

LED Building Retrofit Management Plan

Location:

LED lights were purchased and installed in City Hall, Police Station, Police Garage, Public Works office, and all Public Works Garages.

Installed Items: 88 LED Fixtures and 20 LED screw-in bulbs were installed across all City buildings. Cut sheets for each fixture are located in the management binder. The items include:

Table 1

Type of Fixture	Brand	Title	Catalog #	Count
Wrap Fixture	Lithonia	LBLED	LBL2 LP835	35
Flat Panel	Halco	ProLED 2x4 Panel	81942	6
Flush Mount	Lithonia	Versi Lite	FMML 13 830 DDBT	2
High Bay	Lithonia	IBG	IGB 12L MVOLT	38
Wall Pack	Lithonia	OLWX1	OLWX1	7
10W Screw In	GE	Screw-In	A-19-11328	10
10W Can Light	GE	Reflector Lamp	BR30-68161	12

Lighting Contractor

Graybar Electrical Supply
Bryan Emborg, Outside Sales Representative
1465 Monad Road
Billings, MT 59101
Main Office: (406) 237-2560
Bryan Cell: (406) 672-3284
Email: Bryan.Emborg@graybar.com

Installer Information

Yellowstone Electric
Paul Nash, Service Manager
1919 4th Avenue
Billings, MT 59101
Office: (406) 252-3407
Paul Cell: (406) 855-1575
Email: PNash@yecomt.com

Funding:

The City approved Resolution 3427 to approve funding of \$17,500 for the retrofit and installation of new LED lighting fixtures in all City Buildings. With an estimated savings of \$1,700 a year, the project has an estimated 10-year payback.

The City received a rebate from NorthWestern Energy for installing LED technology of **\$5,309**. This rebate was factored into the resolution and funding amount. See Table 2 below for funding details.

Table 2

Full Fixture Replacement:	\$13,647.87	Pre Avg kWh:	3,567.10	Pre Avg Cost:	\$411.25
Installation:	\$8,500.00	Post Avg kWh:	1,062.98	Post Avg Cost:	\$267.32
NorthWestern Rebate:	(\$5,436.00)	Avg kWh Save:	2,504.12	Avg \$ Savings:	\$143.93
Project Cost Total:	\$16,711.87	Avg Yearly Savings:		\$1,727.16	
				Pay Back Estimate:	9.6 Years

Warranty

All of the lights have varying warranties and estimated lifetime. If a fixture breaks within the warranty time period, Graybar should be notified. They will issue the warranty and replacement of the fixture. The new fixtures do not have any tube lights and a full fixture replacement will need to occur. The City is responsible for the electrical services to replace the fixture. After the warranty has expired any fixture that goes out will be responsible of the City to replace. See Table 3 below for each fixture’s estimated lifetime and warranty. Please see attached cut sheets in the management binder of each fixture for additional information.

Table 3

Type of Fixture	Brand	Title	Count	Lifetime in Hours	Warranty	Cost Per Fixture
Wrap Fixture	Lithonia	LBLED	35	60,000	5 years	\$132.00
Flat Panel	Halco	ProLED 2x4 Panel	6	50,000	5 years	\$128.38
Flush Mount	Lithonia	Versi Lite	2	50,000	5 years	\$70.00
High Bay	Lithonia	IBG	38	60,000	5 years	\$190.00
Wall Pack	Lithonia	OLWX1	7	60,000	5 years	\$110.39
10W Screw In	GE	Screw-In	10	25,000	None	\$6.28
10W Can Light	GE	Reflector Lamp	12	25,000	None	\$7.46

Monitoring Usage

NorthWestern Energy Account Number for City Hall and Police: 713550-2

NorthWestern Energy Account Number for Public Works: 713563-5

All three buildings will be monitored for electricity savings to track and gauge a more accurate return on investment. Monitoring mechanisms will be put in place to monitor the change in electricity usage and determine carbon emission savings as well. This will be available for City personnel to regularly update to monitor costs and carbon savings. Please note the City also receives natural gas energy bills and should not be a part of the calculating energy savings. Savings in kWh on these specific NorthWestern Energy bills are the bills to track.

The monitoring spreadsheet is available online via Google Sheets and can be found at the link below:

<https://docs.google.com/spreadsheets/d/1RhW8kU09W0HOIK-jaJ8GSeeKDXm1n3pAGZCVNjuVdyg/edit#gid=0>

Though there are two separate NorthWestern Energy accounts, it should be noted that both are accounted for on the Google Sheet. Kilowatt-hours (kWh) and the bill amount for each are to be entered separately. Cost Savings and carbon emission savings will automatically recorded and should be recorded on a regular basis.

Community Impact

The City will see significant monetary savings for several reasons – both in electricity and maintenance savings. The 10-year return on investment is only based on estimating the electricity savings however; there is also significant savings on maintenance. The annual maintenance for replacing tube lights or fixing a flickering fixture was not added to the payback but should be noted as an additional cost saver to the City.

The increase in safety has been a top priority for this project. Not only does the LED technology provide significant monetary savings, it also drastically increases light levels, providing a safer place for City employees to work. This is particularly true in the Police and Public Works garages.

Maintenance Plan:

Given the life expectancy of LEDs, the maintenance of the streetlights should be minimal. With an estimated 60,000-hour lifespan, it is hoped the lights will last 3-5 years. Streetlights will need to be checked for outages on a regular basis. Damages to the poles or lights are a City responsibility.