

CITY OF NEWTON  
IN BOARD OF ALDERMEN  
PUBLIC FACILITIES COMMITTEE AGENDA

WEDNESDAY, MARCH 5, 2014

7 PM  
Room 209

**ITEMS SCHEDULED FOR DISCUSSION:**

Re-appointment by the President of the Board

#63-14      PRESIDENT LENNON recommending Lawrence Bauer, 42 Eliot Memorial Road, Newton, be re-appointed as an Aldermanic appointee to the DESIGNER SELECTION COMMITTEE, term of office to expire 12/31/15. [02-25-14 @ 4:09 PM]

Re-appointment by the President of the Board

#64-14      PRESIDENT LENNON recommending Howard Goldberg, 27 Theodore Road, Newton Centre, be re-appointed as an Aldermanic appointee to the DESIGNER SELECTION COMMITTEE, term of office to expire 12/31/15. [02-25-14 @ 4:09 PM]

Re-appointment by Board President

#65-14      PRESIDENT LENNON recommending Joseph Michelson, 94 Park Avenue, Newton be re-appointed as an Aldermanic appointee to the DESIGNER SELECTION COMMITTEE, term of office to expire 12/31/15. [02-25-14 @ 4:09 PM]

#62-14      ALD. CROSSLEY, HESS-MAHAN, ALBRIGHT AND SALVUCCI requesting a report from the administration on the status of the City strategy to meet its obligations as a Department of Energy Resources Green Community, to reduce municipal energy consumption by 20% over five years, particularly regarding advancing the implementation of the building energy audits program recommending energy efficiency measures in existing buildings, and how that strategy is incorporated into the capital improvement plan. [02/24/14 @ 6:35 PM]

**ITEMS NOT SCHEDULED FOR DISCUSSION:**

*Public hearing to be assigned for March 19, 2014:*

#61-14      NSTAR ELECTRIC petitioning for a grant of location to install 196' ± of conduit and a new manhole in the sidewalk on WASHINGTON STREET from Manhole #8216 easterly to new Manhole #29794 then continuing to the intersection of Washington and Chestnut Streets. (Ward 3) [02-11-14 @ 10:47 AM]

---

The location of this meeting is handicap accessible and reasonable accommodations will be provided to persons requiring assistance. If you need a special accommodation, please contact the Newton ADA Coordinator, Joel Reider, at least two days in advance of the meeting: [jreider@newtonma.gov](mailto:jreider@newtonma.gov) . or 617-796-1145. For Telecommunications Relay Service dial 711.

#14-14 ALD. ALBRIGHT, JOHNSON & NORTON requesting a discussion of the snow removal operations during the last storm including information on the use of brine and how it worked, the effectiveness of the new snow melter, snow dumping, and what can be done to make city sidewalks safe in the event of an ice storm. [12/20/13 @ 4:21 PM]

#417-13 PUBLIC FACILITIES COMMITTEE requesting that the Administration provide updates on the progress of the Angier Elementary School project. [11/21/13 @ 9:16 AM]

**REFERRED TO FINANCE AND APPROPRIATE COMMITTEES**

#403-13 HIS HONOR THE MAYOR submitting the FY15-FY19 Capital Improvement Plan and Long Range Projection pursuant to section 5-3 of the Newton City Charter. [10/21/13 @ 9:59 AM]

**REFERRED TO PUBLIC FACILITIES AND FINANCE COMMITTEES**

#288-13 PUBLIC FACILITIES & FINANCE COMMITTEES requesting that the Administration update the Board of Aldermen when a funding source is determined for the Zervas Elementary School Feasibility Study. [07-11-13 @ 10:10 AM]

#153-13 PUBLIC FACILITIES COMMITTEE requesting periodic updates on the progress of the citywide storm water system assessment needed to define the scope of repairs to the system, as well as methods of financing the assessment and an accounting of the storm water enterprise fund. [04/02/13 @ 11:02 AM]

#131-13 ALD. CROSSLEY, FULLER, SALVUCCI, JOHNSON, CICCONE requesting periodic updates and discussion, at the discretion of the members of the Public Facilities Committee or the Commissioner of Public Works, on the condition functioning, operations and management of all elements of the City sewer, water and storm water systems including the following:

- Water meters
- Implementation of the ten project area strategic plan to remove infiltration in the City sewer system
- Implementation of the long range strategic plan to repair and replace City water mains, especially to correct for fire flow
- Status of the City's Private Inflow Removal Program to resolve and disconnect illegal storm water connections to the City sewer system
- Current billing practices
- Rates analyses needed to facilitate an informed comparison of billing options to include the following options either alone or in combination: seasonal rates, second meters, tiered rates, frequency of billing, low income credits. [03/23/13 @ 11:13 AM]

**REFERRED TO PUBLIC FACILITIES AND FINANCE COMMITTEES**

- #41-13 ALD. CROSSLEY, FULLER AND SALVUCCI requesting a discussion with the administration to review how the city inventories, plans for, budgets and accounts for needed smaller capital expenditures (currently set at under \$75,000), which are excluded from the Capital Improvement Plan (CIP); how to make these non-CIP capital maintenance items visible, and how to integrate them with the overall planning, CIP, and budgeting processes. [01/14/13 @ 5:02 PM]
- #301-12(2) PUBLIC FACILITIES COMMITTEE requesting updates on the progress of the Carr School Renovation Project.

**REFERRED TO PROG & SERV, PUB. FAC., ZAP, AND FINANCE COMMITTEES**

- #256-12 ALD. HESS-MAHAN, SANGIOLO & SWISTON proposing an ordinance promoting economic development and the mobile food truck industry in the City of Newton. [08/06/12 @4:46 PM]
- #246-12 RECODIFICATION COMMITTEE recommending Sec. 25-1, which requires a permit to create a trench, be reviewed to determine if a new section relative to excavation should be established to regulate unsafe excavation beyond the regulation of trenches, as the City Engineer has advised that all trenches are excavations, but not all excavations are trenches, which amendment would replace **Sec. 20-53. Excavations; protection; erection of barriers.**, which was deleted as part of recodification because it conflicted with Sec. 25-1.
- #245-12 RECODIFICATION COMMITTEE recommending that Chapter 11, RECYCLING AND TRASH as most recently amended by Ordinance Z-68 and Z-87, dated 6/21/10 and 5/16/11, respectively, be reviewed and be amended as necessary.

**REFERRED TO PROG. & SERV AND PUBLIC FACILITIES COMMITTEES**

- #36-12 ALD. CROSSLEY & FULLER requesting Home Rule legislation or an ordinance to require inspections of private sewer lines and storm water drainage connections prior to settling a change in property ownership, to assure that private sewer lines are functioning properly and that there are no illegal storm water connections to the city sewer mains.
- A) Sewer lines found to be compromised or of inferior construction would have to be repaired or replaced as a condition of sale;
  - B) Illegal connections would have to be removed, corrected, and re-inspected in accordance with current city ordinances and codes, as a condition of sale.
- [01/24/12 @ 8:07 AM]

**REFERRED TO PS&T AND PUBLIC FACILITIES COMMITTEES**

- #413-11 ALD. CICCONE, SALVUCCI, GENTILE & LENNON updating the Public Facilities and Public Safety & Transportation Committees on the progress of renovations to the city's fire stations. [11-17-11 @11:07 AM]

#367-09 PUBLIC FACILITIES COMMITTEE requesting discussion with the Law Department on how to resolve the dispute with NStar regarding whose responsibility it is to repair the streetlight connection between the manhole and the base of the streetlight. [10/21/09 @ 9:00 PM]

#253-07 ALD. LINSKY ALBRIGHT, JOHNSON, HARNEY, SANGIOLO, SALVUCCI, MANSFIELD, BURG, SCHNIPPER requesting (1) a review as to how provisions of applicable ordinances, specifically 5-58, were implemented during the course of the Newton North project, and (2) consider proposed revisions of 5-58 including, but not limited to:

- (a) timely provision of documentation by the public building department to the Board of Aldermen and Design Review Committee;
- (b) establishment of liaison committees to facilitate communications and input from neighborhoods affected by projects subject to this ordinance;
- (c) approval of final design plans by the Board of Aldermen of projects subject to this ordinance;
- (d) oversight during the construction phase of projects subject to this ordinance by appropriate Board committee(s) both in respect to approval of change orders as well as design changes; and
- (e) generation of a required record detailing the entire construction process by the public building department to guide present and future oversight of projects subject to this ordinance. [08/07/07 @ 3:12 PM]
- (f) establishment of a committee to provide oversight for public building construction and renovation during all phases of planning, design and construction.

Respectfully submitted,

Deborah Crossley, Chairman

**Lawrence C Bauer, AIA**  
Principal



A principal of the firm since 1978, Mr Bauer is a 1964 graduate of Williams College. In 1968 he received a Master of Architecture from the Harvard Graduate School of Design, winning the Julia Amory Appleton Traveling Fellowship.

Mr Bauer is actively involved in all aspects of the firm, including design, management, and marketing. He has been the Principal-in-Charge of a wide range of institutional, educational, and religious projects. His recent experience includes the Albany Institute of History & Art, the New Bedford Whaling Museum, numerous projects at Harvard University and St Paul's Church in Nantucket. Complementing his skills as a museum architect, Mr Bauer has developed a special expertise in museum collection storage system design and is a recognized authority in the field.

Interested in historic architecture, Mr Bauer is the former Chairman of the Newton Massachusetts Historical Commission and continues to serve on Historic Boards and Commissions in the Boston area.

**Howard Goldberg, P.E.**  
27 Theodore Road  
Newton Centre, Massachusetts 02459-2727

---

---

Synopsis of Experience

Mr. Goldberg has over 33 years of experience in the management, design and construction of a wide variety of small to large, simple to complex public and private projects in diverse fields. These projects are located in urban and rural settings primarily in New England but with projects as far south as Atlanta, Georgia.

For the past three years Mr. Goldberg was in charge of the Quality Assurance/Quality Control Program for the Contractor constructing the first Design/Build highway project in Massachusetts. The Project's cost was 385 million dollars and had a total length of 21 miles.

Prior to that Mr. Goldberg worked for over 22 years for a Boston based Consulting Civil Engineering firm where he advanced from a design engineer to a Vice President/Senior Project Manager. Responsibilities included technical management of the engineering designs as well as corporate responsibilities.

Mr. Goldberg has managed multi-disciplinary teams of designers on complex projects many of which had court ordered completion schedules. He has been involved in value engineering workshops, technical advisory groups and performed constructability reviews on numerous projects. He has supervised the construction on projects that were not designed under his direction and has been asked to review designs prepared by others.

Mr. Goldberg has worked on and managed the civil engineering designs for the following projects:

- Five Public Schools-Lowell, MA
- Massachusetts State Track ( Reggie Lewis Facility)--Boston
- MCI Shirley and expansion--Shirley/Lancaster, MA
- UMASS Engineering & Science Building—Amherst
- City of Newton's Main Library-Newton, MA
- Fitchburg State College Athletic Facility--Fitchburg MA
- Westchester General Mail Facility--Harrison, NY
- Essex County Jail & House of Corrections--Middleton, MA
- Suffolk County House of Corrections—Boston
- Environmental Impact Report, Route 128 add-a-lane from Route 9 to Route 24
- Design Review-Brookline Middle School-Brookline, MA
- UMASS Boston's Student Center-Boston

- Environmental Impact Report, Route 3 add-a-lane from Route 128 to the NH
- Numerous MBTA Project-Metropolitan Boston

Relevant Experience

**CA/T Project D007D, Logan Airport Interchange, Boston, MA**

Principal-in-Charge of the Logan Airport Interchange project for the portion of the project which included new and relocated utilities, construction sequencing, storm drainage, hydraulic calculations, and design of bedding, structural support and connections details.

**RIDOT Rockville/Alton Road, Hopkinton, RI**

Project Manager for highway design including drainage and structural elements, wetland alteration application/permitting, and ROW plans.

**MPA Northern Avenue Reconstruction, Boston, MA**

Project Manager for the complete reconstruction of MASSPORT'S Northern Avenue which included approximately one mile of completely reconstructed roadway performed under two contracts scheduled between the renovation of MASSPORT's Commonwealth Pier into Boston's World Trade Center by a private developer. We designed and constructed new underground utilities which included the removal of all overhead electric and communications lines. Mr. Goldberg also supervised two additional construction contracts during this time which were designed by others. These included a pile supported 36 inch sewer and a 11.5 MGD pump station. While all four projects were in their final completion stages, an additional design and construction contract for a 1500 car parking lot in MASSPORT's Commonwealth Flats was completed under his direction.

**Norfolk County Jail & House of Corrections, Dedham, MA**

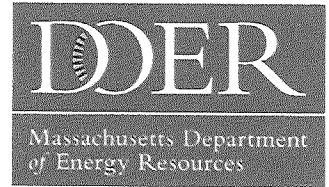
Project Manager for the design and construction of an early site preparation contract which moved 250,000 cubic yards of rock from the median of Route 128 to form the site for the new facility. The contract needed to be designed and constructed within an 18 month period of time to allow the court ordered facility to be completed on schedule. Extensive coordination was required with the MHD to coordinate the access to the site and schedule the almost daily blasting operations.

Education: BS Civil Engineering - Northeastern University - 1973  
MS Civil Engineering - Northeastern University - 1977  
40 Hour Value Engineering Workshop - 1978

Licenses/Registration: Professional Engineer. MA (1978), CT, NY, RI, NH, FL, & ME

Special Recognition: Project Manager - The New St. James Avenue Interceptor Project  
1996 Trenchless Technology Project of the Year  
1997 ACEC/NE Engineering Excellence Award Winner  
1997 ACEC/National Engineering Excellence Grand Award Winner

**SAPHIRE Renewable Thermal Program:  
Technical Assistance with Feasibility Studies**



**PROGRAM OPPORTUNITY NOTICE (PON):**

**PON-ENE-2014-001**

**Phase 1: Renewable Thermal Technical Consultant Services**

The Department of Energy Resources (DOER) Schools and Public Housing Integrating Renewables and Efficiency Program (SAPHIRE Program) helps Massachusetts public schools combine renewable heating and cooling and energy efficiency to achieve deeper cuts in their energy costs. The SAPHIRE Program consists of 2 phases, technical feasibility studies and project implementation assistance. The SAPHIRE Program is seeking proposals from public K-12 schools, school districts, and vocational technical schools (Public Schools) who are interested in combining renewable heating & cooling upgrades with other energy efficiency work.

The SAPHIRE Program seeks to advance the energy efficiency of Public Schools by providing dedicated assistance with:

1. **Accessing the services of technical renewable thermal consultants for feasibility studies and engineering assistance (maximum value of all services is \$25,000)**
2. Putting together the financial package for funding the investment, including:
  - a. Applying for capital grant funding through the MA Clean Energy Center (Mass CEC)
  - b. Coordinating Mass Save® utility-sponsored rebates and incentives
  - c. low-interest bond financing, through a dedicated Qualified Energy Conservation Bonds (QECS) set-aside of \$5M total for the SAPHIRE program, and
3. Tracking and measuring energy savings.

This PON is to solicit proposals for number one above, offering assistance to schools wishing to access the services of a consultant to perform a renewable thermal feasibility study. Technical renewable thermal consulting services are **only available for Public School buildings that use oil, propane, or electric heating as the primary heating fuel source**. SAPHIRE (Phase 2) assistance is open to applicants who heat with other fuel sources (i.e. natural gas), provided that a feasibility study has already been conducted via some other funding source.

In collaboration with the Massachusetts School Building Authority (MSBA) and other partners, the SAPHIRE Program goal is to reduce energy costs for public schools and create educational opportunities for students about energy and climate change issues. The primary objective of these projects will be to combine renewable thermal technologies with more “traditional” energy efficiency measures (like lighting and insulation improvements), particularly in oil, propane, or electric-heated buildings. By combining energy efficiency upgrades with innovative renewable heating technologies, SAPHIRE projects are expected to achieve energy reductions that surpass those that typically result from comprehensive efficiency retrofits that do not replace or upgrade the primary heating system.

Renewable Thermal Heating Technology Projects generate thermal energy that minimizes impacts on the environment, including:



- Solar thermal hot water (for hot water and/or space conditioning),
- wood pellets or chips boilers,
- ground (geothermal) source heat pumps,
- water-source heat pumps,
- district heating and cooling,
- and air-source heat pumps<sup>1</sup>

Feasibility studies may include evaluation of various combinations of systems.

## **GENERAL INFORMATION**

- Technical Renewable Thermal Consultants are independent third parties who offer expertise in the evaluation of the feasibility of innovative renewable thermal heating system upgrades. Consultants provide technical expertise for energy projects that a school district may not otherwise possess.
- DOER is granting access to Technical Renewable Thermal Consultant Services for all Massachusetts public K-12 schools, regional school districts, and vocational technical schools who rely on heating oil, propane, or electricity as their primary heating fuel source.

NOTE: DOER is providing the services of an assigned pre-selected engineering consultant.

- School buildings which primarily heat with natural gas heating equipment that have already independently completed a renewable thermal feasibility study are eligible to apply for SAPHIRE Project Implementation Technical Assistance (Phase 2).
- Services provided by Consultants include evaluation of the following.
  - Baseline building conditions
  - Evaluation of feasibility one or more types of renewable thermal heating system upgrades, including estimated energy and cost savings, and scope of work and estimated project timeline
  - Assistance with drafting RFPs and evaluation of bidders
  - Equipment/systems are correctly specified, budgeted, designed, installed and properly commissioned
  - Building maintenance staff is trained to operate and maintain system performance, including creation of a maintenance plan or standard operating procedure (SOP) documentation.
- Applicants may apply for technical assistance grants for engineering feasibility studies of the conversion to renewable or alternative fuel sourced heating systems, such as:
  - Biomass low emission, high efficient wood pellet and chip boilers,
  - Air source heat pump technologies
  - Ground source heat pump technologies
  - Water source heat pump technologies
  - Solar thermal heating systems; including solar domestic hot water and space conditioning

---

<sup>1</sup> Although applicants interested in commercial ASHPs will be considered, applicants should be aware that the level of capital grant funding support for these systems is limited to potential Mass Save® rebates through Cool Smart®. and potentially low-interest financing through SAPHIRE's Qualified Energy Conservation Bonds (QECBs) for projects demonstrating an expectation that ASHPs will use at least 20% less energy than the existing heating system.

#62-14

- District heating and cooling systems.
- Applications must contain, at a minimum, the information requested in the application. DOER will reject incomplete applications. All applications must include at least the minimum information requested.
- A single applicant may receive a total value of up to \$25,000 of technical assistance services.
- Applications will be reviewed and awards made based on the order in which completed applications are received until all available funds are disbursed.

## **SUBMISSION INFORMATION**

Applicants must submit an electronic copy of the application to [elise.anderson@state.ma.us](mailto:elise.anderson@state.ma.us). Please put “SAPHIRE Program: Technical Renewable Thermal Consultant Services” in the subject line of the email. The date/time of electronic submission via e-mail will serve as the official time of receipt of the application. Receipt of application will be confirmed prior to its review.

**All information requested in the application MUST be provided, including all required attachments specified for the project types and Attachments A and B.**

## **ASKING QUESTIONS**

- This application information is available at [www.comm-PASS.com](http://www.comm-PASS.com) as PON-ENE-2014-001 and [www.mass.gov/energy/greencommunities](http://www.mass.gov/energy/greencommunities) under “Publications and Reports”.
- ALL questions must be posted to the bidder’s forum on Comm-PASS ([www.comm-pass.com](http://www.comm-pass.com)). All answers, notifications, releases and amendments to this grant opportunity will be posted on Comm-PASS. To **post** questions :
  - From [www.comm-pass.com](http://www.comm-pass.com), scroll to the bottom of the page and select **Search for bidders’ forum**, located near the middle of the page.
  - Under **\*\*AND\*\*** Search by Specific Criteria, enter PON-ENE-2014-001 into the Referenced Solicitation Number search bar and click Search.
  - Click the link at the top of the page that says, “There are 1 Forum(s) found that match your search criteria.”
  - On the right side of the page, click the eyeglasses under **View** to access the forum.
  - This Summary page contains information about the forum PON-ENE-2014-001, including its opening and closing dates. To post a question to the forum, click **Ask a Question in the Forum**, located in the top right corner of the page **before** the closing date has passed.
  - Enter the required sign-in information (this will be kept private from the general public and is only visible to the forum manager and contact person) and click **Next Step** at the bottom of the page.
  - Enter your question into the **Question** box and click **Submit Question** at the bottom of the page. The question will now be posted into the forum.

To **view** all questions and answers:

- From [www.comm-pass.com](http://www.comm-pass.com), scroll to the bottom of the page and select Search for bidders’ forum, located near the middle of the page.
- Under **\*\*AND\*\*** Search by Specific Criteria, enter PON-ENE-2014-001 into the Referenced Solicitation Number search bar and click Search.

- Click the link at the top of the page that says, “There are 1 Forum(s) found that match your search criteria.” <sup>#62-14</sup>
- On the right side of the page, click the eyeglasses under **View** to access the forum.
- This Summary page contains information about the forum for PON-ENE-2014-001, including its opening and closing dates.

To see all previously posted questions and answers, click the **Question/Answer** tab, located in the top right corner of the page **before** the closing date has passed.

- All questions posted are listed. To see the answer, click the eyeglasses under View column next to the question you wish to see the answer to.

#62-14

**APPLICANT INFORMATION**

(Public Buildings only) School Name/School District/Vocational Technical School- <b>Pierce Elementary School, 280 Cypress                  Street, Newton, MA</b>	Primary Contact Name- <b>William H. Ferguson</b>
Street Address – <b>170 Temple Street                  Newton, MA 02459</b>	Title- <b>Energy Project Manager, Department of Public                  Buildings</b>
City/Town - <b>Newton</b> State <b>MA</b>  Zip Code: <b>02459</b>	Telephone: <b>617-796-1606</b> Email: <b>wferguson@newtonma.gov</b>  Utility Provider(s): <b>NStar (electric)                  National Grid (gas, school currently uses oil for                  heating fuel)</b>

**Please check the appropriate box:**

Applying for technical assistance with the following Renewable Thermal Heating Technology  
 (Check all that apply):

Conversion to biomass low emission, high efficient wood pellet and chip boilers

Conversion to air source heat pump technologies<sup>2</sup>

Conversion to ground source heat pump technologies

Conversion to water source heat pump technologies

Solar thermal heating systems; including solar domestic hot water and space conditioning

Installation of district heating and cooling systems

Please indicate if your school has applied for capital grants for this building through the Massachusetts School Building Authority (MSBA) Accelerated Repair or other program. If so, please include a copy of your Statement of Interest (SOI) and any other documentation supplied to the MSBA regarding planned upcoming capital upgrades

<sup>2</sup> Please see page 2, note 1.

**ELIGIBILITY REQUIREMENTS:** All applications must meet the following requirements to be eligible to receive services. Please provide complete answers in the spaces provided. All required documentation must be provided to confirm eligibility. #62-14

Please specify the primary heating fuel type for the school building or building(s):

- Heating oil
- Propane
- Electric radiant heating
- Other, please indicate: \_\_\_\_\_

Please attach a copy of the lighting audit for the building, if one was conducted (this is not required for receipt of technical assistance).

***A lighting audit was done in 2010 (survey by NORESCO is attached). No recent thorough lighting audit has been done for this building since then. We plan to bring in a utility preferred vendor to do a thorough lighting audit and provide an up to date lighting proposal with detailed costs.***

For engineering studies for heating system conversion to Renewable Thermal Technologies, the building must have at least one of the following, to avoid over sizing of heating equipment:

***Attached are excerpts from an audit of 39 city buildings done by NORESCO in May 2010. The audit indicates there are specific weatherization opportunities at the Pierce Elementary School. We will invite a utility approved vendor to provide a comprehensive proposal to include lighting and envelop/weatherization improvements that will be completed at the building prior to any decision to move ahead with a renewable energy project that may result from the feasibility study conducted under the SAPHIRE grant program.***

An audit that confirms the building is properly weatherized and insulated, i.e., measures to address the building envelope were not recommended in the audit due to the building being well-sealed. **Please attach a copy of this building audit.**

A concrete plan for implementing recommended building envelope weatherization improvements and addressing any known pre-weatherization barriers, such as knob and tube wiring or asbestos remediation, within the same calendar year as the renewable thermal heating upgrade.

Documentation that the building has been properly weatherized and insulated within the last 5 years. This can include invoices for air sealing and insulation.

An audit stating that the building cannot be further insulated without major renovation. For example, brick or masonry buildings cannot add wall insulation without major renovations to add insulation on the interior wall of every room. Attic spaces in these buildings, however, often can be insulated without major renovation and documentation must be shown that these spaces have been weatherized and insulated.

Attachment A

**PLEASE ATTACH A DETAILED SUMMARY OF THE PROJECT.**

**The following must be included in order for the application to be deemed complete. You must address each bullet:**

- What steps have been completed in the project to date? (e.g. feasibility studies completed, Mass Save utility energy audits, capital budget planning)
- Please discuss all sources of funding available to the project (if known)
- Include any other plans for near-term energy efficiency upgrades, such as lighting, insulation or air sealing work.
- Why would your building benefit from studying the feasibility of converting to renewable thermal heating technologies?

**The City of Newton is committed to renewable energy. We will be evaluating geothermal for use in a new school for which we have just selected a designer (the Zervas Elementary School). For this reason, we arranged a meeting to Wellesley High School to get a review of their new geothermal system. This visit to Wellesley raised our awareness about the potential for geothermal and the availability of assistance under the State's SAPHIRE program. We would also like to consider it for the Pierce School where major renovations and additions are planned. These are scheduled for 2019-2020.**

**As an example of the City's commitment to renewables, the City of Newton has installed solar PV on four schools under a net metering arrangement. Three of these schools were interconnected on December 31, 2013 and the fourth will be interconnected by the end of January 2014. The four projects total 685 KW.**

**I have attached excerpts from our Capital Plan in this application that verify a commitment of funds and time frames for the funding of projects. The complete plan can be provided if desired. We are excited about the opportunity to obtain technical assistance under the SAPHIRE program to see how we can apply geothermal or solar heating to an existing building. Without this technical assistance it is doubtful that we will have the resources to consider these renewable energy heating options for an existing building.**

**The following are our responses to the above questions.**

- 1. In 2010 The City of Newton had a comprehensive energy audit conducted by NORESKO of 39 buildings including Pierce Elementary School. Excerpts of that energy audit that are relevant to Pierce School are attached. The City of Newton has also included \$500,000.00 per year in its Capital Budget for energy efficiency projects identified by the Department of Public Buildings. We are also scheduling an energy audit of the building with a preferred vendor under the Green Communities/utility preferred vendor program.**
- 2. The primary source of funding for this project will be the City of Newton capital budget plus any state funds that can be used to supplement these funds under the SAPHIRE program or the Green Communities Program especially for a geothermal or solar heating project if either is determined to be feasible.**
- 3. Any lighting, weatherization, insulation air sealing and quick payback items identified in the audits will be implemented prior to installing a geothermal or solar thermal system using operating funds or Capital Budget Funds.**
- 4. This building is scheduled for renovation and/or an addition under the City of Newton Capital Plan in FY2019/20. It would be timely to investigate the application of solar thermal and geothermal energy options as part of the planning and design process prior to renovating or expanding the building.**

**ATTACHMENT B**

**CERTIFICATION OF APPLICATION**

The Certification of Application below must be provided as a scanned pdf with signature. For joint applications, one certification must be submitted for each applicant.

**CERTIFICATION OF APPLICATION**

The **Chief Executive Officer** must complete this certification.

I, Arthur F. CABRAL am authorized to execute said Application on behalf of -  
the City of Newton, Public Bldg Dept. the applying municipality, school department, or  
school district and verify that the information in the SAPHIRE Technical Assistance Application is true.

Arthur F. Cabral

[Signature of Chief Executive Officer]

Budget + Project Specialist

[Title of Chief Executive Officer]

January 10, 2014

[DATE]

**NOTE:** FOR SCHOOL DISTRICTS, THE CHIEF EXECUTIVE OFFICER IS THE SUPERINTENDENT.

**CITY OF NEWTON DEPARTMENT OF PUBLIC BUILDINGS ENERGY EFFICIENCY RETROFIT PROGRAM, Version 1.0**

<b>THE PLAN</b>		
MMBTU use, sum of buildings on this list (2013 MEI data)	100,909	
Total MMBTU savings from buildings on this list	28,564	
Total number of buildings on this list	32	
Total SF of buildings on this list	1,084,151	
<b>TOTAL 2008 MMBTU USE FOR ALL BLDGS FROM MEI</b>	<b>245,503</b>	<b>MMBTU</b>
(Savings reduction is relative to MEI 2008 base year for buildings sector)	<b>MMBTU Savings</b>	<b>%</b>
Total buildings savings already achieved through FY13	41,870	17%
Total MMBTU savings from this EE Program (all phases)	28,564	12%
Total estimated savings from new schools (Ang, Zervas, Cabot)	6,700	3%
Total savings in buildings sector, MMBTU	77,134	31%

Rev 2-28-2014 with SF updates

	SF	MBTU/SF	MMBTU	Final Proposal	Comments
<b>Underwood Elementary School</b>	<b>43,300</b>	<b>119</b>	5,134	3/5/2014	No plans for replacement or renovation.
<b>Franklin Elementary School</b>	<b>56,764</b>	<b>115</b>	6,525	2/10/2014	Renovations FY26/27.
<b>Sr Center</b>	<b>11,298</b>	<b>114</b>	1,293	2/28/2014	
Abermarle Fld Hse	2,072	149	308		
Lincoln-Eliot Elementary School	51,074	108	5,507	3/28/2014	New replacement school completed in FY20/21..
Elliot Street DPW Stable/DPW OPs Center	15,858	136	2,150	4/21/2014	
DPW 110 Crafts St Garage	23,474	122	2,861	2/24/2014	
Fire Station #2	14,378	121	1,733	4/21/2013	
Pierce Elementary School	36,050	119	4,285		Renovations completed in FY 19/20.
Williams Elementary School	41,700	98	4,086	3/24/2014	Renovations completed in FY18/19.
Public Bldgs Dept	7,100	60	424	3/7/2014	
Hawthorne Fld Hse	5,608	109	614		
Cabot Park Field House	1,264	101	128		
DPW 60 Elliot Street	15,000	98	1,477		
Fire Station #1	14,808	97	1,443		
Countryside Elementary School	65,000	94	6,117		Renovations planned for FY24/25.
Aburndale PlyGrnd-Fld Hse	1,329	93	123		
John Ward Elementary School	38,000	90	3,412		New School completed in FY22/23.
Burr Park Field House	3,000	87	260		
Memorial-Spaulding Elementary School	68,775	82	5,657		Renovations in FY29/30.
Auburndale Library	4,830	73	353		
Upper Falls Com Center	13,418	69	920		
Horace Mann Elementary School	40,600	65	2,647		No plans for replacement or renovation.
Craft Street Stable/DPW Ops Center	19,533	61	1,201		
Mason-Rice Elementary School	42,400	62	2,635		Renovations completed in FY25/26.
Education Center	70,000	127	8,911		
Police Annex	5,470	121	662		
Charles Brown Middle School	146,000	94	13,653		No renovation or replacement plans.
Police Dept. HQ	30,000	77	2,322		
Bigelow Middle School	92,500	77	7,139		No plans for replacement or renovation.
Police HQ-Garage	7,548	73	550		
Oak Hill Middle School	96,000	66	6,379		No plans for replacement or renovation.
total for this program	1,084,151		100,909		from MEI 2013 data
total for all city buildings	2,705,439		203,633		from MEI 2013 data



2/19/2014

Building	Year	Square Feet	Department	Use/Program	Address	MMBTU	MBTU/SF	MMBTU	MBTU/SF
						2013	2013	2008	2008
Parks and Rec HQ Vernon Street (aka Newton Corner Library in MEI)	1848	6,138	Parks and Rec	Central Operations for Parks and Recreation	124 Vernon Street	307	50	399	65
Crystal Lake Bath House	1931	7,581	Parks and Rec	Recreation Swimming Summer Only	16 Rogers Street	334	44	756	100
Hawthorne Field House	1950	5,608	Parks and Rec	After School and Summer Programs, leagues, rentals	17 Hawthorne Street	614	109	390	70
Recreation Headquarters Crescent	1930	3,208	Parks and Rec	Rec Maintenance and currently in re-use process.	70 Crescent Street	513	160	452	141
Lower Falls Community Center	1958	10,519	Parks and Rec	Daycare, After School and Summer Programs, leagues, rentals	545 Grove Street	358	34	1303	124
Recreation Garage Crescent	1940	4,600	Parks and Rec	Rec Maintenance and currently in re-use process.	70 Crescent Street	455	99	593	129
Albemarle Field House	1956	2,072	Parks and Rec	Senior Programs and Summer Camps	250 Albemarle Road	308	149	356	172
Forte Park Field House	1990	320	Parks and Rec	Bathrooms for the Field	233 California Street	10	31	26	81
Auburndale Playground Field House	1967	1,329	Parks and Rec	Rentals	West Pine Street	123	93	90	68
Bulloughs Pond Hut	1963	624	Parks and Rec	Minimal Use	Bulloughs Park	0	0	0	0
Burr Park Field House	1919	3,000	Parks and Rec	Daycare and Summer Programs	142 Park Street	260	87	243	81
Cabot Park Field House	1926	1,264	Parks and Rec	Summer Programs	101 East Side Parkway	128	101	138	109
Gath Pool Facility	1965	4,600	Parks and Rec	Recreation Swimming Summer Only	256 Albemarle	305	66	279	61
Nahanton Park Field House	1996	1,440	Parks and Rec	Summer Programs	Nahanton Park	103	72	182	126
Highlands Playground	1917	600	Parks and Rec	Minimal Use	10 Winchester Street	18	30	502	837
Upper Falls Playground Field House	1965	520	Parks and Rec	Minimal Use	86 Pennsylvania Avenue		0		0
Upper Falls Community Center	1955	13,418	Parks and Rec	Daycare, Summer Programs, leagues, rentals	5 High Street	920	69	1241	92

Newton Center Field House	1892	4,352	Parks and Rec	After School and Summer Programs, leagues, rentals	81 Tyler Terrace	498	114	502	115
Newton Center Metal Storage Building	1980	500	Parks and Rec	Untreated Storage	Tyler Terrace	0	0	0	0
Quinobequin Pump Station Building	1980	4,596	DPW	Water Supply	136 Quinobequin	1779	387	1903	414
Elliot Street Pump Station Building	1990	1,500	DPW	Water Supply	391 Elliot Street	194	129	325	217
Elliot Street DPW Stable (aka 74 Elliot St Ops Center in MEI)	1927	15,858	DPW	DPW Operations Center, Foremen/Supervisors, Dispatch, employee lockers, break room,	74 Elliot Street	2150	136	2345	148
Elliot Street DPW Garage (aka 70 Elliot St in MEI)	1959	9,000	DPW	Repair and Maintenance of fleet and equipment	70 Elliot Street	13	1	13	1
Elliot Street Salt Shed	1994	7,800	DPW	Salt Storage	70 Elliot Street	0	0	0	0
DPW Utilities Building (aka 60 Elliot St in MEI)	1935	23,000	DPW	Utilities Dept operations center, parts and equipment supply center.	60 Elliot Street	1477	64	1456	63
Craft Street Stable-DPW OPS Center	1894	19,553	DPW	DPW Operations Center, Foremen/Supervisors, Dispatch, employee lockers, break room,	90 Craft Street	1201	61	1203	62
110 Craft Street Garage	1919	23,474	DPW	Repair and Maintenance of fleet and equipment. Traffic Division and Environmental Affairs Division.	110 Craft Street	2861	122	3224	137
Craft Street Salt Shed	2013	6,000	DPW	Salt Storage	110 Craft Street		0	0	0
Craft Street Storage Building	2013	3,500	DPW	Untreated Storage of street sweepers, trucks, etc	110 Craft Street		0	0	0
Craft Street Wash Building	1987	2,400	DPW	Wash bay used to wash fleet equipment	110 Craft Street		0	0	0
Fire Headquarters	1928	6,541	Fire	Fire Dispatch, Central Communications Hub, Fire Senior Management, and Fire Prevention offices.	1164 Centre Street	387	59	542	83
Fire Station #1	1965	14,808	Fire	Fire Station	241 Church Street	1443	97	1267	86
Fire Station #2	1964	14,378	Fire	Fire Station	1750 Commonwealth Avenue	1733	121	1733	121
Fire Station #3	1955	16,215	Fire	Fire Station	31 Willow Street	1621	100	1621	100
Fire Station #4	1955	13,000	Fire	Fire Station	195 Craft Street	1442	111	1119	86

Fire Station #7	1955	16,100	Fire	Fire Station	144 Elliot Street	1506	94	1327	82
Fire Station #10	1948	8,158	Fire	Fire Station	755 Dedham Street	775	95	703	86
Police Headquarters	1932	30,000	Police	All Police Functions except for traffic matters	1321 Washington Street	2322	77	2399	80
Police Garage	1950	7,548	Police	Police fleet maintenance and evidence secure storage.	1321 Washington Street	550	73	918	122
Police Annex	1926	5,470	Police	Police Traffic Bureau, DA Office, Volunteer PD	25 Chestnut Street	662	121	608	111
Waban Hill Comm Tower Building	1950	300	Police/Fire	Emergency Communications	2 Manet Road	71	237	107	357
Main Library	1991	93,000	Library	Library, rentals, programs, etc	330 Homer Street	7897	85	8642	93
Auburndale Branch Library	1927	4,830	Library	Auburndale Improvement Society operates the main floor as a community library. Friends of the Library use the basement for books donations and periodic book sales.	371 Auburn Street	353	73	592	123
Nonantum Branch Library	1957	5,137	Library	Ciociaro Social Club rents and operates out of the main floor. Police Dept uses the basement floor.	114 Bridge Street	304	59	291	57
Waban Branch Library	1929	6,378	Library	Waban Improvement Society operates the main floor as a community library. The Food Pantry uses the basement for their operations.	1608 Beacon Street	40	6	344	54
City Hall	1932	81,000	Public Buildings	Multiple city departments utilize City Hall for a wide variety of functions. Spaces are rented, and programs are held there frequently.	1000 Commonwealth Avenue	6014	74	12525	155
Jackson Homestead	1809	7,000	Newton History	Historical museum and archives	527 Washington Street	349	50	348	50
Public Buildings	1968	7,100	Public Buildings	Public Buildings Operations Center	52 Elliot Street	424	60	581	82

Kennard Estate	1907	15,715	Public Buildings	Used by the School Dept and Newton History. Newton Partnership and a few other small School Dept administrative programs use this building. Newton History is using the 3rd floor for storage.	246 Dudley Road	387	25	109	7
Winchester Street Garage	1948	2,800	Public Buildings	Currently used by Public Buildings as a wood shop and maintenance facility. This use will cease shortly, and the building will be turned over to the Recreation Commission.	525 Winchester Street	36	13	119	43
Health Dept	1927	4,581	Public Buildings	Currently not used, and in the re-use process.	1294 Centre Street	290	63	695	152
Highlands Library(Brigham House)	1886	5,081	99 Year Lease	Private Community Center 15+ years into the 99 year lease	20 Hartford Street	287	56	352	69
Senior Center	1938	11,298	Senior Services	Senior Services and Programs	345 Walnut Street	1293	114	763	68

564,812

53 Municipal Buildings totaling 564,812ft2

2,140,627

What is 115 Rumford Ave in MEI?

2,705,439

SCHOOL BUILDING INVENTORY, YEAR CONSTRUCTED, ADDITIONS, TOTAL BUILDING RENOVATIONS, MODULAR CLASSROOMS & SQUARE FOOTAGE (data provided by Public Buildings Dept. April 2007 for HMFH study and revised 2011 with new 2007-2011 modulars and NNHS) and revised December 2013 with 2013 modulars						
SCHOOL	ADDRESS	ORIGINAL CONSTRUCTION YR.	ADDITION(S) YR.	APPROX. SQUARE FOOTAGE	MMBTU 2013	MBTU/SF 2013
Angier School	1697 Beacon Street	1919	1936	51,300	4194	82
Bowen School	280 Cypress Street	1952	1989, 2000, 2007 (1 modular, removed 2013), 2013 (4 modulars)	69,535	4667	67
Burr School	171 Pine Street	1967	2011 (1 modular), 2013 (1 modular)	55,399	2121	38
Cabot School	229 Cabot Street	1929	1957, 1999 (2 modulars); 2007 (2 modulars)	43,584	4562	105
Carr School	225 Nevada Street	1936	1967, 2013-14	53,532	5013	94
Countryside School	191 Dedham Street	1953	1958, 1986; 1988-1999 (4 modulars)	65,000	6117	94
Franklin School	125 Derby Street	1939	1950, 1953	56,764	6525	115
Lincoln-Eliot School	191 Pearl Street	1939	1965, 1974	51,074	5507	108
Horace-Mann School	687 Watertown Street	1965	2002 (2 modulars); 2007 (1 modular); 2011 (1 Modular); 2013 (1 modular)	40,600	2647	65
Pierce School	170 Temple Street	1951	1955; 2007 (2 modulars)	36,050	4285	119
Memorial-Spaulding	250 Brookline Street	1954	1959, 2002	68,775	5657	82
Mason Rice	149 Pleasant Street	1959	2013 (4 modulars)	42,400	2635	62
Underwood School	101 Vernon Street	1924	1978 (total building renovation)	43,300	5134	119
Ward School	10 Dolphin Road	1928	1950, 1954	38,000	3412	90
Williams School	141 Grove Street	1950	2001	41,700	4086	98
Zervas School	30 Beethoven Avenue	1954	1999 (1 modular); 2007 (2 modulars); 2011 (2 modulars)	35,002	3439	98
Bigelow Middle School	42 Vernon Street	1967	1993 (total building renovation)	92,500	7139	77
Brown Middle School	125 Meadowbrook Road	1956	1962, 1982, 1997	146,000	13653	94
Day Middle School	21 Minot Place	1971	1997, 2013	150,912	8735	58
Oak Hill Middle School	130 Wheeler Road	1936	1960, 1997, 2010 ( 4 modulars)	96,200	6379	66
Education Center	100 Walnut Street	1928	1934, 1966 (2 modulars)	70,000	8911	127
Newton North High School	457 Walnut Street	2010		410,000	24178	59
Newton South High School	140 Brandeis Road	1959	1997, 1999, 2001-2004	383,000	25865	68
<b>Total School Building Sq. Ft.</b>				<b>2,140,627</b>		

# Presentation to Public Facilities Committee

March 5, 2014

# Important Measurements

## Energy

- Massachusetts Division of Energy Resources requires us to report our energy use as part of the Green Communities Program.
- Their preferred measurement is “mmbtu”, which is millions of British Thermal Units.

### Conversions:

Gallon Heating Oil	.139 mmbtu
Therm natural gas	1 mmbtu
kWh electricity	.003412 mmbtu
Gallon gasoline	.124 mmbtu
Gallon diesel	.139

## Emissions

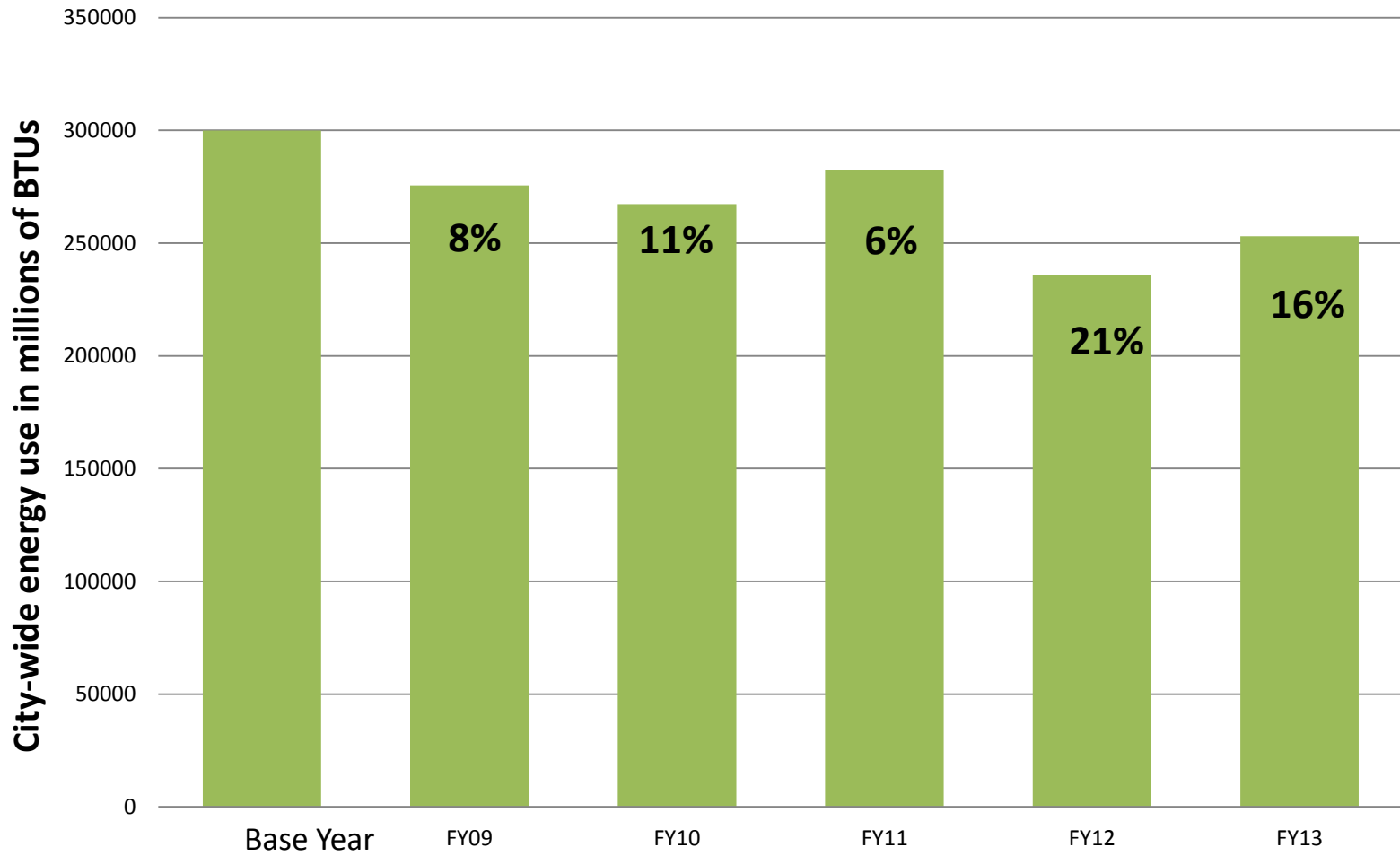
- We also measure our emissions of greenhouse gasses, which are converted to “co2e,” or units equivalent to carbon dioxide (methane is 21 times more potent than co2).

### Pounds per unit:

Gallon Heating Oil	22.38
Therm natural gas	11.7
kWh electricity	.963
Gallon gasoline	19.533
Gallon diesel	22.384

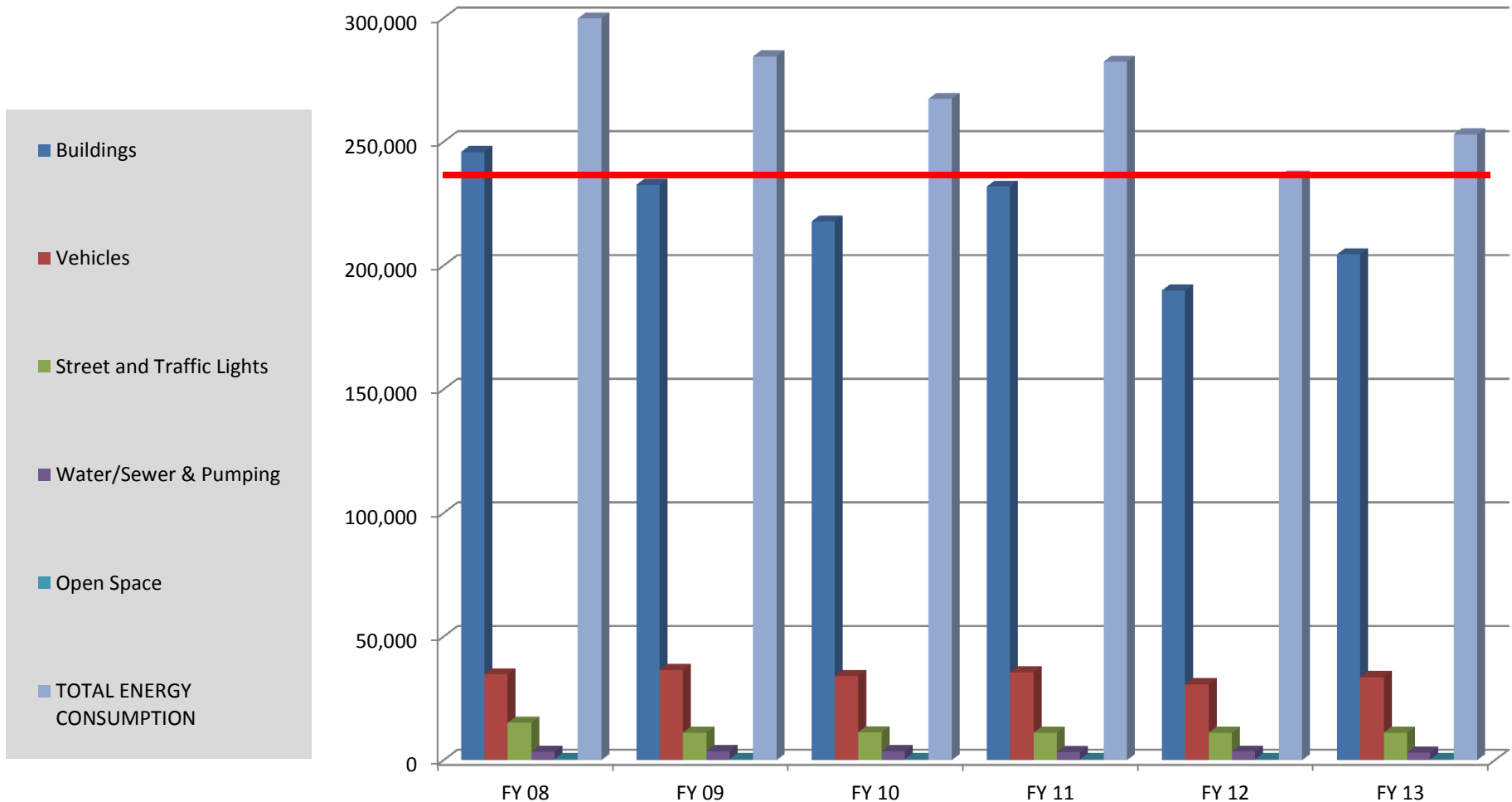
# Green Communities Report

## Energy Use, 2008-2013 (with percentage reduction)

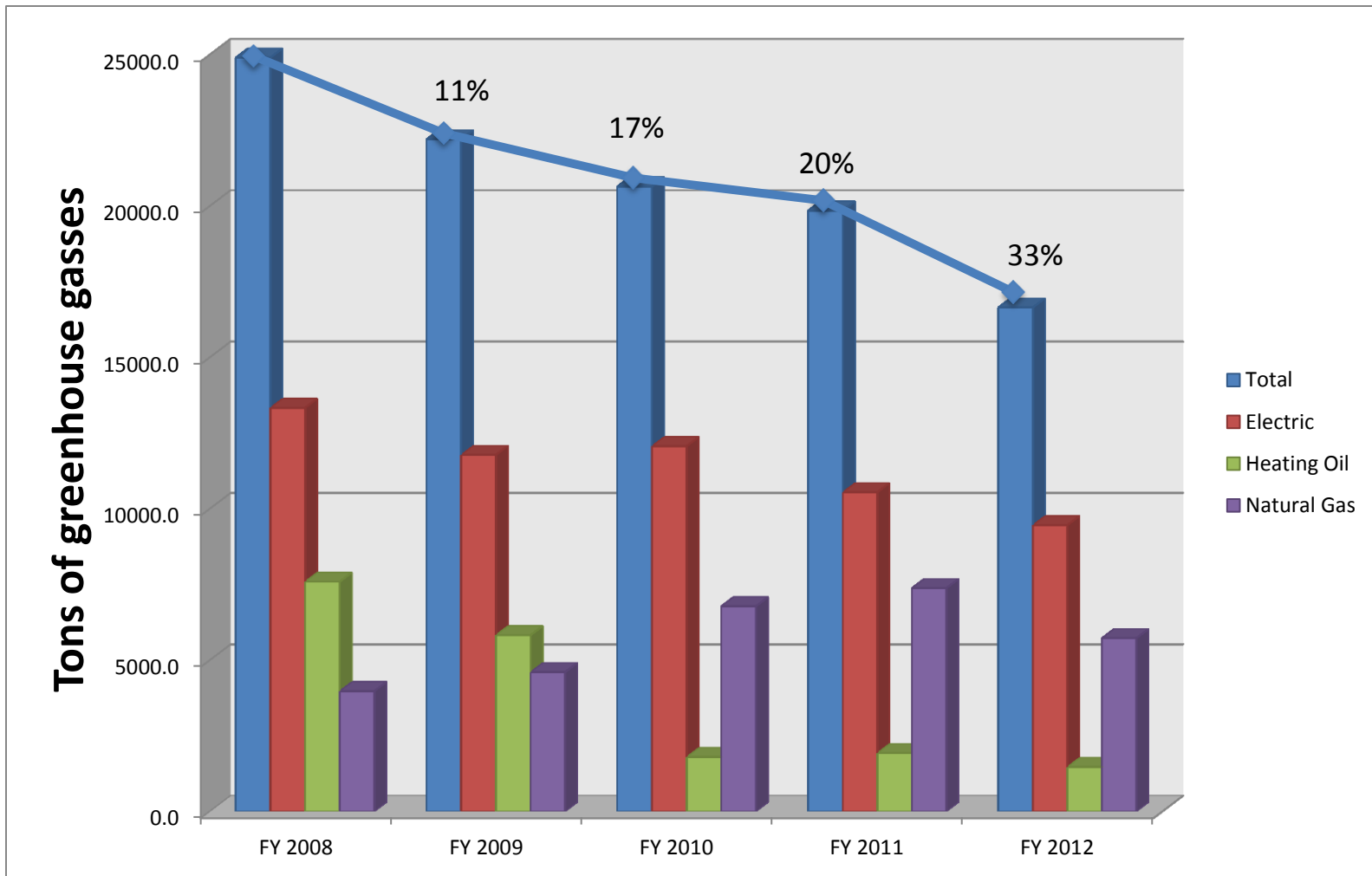




# Energy Use by Component



# Greenhouse Gas Emission Reductions



# Near and Longer Term Projects

Areas	% Reduction	Projected million BTU reductions
Building Efficiency	12%	28,500
LED streetlights	57%	6,100
Solar projects underway		2,743
New schools	40%	6,700
New vehicles	10%	3,000
Next round of solar		600
<b>TOTAL</b>		<b>47,643</b>

**32%**

# Buildings: Large Improvements Possible – changes since 2008

	Million BTU reductions	Heat	Electric
Newton North	-12582	-8445	-4139
Newton City Hall	-6511	-6230	-281
Newton South HS	-4181	-4031	-358
Lincoln-Eliot ES	-3151	-3284	133
Oak Hills MS	-2996	-2328	-668
Bigelow MS	-2117	-1718	-399
FA Day MS	-1801	-908	-896
Charles Brown MS	-1732	-1543	-189
Franklin ES	-1228	-1057	-171
Cabot ES	-1142	-875	-267

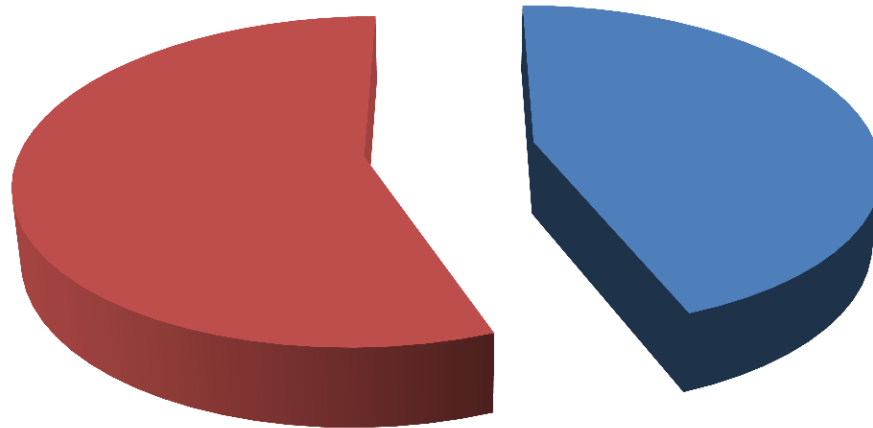
**-24,859 – 8% of entire city use in these 10 buildings**

# Building Efficiency Plan

<u>THE PLAN</u>					
MMBTU use, sum of buildings on this list (2013 MEI data)			100,909		
Total MMBTU savings from buildings on this list			28,564		
Total number of buildings on this list			32		
Total SF of buildings on this list			1,084,151		
<b>TOTAL 2008 MMBTU USE FOR ALL BLDGS FROM MEI</b>			<b>245,503</b>	<b>MMBTU</b>	
(Savings reduction is relative to MEI 2008 base year for buildings sector)					
		MMBTU Savings		%	
Total buildings savings already achieved through FY13		41,870		17%	
Total MMBTU savings from this EE Program (all phases)		28,564		12%	
Total estimated savings from new schools (Ang, Zervas, Cabot)		6,700		3%	
Total savings in buildings sector, MMBTU		77,134		31%	
Rev 2-28-2014 with SF updates					
		<u>SF</u>	<u>MBTU/SF</u>	<u>MMBTU</u>	<u>Final Proposal</u>
					<u>Comments</u>
Underwood Elementary School	43,300	119	5,134	3/5/2014	No plans for replacement or renovation.
Franklin Elementary School	56,764	115	6,525	2/10/2014	Renovations FY26/27.
Sr Center	11,298	114	1,293	2/28/2014	
Abermarle Fld Hse	2,072	149	308		
Lincoln-Eliot Elementary School	51,074	108	5,507	3/28/2014	New repacement school completed in FY20/21..
Elliot Street DPW Stable/DPW OPs Center	15,858	136	2,150	4/21/2014	
DPW 110 Crafts St Garage	23,474	122	2,861	2/24/2014	
Fire Station #2	14,378	121	1,733	4/21/2013	
Pierce Elementary School	36,050	119	4,285		Renovations completed in FY 19/20.
Williams Elementary School	41,700	98	4,086	3/24/2014	Renovations completed in FY18/19.
Public Bldgs Dept	7,100	60	424	3/7/2014	
Hawthorne Fld Hse	5,608	109	614		
Cabot Park Field House	1,264	101	128		
DPW 60 Elliot Street	15,000	98	1,477		
Fire Station #1	14,808	97	1,443		
Countryside Elementary School	65,000	94	6,117		Renovations planned for FY24/25.
Aburndale PlyGrnd-Fld Hse	1,329	93	123		
John Ward Elementary School	38,000	90	3,412		New School completed in FY22/23.
Burr Park Field House	3,000	87	260		
Memorial-Spaulding Elementary School	68,775	82	5,657		Renovations in FY29/30.
Auburndale Library	4,830	73	353		
Upper Falls Com Center	13,418	69	920		
Horace Mann Elementary School	40,600	65	2,647		No plans for replacement or renovation.
Craft Street Stable/DPW Ops Center	19,533	61	1,201		
Mason-Rice Elementary School	42,400	62	2,635		Renovations completed in FY25/26.
Education Center	70,000	127	8,911		
Police Annex	5,470	121	662		
Charles Brown Middle School	146,000	94	13,653		No renovation or replacement plans.
Police Dept. HQ	30,000	77	2,322		
Bigelow Middle School	92,500	77	7,139		No plans for replacement or renovation.
Police HQ-Garage	7,548	73	550		
Oak Hill Middle School	96,000	66	6,379		No plans for replacement or renovation.
total for this program	1,084,151		100,909		from MEI 2013 data
total for all city buildings	2,705,439		203,633		from MEI 2013 data

# LED Streetlights - Underway

1.8 million kWh reduction –



\$196,000 annual electricity savings

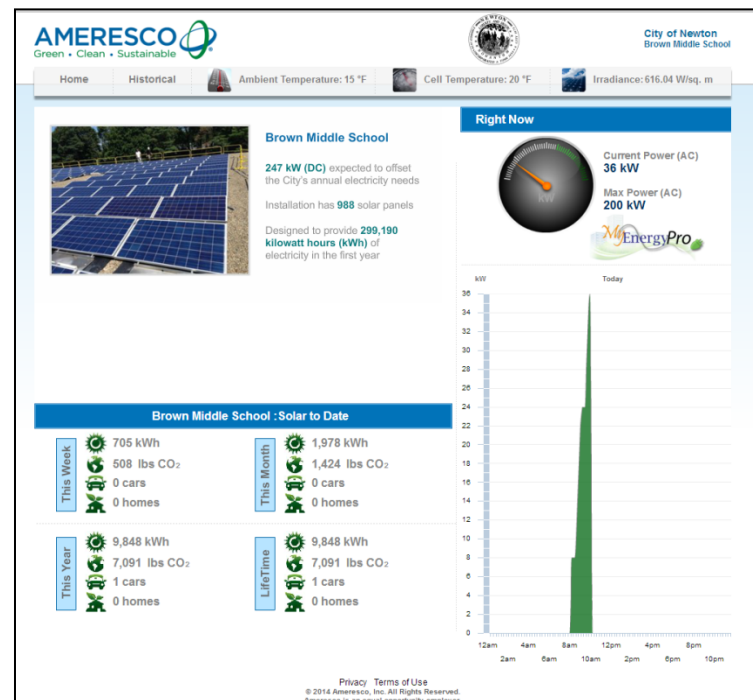
# Solar on schools - Underway

685 kW on four schools, Newton North, Oak Hill, Brown, and Memorial Spaulding.

Will produce 804,000 kwh annually.

- As much power as 100 average houses will use in a year.
- \$2 million over 20 years in electricity savings.
- Reduces emissions equal to 60 cars worth of co2 per year.
- 286 metric ton reduction in emissions.

Live in December-February.



You can track online at:

<http://solar.myenergypro.com/CityofNewton>

# Proposal: City Hall Solar



Newton City Hall - 48.6KW Roofmount System



Perkins School For The Blind, Watertown, MA  
33KW





