

Lighting & Electrical Efficiency

City of Biddeford, ME

Site Location:

City of Biddeford
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Vendor - General:

Johnson Controls
Contact: Bradley Parsons
39 Salem Street
Lynnfield, MA 01940
Phone: 781-224-5561
E-mail:
bradley.c.parsons@jci.com

Vendor - Installation:

Lighting Retrofit Svcs, Inc
220 Ballard Street
Wilmington, MA 01887
Phone: 978-988-7800
Fax: 978-988-7882

Vendor - Financing:

Citi Capital
53 Oakridge Road
Bloomfield, NJ 07003
Phone: 800-680-0731
Fax: 973-338-5502



Environmental Benefits –

CO₂ Reduction: 292,268 lbs/yr
Energy Savings: 230,859 kWh/yr

Background

The City of Biddeford began an energy reduction initiative in March of 2007. The City contracted with Johnson Controls to assess energy saving opportunities through a detailed energy audit of municipal facilities. One aspect of the audit included the evaluation of lighting.

The lighting audit included a detailed review of 2,751 fixtures, review of energy bills, and an analysis of use patterns.

Johnson Controls formulated a solution by applying five general criteria:

1. Provide the most energy efficient lighting, on a retrofit or replacement basis, using state of the art components and technology.
2. Use components that meets or exceed all Federal Energy Policy Act of 1992/2005 (EPACT) lamp and luminaire efficiency standards.
3. Adjust light levels to meet or exceed current Illumination Engineering Society (IES) recommendations, while addressing particular illumination requirements for specific areas and task functions.
4. Provide a quality of light conducive to a productive, safe, and aesthetically pleasing environment.
5. Provide a reduction in future maintenance requirements through the standardization, extended life cycle, and reduction in the quantity of system components supporting multiple fixture types.

Solution

- Retrofit and standardize all fluorescent lighting to 32W or 28W T8s where possible.
- Minimize the use of 8-ft and 4-ft U tube lamps and fixtures to the extent possible.
- Replace magnetic ballasts with high efficiency electronic ballasts.
- Retrofit existing fixtures with more efficient reflectors and specify efficient reflectors in new fixtures.
- Replace, where possible, interior HID fixtures (gyms, auditoriums, garages) with high output fluorescent T8 fixtures.
- Delamp fixtures in areas where light readings indicate excessive foot-candles.
- Replace all incandescent exit signs with LED exit signs.

- Install 93-Type W occupancy sensors in eligible rooms and offices. The Type W sensor is a dual technology sensor using ultrasonic and passive infrared monitoring to control fixtures based on occupancy.
- Install VendingMisers™ on all refrigerated vending machines.
- Install timers on five small electric water heaters.

Financing

The City of Biddeford financed the project through a performance contract with overall financing structured as a municipal lease agreement. The projected savings cover 100% of the finance payments. This negates the need to appropriate or bond the cost of the entire project (\$1.4 million) and there is no direct increase to the community's tax rate. The lighting and electrical investment totaled \$433,000 with conservative savings of \$26,977 per year.

Rebates & Incentives

The project is eligible for over \$23,000 in lighting efficiency rebates through Efficiency Maine.

Material Specifications & Links

- Phillips - Alto & Marathon Lamps
<http://www.nam.lighting.philips.com/us/>
- Advance - Optanium 2.0 Lamp Ballasts
<http://www.advancetransformer.com/products/fluorescent-electronic.jsp>
- Renova Lighting Systems – Office Fixtures
http://renova.com/ecs_retrofits.htm
- Optimum Lighting, LLC – High Bay Fixture
http://www.optimumlighting.com/catalog/1_high_low_bay/optimum_gx.pdf
- Energy Planning Associates – High Bay Fixture
http://www.retrofitting.com/products_ofo.php
- Sensorswitch - Lighting Sensor
<http://www.sensorswitch.com/OnlineCatalog.aspx>
- USA Tech - VendingMiser™
http://www.usatech.com/energy_management/downloads/USATech_vendingmiser.pdf
- Intermatic – Water Heater Timer
<http://www.intermatic.com/Default.asp?action=prod&pid=54&sid=83&cid=50&did=5>