-No warrantee on labor in writing,            but will address with light company            for claim. (Per Pete)</i>	4,485.00
<b>Total</b>	<b>\$4,485.00</b>

The above prices, specifications and conditions are satisfactory and hereby accepted. INVOICES DUE NET 15 DAYS. Signature \_\_\_\_\_ date \_\_\_\_\_  
 Authorized Signature \_\_\_\_\_

BetaLED Catalog #: STR - LWY - 2M - HT - - D - - - - -



Notes:

Product	Family	Optic	Mounting	# of LEDs (x 10)	LED Series	Voltage	Color Options	Drive Current	Factory-Installed Options
STR	LWY	2M <sup>1</sup>	HT <sup>2</sup>	<input type="checkbox"/> 04 <input type="checkbox"/> 05 <input checked="" type="checkbox"/> 06	D	<input checked="" type="checkbox"/> UL Universal 120-277V <input type="checkbox"/> UH Universal 347-480V	<input checked="" type="checkbox"/> SV Silver <sup>3</sup> <input type="checkbox"/> BK Black <sup>3</sup> <input type="checkbox"/> BZ Bronze <sup>3</sup> <input type="checkbox"/> PB Platinum Bronze <sup>3</sup> <input type="checkbox"/> WH White <sup>3</sup>	<input checked="" type="checkbox"/> 700 700mA (Standard) <input type="checkbox"/> 525 525mA <input type="checkbox"/> 350 350mA	Please type additional options in manually on the lines provided above. <input type="checkbox"/> 43K 4300K Color Temperature <sup>4</sup> <input type="checkbox"/> DIM 0-10V Dimming <sup>5,6,7</sup> <input type="checkbox"/> F Fuse <sup>8,9</sup> <input type="checkbox"/> HL Hi/Low (175/350/525, dual circuit input) <sup>10,11</sup> <input type="checkbox"/> N No Quick Disconnect Harness or Leveling Bubble <sup>12</sup> <input type="checkbox"/> PD Power Door <sup>13</sup> <input type="checkbox"/> R NEMA Photocell Receptacle <sup>8</sup> <input type="checkbox"/> SC Door Safety Tether <sup>14</sup> <input type="checkbox"/> UTL Utility Option <sup>15</sup>

For additional options, see IP66 spec sheet.

Footnotes

- IESNA Type II Medium distribution
- Horizontal tenon mount
- Light engine portion of extrusion is not painted and will remain natural aluminum regardless of color selection
- Color temperature per fixture; minimum 70 CRI
- Control by others
- Refer to dimming spec sheet for availability and additional information
- Can't exceed the specified drive current. Consult factory if exceeding drive current is necessary.
- This option not available with all multi-level options. Refer to multi-level spec sheet for more information
- When code dictates fusing use time delay fuse
- Refer to multi level spec sheet for availability and additional information
- Sensor not included
- Standard product features unless N option is specified
- All connections between door and fixture are shipped unconnected from the factory; door release spring included to open door automatically when the latches are released
- Stainless steel aircraft cable
- Includes exterior wattage label that reflects watts for the drive current selected. The ability to exceed the selected drive current will be disabled.

LED PERFORMANCE SPECS

# of LEDs	Initial Delivered Lumens – Type II Medium @ 6000K	B U G Rating**			Initial Delivered Lumens – Type II Medium @ 4300K	B U G Rating**			System Watts 120-277V	Total Current @ 120V	Total Current @ 240V	Total Current @ 277V	System Watts 347-480V	Total Current @ 347V	Total Current @ 480V	L <sub>70</sub> Hours** @ 25° C (77° F)	50K Hours Lumen Maintenance Factor** @ 15° C (59° F)
		B	U	G		B	U	G									
<b>350mA Fixture Operating at 25° C (77° F)</b>																	
40	3,914 (04)	1	1	1	3,607 (04)	1	1	1	45	0.38	0.21	0.19	52	0.15	0.15	> 150,000	94%
50	4,836 (05)	1	1	1	4,457 (05)	1	1	1	61	0.50	0.27	0.24	69	0.19	0.18	> 150,000	
60	5,769 (06)	2	1	2	5,317 (06)	2	1	2	71	0.58	0.31	0.27	79	0.22	0.20	> 150,000	
<b>525mA Fixture Operating at 25° C (77° F)</b>																	
40	5,479 (04)	2	1	2	5,050 (04)	2	1	2	67	0.57	0.30	0.26	74	0.21	0.19	149,000	93%
50	6,771 (05)	2	2	2	6,240 (05)	2	2	2	89	0.74	0.39	0.33	97	0.27	0.23	142,000	
60	8,077 (06)	2	2	2	7,444 (06)	2	2	2	104	0.87	0.45	0.39	112	0.32	0.26	139,000	
<b>700mA (Standard) Fixture Operating at 25° C (77° F)</b>																	
40	6,849 (04)	2	2	2	6,312 (04)	2	2	2	92	0.78	0.40	0.35	100	0.29	0.23	129,000	91%
50	8,463 (05)	2	2	2	7,800 (05)	2	2	2	120	1.00	0.52	0.44	128	0.37	0.29	119,000	
60	10,096 (06)	3	2	3	9,305 (06)	2	2	2	139	1.17	0.60	0.51	148	0.43	0.32	118,000	

Optimizes magnetic step-down transformer

For recommended lumen maintenance data see TD-15

For more information on the IESNA Bug Rating (background lighting glare) Rating visit [www.iesna.org/PDF/Erratas/TM-15-07BugRatingsAddendum.pdf](http://www.iesna.org/PDF/Erratas/TM-15-07BugRatingsAddendum.pdf)

NOTE: All data subject to change without notice.

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Made in the U.S.A. of U.S. and imported parts.  
Meets Buy American requirements within the ARRA.



**General Description**

Fixture housing is all aluminum construction. Standard fixture utilizes terminal block for power input suitable for #2-#14 AWG wire and operates at 700mA. Drive current is field switchable. Fixture is designed to mount on 1.25" IP (1.66" O.D.) and/or 2" IP (2.375" O.D.) horizontal tenon (minimum 8" [203.2mm] in length) and is adjustable +/- 5° to allow for fixture leveling (includes leveling bubble to aid in this process). Fixture carries a limited five year warranty.

**Electrical**

Modular design accommodates varied lighting output from high power, white, 6000K (+/- 500K per full fixture), minimum 70 CRI, long life LED sources. Optional 4300K (+/-300K per full fixture) also available. 120-277V 50/60 Hz, Class 1 LED drivers are standard. 347-480V 50/60 Hz option is available. LED drivers have power factor >90% and THD <20% at full load. Units provided with integral 10kV surge suppression protection standard. Quick disconnect harness suitable for mate and break under load provided on power feed to driver for ease of maintenance. Surge protection tested in accordance with IEEE/ANSI C62.41.2.


**Finish**

Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable silver powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Bronze, black, white and platinum bronze powder topcoats are also available. The finish is covered by our 10 year limited warranty.

Fixture and finish are endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117.

**Testing & Compliance**

UL listed in the U.S. and Canada for wet locations. Consult factory for CE Certified products. Meets CALTrans 611 Vibration Testing and GR-63-CORE Section 4.4.1/5.4.2 Earthquake Zone 4. Certified ANSI C136.31-2001 bridge and overpass vibration standards. Dark Sky Friendly. IDA Approved.

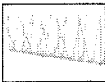
RoHS Compliant. 

Product qualified on the Design Lights Consortium ("DLC") Qualified Products List ("QPL")

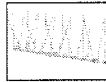
**Patents**

U.S. and international patents granted and pending. BetaLED is a division of Ruud Lighting, Inc. For a listing of Ruud Lighting, Inc. patents, visit [www.uspto.gov](http://www.uspto.gov).

**Field-Installed Accessories**

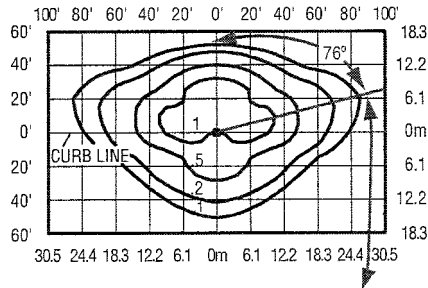
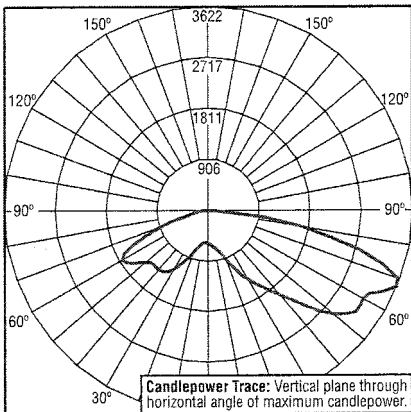


**Bird Spikes for Light Engine**  
XA-BRDSPK60



**Bird Spikes Kit for Housing**  
XA-BRDSPKHSG

**Photometrics**



Independent Testing Laboratories certified test. Report No. ITL64223. Candlepower trace of 6000K, 40 LED LEDway Streetlight luminaire with IESNA Type II Medium distribution. Luminaire with 6,665 initial delivered lumens operating at 700mA. All published luminaire photometric testing performed to IESNA LM-79-08 standards.

Isofootcandle plot of 6000K, 40 LED LEDway Streetlight luminaire with IESNA Type II Medium distribution mounted at 25' A.F.G. Luminaire with 6,849 initial delivered lumens operating at 700mA. Initial FC at grade.

**LEDway® EPA & Weight Calculations**

<b>Approximate Weight 120-277V*</b>		
40-60 LED fixture		16.0 lbs.
<b>EPA</b>		
<b>Horizontal Tenon Mount</b>		
1 fixture		0.685
<b>EPA</b>		
<b>Round External Mount / Square Internal Mount</b>		
<b>Horizontal Tenons with Fixture(s)</b>		
PT/PD-1H	Single	0.905
PT/PD-2H(90)	90° Twin	1.189
PT/PD-2H(180)	180° Twin	1.590
PT/PD-3H(90)	90° Triple	1.774
PT/PD-3H(120)	120° Triple	1.590
PT/PD-4H(90)	90° Quad	2.178
* Add 5 lbs. for transformer in 347-480V		



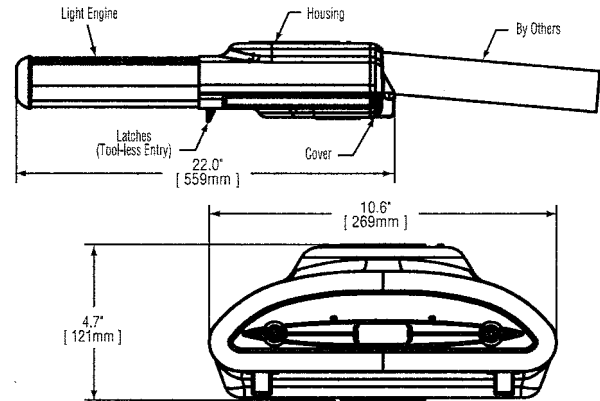
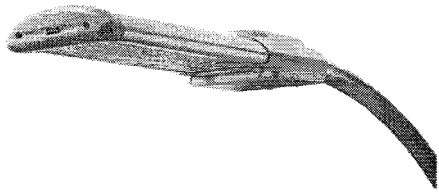
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Meets Buy American requirements within the ARRA.

NOTE: All data subject to change without notice.

BetaLED Catalog #: STR - LWY - 5M - HT. - - D - - - -



Notes:

Product	Family	Optic	Mounting	# of LEDs (x 10)	LED Series	Voltage	Color Options	Drive Current	Factory-Installed Options
STR	LWY	5M <sup>1</sup>	HT <sup>2</sup>	<input type="checkbox"/> 04 <input type="checkbox"/> 05 <input checked="" type="checkbox"/> 06	<input type="checkbox"/> D	<input checked="" type="checkbox"/> UL Universal 120–277V <input type="checkbox"/> UH Universal 347–480V	<input checked="" type="checkbox"/> SV Silver <sup>3</sup> <input type="checkbox"/> BK Black <sup>3</sup> <input type="checkbox"/> BZ Bronze <sup>3</sup> <input type="checkbox"/> PB Platinum Bronze <sup>3</sup> <input type="checkbox"/> WH White <sup>3</sup>	<input checked="" type="checkbox"/> 700 700mA (Standard) <input type="checkbox"/> 525 525mA <input checked="" type="checkbox"/> 350 350mA	Please type additional options in manually on the lines provided above. <input type="checkbox"/> 43K 4300K Color Temperature <sup>4</sup> <input type="checkbox"/> DIM 0–10V Dimming <sup>5,6,7</sup> <input type="checkbox"/> F Fuse <sup>8,9</sup> <input type="checkbox"/> HL Hi/Low (175/350/525, dual circuit input) <sup>10,11</sup> <input type="checkbox"/> N No Quick Disconnect Harness or Leveling Bubble <sup>12</sup> <input type="checkbox"/> PD Power Door <sup>13</sup> <input type="checkbox"/> R NEMA Photocell Receptacle <sup>8</sup> <input type="checkbox"/> SC Door Safety Tether <sup>14</sup> <input type="checkbox"/> UTL Utility Option <sup>15</sup>

For additional options, see IP66 spec sheet.

Footnotes

- IESNA Type V Medium distribution
- Horizontal tenon mount
- Light engine portion of extrusion is not painted and will remain natural aluminum regardless of color selection
- Color temperature per fixture; minimum 70 CRI
- Control by others
- Refer to dimming spec sheet for availability and additional information
- This option not available with all multi-level options. Refer to multi-level spec sheet for more information
- When code dictates fusing use time delay fuse
- Refer to multi level spec sheet for availability and additional information
- Sensor not included
- Standard product features unless N option is specified
- All connections between door and fixture are shipped unconnected from the factory; door release spring included to open door automatically when the latches are released
- Stainless steel aircraft cable
- Includes exterior wattage label that reflects watts for the drive current selected. The ability to exceed the selected drive current will be disabled.

LED PERFORMANCE SPECS

# of LEDs	Initial Delivered Lumens – Type V Medium @ 6000K	B U G Rating**			Initial Delivered Lumens – Type V Medium @ 4300K	B U G Rating**			System Watts 120–277V	Total Current @ 120V	Total Current @ 240V	Total Current @ 277V	System Watts 347–480V**	Total Current @ 347V	Total Current @ 480V	L <sub>70</sub> Hours* @ 25° C (77° F)	50K Hours Lumen Maintenance Factor** @ 15° C (59° F)
		B	U	G		B	U	G									
350mA Fixture Operating at 25° C (77° F)																	
40	4,117 (04)	3	2	1	3,794 (04)	2	2	1	45	0.38	0.21	0.19	52	0.15	0.15	> 150,000	94%
50	5,087 (05)	3	2	1	4,689 (05)	3	2	1	61	0.50	0.27	0.24	69	0.19	0.18	> 150,000	
60	6,069 (06)	3	2	1	5,593 (06)	3	2	1	71	0.58	0.31	0.27	79	0.22	0.20	> 150,000	
525mA Fixture Operating at 25° C (77° F)																	
40	5,764 (04)	3	2	1	5,312 (04)	3	2	1	67	0.57	0.30	0.26	74	0.21	0.19	149,000	93%
50	7,122 (05)	3	3	1	6,564 (05)	3	2	1	89	0.74	0.39	0.33	97	0.27	0.23	142,000	
60	8,497 (06)	3	3	2	7,831 (06)	3	3	2	104	0.87	0.45	0.39	112	0.32	0.26	139,000	
700mA (Standard) Fixture Operating at 25° C (77° F)																	
40	7,205 (04)	3	3	1	6,640 (04)	3	2	1	92	0.78	0.40	0.35	100	0.29	0.23	129,000	91%
50	8,903 (05)	3	3	2	8,205 (05)	3	3	2	120	1.00	0.52	0.44	128	0.37	0.29	119,000	
60	10,621 (06)	4	3	2	9,789 (06)	3	3	2	139	1.17	0.60	0.51	148	0.43	0.32	118,000	

\* Utilizes magnetic step-down transformer

\*\* For recommended lumen maintenance data see TD-13

\*\*\* For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit [www.iesna.org/PDF/Erratas/TM-15-07BugRatingsAddendum.pdf](http://www.iesna.org/PDF/Erratas/TM-15-07BugRatingsAddendum.pdf)

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Made in the U.S.A. of U.S. and imported parts.  
Meets Buy American requirements within the ARRA.



**General Description**

Fixture housing is all aluminum construction. Standard fixture utilizes terminal block for power input suitable for #2-#14 AWG wire and operates at 700mA. Drive current is field switchable. Fixture is designed to mount on 1.25" IP (1.66" O.D.) and/or 2" IP (2.375" O.D.) horizontal tenon (minimum 8" [203.2mm] in length) and is adjustable +/- 5° to allow for fixture leveling (includes leveling bubble to aid in this process). Fixture carries a limited five year warranty.

**Electrical**

Modular design accommodates varied lighting output from high power, white, 6000K (+/- 500K per full fixture), minimum 70 CRI, long life LED sources. Optional 4300K (+/-300K per full fixture) also available. 120-277V 50/60 Hz, Class 1 LED drivers are standard. 347-480V 50/60 Hz option is available. LED drivers have power factor >90% and THD <20% at full load. Units provided with integral 10kV surge suppression protection standard. Quick disconnect harness suitable for mate and break under load provided on power feed to driver for ease of maintenance. Surge protection tested in accordance with IEEE/ANSI C62.41.2.

**Finish**

Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable silver powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Bronze, black, white and platinum bronze powder topcoats are also available. The finish is covered by our 10 year limited warranty.

Fixture and finish are endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117.

**Testing & Compliance**

UL listed in the U.S. and Canada for wet locations. Consult factory for CE Certified products. Meets CALTrans 611 Vibration Testing and GR-63-CORE Section 4.4.1/5.4.2 Earthquake Zone 4. Certified ANSI C136.31-2001 bridge and overpass vibration standards. Dark Sky Friendly. IDA Approved.

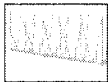
RoHS Compliant. 

Product qualified on the Design Lights Consortium ("DLC") Qualified Products List ("QPL")

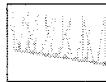
**Patents**

U.S. and international patents granted and pending. BetaLED is a division of Ruud Lighting, Inc. For a listing of Ruud Lighting, Inc. patents, visit [www.uspto.gov](http://www.uspto.gov).

**Field-Installed Accessories**

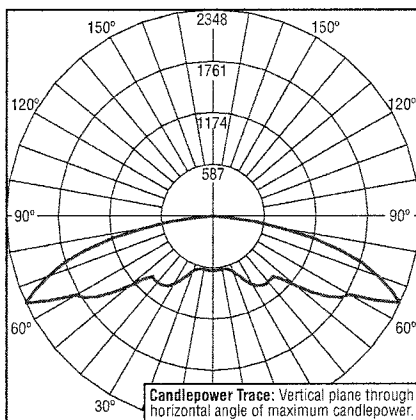


**Bird Spikes for Light Engine**  
XA-BRDSPK60

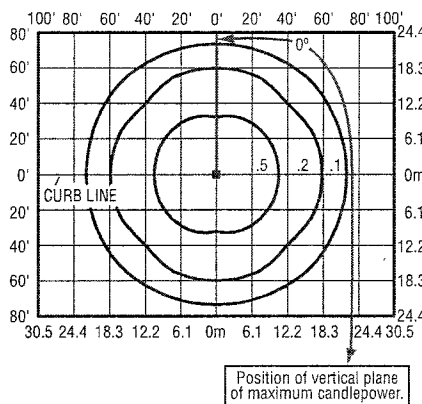


**Bird Spikes Kit for Housing**  
XA-BRDSPKHSG

**Photometrics**



Independent Testing Laboratories certified test. Report No. ITL66915. Candlepower trace of 6000K, 40 LED LEDway Streetlight luminaire with IESNA Type V Medium distribution. Luminaire with 7,323 initial delivered lumens operating at 700mA. All published luminaire photometric testing performed to IESNA LM-79-08 standards.



Isofootcandle plot of 6000K, 40 LED LEDway Streetlight luminaire with IESNA Type V Medium distribution mounted at 25' A.F.G. Luminaire with 7,205 initial delivered lumens operating at 700mA. Initial FC at grade.

**LEDway® EPA & Weight Calculations**

<b>Approximate Weight 120-277V*</b>		
40-60 LED fixture		16.0 lbs.
<b>EPA</b>		
<b>Horizontal Tenon Mount</b>		
1 fixture		0.685
<b>EPA</b>		
<b>Round External Mount / Square Internal Mount</b>		
<b>Horizontal Tenons with Fixture(s)</b>		
PT/PD-1H	Single	0.905
PT/PD-2H(90)	90° Twin	1.189
PT/PD-2H(180)	180° Twin	1.590
PT/PD-3H(90)	90° Triple	1.774
PT/PD-3H(120)	120° Triple	1.590
PT/PD-4H(90)	90° Quad	2.178
* Add 5 lbs. for transformer in 347-480V		

NOTE: All data subject to change without notice.

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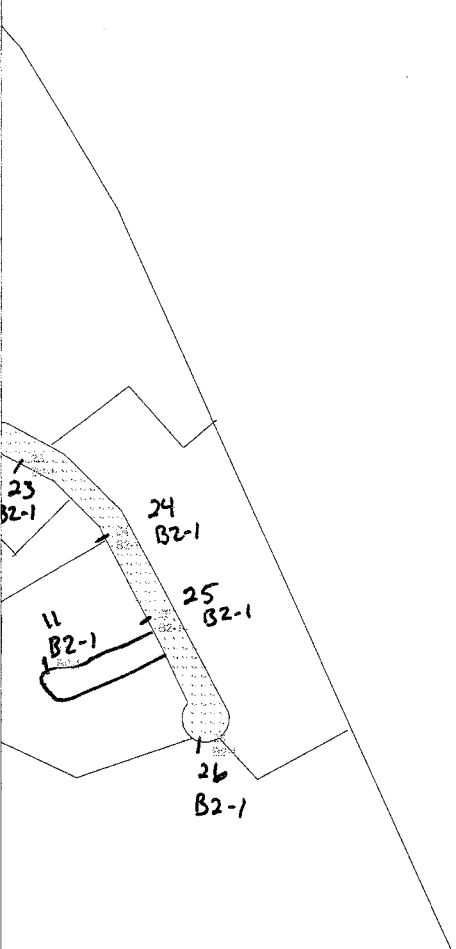
Made in the U.S.A. of U.S. and imported parts.  
Meets Buy American requirements within the ARRA.





LumNo	Z	Tilt
1	30	0
2	30	0
3	30	0
4	30	0
5	30	0
6	30	0
7	30	0
8	30	0
9	30	0
10	30	0
11	30	0
12	30	0
13	30	0
14	30	0
15	30	0
16	30	0
17	30	0
18	30	0
19	30	0
20	30	0
21	30	0
22	30	0
23	30	0
24	30	0
25	30	0
26	30	0
27	30	0
28	30	0
29	30	0
30	30	0
31	30	0
32	30	0
33	30	0
34	30	0
35	30	0
36	30	0
37	30	0
38	30	0
39	30	0
40	30	0

NOTE: Footcandies calculated using predicted lumen values after 50K hours of operation



# ARBOR HILLS Lighting Photometric Study

40 poles

types: B2-1 (38)  
B5-1 (2)

Illustrative results shown on this lighting design are based on project parameters provided to Beta Lighting used in conjunction with the lighting design. Actual project conditions differing from these design parameters may affect final results. The calculations are based on the applicable electrical, lighting, or energy code.

Date: 9/4/2011  
Project Name: CHAPEL HILL - ANN ARBOR, MI  
Filename: V:\Common\ApptEng\OUT1110804ML1TGC.AGI  
FOOTCANDIES CALCULATED AT GRADE  
Customer No. 08016  
Scale: 1" = 100'  
Layout by: Antonio Crivello

1200 92nd Street  
Sturtevant, WI 53177  
www.betalLED.com  
(800) 238-6800



Calculation Summary					
Label	Avg	Max	Min	Avg/Min	Max/Min
GRADE	0.76	1.8	0.0	N.A.	N.A.

Luminaire Schedule							
Symbol	Qty	Label	Arrangement	Lumens/Lamp	LLF	Total Watts	Description
---	38	B2-1	SINGLE	10096	0.940	5282	STR-LWY-2M-HT-06-D-UL-SV-700 = 60°LED type 2 - Street Light
---	2	B5-1	SINGLE	10621	0.940	278	STR-LWY-5M-HT-06-D-UL-SV-700 = 60°LED type 5 - Street Light

