

Town of Wayland
Green Community Grant Final Report
March 20, 2014

In Spring 2011 the Town of Wayland was designated a Green Community by the Department of Energy Resources and received a grant in the amount of \$131,775.00. This report details the projects that grant funded.

Projects described in this report:

- Lighting upgrade at Middle School
- Lighting upgrade at Loker Elementary School
- Owner's Agent technical services from Beacon Integrated Solutions for an Energy Saving Performance Contract with Ameresco
- Exterior LED lighting upgrade at various municipal building exteriors and parking lots

Below find a descriptive narrative of each project:

Lighting Upgrade at Middle School

Description of project:

This project consisted of an extensive lighting upgrade in the Middle School. The work was completed by AECOM, through NStar.

It included the following upgrades to lighting:

- Installing wall and ceiling occupancy sensors in classrooms, locker rooms and bathrooms;
- replacing existing T12 lamps with T8 lamps and low power ballasts in janitor room, hallways, locker rooms, bathrooms, selected classrooms, cafeteria stage, and boiler room;
- replacing incandescent cafeteria lighting with T8 and LED fixtures
- installing new T8 high lumen fixtures in wood shop.

Team Managing Project:

John Moynihan, Public Buildings Director. Contacted AECOM to refine scope, define contract. Oversaw completion of work.

Patrick Morris, Facilities Manager. Coordinated with schools and staff to schedule work completion.

Maggie Meehan, Assistant to the Public Buildings Director. Coordinated payment of invoices, requested purchase orders.

Anne Harris, Energy Initiatives Advisory Committee. Documented work for quarterly reports.

Final Timeline:

October 26, 2011—Estimate issued by AECOM

October 30, 2011—Contract signed/Purchase orders requested

December 2, 2011—Purchase orders delivered to AECOM

December 22, 2011—Installation begun
January 13, 2012—Installation complete
January 25, 2012—Invoice received from AECOM
February 13, 2012—Invoice paid by Town of Wayland

Procurement details:

The estimate from the work was part of a utility energy audit completed by NSTAR. As the work was under \$100,000 it was not required to be bid out, but rather could be done under the Green Communities Act, G.L. c. 25A.

Cost documentation:

Invoices and check copies have been sent in previous quarterly reports.

Energy Savings:

Contact person:

Patrick Morris, Facilities Manager
(508) 358-3696
patrick_morris@wayland.k12.ma.us
pmorris@wayland.ma.us

The electricity usage at the Middle School declined as follows after the installation (according to MassEnergyInsight):

Baseline year FY 2011: 1,014,900 kWh
 FY 2012: 873,030 kWh
 Retrofit finished in January 2012, halfway through FY 2012
 FY 2013: 851,550 kWh

Predicted annual savings:	113,628 kWh
Actual electric use:	Year 0.5: 141,870 kWh
	Year 1.5: 163,350 kWh

Lessons Learned:

Energy and cost savings at the Middle School were far more than predicted— 1.43 times more at the end of the second year, though this is total electric use, without isolating the lighting. One possible reason for the better than predicted performance could be that the hours of operation were underestimated. The weather may have been milder than typical. No other electricity reducing measures were taken during this time, however.

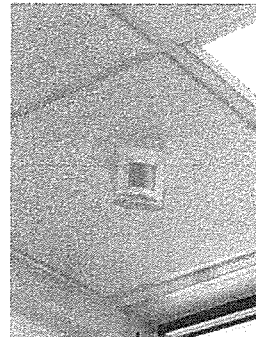
Middle School interior Lighting Upgrade Pictures



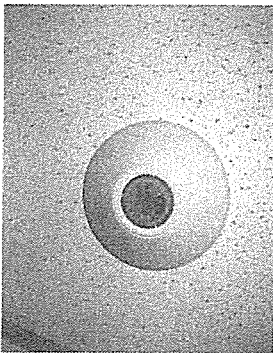
LED lights in Middle School cafeteria



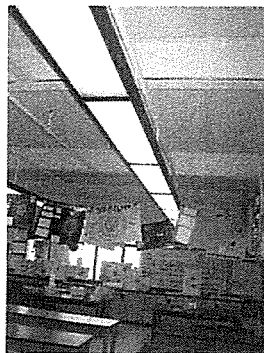
New T8 open box fixtures in Middle School cafeteria



6th grade wing classroom ceiling occupancy sensor



Ceiling unit occupancy sensor in girls bathroom



New T8s in Science classrooms



New T8s in hallway black box fixtures



T8s in Middle School classroom

Lighting Upgrade at the Loker Kindergarten School

Description of project:

This project consisted of a modest lighting upgrade at the Loker School.

It included the following upgrades to lighting:

- Installing ceiling and wall occupancy sensors throughout the building in classrooms, bathrooms, offices and the gym.

Team managing project:

John Moynihan, Public Buildings Director. Contacted AECOM to refine scope, define contract. Oversaw completion of work.

Patrick Morris, Facilities Manager. Coordinated with schools and staff to schedule work completion.

Maggie Meehan, Assistant to the Public Buildings Director. Coordinated payment of invoices, requested purchase orders.

Anne Harris, Energy Initiatives Advisory Committee. Documented work for quarterly reports.

Final Timeline:

October 13, 2011—Estimate issued by AECOM

October 30, 2011—Contract signed/Purchase orders requested

December 2, 2011—Purchase orders delivered to AECOM

December 22, 2011—Installation begun

December 30, 2011—Installation complete

December 28, 2011—Invoice received from AECOM

April 9, 2012—Invoice paid by Town of Wayland

Procurement details:

The estimate from the work was part of a utility energy audit completed by NSTAR. As the work was under \$100,000 it was not required to be bid out, but rather could be done under the Green Communities Act, G.L. c. 25A.

Cost documentation:

Invoices and check copies have been sent in previous quarterly reports.

Energy Savings:

Contact person:

Patrick Morris, Facilities Manager

(508) 358-3696

patrick_morris@wayland.k12.ma.us

pmorris@wayland.ma.us

The electricity usage at the Loker School showed little change after the installation (according to MassEnergyInsight).

Baseline year FY 2011: 211,994 kWh
 FY 2012: 212,844 kWh

FY 2013: 219,779 kWh

Predicted annual savings:	23,659 kWh
Actual electric use:	Year 0.5: (850) kWh
	Retrofit completed January 2012
	Year 1.5: (7,795) kWh

Lessons Learned:

The predicted savings at Loker, in contrast to the Middle School, were not as obvious. As the retrofit consisted exclusively of ceiling and wall occupancy sensors, the town may need to reconsider the effectiveness of that measure. A number of possible explanations come to mind, however; perhaps the hours of operation were overestimated. The Loker School is currently being used as a Kindergarten only school, with a small after school program. Perhaps rooms are being underutilized. It is also possible that teachers and students were good at turning lights off already, so the margin to be gained was small. Last, harsher winters can impact electric use as well.

This illustrates, however, the benefit of an Energy Saving Performance contract; the savings are guaranteed (as long as M&V is carefully crafted).

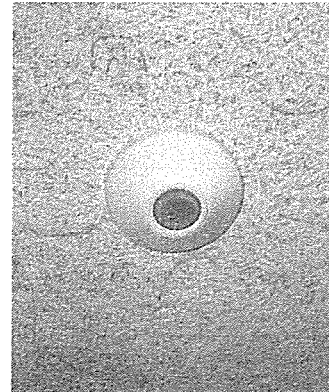
Loker Elementary School Lighting Controls Upgrade Pictures



Loker classroom wide view
ceiling occupancy sensor



Loker wall switch occupancy
sensor in staff bath



Ceiling occupancy sensor in
Loker girls bath

Owner's Agent Technical Assistance from Beacon Integrated Solutions for Energy Saving Performance Contract:

Description of Project:

Beth Greenblatt of Beacon Integrated Solutions has been assisting the town in its negotiations with Ameresco through the preliminary audit and investment grade audit stages. Specific tasks completed were:

- Vetted proposed measures
- Insured reasonable assumptions were made about O&M costs, pricing and incentives
- Validated predicted savings
- Assisted the town in shaping the Measurement and Verification plan
- Facilitated communication between the Public Buildings Director and Ameresco
- With Committee members, developed slides for the Energy Committee to use to present the project to the School, Finance and Building Committees, the general public, at Town meeting and to post on the website
- Completed various financial analyses to model different borrowing rates and financing scenarios
- Attended Finance Committee meeting when determination made to include in Warrant
- Assisted town in removing an exterior lighting project from the ESPC and completing through the utility project expediter

Team managing project:

John Moynihan, Public Buildings Director: Worked with Ms. Greenblatt over the course of nearly two years from initial stages of looking at measures to getting ESPC project ready for Town Meeting

Maggie Meehan, Assistant to the Public Buildings Director: Assisted in receiving and paying invoices

Energy Initiatives Advisory Committee: Co-Chairs Anne Harris and in particular Ellen Tohn consulted with Ms. Greenblatt over particular issues around presentation materials

Final Timeline:

January 11, 2012—MAPC Regional ESCO Kick-off Meeting

June 21, 2012—Wayland receives ARRA grant for Owner's Agent Services

September 15, 2012—ARRA grant expires

September 28, 2012—Wayland submits request to repurpose up to \$13,177.50 of GC designation grant funds to Owner's Agent Services

November 27, 2012—PEA(Preliminary Energy Audit) presented by Ameresco

February 2013—Wayland applied for and granted OATA assistance from DOER—\$12,500

June 2013—Ameresco issues Investment Grade Audit report

November 2013—Final IGA issued; Town Meeting planning begins

November 2013 - March 2014—Meeting with Committees to refine project

April 3-10, 2014—Town Meeting; vote on ESCO project

Procurement Details:

Original ARRA grant, applied to and issued by DOER. Beacon Integrated Solutions "assigned" by grant. Green Communities funding from portion of Designation Grant. Decision made by

Public Buildings Director to stay with Owner's Agent we had worked with rather than interview new applicants based on positive experience. OATA grant applied to and issued by DOER.

Cost Documentation:

Invoices and proof of payment for Owner's Agent Services from Beacon with the following dates and amounts have been previously submitted:

12/3/12	\$560.26
1/3/13	\$426.25
2/6/13	\$1395.80
12/15/13	\$1007.50
1/5/14	\$1568.65
2/5/14	\$1646.71

The 3/8/14 invoice from Beacon is attached. Payment has been authorized and a check will be issued after the next Board of Selectmen's meeting.

Note: five invoices with dates between 6/4/2013 and 11/6/2013 were reimbursed with OATA funds.

Lessons Learned:

The most important lesson learned was how beneficial it was for the town to have an Owner's Agent. The Performance contract is a complex model, and she was instrumental in helping the Energy Committee and others understand it. Ms. Greenblatt proved invaluable at several meetings with the Finance Committee, one of the more difficult groups from whom to garner buy-in.

The Committee started the Energy Saving Performance Contract in mid-July, 2012, missed the deadline to get in the first capital budget for the Spring 2013 Town Meeting and had to delay a year. Needless to say, we learned to start earlier, speak to many Committees about the project and continually refine our presentation, with Ms. Greenblatt's help, based on feedback.

Exterior Lighting Upgrade at Town Buildings

Description of project:

This project consisted of an extensive lighting upgrade to exterior lighting at the following buildings: Town Building, Fire Station #2, Public Safety Building, Claypit Hill, Happy Hollow and Loker Elementary Schools, and the Middle School. Existing site lighting consisted of HID wall packs, canisters and post tops; replacements were state of the art LED wall packs, flood lights and post tops. See attached documentation at end of report for schedule.

Team Managing Project:

John Moynihan, Public Buildings Director. Primary contact to Horizon Solutions. Worked with them to define scope and refine contract. Oversaw completion of work.

Patrick Morris, Facilities Manager. Coordinated with school and building staff to schedule work completion.

Maggie Meehan, Assistant to the Public Buildings Director. Supported Facilities staff.

Anne Harris, Energy Initiatives Advisory Committee. Documented work for quarterly reports.

Final Timeline:

December 2013—First estimate issued by Horizon
 February 11, 2014—Final estimate issued by Horizon
 February 13, 2014—Contract signed
 March 3, 2014—Installation begun
 March 13, 2014—Installation complete
 March 13, 2014—Invoice received from Horizon
 March 17, 2014—Selectmen authorized payment to Horizon Solutions
 March 24, 2014—Payment to be issued

Procurement details:

The audit showing this project's viability the Investment Grade Audit completed for the town by Ameresco on November 2013. A decision was made by the Energy Committee and Facilities Manager to remove this project from the performance contract and complete through the utility project expediter program. The work was divided into two projects; one including the school buildings and one for the town buildings, as there are separate budgets for both.

Project	Buildings Included	Cost Before Incentives	Estimated Incentive	Invoice to town
School	Middle School	\$37,686.08	\$13,319.69	\$24,366.39
	Loker	\$11,708.99	\$3,676.90	\$8,032.09
	Claypit Hill	\$11,375.85	\$3,577.26	\$7,798.58
	Happy Hollow	\$5,212.60	\$2,150.91	\$3,061.69
	Total for School	\$65,983.52		\$43,258.75
Town	Town Building	\$26,622.73	\$4,922.46	\$21,700.27
	Public Safety Building	\$6,893.60	\$1,116.02	\$5,777.58
	Fire Station #2	\$4,000.84	\$818.51	\$3,182.14
	Total for Town	\$37,517.17		\$30,659.99
				\$73,918.74

Cost documentation:

Invoice for final project is attached, approved by Public Buildings Director (see last page). Also attached is an email documenting that the Board of Selectmen authorized the payment to Horizon Solutions for the exterior lighting project upgrade during the Town Administrators report at their March 17, 2014 meeting.

Energy Savings:

Contact person:

Patrick Morris, Facilities Manager
 (508) 358-3696

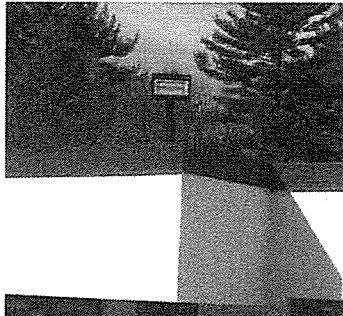
patrick_morris@wayland.k12.ma.us
pmorris@wayland.ma.us

Predicted savings across all buildings: 91,021 kWh
 See attached schedule from Horizon for savings at each site.

Exterior LED lighting conversion



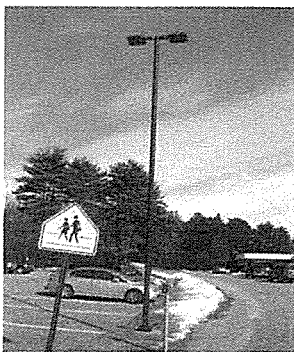
LED walkway lights at Middle School



New floodlight at middle school



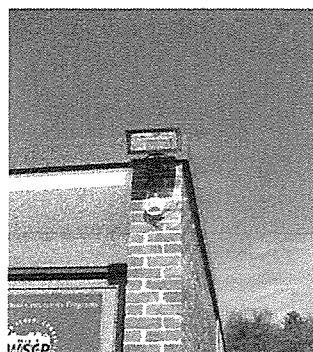
Walkway LED close up at Middle School



LED Beta parking lot lights at Middle School



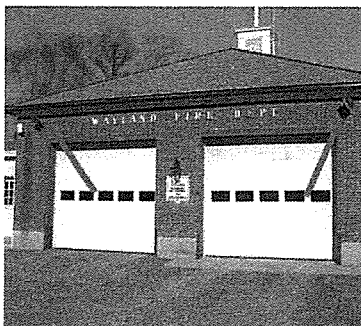
Slim wall pack on Middle School wall



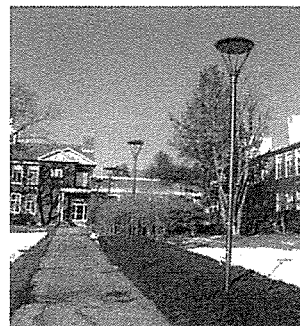
New LED flood at Loker School



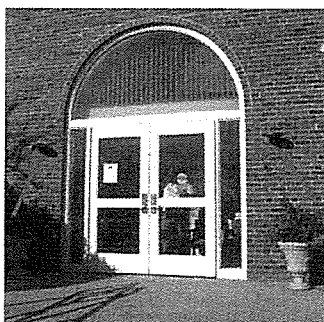
Slim wall pack at Happy Hollow



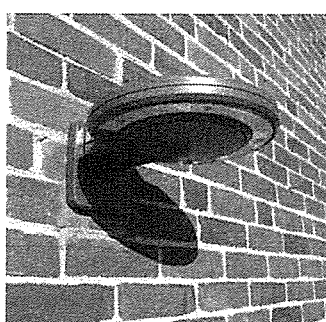
New Floods at Fire Station #2



Walkway lighting at Town Building



LED lighting around doors at Town Building



Close up of back door lighting—Town Building



Wall pack at Public Safety Building

Links to Newspaper/Media

<http://wayland.patch.com/groups/opinion/p/opinion-wayland-energy-initiatives-update>

Report compiled by:
Anne Harris
Energy Initiatives Advisory Committee
Co-Chair
3/20/14

Attachment: Authorization of final payment

From Beth Greenblatt

To Pfister, Jane (ENE)MeBissetta, Joanne (ENE) and 3 More...

March 20, 2014 at 8:19 AM

Jane and Joanne:

I met with the Wayland Energy Committee, members from the Finance Committee and members of the Public Buildings Committee last evening. Town administration confirmed that the TWO remaining invoices to be paid (Beacon's and Horizon's) in order to complete the Town's obligations under their GC grant have been approved and processed, and are on the Warrant for Selectmen for Monday nights meeting. Please note that all administrative approvals for payment have been secured. Under municipal governance requirements, invoices are packaged together, presented to the Selectmen and require the Selectmen approval to issue checks.

The Town understands that it needs to demonstrate that it has expended all of its funds in order to qualify for the next round of Green Communities funds. As you are aware, the Town has been operating without a Town Administrator thereby requiring others to do double duty. Despite being short staffed, the Town worked very hard to implement a comprehensive exterior lighting effort across all Town buildings this winter. We hope that DOER will accept the fact that all funds have been expended with the last two checks issued on Monday.

Please advise if you have any questions or if you feel it is necessary to appeal for consideration to Meg or Mark.

Thank you in advance for your consideration.

Best personal regards,

Beth Greenblatt
Managing Director
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