

4/12/16

**Cost Savings for the Retrofit of 14 Decorative Streetlights  
from 70W Metal Halides to 30W LED's  
Broadway Avenue, 3rd Street to 8th Street**

<b>1) Baseline January Electric Bill, Dec 14, 2015 - January 14, 2016</b>				
	kW	kW hrs	13 hrs/day	Bill
January 2016	779	1733	450	\$216.11

$(1733 \times \$0.120347) + \$7.55$

<b>electricity charges</b>	
Electric Delivery	\$0.050058
Electric Supply	\$0.070289
<b>TOTAL</b>	<b>\$0.120347</b>
Service Charge	\$7.55

<b>2) Baseline Cost For One Streetlight (3 Bulbs) For 70 Watt Metal Halide Bulbs</b>				
Watts	kW	kW hrs	13 hrs/day	Cost
255	0.255	114.75	450	\$13.81

$(114.75 \times \$0.120347)$

<b>3) Projected Cost For LED 30 Watt Bulbs And No Ballasts</b>				
Watts	kW	kW hrs	13 hrs/day	Cost
90	0.09	40.5	450	\$4.87

$(40.5 \times \$0.120347)$

<b>4) March Electric Bill, February 14 - March 14, 2016</b>				
	kW	kW hrs	11 hrs/day	Bill
March 2016	3.405	1258	369	\$158.95

March electric bill shows the cost savings of replacing one streetlight (3 bulbs) to LED = \$13.81 - \$4.87 = \$8.94

$(1258 \times \$0.120347) + \$7.55$

<b>5) Projected Cost Of All Streetlights With LED 30 Watt Bulbs And No Ballasts</b>				
Watts	kW	kW hrs	13 hrs/day	Future Bill
1260	1.26	567	450	\$68.24

$(567 \times \$0.120347)$

<b>7) Projected Monthly Savings</b>	\$147.87	$(\$216.11 - \$68.24)$
-------------------------------------	----------	------------------------

<b>8) Cost of Bulbs</b>		<b>Total</b>	
# bulbs	Cost/Bulb		
42	\$48	\$2,016	3 lightbulbs per pole (14 poles) $(42 \times \$48)$

<b>9) Cost of Installation</b>	\$1,800	estimate by Scrig's Electric, Red Lodge (much lower than quote by Red Lodge Electric)
--------------------------------	---------	---

<b>10) Total Cost</b>	\$3,816	$(\$2,026 + \$1,800)$
-----------------------	---------	-----------------------

<b>11) Payback Time</b>		
years	2.15	$(\$3,816 / \$147.87) / 12$
months	25.8	$(\$3,816 / \$147.87)$