

RSLPP Investment Grade Audit

Cheltenham Township

Smart, Sustainable, Green



Agenda

1. Project highlights
2. Field Audit results
3. Prescriptive design
4. Photometrics
5. Final design
6. Product Selection
7. Energy Saving summary
8. Final Project Analysis

Project Highlights

Project Pro's

- Bulk purchasing (material and labor)
- Good mixture ratio of Cobra head vs Decorative Fixtures
- Higher than average electric rates
- High maintenance costs compared to similar sized municipalities
- Strong oversight by RSLPP

Project Con's

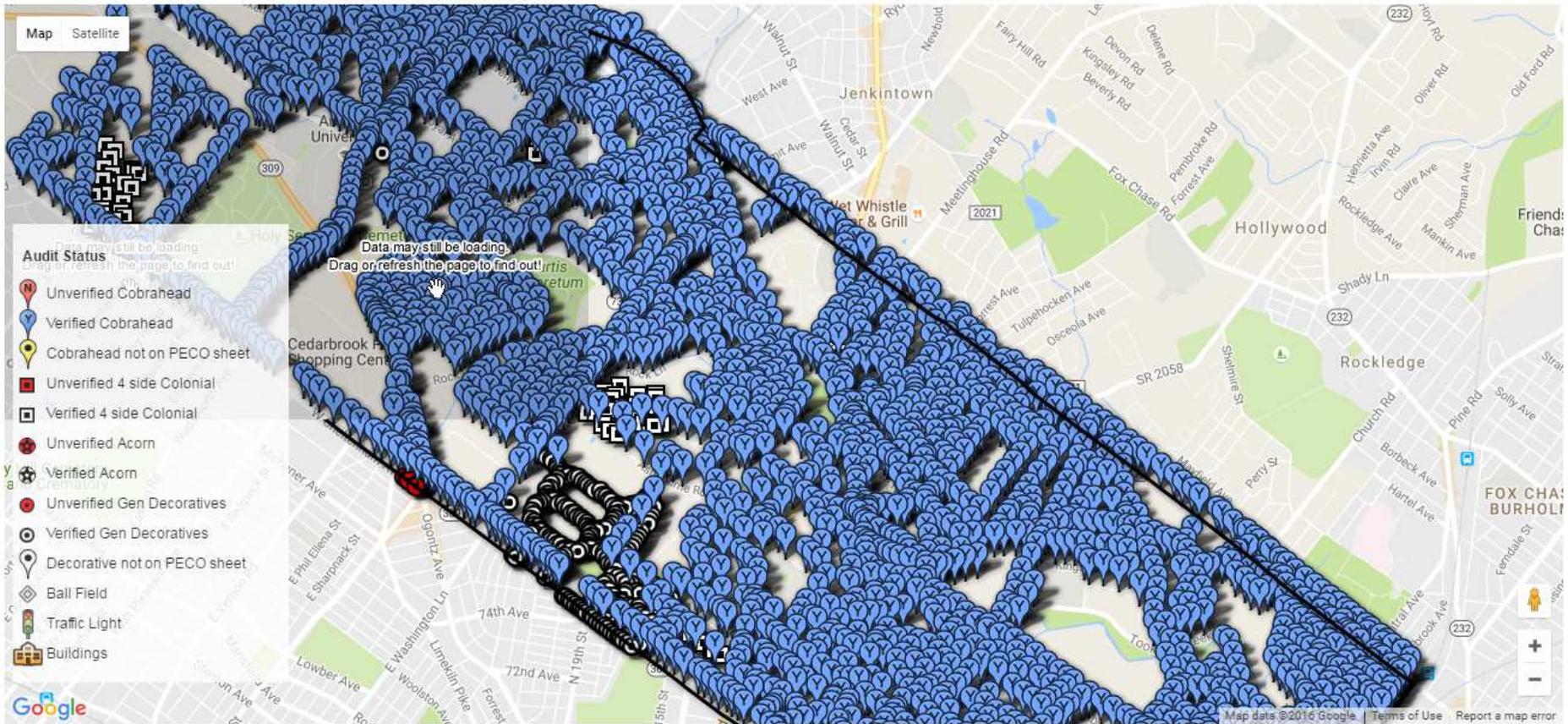
- PECO bill inaccuracy

Field Audit Results (raw data reconciliation)

Street Light Audit Portal - Audit
Cheltenham Township

Prescriptive Design	Audit Finding	Summary	Chat or Search	City Home
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Fixture Style Fixture watts



Field Audit Results (raw data reconciliation)

Street Light Audit Portal - Audit
Cheltenham Township

Prescriptive Design Audit Finding Summary Chat or Search City Home

Fixture Style --Select-- Fixture watts --Select--

Audit Status Legend:

- Unverified Cobrahead
- Verified Cobrahead
- Cobrahead not on PECO sheet
- Unverified 4 side Colonial
- Verified 4 side Colonial
- Unverified Acorn
- Verified Acorn
- Unverified Gen Decoratives
- Verified Gen Decoratives
- Decorative not on PECO sheet
- Ball Field
- Traffic Light
- Buildings

Pole Type & ID: Wood - Unique ID: 12039012 - (9105)

Photos:

Pole: **Fixture:** **ID:**

Fixture: Cobrahead-Lamp: HPS - Watts: 70W
Pole Condition: Good
Pole Location: Intersection
Fixtures per pole: 1
Arm length: 6ft

Road Type: 2 Lane
Address: 8214 Stockton Rd, Elkins Park, PA 19027, USA
[Google Map Link](#)

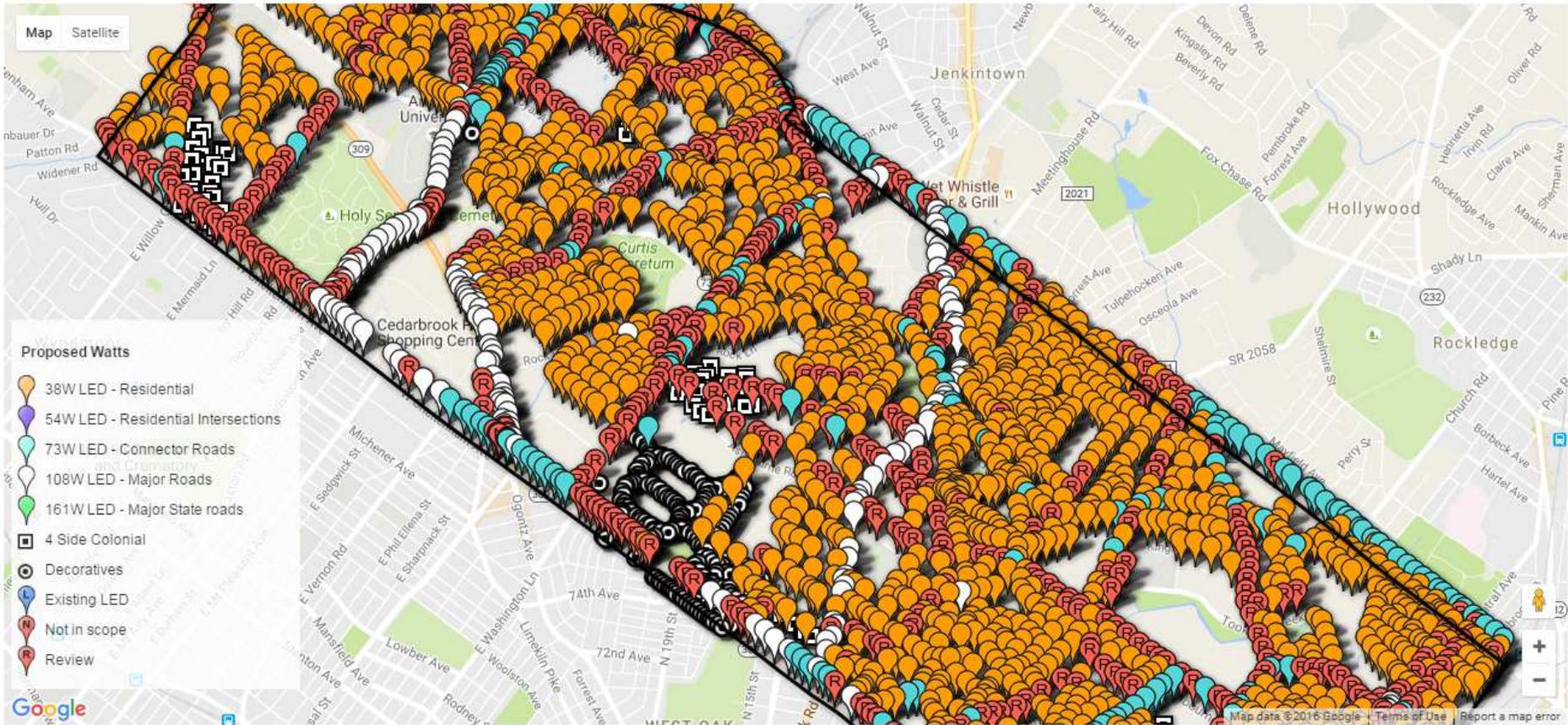
Audit Findings – total add of 174 fixtures

Existing Bill					Proposed Bill						Project Savings	
PECO Fixture	Billed Wattage	Quantity	Annual Energy Use (kWh)	Annual Energy Cost (\$)	Style	Manufacturer	New Wattage	Quantity	Annual Energy Use (kWh)	Annual Energy Cost (\$)	Annual Energy Savings (kWh)	Annual Energy Savings (\$)
100W MV	115	0	0	\$0	Cobrahead	Philips Lumec	38	1,056	164,204	\$12,534		
175W MV	191	0	0	\$0	Cobrahead	Philips Lumec	38	389	60,488	\$4,617		
250W MV	275	0	0	\$0	Cobrahead	Philips Lumec	54	418	92,365	\$7,050		
400W MV	429	0	0	\$0	Cobrahead	Philips Lumec	54	260	57,452	\$4,385		
700W MV	768	0	0	\$0	Cobrahead	Philips Lumec	73	213	63,627	\$4,857		
1000W MV	1090	0	0	\$0	Cobrahead	Philips Lumec	73	51	15,235	\$1,163		
70W HPS	94	1657	637,362	\$48,651	Cobrahead	Philips Lumec	108	72	31,819	\$2,429		
100W HPS	131	359	192,443	\$14,689	Cobrahead	Philips Lumec	108	58	25,632	\$1,957		
150W HPS	192	301	236,485	\$18,051	Cobrahead	Philips Lumec	161	77	50,729	\$3,872		
250W HPS	294	232	279,107	\$21,305	Cobrahead	Philips Lumec	161	104	68,516	\$5,230		
100W INC	103	1	421	\$32	0	0	0	0	0	\$0		
100W MV	115	0	0	\$0	Paragon	Pennsylvania Globe Co.	50	70	14,322	\$1,093		
175W MV	191	0	0	\$0	Paragon	Pennsylvania Globe Co.	50	19	3,887	\$297		
250W MV	275	0	0	\$0	Paragon	Pennsylvania Globe Co.	50	2	409	\$31		
400W MV	429	0	0	\$0	Acom	Amerlux	63	8	2,062	\$157		
700W MV	768	0	0	\$0	Acom	Amerlux	63	3	773	\$59		
1000W MV	1090	0	0	\$0	Bam Light	Phillips	38	1	155	\$12		
70W HPS	94	70	26,925	\$2,055	Lantern	Spring City	60	43	10,557	\$806		
100W HPS	131	296	158,671	\$12,112	Paragon	Amerlux	63	287	73,987	\$5,648		
150W HPS	192	43	33,784	\$2,579	Paragon	Pennsylvania Globe Co.	50	2	409	\$31		
Total - Cobraheads		2550	1,345,818	\$102,728	Total - Cobraheads		2,698	630,066	\$48,894		715,752	\$54,834
Total - Decoratives		409	219,380	\$16,746	Total - Decoratives		435	106,564	\$8,134		112,816	\$8,611
Project Total		2959	1,565,198	\$119,474	Total		3133	736,630	\$56,228		828,569	\$63,246
Locations*		2937			Locations*		2937					
Service Location Distribution Charge**		\$249,528			Service Location Distribution Charge**		\$249,528					

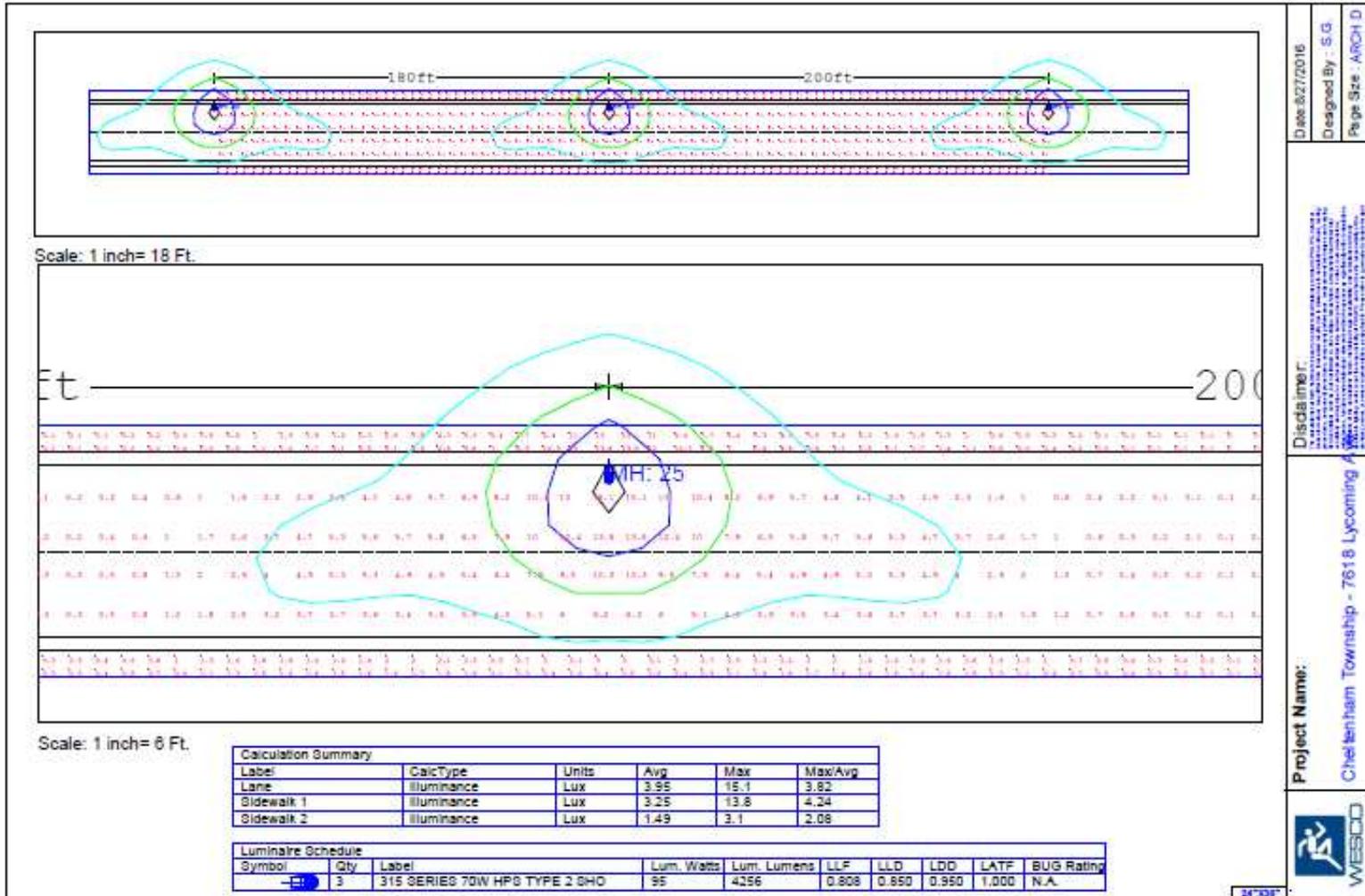
Prescriptive Design

Street Light Audit Portal - Prescriptive Design Cheltenham Township

Final Design	Line by Line	Summary	Chat or Search	Audit
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Photometrics 70W HPS Cobraheads



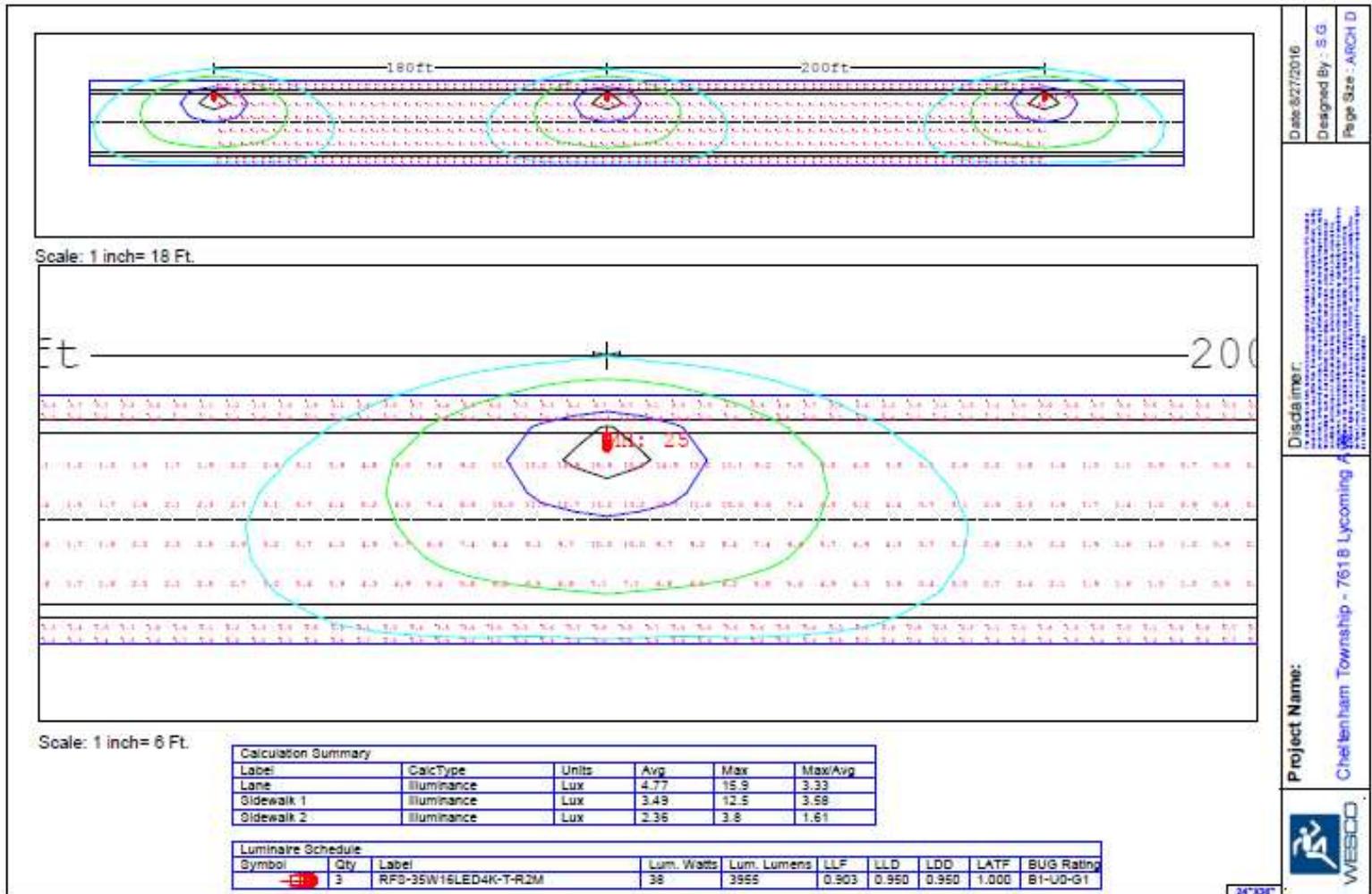
Date: 8/27/2016
 Designed By: S.G.
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Disclaimer:
 The information contained herein is for informational purposes only and does not constitute a contract. The user of this information is advised to consult with a qualified professional for a complete and accurate assessment of the project. The user of this information is advised to consult with a qualified professional for a complete and accurate assessment of the project.

Project Name:
 Cheltenham Township - 7618 Lycoming Ave

WESCO

Photometrics 36W LED Cobraheads



Date: 6/27/2016
 Designed By: S.G.
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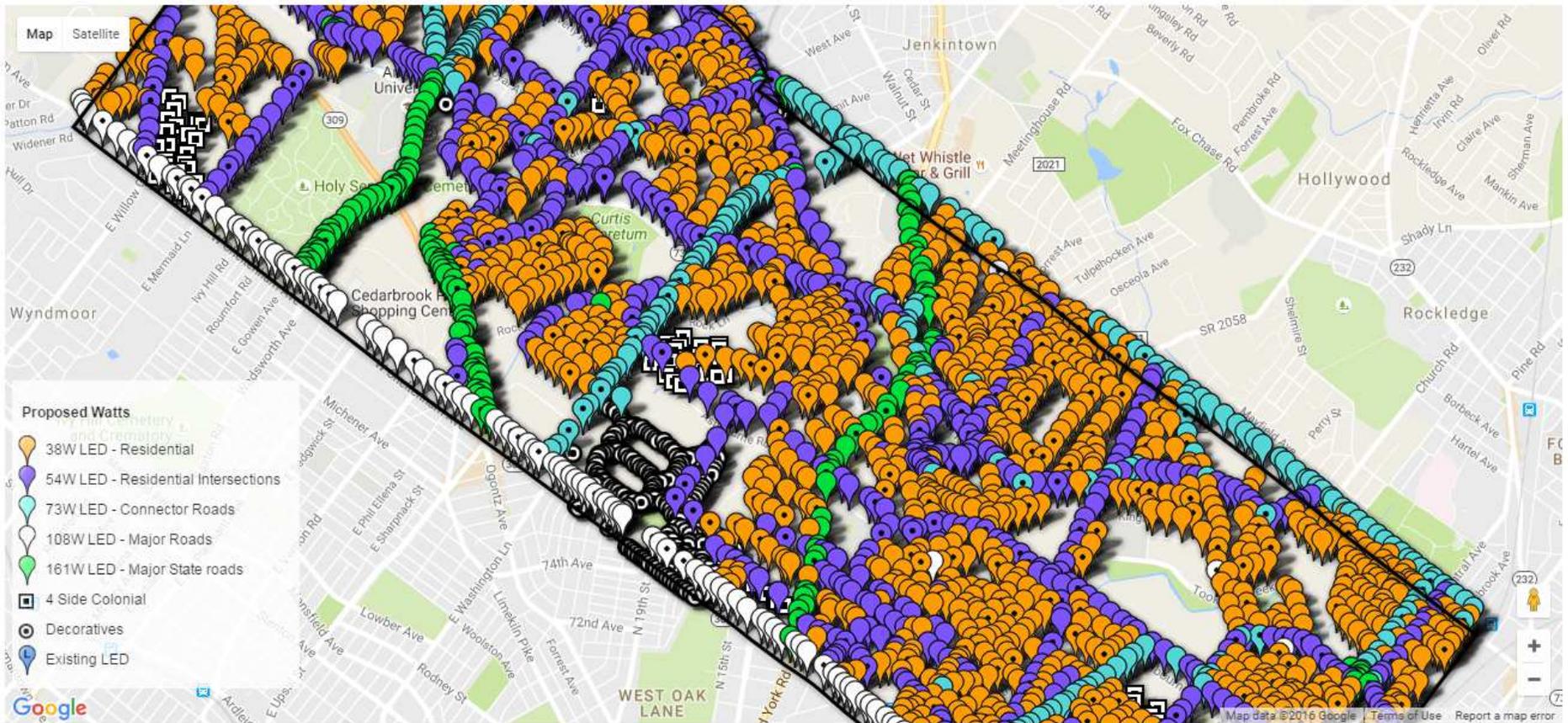
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Project Name:
 Cheltenham Township - 7618 Lycoming Ave

Final Design

Street Light Audit Portal - Final Design Cheltenham Township

Prescriptive Design	Line by Line	Summary	Chat or Search	Audit
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LED Product Selections



LED Warranty

10 year complete fixture
100,000+ rated hours
life expectancy 20+ years



Energy Savings Summary

Conservation Measure	Calculated Annual kWh Savings	Guaranteed Annual kWh Savings	Calculated Monthly kW Savings	Guaranteed Monthly kW Savings	Calculated Annual Energy Savings (\$)	Guaranteed Energy Savings (\$)
Street lighting - Upgrade to LED (Cobra)	715,752	679,965	174.9	166.2	\$54,634	\$51,903
FAWS (Cobra)	0	0	0.0	0.0	\$0	\$0
Street lighting - Upgrade to LED (Decorative)	112,816	107,176	27.6	26.2	\$8,611	\$8,181
Wireless Street Lighting Controls (Cobra)	0	0	0.0	0.0	\$0	\$0
Wireless Street Lighting Controls (Partial Decorative)	2,771	2,633	0.6	0.6	\$212	\$201
Traffic Lighting - Upgrade to LED	123,367	117,199	37.4	35.5	\$10,532	\$10,005
Exterior Lighting - Upgrade to LED	303,913	288,717	10.6	10.1	\$21,930	\$20,833
Electric Rate Savings (\$/kWh)	0	0	0.0	0.0	\$4,688	\$4,453
Total - Base Project + Controls	1,258,620	1,195,689	251	239	\$100,606	\$95,576

Project Cost & Savings Summary

Conservation Measure	Construction Cost (\$)	Annual Energy Savings (\$)	Annual O&M Savings (\$)	Rebate(\$)	Simple Payback
Street lighting - Upgrade to LED (Cobra)	\$835,297	\$51,903	\$72,117	\$57,790	6.3
FAWS (Cobraheads)	\$0	\$0	\$0	\$0	-
Street lighting - Upgrade to LED (Decorative)	\$508,146	\$8,611	\$11,627	\$6,180	24.8
Wireless Street Lighting Controls (Cobra)	\$0	\$0	\$0	\$0	-
Wireless Street Lighting Controls (Partial Decorative)	\$31,760	\$212	\$0	\$132	149.5
Traffic Lighting - Upgrade to LED	\$16,472	\$10,005	\$10,234	\$2,234	0.7
Exterior Lighting - Upgrade to LED	\$149,743	\$20,833	\$1,162	\$6,785	6.5
Electric Rate Procurement	\$2,674	\$4,688	\$0	\$0	0.6
Base Project + Controls: Construction Cost	\$1,544,091	\$96,252	\$95,140	\$73,121	7.7

Preliminary Project Cash Flow

The financing summary for the project is shown in the table below. The interest rate shown may vary once final financing is secured through PennSEF. This project INCLUDES controls

JCI Construction Cost		\$1,980,864		
Paydown of Debt	Capital Contribution	\$0		
	Grants	\$0		
Fees	Customer-Controlled Contingency	\$99,043	Project ECM List	
	PennSEF	\$0	ECM-1: Cobrahead Street Lighting	Include? Yes
	KLS - Program	\$340	ECM-2: Decorative Street Lighting	Yes
	KLS - Consultant	\$0	ECM-3: Cobrahead Wireless Controls	Yes
Loan Structure		Lease	ECM-4: Decorative Wireless Controls	Yes
Contract Term - Years		20	ECM-5: Traffic Lighting	No
Construction Term - Months		12	ECM-6: Exterior Lighting	No
Loan Payment Frequency		Annual	ECM-7: Electricity Rate Procurement	Yes
Interest Rate		2.75%	*Costs only include applicable ECMs	
Total Financed Amount		\$2,080,247		

- Scope**
- Cobra heads
 - Deco Fixtures
 - Wireless Controls
 - **No Exterior lighting**
 - Rebates
 - PECO Bill update

	Measured Savings	Non-measured Savings			Total Savings	Loan Payment	M&V	Balance
	Utility Savings	Operational Savings	Rebates	Capital Avoidance				
Year 0	\$43,525	\$0	\$0	\$0	\$43,525	\$0	\$0	\$43,525
Year 1	\$88,791	\$30,478	\$84,130	\$0	\$203,399	\$188,015	\$15,384	\$0
Year 2	\$90,656	\$31,392	\$0	\$0	\$122,048	\$106,203	\$15,845	\$0
Year 3	\$92,650	\$32,334	\$0	\$0	\$124,984	\$108,663	\$16,320	\$0
Year 4	\$94,688	\$33,304	\$0	\$0	\$127,992	\$127,992	\$0	\$0
Year 5	\$96,866	\$34,303	\$0	\$0	\$131,169	\$131,169	\$0	\$0
Year 6	\$99,094	\$35,332	\$0	\$0	\$134,426	\$134,426	\$0	\$0
Year 7	\$101,472	\$36,392	\$0	\$0	\$137,864	\$137,864	\$0	\$0
Year 8	\$103,908	\$37,484	\$0	\$0	\$141,391	\$141,391	\$0	\$0
Year 9	\$106,505	\$38,608	\$0	\$0	\$145,114	\$145,114	\$0	\$0
Year 10	\$109,168	\$39,766	\$0	(\$7,398)	\$141,537	\$141,537	\$0	\$0
Year 11	\$112,006	\$40,959	\$0	(\$7,398)	\$145,568	\$145,568	\$0	\$0
Year 12	\$114,919	\$42,188	\$0	(\$7,398)	\$149,709	\$149,709	\$0	\$0
Year 13	\$118,021	\$43,454	\$0	(\$7,398)	\$154,077	\$154,077	\$0	\$0
Year 14	\$121,208	\$44,758	\$0	(\$7,398)	\$158,567	\$158,567	\$0	\$0
Year 15	\$124,602	\$46,100	\$0	(\$7,398)	\$163,304	\$163,304	\$0	\$0
Year 16	\$128,091	\$47,483	\$0	(\$7,398)	\$168,176	\$168,176	\$0	\$0
Year 17	\$131,805	\$48,908	\$0	(\$7,398)	\$173,315	\$173,315	\$0	\$0
Year 18	\$135,628	\$50,375	\$0	(\$7,398)	\$178,605	\$178,605	\$0	\$0
Year 19	\$139,561	\$51,886	\$0	(\$7,398)	\$184,049	\$57,061	\$0	\$126,988
Year 20	\$143,608	\$53,443	\$0	(\$7,398)	\$189,653	\$0	\$0	\$189,653
Total	\$2,296,773	\$818,947	\$84,130	(\$81,378)	\$3,118,472	\$2,710,756	\$47,549	\$360,166

**20 year
Status quo cost
\$3,118,472**

**20 year
LED Upgrade Savings
\$360,166**

***Capital Cost Avoidance in year 11-20 represents amount to be budgeted for Telensa controls refresh



Final Cash Flow

JCI Construction Cost	\$1,544,091
Measurement and Verification	\$50,841
Recoverable IGA Costs	\$0
Total JCI Construction Cost	\$1,594,932
Capital Contribution	\$0
Customer-Controlled Contingency	\$77,200.00
Closing Costs (Including PennSEF fee)	\$51,727
KLS-Program Fee	\$375
KLS-Consultant	\$0
Loan Structure	Lease
Contract Term - Years	10
Construction Term - Months	12
Loan Payment Frequency	Annual
Interest Rate	2.40%
Total Financed Amount	\$1,724,234

Project ECM List		Include?
ECM-1: Cobrahead Street Lighting		Yes
ECM-2: Decorative Street Lighting		Yes
ECM-3: Cobrahead Wireless Controls		No
ECM-4: Decorative Wireless Controls		Yes
ECM-5: Traffic Lighting		Yes
ECM-6: Exterior Lighting		Yes
ECM-7: Electricity Rate Procurement		Yes
ECM-8: FAWS		No

*Costs only include applicable ECMs

- Scope**

 - Cobra heads
 - Deco Fixtures
 - **Scaled** Wireless Controls
 - Exterior lighting
 - Rebates
 - PECO Bill update

	Measured Savings	Non-measured Savings			Total Savings	Loan Payment	M&V	Wireless Controls and Cellular Fees	Balance
	Utility Savings	Operational Savings	Rebates	Wireless Controls Software Subscription					
Year 0	\$48,944	\$0	\$0	\$0	\$48,944	\$0	\$0	\$0	\$48,944
Year 1	\$99,850	\$97,995	\$73,121	\$0	\$270,765	\$270,465	\$0	\$300	\$0
Year 2	\$101,643	\$100,934	\$0	\$0	\$202,577	\$202,277	\$0	\$300	\$0
Year 3	\$103,777	\$103,992	\$0	\$0	\$207,740	\$207,440	\$0	\$300	\$0
Year 4	\$106,060	\$107,081	\$0	\$0	\$213,142	\$212,842	\$0	\$300	\$0
Year 5	\$108,394	\$110,294	\$0	\$0	\$218,687	\$218,387	\$0	\$300	\$0
Year 6	\$110,887	\$113,603	\$0	\$0	\$224,489	\$224,189	\$0	\$300	\$0
Year 7	\$113,437	\$117,011	\$0	\$0	\$230,448	\$230,148	\$0	\$300	\$0
Year 8	\$116,160	\$120,521	\$0	\$0	\$236,681	\$236,381	\$0	\$300	\$0
Year 9	\$118,948	\$124,137	\$0	\$0	\$243,084	\$125,697	\$0	\$300	\$117,087
Year 10	\$121,921	\$127,861	\$0	(\$164)	\$249,618	\$0	\$0	\$300	\$249,318
Year 11	\$124,969	\$113,566	\$0	(\$164)	\$238,371	\$0	\$0	\$300	\$238,071
Year 12	\$128,218	\$116,973	\$0	(\$164)	\$245,027	\$0	\$0	\$300	\$244,727
Year 13	\$131,552	\$120,482	\$0	(\$164)	\$251,870	\$0	\$0	\$300	\$251,570
Year 14	\$135,104	\$124,096	\$0	(\$164)	\$259,037	\$0	\$0	\$300	\$258,737
Year 15	\$138,752	\$127,819	\$0	(\$164)	\$266,407	\$0	\$0	\$300	\$266,107
Year 16	\$142,637	\$131,654	\$0	(\$164)	\$274,127	\$0	\$0	\$300	\$273,827
Year 17	\$146,631	\$135,604	\$0	(\$164)	\$282,070	\$0	\$0	\$300	\$281,770
Year 18	\$150,883	\$139,672	\$0	(\$164)	\$290,391	\$0	\$0	\$300	\$290,091
Year 19	\$155,259	\$143,862	\$0	(\$164)	\$298,957	\$0	\$0	\$300	\$298,957
Year 20	\$159,761	\$148,176	\$0	(\$164)	\$307,775	\$0	\$0	\$300	\$307,475
Total	\$2,563,587	\$2,425,303	\$73,121	(\$1,804)	\$5,060,207	\$1,927,826	\$0	\$6,000	\$3,126,381

**20 year
Status quo cost
\$5,060,207**



**20 year
LED Upgrade Savings
\$3,126,381**



Questions?

