

Liberty Utilities
Outdoor Lighting Hours per Month

<u>Date</u>	<u>Length of Sun Days (1)</u>	<u>Avg Hours</u>		<u>Days / Month</u>	<u>Darkness</u>	<u>Daylight</u>	<u>Total Hours</u>
		<u>Daylight</u>	<u>Darkness</u>				
Jan-14	9 hr 54 min - 10 hr 20 min	10	14	31	430.4	313.6	
Feb-14	10 hr 32 min - 11 hr 13 min	11	13	28	367.5	304.5	
Mar-14	11 hr 29 min - 12 hr 30 min	12	12	31	372.3	371.7	
Apr-14	12 hr 45 min - 13 hr 28 min	13	11	30	326.8	393.3	
May-14	13 hr 42 min - 14 hr 13 min	14	10	31	311.3	432.7	
Jun-14	14 hr 21 min - 14 hr 29 min	14	10	30	287.5	432.5	
Jul-14	14 hr 25 min - 14 hr 2 min	14	10	31	303.0	441.0	
Aug-14	13 hr 51 min - 12 hr 56 min	13	11	31	328.9	415.1	
Sep-14	12 hr 41 min - 11 hr 56 min	12	12	30	350.8	369.3	
Oct-14	11 hr 40 min - 10 hr 57 min	11	13	31	393.4	350.6	
Nov-14	10 hr 43 min - 10 hr 0 min	10	14	30	409.3	310.8	
Dec-14	9 hr 53 min - 9 hr 49 min	10	14	31	<u>438.7</u>	<u>305.4</u>	
					4,320	4,440	8,760.0

Note: (1) Information from: 2014 Farmer's Almanac. Total Hours in Year 8760

Estimate of Day Length: (Information from: 2014 Farmer's Almanac.)

<u>Month</u>	<u>Calculated Hours of</u>		<u>Average Darkness/Day</u>	<u>Check</u>
	<u>Daylight</u>	<u>Darkness</u>		
January-14	314	430	14	430
February-14	305	368	13	368
March-14	372	372	12	372
April-14	393	327	11	327
May-14	433	311	10	311
June-14	433	288	10	288
July-14	441	303	10	303
August-14	415	329	11	329
September-14	369	351	12	351
October-14	351	393	13	393
November-14	311	409	14	409
December-14	305	<u>439</u>	14	<u>439</u>
			4,320	4,320

LED Lighting Summary

Fixture Type	Light Output	Power Rating	Monthly KW	Billing KWH /Fixture	Billing KWH /Fixture	Billing KWH /Fixture	Billing KWH /Fixture	Billing KWH /Fixture	Billing KWH /Fixture	Billing KWH /Fixture	Billing KWH /Fixture	Billing KWH /Fixture	Billing KWH /Fixture	Billing KWH /Fixture	Billing KWH /Fixture	Billing KWH /Fixture	Annual kWh
	Lumen	Watts	Per Lamp	January	February	March	April	May	June	July	August	September	October	November	December		
LED30 25-34w	3,000	30	0.030	13	11	11	10	9	9	10	11	12	12	12	13	130	
LED50 45-54w	5,000	50	0.050	22	18	19	16	16	14	15	16	18	20	20	22	216	
LED130 125-134w	16,000	130	0.130	56	48	48	42	40	37	39	43	46	51	53	57	562	
LED190 185-194w	21,000	190	0.190	82	70	71	62	59	55	58	62	67	75	78	83	821	
URD LED50 45-54w	5,000	50	0.050	22	18	19	16	16	14	15	16	18	20	20	22	216	
FLD LED90 85-94w	9,400	90	0.090	39	33	34	29	28	26	27	30	32	35	37	39	389	
FLD LED130 125-134w	14,600	130	0.130	56	48	48	42	40	37	39	43	46	51	53	57	562	
BARN LED50 45-54w	4,800	50	0.050	22	18	19	16	16	14	15	16	18	20	20	22	216	
				January	February	March	April	May	June	July	August	September	October	November	December		
				(Based on the 2014 Farmer's Almanac)													
			Lighting Hours per Month	430.4	367.5	372.3	326.8	311.3	287.5	303.0	328.9	350.8	393.4	409.3	438.7	4320	
			Lighting Hours per Day	14	13	12	11	10	10	10	11	12	13	14	14		
			Percent Total Annual Lighting Hours	9.96%	8.51%	8.62%	7.56%	7.21%	6.66%	7.02%	7.61%	8.12%	9.11%	9.47%	10.15%	100.00%	

Revenue Requirement Summary

<u>Fixture</u>	<u>20 Year</u> <u>Maint. Cost</u>	<u>Annual</u> <u>Maint. Cost</u>	<u>Install Cost</u>	<u>Annual</u> <u>Revenue</u> <u>Requirement</u>	<u>Annual</u> <u>Fixed</u> <u>Charge</u>	<u>Monthly</u> <u>Fixed</u> <u>Charge</u>	<u>Annual</u> <u>kWh</u>	<u>Average</u> <u>Monthly</u> <u>kWh</u>
1 LED30 25-34w	\$21.44	\$1.07	\$718.06	\$134.29	\$135.36	\$11.28	130	11
2 LED50 45-54w	\$23.68	\$1.18	\$746.83	\$139.66	\$140.85	\$11.74	216	18
3 LED130 125-134w	\$32.64	\$1.63	\$861.90	\$161.17	\$162.80	\$13.57	562	47
4 LED190 185-194w	\$51.20	\$2.56	\$1,132.46	\$211.76	\$214.32	\$17.86	821	68
5 URD LED50 45-54w	\$39.36	\$1.97	\$817.14	\$152.83	\$154.80	\$12.90	216	18
6 FLD LED90 85-94w	\$27.20	\$1.36	\$827.86	\$154.81	\$156.17	\$13.01	389	32
7 FLD LED130 125-134w	\$33.20	\$1.66	\$904.92	\$169.23	\$170.89	\$14.24	562	47
8 BARN LED50 45-54w	\$8.80	\$0.44	\$316.71	\$59.23	\$59.67	\$4.97	216	18

Lights Which Represent Comparable Replacements

*The lines in bold, italics and red have been revised.

<u>Fixture</u>	<u>Annual</u> <u>Fixed</u> <u>Charge</u>	<u>Monthly</u> <u>Fixed</u> <u>Charge</u>	<u>Annual</u> <u>kWh</u>	<u>Average</u> <u>Monthly</u> <u>kWh</u>
LUM HPS RWY 50W	\$78.71	\$7.52	252	21
LUM HPS RWY 100W	\$95.44	\$9.12	492	41
LUM HPS RWY 250W	\$167.59	\$16.02	1284	107
LUM HPS RWY 400W	\$218.37	\$20.87	1968	164
LUM HPS POST 100W	\$109.91	\$10.51	492	41
LUM HPS FLD 250W	\$169.08	\$15.16	1284	107
LUM HPS FLD 400W	\$233.41	\$22.31	1944	107
LUM HPS RWY 100W	\$95.44	\$9.12	444	21

ANNUAL REVENUE REQUIREMENT CALCULATION BY FIXTURE
LED30 25-34w 3000 LUMENS STREET LIGHT INSTALLATION COST

1	<u>Tax Depreciation (Federal)</u>	
2	LED30 25-34w Fixture	\$718.06
3	Bonus Depreciation	<u>0%</u>
4	Total Bonus Depreciation	\$ -
5	LED30 25-34w Fixture	\$ 718
6	Depreciation Rate	<u>3.750%</u>
7	Tax Depreciation	\$27
8	Total Federal Depreciation	\$ 27
9	Annual Tax Depreciation	<u>\$ 27</u>
10	Cumulative Tax Depreciation	\$27
11	<u>Tax Depreciation (State)</u>	
12	LED30 25-34w Fixture	718.06
13	Depreciation Rate	<u>3.750%</u>
14	Tax Depreciation	\$27
15	Federal Tax Depreciation	\$ 27
16	State Tax Depreciation	\$27
17	Annual Tax Depreciation	\$27
18	Cumulative Tax Depreciation	\$27
19	Book Depreciation Rate	4.33%
20	Book Depreciation	<u>\$31</u>
21	Cumulative Book Depreciation	\$31
22	Book/Tax Timer (Federal)	\$ (4)
23	less: Deferred Tax Reserve (State)	<u>(\$0)</u>
24	Net Book/Tax Timer (Federal)	(\$4)
25	Effective Tax Rate (Federal)	<u>34.00%</u>
26	Deferred Tax Reserve (Federal)	<u>(\$1)</u>
27	Book/Tax Timer (State)	(\$4)
28	Effective Tax Rate (State)	<u>8.50%</u>
29	Deferred Tax Reserve (State)	<u>(\$0)</u>
30	TOTAL Deferred Tax Reserve	<u><u>(\$2)</u></u>
31	<u>Rate Base Calculation</u>	
32	Plant In Service	\$718
33	Accumulated Book Depreciation	(\$31)
34	Deferred Tax Reserve	<u>(\$2)</u>
35	Year End Rate Base	<u><u>\$685</u></u>
36	<u>Revenue Requirement Calculation</u>	
37	Year End Rate Base	\$685
38	Pre-Tax ROR	<u>12.04%</u>
39	Return and Taxes	\$83
40	Book Depreciation	\$31
41	Property Taxes	<u>\$21</u>
42	Annual Revenue Requirement	\$134

*The lines in bold, italics and red have been revised.

ANNUAL REVENUE REQUIREMENT CALCULATION BY FIXTURE
LED50 45-54w 5000 LUMENS STREET LIGHT INSTALLATION COST

1	<u>Tax Depreciation (Federal)</u>	
2	LED50 45-54w Fixture	\$746.83
3	Bonus Depreciation	0%
4	Total Bonus Depreciation	\$ -
5	LED50 45-54w Fixture	\$ 747
6	Depreciation Rate	3.750%
7	Tax Depreciation	\$28
8	Total Federal Depreciation	\$ 28
9	Annual Tax Depreciation	\$ 28
10	Cumulative Tax Depreciation	\$28
11	<u>Tax Depreciation (State)</u>	
12	LED50 45-54w Fixture	746.83
13	Depreciation Rate	3.750%
14	Tax Depreciation	\$28
15	Federal Tax Depreciation	\$ 28
16	State Tax Depreciation	\$28
17	Annual Tax Depreciation	\$28
18	Cumulative Tax Depreciation	\$28
19	Book Depreciation Rate	4.33%
20	Book Depreciation	\$32
21	Cumulative Book Depreciation	\$32
22	Book/Tax Timer (Federal)	\$ (4)
23	less: Deferred Tax Reserve (State)	(\$0)
24	Net Book/Tax Timer (Federal)	(\$4)
25	Effective Tax Rate (Federal)	34.00%
26	Deferred Tax Reserve (Federal)	(\$1)
27	Book/Tax Timer (State)	(\$4)
28	Effective Tax Rate (State)	8.50%
29	Deferred Tax Reserve (State)	(\$0)
30	TOTAL Deferred Tax Reserve	(\$2)
31	<u>Rate Base Calculation</u>	
32	Plant In Service	\$747
33	Accumulated Book Depreciation	(\$32)
34	Deferred Tax Reserve	(\$2)
35	Year End Rate Base	\$713
36	<u>Revenue Requirement Calculation</u>	
37	Year End Rate Base	\$713
38	Pre-Tax ROR	12.04%
39	Return and Taxes	\$86
40	Book Depreciation	\$32
41	Property Taxes	\$22
42	Annual Revenue Requirement	\$140

*The lines in bold, italics and red have been revised.

ANNUAL REVENUE REQUIREMENT CALCULATION BY FIXTURE
LED130 125-134w 16,000 LUMENS STREET LIGHT INSTALLATION COST

1	<u>Tax Depreciation (Federal)</u>	
2	LED130 125-134w Fixture	\$861.90
3	Bonus Depreciation	<u>0%</u>
4	Total Bonus Depreciation	\$ -
5	LED130 125-134w Fixture	\$ 862
6	Depreciation Rate	<u>3.750%</u>
7	Tax Depreciation	\$32
8	Total Federal Depreciation	\$ 32
9	Annual Tax Depreciation	<u>\$ 32</u>
10	Cumulative Tax Depreciation	\$32
11	<u>Tax Depreciation (State)</u>	
12	LED130 125-134w Fixture	861.90
13	Depreciation Rate	<u>3.750%</u>
14	Tax Depreciation	\$32
15	Federal Tax Depreciation	\$ 32
16	State Tax Depreciation	\$32
17	Annual Tax Depreciation	\$32
18	Cumulative Tax Depreciation	\$32
19	Book Depreciation Rate	4.33%
20	Book Depreciation	<u>\$37</u>
21	Cumulative Book Depreciation	\$37
22	Book/Tax Timer (Federal)	\$ (5)
23	less: Deferred Tax Reserve (State)	<u>(\$0)</u>
24	Net Book/Tax Timer (Federal)	(\$5)
25	Effective Tax Rate (Federal)	<u>34.00%</u>
26	Deferred Tax Reserve (Federal)	<u>(\$2)</u>
27	Book/Tax Timer (State)	(\$5)
28	Effective Tax Rate (State)	<u>8.50%</u>
29	Deferred Tax Reserve (State)	<u>(\$0)</u>
30	TOTAL Deferred Tax Reserve	<u><u>(\$2)</u></u>
31	<u>Rate Base Calculation</u>	
32	Plant In Service	\$862
33	Accumulated Book Depreciation	(\$37)
34	Deferred Tax Reserve	<u>(\$2)</u>
35	Year End Rate Base	<u><u>\$822</u></u>
36	<u>Revenue Requirement Calculation</u>	
37	Year End Rate Base	\$822
38	Pre-Tax ROR	<u>12.04%</u>
39	Return and Taxes	\$99
40	Book Depreciation	\$37
41	Property Taxes	<u>\$25</u>
42	Annual Revenue Requirement	\$161

*The lines in bold, italics and red have been revised.

ANNUAL REVENUE REQUIREMENT CALCULATION BY FIXTURE
LED190 185-194w 21,000 LUMENS STREET LIGHT INSTALLATION COST

1	<u>Tax Depreciation (Federal)</u>	
2	LED190 185-194w Fixture	\$1,132.46
3	Bonus Depreciation	0%
4	Total Bonus Depreciation	\$ -
5	LED190 185-194w Fixture	\$ 1,132
6	Depreciation Rate	3.750%
7	Tax Depreciation	\$42
8	Total Federal Depreciation	\$ 42
9	Annual Tax Depreciation	\$ 42
10	Cumulative Tax Depreciation	\$42
11	<u>Tax Depreciation (State)</u>	
12	LED190 185-194w Fixture	1,132.46
13	Depreciation Rate	3.750%
14	Tax Depreciation	\$42
15	Federal Tax Depreciation	\$ 42
16	State Tax Depreciation	\$42
17	Annual Tax Depreciation	\$42
18	Cumulative Tax Depreciation	\$42
19	Book Depreciation Rate	4.33%
20	Book Depreciation	\$49
21	Cumulative Book Depreciation	\$49
22	Book/Tax Timer (Federal)	\$ (7)
23	less: Deferred Tax Reserve (State)	(\$1)
24	Net Book/Tax Timer (Federal)	(\$6)
25	Effective Tax Rate (Federal)	34.00%
26	Deferred Tax Reserve (Federal)	(\$2)
27	Book/Tax Timer (State)	(\$7)
28	Effective Tax Rate (State)	8.50%
29	Deferred Tax Reserve (State)	(\$1)
30	TOTAL Deferred Tax Reserve	(\$3)
31	<u>Rate Base Calculation</u>	
32	Plant In Service	\$1,132
33	Accumulated Book Depreciation	(\$49)
34	Deferred Tax Reserve	(\$3)
35	Year End Rate Base	\$1,081
36	<u>Revenue Requirement Calculation</u>	
37	Year End Rate Base	\$1,081
38	Pre-Tax ROR	12.04%
39	Return and Taxes	\$130
40	Book Depreciation	\$49
41	Property Taxes	\$33
42	Annual Revenue Requirement	\$212

*The lines in bold, italics and red have been revised.

ANNUAL REVENUE REQUIREMENT CALCULATION BY FIXTURE
URD LED50 45-54w 5000 LUMENS STREET LIGHT INSTALLATION COST

1	<u>Tax Depreciation (Federal)</u>	
2	URD LED50 45-54w Fixture	\$817.14
3	Bonus Depreciation	0%
4	Total Bonus Depreciation	\$ -
5	URD LED50 45-54w Fixture	\$ 817
6	Depreciation Rate	3.750%
7	Tax Depreciation	\$31
8	Total Federal Depreciation	\$ 31
9	Annual Tax Depreciation	\$ 31
10	Cumulative Tax Depreciation	\$31
11	<u>Tax Depreciation (State)</u>	
12	URD LED50 45-54w Fixture	817.14
13	Depreciation Rate	3.750%
14	Tax Depreciation	\$31
15	Federal Tax Depreciation	\$ 31
16	State Tax Depreciation	\$31
17	Annual Tax Depreciation	\$31
18	Cumulative Tax Depreciation	\$31
19	Book Depreciation Rate	4.33%
20	Book Depreciation	\$35
21	Cumulative Book Depreciation	\$35
22	Book/Tax Timer (Federal)	\$ (4)
23	less: Deferred Tax Reserve (State)	(\$0)
24	Net Book/Tax Timer (Federal)	(\$4)
25	Effective Tax Rate (Federal)	34.00%
26	Deferred Tax Reserve (Federal)	(\$1)
27	Book/Tax Timer (State)	(\$4)
28	Effective Tax Rate (State)	8.50%
29	Deferred Tax Reserve (State)	(\$0)
30	TOTAL Deferred Tax Reserve	(\$2)
31	<u>Rate Base Calculation</u>	
32	Plant In Service	\$817
33	Accumulated Book Depreciation	(\$35)
34	Deferred Tax Reserve	(\$2)
35	Year End Rate Base	\$780
36	<u>Revenue Requirement Calculation</u>	
37	Year End Rate Base	\$780
38	Pre-Tax ROR	12.04%
39	Return and Taxes	\$94
40	Book Depreciation	\$35
41	Property Taxes	\$24
42	Annual Revenue Requirement	\$153

*The lines in bold, italics and red have been revised.

ANNUAL REVENUE REQUIREMENT CALCULATION BY FIXTURE
FLD LED90 85-94w 9400 LUMENS STREET LIGHT INSTALLATION COST

1	<u>Tax Depreciation (Federal)</u>	
2	FLD LED90 85-94w Fixture	\$827.86
3	Bonus Depreciation	<u>0%</u>
4	Total Bonus Depreciation	\$ -
5	FLD LED90 85-94w Fixture	\$ 828
6	Depreciation Rate	<u>3.750%</u>
7	Tax Depreciation	\$31
8	Total Federal Depreciation	\$ 31
9	Annual Tax Depreciation	<u>\$ 31</u>
10	Cumulative Tax Depreciation	\$31
11	<u>Tax Depreciation (State)</u>	
12	FLD LED90 85-94w Fixture	827.86
13	Depreciation Rate	<u>3.750%</u>
14	Tax Depreciation	\$31
15	Federal Tax Depreciation	\$ 31
16	State Tax Depreciation	\$31
17	Annual Tax Depreciation	\$31
18	Cumulative Tax Depreciation	\$31
19	Book Depreciation Rate	4.33%
20	Book Depreciation	<u>\$36</u>
21	Cumulative Book Depreciation	\$36
22	Book/Tax Timer (Federal)	\$ (5)
23	less: Deferred Tax Reserve (State)	<u>(\$0)</u>
24	Net Book/Tax Timer (Federal)	(\$4)
25	Effective Tax Rate (Federal)	<u>34.00%</u>
26	Deferred Tax Reserve (Federal)	<u>(\$2)</u>
27	Book/Tax Timer (State)	(\$5)
28	Effective Tax Rate (State)	<u>8.50%</u>
29	Deferred Tax Reserve (State)	<u>(\$0)</u>
30	TOTAL Deferred Tax Reserve	<u><u>(\$2)</u></u>
31	<u>Rate Base Calculation</u>	
32	Plant In Service	\$828
33	Accumulated Book Depreciation	(\$36)
34	Deferred Tax Reserve	<u>(\$2)</u>
35	Year End Rate Base	<u><u>\$790</u></u>
36	<u>Revenue Requirement Calculation</u>	
37	Year End Rate Base	\$790
38	Pre-Tax ROR	<u>12.04%</u>
39	Return and Taxes	\$95
40	Book Depreciation	\$36
41	Property Taxes	<u>\$24</u>
42	Annual Revenue Requirement	\$155

*The lines in bold, italics and red have been revised.

ANNUAL REVENUE REQUIREMENT CALCULATION BY FIXTURE
FLD LED130 125-134w 14,600 LUMENS STREET LIGHT INSTALLATION COST

1	<u>Tax Depreciation (Federal)</u>	
2	FLD LED130 125-134w Fixture	\$904.92
3	Bonus Depreciation	0%
4	Total Bonus Depreciation	\$ -
5	FLD LED130 125-134w Fixture	\$ 905
6	Depreciation Rate	3.750%
7	Tax Depreciation	\$34
8	Total Federal Depreciation	\$ 34
9	Annual Tax Depreciation	\$ 34
10	Cumulative Tax Depreciation	\$34
11	<u>Tax Depreciation (State)</u>	
12	FLD LED130 125-134w Fixture	904.92
13	Depreciation Rate	3.750%
14	Tax Depreciation	\$34
15	Federal Tax Depreciation	\$ 34
16	State Tax Depreciation	\$34
17	Annual Tax Depreciation	\$34
18	Cumulative Tax Depreciation	\$34
19	Book Depreciation Rate	4.33%
20	Book Depreciation	\$39
21	Cumulative Book Depreciation	\$39
22	Book/Tax Timer (Federal)	\$ (5)
23	less: Deferred Tax Reserve (State)	(\$0)
24	Net Book/Tax Timer (Federal)	(\$5)
25	Effective Tax Rate (Federal)	34.00%
26	Deferred Tax Reserve (Federal)	(\$2)
27	Book/Tax Timer (State)	(\$5)
28	Effective Tax Rate (State)	8.50%
29	Deferred Tax Reserve (State)	(\$0)
30	TOTAL Deferred Tax Reserve	(\$2)
31	<u>Rate Base Calculation</u>	
32	Plant In Service	\$905
33	Accumulated Book Depreciation	(\$39)
34	Deferred Tax Reserve	(\$2)
35	Year End Rate Base	\$864
36	<u>Revenue Requirement Calculation</u>	
37	Year End Rate Base	\$864
38	Pre-Tax ROR	12.04%
39	Return and Taxes	\$104
40	Book Depreciation	\$39
41	Property Taxes	\$26
42	Annual Revenue Requirement	\$169

*The lines in bold, italics and red have been revised.

ANNUAL REVENUE REQUIREMENT CALCULATION BY FIXTURE
BRN LED50 45-54w 4800 LUMENS STREET LIGHT INSTALLATION COST

1	<u>Tax Depreciation (Federal)</u>	
2	BRN LED50 45-54w Fixture	\$316.71
3	Bonus Depreciation	0%
4	Total Bonus Depreciation	\$ -
5	BRN LED50 45-54w Fixture	\$ 317
6	Depreciation Rate	3.750%
7	Tax Depreciation	\$12
8	Total Federal Depreciation	\$ 12
9	Annual Tax Depreciation	\$ 12
10	Cumulative Tax Depreciation	\$12
11	<u>Tax Depreciation (State)</u>	
12	BRN LED50 45-54w Fixture	316.71
13	Depreciation Rate	3.750%
14	Tax Depreciation	\$12
15	Federal Tax Depreciation	\$ 12
16	State Tax Depreciation	\$12
17	Annual Tax Depreciation	\$12
18	Cumulative Tax Depreciation	\$12
19	Book Depreciation Rate	4.33%
20	Book Depreciation	\$14
21	Cumulative Book Depreciation	\$14
22	Book/Tax Timer (Federal)	\$ (2)
23	less: Deferred Tax Reserve (State)	(\$0)
24	Net Book/Tax Timer (Federal)	(\$2)
25	Effective Tax Rate (Federal)	34.00%
26	Deferred Tax Reserve (Federal)	(\$1)
27	Book/Tax Timer (State)	(\$2)
28	Effective Tax Rate (State)	8.50%
29	Deferred Tax Reserve (State)	(\$0)
30	TOTAL Deferred Tax Reserve	(\$1)
31	<u>Rate Base Calculation</u>	
32	Plant In Service	\$317
33	Accumulated Book Depreciation	(\$14)
34	Deferred Tax Reserve	(\$1)
35	Year End Rate Base	\$302
36	<u>Revenue Requirement Calculation</u>	
37	Year End Rate Base	\$302
38	Pre-Tax ROR	12.04%
39	Return and Taxes	\$36
40	Book Depreciation	\$14
41	Property Taxes	\$9
42	Annual Revenue Requirement	\$59

*The lines in bold, italics and red have been revised.

LED30 25-34W-3000 LUMENS STREET LIGHT INSTALLATION COST

<u>Identifier</u>	<u>Cost</u>	<u>Burden</u>	<u>Profit</u>	<u>Total</u>
EQ	\$67.20	\$0.00	\$0.00	\$67.20
IN	\$378.40	\$10.37	\$0.00	\$388.77
PY	<u>\$111.41</u>	<u>\$150.68</u>	<u>\$0.00</u>	<u>\$262.09</u>
SUB-TOTAL	\$557.01	\$161.05	\$0.00	\$718.06

LED50 45-54W-5000 LUMENS STREET LIGHT INSTALLATION COST

<u>Identifier</u>	<u>Cost</u>	<u>Burden</u>	<u>Profit</u>	<u>Total</u>
EQ	\$67.20	\$0.00	\$0.00	\$67.20
IN	\$406.40	\$11.14	\$0.00	\$417.54
PY	<u>\$111.41</u>	<u>\$150.68</u>	<u>\$0.00</u>	<u>\$262.09</u>
SUB-TOTAL	\$585.01	\$161.82	\$0.00	\$746.83

LED130 125-134W-16000 LUMENS STREET LIGHT INSTALLATION COST

<u>Identifier</u>	<u>Cost</u>	<u>Burden</u>	<u>Profit</u>	<u>Total</u>
EQ	\$67.20	\$0.00	\$0.00	\$67.20
IN	\$518.40	\$14.20	\$0.00	\$532.60
PY	<u>\$111.41</u>	<u>\$150.68</u>	<u>\$0.00</u>	<u>\$262.09</u>
SUB-TOTAL	\$697.01	\$164.89	\$0.00	\$861.90

LED190 185-194W-21000 LUMENS STREET LIGHT INSTALLATION COST

<u>Identifier</u>	<u>Cost</u>	<u>Burden</u>	<u>Profit</u>	<u>Total</u>
EQ	\$67.20	\$0.00	\$0.00	\$67.20
IN	\$781.75	\$21.42	\$0.00	\$803.17
PY	<u>\$111.41</u>	<u>\$150.68</u>	<u>\$0.00</u>	<u>\$262.09</u>
SUB-TOTAL	\$960.36	\$172.10	\$0.00	\$1,132.46

URDLED50 45-54W-5000 LUMENS STREET LIGHT INSTALLATION COST

<u>Identifier</u>	<u>Cost</u>	<u>Burden</u>	<u>Profit</u>	<u>Total</u>
EQ	\$63.00	\$0.00	\$0.00	\$63.00
IN	\$494.86	\$13.56	\$0.00	\$508.42
PY	<u>\$104.45</u>	<u>\$141.27</u>	<u>\$0.00</u>	<u>\$245.72</u>
SUB-TOTAL	\$662.31	\$154.83	\$0.00	\$817.14

FLDLED90 85-94W-9400 LUMENS STREET LIGHT INSTALLATION COST

<u>Identifier</u>	<u>Cost</u>	<u>Burden</u>	<u>Profit</u>	<u>Total</u>
EQ	\$78.96	\$0.00	\$0.00	\$78.96
IN	\$429.20	\$11.76	\$0.00	\$440.96
PY	<u>\$130.90</u>	<u>\$177.04</u>	<u>\$0.00</u>	<u>\$307.94</u>
SUB-TOTAL	\$639.06	\$188.80	\$0.00	\$827.86

FLDLED130 125-134W-14600 LUMENS STREET LIGHT INSTALLATION COST

<u>Identifier</u>	<u>Cost</u>	<u>Burden</u>	<u>Profit</u>	<u>Total</u>
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EQ	\$78.96	\$0.00	\$0.00	\$78.96
IN	\$504.20	\$13.82	\$0.00	\$518.02
PY	<u>\$130.90</u>	<u>\$177.04</u>	<u>\$0.00</u>	<u>\$307.94</u>
SUB-TOTAL	\$714.06	\$190.86	\$0.00	\$904.92

BRNLED50 45-54W-4800 LUMENS STREET LIGHT INSTALLATION COST

<u>Identifier</u>	<u>Cost</u>	<u>Burden</u>	<u>Profit</u>	<u>Total</u>
EQ	\$25.20	\$0.00	\$0.00	\$25.20
IN	\$188.07	\$5.15	\$0.00	\$193.22
PY	<u>\$41.78</u>	<u>\$56.51</u>	<u>\$0.00</u>	<u>\$98.29</u>
SUB-TOTAL	\$255.05	\$61.66	\$0.00	\$316.71

20 YEAR MAINTENANCE COSTS

Typical HID Fixture Failure Rate 1-2% of System/Inventory (Starter, Core & Coil or Luminaire Age)			
LED Reliability Testing, Factory Returns and RMA = Annual "Random" Failure Rate < 0.4%			
Fixture Type	Fixture Cost	Annual Failure Rate	20 Year Cost
25-34W LED30	\$268.00	0.004	\$21.44
45-54W LED50	\$296.00	0.004	\$23.68
125-134W LED130	\$408.00	0.004	\$32.64
185-194W LED190	\$640.00	0.004	\$51.20
45-54W URDLED50	\$492.00	0.004	\$39.36
85-94WFLDLED90	\$340.00	0.004	\$27.20
125-134WFLDLED130	\$415.00	0.004	\$33.20
45-54WBRNLED50	\$110.00	0.004	\$8.80

PROPOSED LIBERTY UTILITIES LED ROADWAY (OUTDOOR) LIGHTING

Liberty Utilities LED Outdoor Lighting			
Offer	LED Wattage/Lumens	HPS replacement	Style
LED30	30W(25-34)/3000	50W, 70W	Roadway Cobra
	GE Code: ERL1 0 03 E1 40 A GRAY RA		Cost:
LED50	50W(45-54)/5000	100W, 150W	Roadway Cobra
	GE Code: ERL1 0 05 E1 40 A GRAY RA		Cost:
LED130	130W(125-134)/16000	250W	Roadway Cobra
	GE Code: ERS2 0 16 E1 40 A GRAY R		Cost:
LED190	190W(185-194)/21000	400W	Roadway Cobra
	GE Code: ERS2 0 21 E1 40 A GRAY		Cost:
URDLED50	50(45-54)W	50W, 100W	Salem Post Top
	GE Code: EPST 0 E3 41 N 2 P BLCK		Cost:

ERL1



ERS2



URD Post Top



PROPOSED LIBERTY UTILITIES LED ROADWAY (OUTDOOR) LIGHTING

Liberty Utilities Flood Lighting/Res. Commercial			
Offer	LED Wattage/Lumens	HPS Replacement	Style
FLDLED90	90W(85-84)/9400	250W	Flood Light
	Cooper code: UFLD-A25 E U 66 T AP 4		Cost:
FLDLED130	130W(125-134)/14600	400W	Flood Light
	Cooper code: UFLD-A40 E U 66 T AP 4		Cost:
BRNLED50	50W(45-54)/4800	100W	Barn Light
	Cooper code: CRTK-A-A08-E-120-5-SR-A		Cost:

UFLD (Flood Light)



CRTK (Barn Light)



LUMINAIRE MAINTENANCE RATE

Typical HID Fixture Failure Rate 1-2% of System/Inventory (Starter, Core & Coil or Luminaire Age)			
LED Reliability Testing, Factory Returns and RMA = Annual "Random" Failure Rate < 0.4%			
Fixture Type	Fixture Cost	Annual Failure Rate	20 Year Cost
100W HPS (0811065)	\$87.00	0.015	\$26.10
45W LED	\$260.00	0.004	\$20.80