



The Town of Holliston, having been designated as a Green Community, is dedicated to reducing our energy consumption by 20% in five years. To that end, the Town of Holliston Green Community team received \$247,227 from the DOER to perform eight energy projects.

The eight projects were focused on three buildings the team selected as needing immediate upgrades to the lighting, weatherization, and heating systems. Those buildings included:

Holliston Town Hall, 703 Washington Street

Holliston Public Library, 752 Washington Street

Holliston Senior Center, 150 Goulding Street

All seven projects were procured through MGL c. 30B Procurement Laws as well as MGL C. 25A, s. 14 which states (a) A state agency, building authority or local governmental body may contract for energy conservation projects that have a total project cost of \$100,000 or less, directly and without further solicitation, with electric and gas utilities, their subcontractors and other providers of such energy conservation projects authorized under sections 19 and 21 of Chapter 25 and section 11G.

The eight projects that were accomplished using the Green Community Grant money are as follows:

1. Town Hall: Installation of a Stand-Alone Programmable Thermostat
2. Town Hall: Replacement Boiler
3. Installation of Energy Management Systems at the Town Hall and Senior Center
4. Senior Center: Weatherization – Air Sealing and Insulation
5. Senior Center: Replacement of Light Fixtures
6. Public Library: Weatherization – Air-Sealing and Insulation
7. Public Library: Replacement of Light Bulbs and Fixtures
8. Town Hall: Purchase 2 Electric Vehicles and a Charging Station

Further detailed information about each project can be found on the following pages of this report.

The Town once again struggled with our current Energy Management Vendor and balancing the ever changing project costs and estimated energy savings. A situation we have hopefully solved by interviewing and selecting a different Vendor for future projects.

Having learned from last year's invoicing struggles, World Energy invoiced each project separately this time around, which made balancing the cost of each project easier to manage. Having each project on a separate contract and invoiced separately made balancing each project much simpler and less time consuming than last year. A process we hope to continue in the next round of projects.

The Green Community Team consisted of Town Administrator, Jeff Ritter; Fire Chief, Michael Cassidy; Assistant to the Town Administrator, Andrea Minihan; and Technology Director, Chris Meo. Leslie McDonnell, Library Director and Linda Marshall, Senior Center Director were also involved in this round as projects were occurring in their buildings. Jeff Ritter oversaw the projects at the Town Hall, Linda Marshall was instrumental in managing the day to day installation at the Senior Center, while Leslie McDonnell coordinated the installation of lights and insulation at the Public Library.

Thank you for your time and attention spent working with the Town of Holliston.





Town of Holliston Green Community Project 2  
Town Hall  
Boiler Replacement

### Original Project Request

The original request was to replace the Town Hall Boiler System with a dual gas fired burner system. The old 75-80% efficient gas fired boilers were close to its end of life and needed regular repairs on them.

### Implemented Project

Numerous obstacles were encountered (and explained on the quarterly Progress Reports) but finally in May 2018, the Boilers arrived and were installed. The installation of two Lochinvar gas condensing boilers (model KBN400) occurred during the last week in May and tested in October.

The biggest milestone came when two large boilers arrived and were installed in late May after two other unsuccessful attempts at delivery. The installation occurred over the next 18 days.

The Lochinvar boilers were estimated to cost \$75,041.59 with \$1,399.78 incentives.

The actual cost of the Lochinvar Boilers came in lower at \$74,065.49 with an additional \$131.15 for the thermostat from project one for a total of \$74,196.64. The Town (through World Energy) applied for a \$4000 gas incentive plus the \$23 Thermostat Utility incentive. In addition, the Town expended \$531.83 from the operational budget resulting in the remaining \$69,641.81 being paid from the Green Community Grant funds.

Based upon World Energy savings analysis performed in 2017, the Town expected to realize electric savings of 4,174 kWh per year as well as a decrease in gas usage of 3,251 therms per year, for a combined yearly savings of \$4,183. After the project, World Energy is still expecting the town to see those savings.

Town of Holliston Green Community Project 3  
Town Hall, Library, Senior Center  
Energy Management System Installation

### Original Project Request

The original request was to install an Energy Management System in the Town Hall, Senior Center, and Public Library to better control the heating and air conditioning system and make it so staff and visitors cannot turn the controls off and on by themselves. If this project was done a year earlier, this feature would have saved tens of thousands of dollars' worth of damage as a result of a visiting group turning the environmental system from Heating to A/C in early November resulting in the heating coil rupturing on the third floor and flooding out Town Hall.

### Implemented Project

This by far was the most difficult and stressful project undertaken followed closely by the lights at the Public Library. The Utility Company rejected all incentives for this project and World Energy severely underestimated the cost of installing an Energy Management System. In the end, the Town with DOER approval ended up installing an EMS system at the Town Hall and Senior Center and selected Horizon Solutions to perform the installation.

World Energy originally estimated the total project was to cost \$79,300 with a Gas and Electric Utility incentive estimated at \$21,705. When it became apparent World Energy was not going to be successful with any Utility Incentives and their underestimating of the project, Horizon was brought in to audit the three systems in late October 2018 and their estimate for the same project was to cost \$107,303 with a Gas and Electric Utility incentive estimated at \$18,000.

Based upon the costs and the funds available from the Green Community Grant, the Town requested from DOER to use the remaining money to perform the EMS installation at the Town Hall and Senior Center as the Library was currently under construction for a separate issue. Horizon estimated the Town Hall to cost \$55,133 with a \$6,000 Utility Incentive, while the Senior Center was estimated to cost \$12,779 with a \$6,000 incentive. Combined, the Town estimates to save 15,801 kWh of electricity and 615 therms of Gas.

Work began on installing the EMS system on Friday, December 21, 2018. Throughout the week that followed, Horizon representatives and contractors installed 26 new terminal thermostat controllers, a Johnson Facility Energy Controller, and numerous relays and power transformers throughout the Town Hall and tied in the existing boiler system into the main controller. Training for Holliston Staff on using the new controllers and management software occurred on December 31, 2018 which finished off the final project.

In the past, Staff and Visitors were able to adjust the temperature to any degree. With the new system, a 3 degree offset will be implemented so a user will only be able to adjust the temperature 3 degrees in either direction of the pre-defined set point. In addition, 8 locations at

the Town Hall had 2 thermostats right next to each other. These “double” thermostats have been replaced with 1 controller making for a cleaner/easier to support energy system.

The actual cost of the project came in exactly at \$67,912 with a Utility incentive of \$12,000. The Green Community Grant funds were used to pay the remaining \$55,912.00 balance.

Removing the Library from the original project scope, World Energy in 2017, estimated the Town would realize electric savings of 10,595 kWh per year as well as a decrease in gas usage of 3,058 therms per year, for a combined yearly savings of \$5,982. After the new project, Horizon is expecting the town to see a savings of 15,801 kWh and 1,605 therms of Gas per year for an annual cost savings of \$4,372.

The town is eagerly awaiting to see which company was better at estimating savings after this winter season.



Double Thermostats (Original)



Controller (New)



Facility Controller

Town of Holliston Green Community Project 4  
Holliston Senior Center  
Weatherization: Air-Sealing and Insulation

Original Project Request

The original request was to accomplish air-sealing and add insulation to the Senior Center to improve the heating and cooling system by keeping warm air outside and cool air inside during the summer as well as keep the warm heated air inside and cool air outside during the winter months by sealing gaps around windows, pipes, ceiling joists, and other areas found during the energy audit.

Implemented Project

During the week of October 30, 2017, World Energy contractors installed weather stripping to the doors and window casing seals to close air gaps to the outside. They also installed rigid foam board in the roof vents as well as the roof line to prevent air from travelling through the walls into the roof.

The original project was estimated to cost \$13,884.82 with a Gas and Electric Utility incentive estimated at \$1,437.50. The actual cost of the project came in slightly lower at \$13,096.70 with a Utility incentive of \$1,436.20. The Green Community Grant funds were used to pay the remaining \$12,447.32 balance.

Based upon World Energy savings analysis performed in 2017, the Town expected to realize electric savings of 997 kWh per year as well as a decrease in gas usage of 679 therms per year, for a combined yearly savings of \$788.99. After the project, World Energy lowered their expected savings to 914 kWh per year as well as 581 therms per year for a savings of \$691.36 a year. This drop was due to door sweeps that were not installed because two of the doors could not be fitted for weatherization.

Town of Holliston Green Community Project 5  
Senior Center  
Lighting and Lighting Controls

Original Project Request

The original project request was to replace older fluorescent and halogen bulbs with light-emitting diode (LED) bulbs and fixtures, and install occupancy sensors throughout the interior and exterior of the Senior Center.

Implemented Project

During the month of October 2017, electricians replaced 105 fixtures with LED fixtures and bulbs and installed 20 occupancy sensors. The project took approximately 3 weeks to complete as the electricians were spending time at other locations.

The original project was estimated to cost \$22,931.40 with an Electric Utility incentive estimated at \$3,608. The actual cost of the project came in at \$24,438.21 with a significant higher Utility incentive of \$7,801. The Green Community Grant funds were used to pay the remaining \$16,637.21 balance.

Based upon World Energy savings analysis performed in 2017, the Town expected to realize electric savings of 14,432 kWh per year, for a yearly savings of \$3,852.08. After the project, World Energy increased their electric savings estimate to 14,952 kWh per year, for a yearly savings of \$3,990.88.



Town of Holliston Green Community Project 6  
Holliston Public Library  
Weatherization: Air-Sealing and Insulation

Original Project Request

The original request was to accomplish air-sealing of windows and pipe/light fixture gaps and add insulation to the attic space at the Public Library to improve the heating and cooling system by keeping warm air outside and cool air inside during the summer as well as keep the warm heated air inside and cool air outside during the winter months.

Implemented Project

During the week of November 17, 2017, World Energy contractors weather-sealed around gaps in the windows as well as pipes and light fixtures in the attic. In addition, they added additional insulation to the attic in areas that did not have a thick enough barrier.

The original project was estimated to cost \$6,415.98 with a Gas and Electric Utility incentive estimated at \$743.50. The actual cost of the project came in slightly lower at \$6,310.80 with a significant higher Utility incentive of \$2,409.00. The Green Community Grant funds were used to pay the remaining \$3,901.80 balance.

Based upon World Energy savings analysis performed in 2017, the Town expected to realize electric savings of 622 kWh per year as well as a decrease in gas usage of 336 therms per year, for a combined yearly savings of \$402.38. After the project, World Energy still estimates the same electrical and gas savings.

Town of Holliston Green Community Project 7  
Public Library  
Lighting and Lighting Controls

Original Project Request

The original project request was to replace all 245 florescent bulbs inside and outside of the Public Library with 245 light-emitting diode (LED) bulbs and fixtures.

Implemented Project

This project became one of the more difficult projects to accomplish. During the week of November 13, 2017, electricians started to retrofit the 245 bulbs. During the initial work, it became apparent that the canister fixtures in areas of the building were not a standard size and the purchased bulbs would not work with the existing canisters. In addition, 48 fluorescent lights were actually 5 feet in length instead of the standard 4 feet that were purchased. All these non-standard fixture installs were removed from the original utility incentive project and World Energy created a Phase 2 utility incentive project for these non-standard bulbs. Due to these changes, the remaining bulbs were not installed until October 2018, with numerous iterations attempted by World Energy contractors to find an appropriate solution.

The original project cost was estimated to be \$30,590.85 with a Utility Incentive of \$5,512.64. Phase 1 actual cost came in at \$20,227.42 while the remaining bulbs (Phase 2) came in at \$9,085.05 for a slightly lower than estimated total project cost of \$29,312.47. The Utility Incentives came in higher than estimated at \$8,026.64. The remaining \$21,285.83 was paid for by the Green Community Grant.

Based upon World Energy savings analysis performed in 2017, the Town expected to realize electric savings of 20,691 kWh per year, for a yearly savings of \$4,400.56, after all the bulbs in the Public Library were replaced. World Energy still estimates the same savings after the project was completed.

## Town of Holliston Green Community Project 8 Electric Charging Station & 2 Nissan Leafs

### Original Project Request

The original project was to purchase and install a Level 2 Charging Station in the Public Parking Lot behind the Holliston Fire Station and purchase 2 Nissan Leafs to replace the 2007 Ford 500 Inspection Services vehicle.

### Implemented Project

In October 2017, the Town purchased 2 Nissan Leafs from Milford Nissan and a Level 2 Charging Station from ClipperCreek. During the months leading up to this purchase, it became apparent that the location of the charging station would need to be changed as the Town realized it would be encroaching on land it did not own behind the Fire Station. The decision after numerous meetings was to install the Charging Station at the public lot behind Town Hall which was more convenient as the users of the electric cars were located at the Town Hall anyways.

The cars have been on the road now for slightly over a year combining for a total of 7,136 miles which has saved the Town 376 gallons of gas. In comparison, the two cars have used 1,947kWh to charge and cost the Town \$391 in electricity to run as opposed to the \$947.52 a gas vehicle would have cost and has saved 7,193 lbs of CO2 from being released into the atmosphere (information based upon [afdc.energy.gov](http://afdc.energy.gov) website).

The total project cost came in at \$50,777.01 with a Mass EVIP Grant of \$21,396.15 bringing the total Green Community cost to \$29,380.86.

### Additional Projects Accomplished

December 2018: Electrical work begins on installing solar Panels on the Central Street Fire Station roof with anticipation of activating them in January/February 2019.

During 2017 and 2018, the Schools continued to retrofit remaining lights with LED bulbs concentrating on parking lot lights and exterior lights on the schools. There are still a few that remain to be replaced but the schools are now around 98% complete.

On March 1, 2017, the Holliston Water Department began offering a “Water Conservation Rebate” for customers who purchase ultra-high efficiency toilets and washing machines to replace older less efficient models. The rebates are \$100 for ultra-high efficiency toilets and \$200 for washing machines. More information about the rebate program can be found at: <https://www.mapsonline.net/hollistonma/forms/standalone.html.php?id=90485581>

To date, 4 rebates have been applied for and approved by the Water Department.

The Town is lucky to have an active citizen group working at the local and state level to effect climate change. In November 2018, Holliston 350.org presented their idea to cost-share an Energy Coordinator with the Town of Sherborn at the Holliston Selectmen meeting. As presented, the position would be responsible to continue and expand the work of the Green Community Team. As of December 2018, the Selectmen have taken their recommendation under review.

This group has also met with the State Legislator to discuss time sensitive clean energy legislation and the group's vision for making Massachusetts a leader in clean energy and climate change.

Lastly, the Town is preparing an RFP to create a Solar Array Farm on the now closed Town landfill. A consultant has been hired to draft the RFP and the Town is hoping to be ready for posting in early 2019.

### Press Releases and News Articles

November 1 2018: Holliston Reporter Article about Holliston in Bloom and Electric Charging Stations: <http://www.hollistonreporter.com/article/14585/what-the-judges-saw-in-holliston-part-5.html>

October 16, 2018 Holliston Reporter Article for the Selectmen Meeting discussing a Solar Farm Grant and Recycle Smart Program: <http://www.hollistonreporter.com/article/14534/selectmen-s-meeting-10-15-18.html>

October 23, 2018: Board of Selectmen Meeting in regards to Solar Panels on the Central Street Fire Station: <http://www.hollistonreporter.com/article/14581/selectmen-s-meeting-10-22-18.html>

February 12, 2018: Citizen Group Meets with Rep. Dykema Press Release: <http://www.hollistonreporter.com/article/13804/holliston-residents-urge-representative-dykema-to-advocate-for-clean-energy-legislation.html>

October 2017: Holliston Reporter Electric Vehicle Press Release: <http://www.hollistonreporter.com/article/13495/holliston-receives-two-electric-vehicles-from-the-green-communities-grant-program.html>

Quarterly Reports posted on the Town's Website for all Green Community Activities: <https://www.townofholliston.us/home/pages/information-on-town-projects>



HOME OF THE  
2010  
FOOTBALL  
SUPER BOWL  
CHAMPIONS

GREEN COMMUNITY  
MASSACHUSETTS  
DEPARTMENT OF ENERGY SECURITY  
DESIGNATED 2015

HOLLISTON  
AN  
AGRICULTURAL  
COMMUNITY