



# Public Facilities Committee Report

## City of Newton In City Council

**Wednesday, October 4, 2017**

**Present:** Councilors Crossley (Chair), Albright, Brousal-Glaser, Laredo, Danberg, Gentile

**Absent:** Councilors Lennon, Lappin

**City staff present:** City Engineer Lou Taverna

**#302-17      Verizon petition for grant of location Windsor Road**

VERIZON petition for a grant of location to install one new Pole (P.469/20S) on the northerly side of Windsor Road 500'± from Kent Road, to remove a guy wire from a tree. [(Ward 5) 09/11/2017 @11:30 PM]

**Action:**      Public Facilities Approved 6-0

**Note:**            City Engineer Lou Taverna reviewed the proposed Verizon plan. Mr. Taverna stated that the petition for grant of location on Windsor Road is to install one new pole across the street from an existing pole in order to allow the removal of a guy wire that is being held up by a tree. Mr. Taverna noted that there is an additional tree on private property, which must not be affected by the installation of the new pole. It was confirmed that although the wire will cross the street, this is the most effective way to resolve the pulling of the wires on the existing utility pole.

The Public Hearing was opened and closed with no member of the public wishing to speak. Councilor Laredo motioned to approve the item which carried unanimously.

**#315-17      Discussion with DPW regarding sewer extension billing**

COUNCILOR GENTILE requesting a discussion on how the City currently bills residents for sewer extensions. [09/18/17 @ 3:51 PM]

**Action:**      Public Facilities Held 6-0

**Note:**            Councilor Gentile docketed item #315-17 after being contacted by constituents on Staniford Avenue who are interested in petitioning the City for a drain extension to connect to the City's sewer system. The constituents, who are currently on septic, received cost estimates from the City that seem cost prohibitive. The City historically billed residents one dollar per linear foot of frontage and twenty five cents per square foot and the City paid the remaining balance. This formula resulted in approximately 10% of construction costs assessed to the resident and the balance being funded by the City due to the inflation of construction costs, over time. Since the 2012 revision of the ordinance, the City assesses the resident(s) 50% of the betterment cost and the City funds the balance of the construction. The proposed drain extension at Staniford Avenue calculated by the old formula would result in \$2,200 expense to the resident. Calculated by the new formula, the resident's cost would be approximately \$22,000 and the City's expense would be \$22,000.

City Engineer Lou Taverna noted that it is the City's preference to have residents connected to the sewer system. He stated that septic systems require constant maintenance and are often neglected, falling into a state of disrepair or failure. This leads to discharge into the groundwater and public waterways. Mr. Taverna noted that there are approximately 200 septic systems scattered throughout the City and no mandatory testing of the septic systems. State law requires septic system testing at point of sale. If a septic system fails, the homeowner is required to connect to an existing sewer main or rebuild the septic system to meet title V requirements. Mr. Taverna confirmed that rebuilding septic systems can be as expensive as extending sewer mains, if they do not exist.

Committee members were in agreement that the failure or disrepair of septic systems throughout the City could be a public health issue. Councilor Gentile suggested that the Committee investigate reevaluating the ordinance to reduce the burden on homeowners who wish to connect to the sewer system. Committee members stated that it would be difficult to make a decision without knowing what the impact on cost is. One Committee member noted that there are reserves in the sewer enterprise fund. Mr. Taverna noted that the current ordinance is written so that the City funds a minimum of 50%, with the option for more. The Chair noted that the Water/Sewer Subcommittee should meet to continue the conversation and report back to the Committee. With a motion from Councilor Gentile to hold the item, Committee members voted unanimously in favor.

**#216-17      Approval of Building Design and Construction Sustainability Guidelines**  
HIS HONOR THE MAYOR requesting approval of the "City of Newton – Public Buildings Department – Building Design and Construction Sustainability Guidelines."  
[07/03/17 @ 12:28 PM]

**Action:**      **Public Facilities Approved 6-0**

**Note:**      The Chair read the item into the record, and introduced Co-Chairs of the Design Review Committee Peter Barrer and Ellen Light, Design Review Committee and Energy Commission Member Jonathan Kantar and Sustainability Director Ann Berwick. It was noted that the Design Review Committee, Public Buildings Department and High Performance Building Coalition has been collaborating to craft the proposed Building Design and Construction Sustainability Guidelines (attached) for a number of years. The Chair noted that the design guidelines have been approved by the administration and it is the intent that with Council approval, a clear set of objectives will be provided to vendors, when an RFP is issued and contract drawn for future City projects.

Commissioner of Public Buildings Josh Morse provided a high level overview of the plan to formalizing THIS design and construction approach for City buildings. The Commissioner noted that the process of Integrated Design is an approach that that, from the beginning of design, evaluates the impact of each system on the total project and making the corresponding modifications, early in the design phase. He provided an explanation of how one decision can create a ripple effect in simplifying other design features and long term maintenance. The Commissioner's narrative illustrating this effect is attached.

The Commissioner stated that most design teams are not evaluating project details as a team. Project design is typically iterative and often results in having to revisit previous project details. It is the Commissioners belief that this policy document will serve as a map for vendors and for the City in future projects. Ms. Ellen Light noted that many design professionals are trained in sustainability, but do not know what the City's expectations are up front. She stated that the structure of government process can prohibit a holistic approach from the start of the project. Ms. Light is confident that by making clear what the City's standards are up front, including an energy model requirement to assess the building design; will help create a more efficient process and avoid redesigns. Mr. Barrer reiterated that the document has been a work in progress for a number of years and provided the attached Q&A. Mr. Barrer noted that this comprehensive way of looking at projects will also impact designer selection. Ms. Ann Berwick noted that the document also institutionalizes learning from experience.

Committee members praised the work of the DRC and Public Buildings in crafting the design and construction guidelines. One suggested minor edits to be make a more affirmative statement. Committee members questioned how the document would be implemented. It was confirmed that the document will be included as part of the RFPs/RFQs and will be part of the final contract with vendors. It was noted that modification of the design phase and energy model will likely increase the upfront design costs, but that savings are expected from a simplified design, less backtracking throughout the design process and long term maintenance and operations costs.

A Committee member asked if there was any indication that the inclusion of the design guidelines would limit the pool of design professionals. Mr. Kantar believes that it is unlikely that the pool of bidders for City projects will decrease and thinks that it is possible that the number of interested firms could increase. He noted that many people are excited to work with progressive communities who are at the forefront of sustainability.

Councilor Danberg motioned to approve the design guidelines with minor edits suggested. The revised document is attached. Committee members voted unanimously in favor. It was confirmed that because the design guidelines are to be included as part of contracts, the guidelines cannot be used as a retroactive standard for projects currently in the design phase.

**#317-17      Resolution to support House Bill to protect ratepayers**

COUNCILOR CROSSLEY on behalf of Mothers Out Front, requesting a resolution from the City Council in support of H.2683/S.1845 that seeks to protect consumers from leaked gas while providing economic incentive to providers to repair infrastructure so as to reduce methane leaks into the environment [09/25/17 @ 3:07 PM]

**Action:**      **Public Facilities Approved as Amended 6-0**

**Note:**      Ms. Ellie Goldberg presented the request for support on behalf of Mothers Out Front. She noted that Mothers Out Front started as a group of mothers who felt the urgency of addressing climate change. The organization, founded in Arlington and Cambridge, has gained support and is now a national movement. Mothers Out Front has established three task forces

including; stopping new fossil fuel infrastructures, focusing on renewables and efficiencies and addressing gas leaks. State law adopted in 2004 requires utility companies to report gas leaks. The Home Energy Efficiency Team from Cambridge mapped and maintains a database of unrepaired gas leaks in Massachusetts municipalities and their classifications. There are approximately 588 remaining gas leaks in Newton. Details can be found at [www.heetma.org](http://www.heetma.org). Ms. Goldberg noted that utility companies have only prioritized the most explosive leaks and have not included methane emissions as a significant climate change driver. Utility companies are now working with Mothers Out Front and Gas Leak Allies to share information, concerns and identify gas leaks. Ms. Goldberg noted that the intent is to focus on the worst leaks first (“super emitters”) and noted that a small percentage of gas leaks in the City are contributing a large percentage of methane emissions. THE utility companies have been charging rate payers for the gas lost through unrepaired leaks. Sometimes utilities would allow grade 3 leaks to be “watched” and not schedule repairs. Bills H.2683/S.1845 would require utility companies to pay for the gas lost through leaks, providing a monetary incentive for them to repair the leaks faster. Mothers Out Front seeks City Council support of the bills. Our Legislative delegation is in full support of these bills.

Ms. Goldberg noted that charging utilities for gas will ultimately benefit the rate payers. The Chair noted that a member of Gas Leaks Allies, Ed Woll, hopes that community support of these bills will put pressure on the utilities to enhance their own leak detection and repair programs. It was noted that while DPW is working with NGrid and trying to coordinate on a monthly basis, gas leaks in old and failing steel and cast iron mains will continue to impact the Accelerated Roads program schedule.

Committee members were supportive of the resolution and in agreement that this is one step that can be taken to put pressure on the utilities. Committee members made slight modifications to the resolution and asked that the bills BE available for the Council vote. With a motion from Councilor Laredo, Committee members voted unanimously in favor of the resolution.

**#300-17**      **Mayor’s re-appointment of Marian Rambelle to the Solid Waste Commission**  
MARIAN RAMBELL, 2 Harrington Street, Newtonville, re-appointed as a member of the Solid Waste Commission for a term to expire October 31, 2020. (60 days 11/17/17) 09/08/17 @ 9:11 AM]

**Action:**      **Public Facilities Approved 5-0 (Brousal-Glaser not Voting)**

**Note:**      Committee members reviewed the re-appointment of Marian Rambelle by the Mayor to the Solid Waste Commission. A Committee member spoke in support of Ms. Rambelle’s appointment to the SWC. Committee members were in agreement that the process for appointments should be standardized. Councilor Danberg motioned to approve the item which carried unanimously.

**Respectfully submitted,**

**Deborah J. Crossley, Chair**

**City of Newton – Public Buildings Department**  
**Building Design and Construction Sustainability Guidelines**  
Final Draft Approved by DRC 5/10/2017

## **A) Introduction and Summary**

- 1) In its decisions regarding design and construction of its buildings, the City of Newton strives to reach the best balance among many goals. Key goals include building function, construction budget, operating costs, siting, appearance, maintenance requirements, longevity, and flexibility for future needs. This document is intended to guide decision-makers regarding the importance of sustainability in achieving the best balance among these objectives. These guidelines will be reviewed at least every three years and updated as technology developments and experience warrant.
- 2) Newton is a leader in the pursuit of a sustainable built environment. As it plans the construction and renovation of buildings, it will look beyond minimum regulatory standards and consider intelligent building strategies that will contribute to substantial long term conservation of natural resources and operational economies. For each building design project, in addition to meeting code requirements, the City will evaluate all cost effective features that reduce energy and other operational costs and minimize environmental impacts through the use of sustainable building materials and other strategies. This document will guide building siting, design, construction, and operations.
- 3) Newton's goal of a sustainable built environment is, to the extent possible, to
  - a. minimize the use of energy, water, and other resources
  - b. maximize the use of renewable sources to provide electricity and heat
  - c. maximize building longevity through rigorous design processes and quality-controlled construction
  - d. minimize environmental impacts of construction materials and methods
  - e. institute building operations and maintenance practices to minimize environmental impacts, achieve optimal performance and maximize occupant health and well being.
- 4) The City strives to minimize building energy use. To attain that goal, the City has a building design and operation approach that will reduce life cycle costs, demonstrate significant improvements over previous designs, help define a path to net zero, and educate the community regarding feasibility and value. The path to net zero includes reducing building energy use as much possible and maximizing the use of on-site renewable power and heat.
- 5) Components of these guidelines may be relaxed or modified by the Design Review Committee (DRC) to accommodate projects whose size or inherent nature make the component inapplicable.

## B) Guidelines for Design Teams

### 1) Design Process Requirements

- a. Newton requires its design teams to use an integrated design approach at all phases of the design process, especially in schematics and design development. Because reduction in energy consuming features and HVAC loads may also reduce the size and cost of other parts of the project, and because choice of building materials may impact durability of construction, Newton requires its consultants to identify all building features that can be affected, when making energy efficiency related decisions. (See the attached commentary by Josh Morse, Newton’s Buildings Commissioner, regarding “Integrated Design Approach”.)
- b. During all phases of design
  1. Refer to “lessons learned” list from Public Buildings Department
  2. Evaluate Value Engineering options using life cycle cost analysis with full consideration of the impact on other building systems and components.
  3. Value Engineering options that increase energy use require recommendation by the DRC
  4. Continuously consider, propose and evaluate sustainability options
  5. All budget estimates to include air infiltration testing
- c. During Conceptual Design Phase  
Provide a minimum of three options before completion of Conceptual Development Phase. These options will require creative interactive discussions among the design consultants. These analyses will address onsite alternative energy source options and consider funding sources beyond the established building budget. The City will explore budget sources for Options 2 and 3 before completion of Conceptual Design.  
  
Option 1. Meets all codes and budget  
Option 2. Reduces energy use to 30% below code requirements, with any budget implications  
Option 3. Reduces energy use to net zero. If net zero is not feasible, show an option that reduces net energy use to the minimum feasible. Estimate budget implications.
- d. During Schematic Design Phase
  1. At the start of Schematics, the City will direct the design team regarding the major options developed in Conceptual Design.
  2. The design team will develop options to improve sustainability within the parameters accepted in Conceptual Design. Evaluate life cycle costs of each option.
- e. During Design Development Phase
  1. The design team will develop options to improve sustainability within the parameters accepted in Schematic Design. Evaluate life cycle costs of each option.
  2. Make provisions that enable future building modifications to improve sustainability.

- f. During Completion of Construction Drawings
  - 1. Develop options for commissioning building envelope construction
  - 2. Develop options for air infiltration testing
  
- g. Modeling for Large Projects. For projects of 20,000 square feet or more of gross floor area the design team is responsible for Building Energy Use Modeling using the following approach:
  - 1. Establish expected schedule of building use before completion of schematics
  - 2. As the design progresses, refine the model and complete energy model runs at Schematics, Design Development, and near completion of Construction Drawings. These models will be used to guide designers on how to achieve better energy conservation results and the impact of sustainability options being considered.
  - 3. For schools, evaluate the feasibility of reducing energy use by 5%, 10%, and 15% compared to the models of three recently completed Newton schools.

2) Certification and Ratings system requirements

- a. Design teams are responsible to meet the following requirements. While LEED is presently the preferred benchmarking system the DRC may consider alternative indexes.
  
- b. Projects of less than 20,000 sf shall meet the requirements of the most current applicable US Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED) Building Design and Construction (BD+C) building rating system at the level ‘Certified’ or better.
  
- c. Projects of 20,000 square feet or more of gross floor area shall meet the requirements of either:
  - 1. The most current applicable LEED BD+C building rating system at the level “Gold” or better. For twelve months from the time of adoption of a new version of LEED projects shall have the option to file under either the old or newly-adopted version.
  - OR
  - 2. For schools, energy efficiency standards acceptable by the Massachusetts School Building Authority (MSBA) for additional reimbursement.
  
- d. To further support the design, construction, and operation of a project that meets Newton’s requirements for energy, water, indoor environmental quality, and durability, provide for implementing the LEED BD+C Enhanced Commissioning requirements.
  
- e. The Design Review Committee may permit any project to conform to the certification system without actual participation in the formal process.

## **C) Guidelines for Designer Selection Committee**

Consider the comparative capabilities and experience of design teams, including sub-consultants, to respond to these Guidelines as part of the designer selection criteria. Compare design teams' familiarity with recent sustainability achievements of similar buildings.

## **D) Guidelines for Public Buildings Department**

- 1) Include these Guidelines in RFQs and contracts with Design Teams.
- 2) For all design projects, identify means to fund Life Cycle Cost-effective options that raise the cost higher than the established budget.
- 3) Maintain “lessons learned” list for use by design teams. Update this list after construction of each project and after one year of its occupancy. Semi-annually provide this list to the DRC. Among many other considerations, “lessons learned” shall include:
  - a. Evaluation of high performing windows used on recent projects
  - b. Evaluation of air barrier and insulating wall and roof assemblies used on recent projects
  - c. Evaluation of constructability of thermal break strategies in foundations and structural components on recent projects
  - d. Evaluation of HVAC and lighting approaches used on recent projects
  - e. Evaluation of building controls, management, monitoring and display functions
  - f. Evaluation of durability and performance of building materials
  - g. Evaluation of educational opportunities for users and the community
- 4) Two years after completion of projects larger than 20,000 sf, compare actual energy use to the building model, and include reasonable explanations for significant deviations, recommendations for performance improvements, and a plan to implement such improvements. Require re-measurement and review one year after substantial completion of any significant improvements.

Establish a formal “recommissioning” process to be completed by the third year of occupancy of buildings, and repeated every three years as follows:

- a. Projects of at least 10,000 sf of floor area but less than 20,000 sf shall meet the requirements of the most current applicable LEED Operations and Maintenance (O+M) building rating system at the level ‘Certified’ or better.
- b. Projects 20,000 sf or more shall meet the requirements of the most current applicable LEED O+M building rating system at the level ‘Silver’ or better.



Attachment: Integrated Design Approach  
From Josh Morse, Commissioner of Public Buildings

It is extremely important to ensure that every project utilize an integrated design approach. The concept may be new, but the logic has been around forever.

How big a rooftop air handling unit is required to heat a classroom? Simply calculate the heating load based on the building/classroom construction, and you know how to size the air handling unit. This is where most everyone stops. However, what happens if we were to tweak the design, and make the walls/windows of the classroom 5% more efficient? The next step would historically be to say that the investment in this is "y", and the payback is "x." The problem is that the ripple effect is far more significant and complex.

If the classroom is 5% more efficient, the air handling unit does not need to be as big. No different than if your house is more efficient, your boiler can be smaller. If the air handling unit is smaller, then it weighs less. If it weighs less, then you don't need as much structural steel and steel decking to support it. If you have less steel, then your total building weight is reduced. If your building weight is reduced, your foundation supporting the building can be reduced.

We're not done yet. If your air handling unit is reduced in size, then it does not need the same amount of heating hot water feeding it. That means that the size of the building boilers can be reduced. This means that the size of the hot water pumps pumping the hot water to the air handling units can be reduced. This means that the electrical lines feeding those pumps can be reduced in size. This means that the main electrical panels serving the building can be reduced in size. This means that the emergency generator and the transformer feeding the building can be reduced in size. This all means that the heating system will use less natural gas and electricity to operate.

Still not done. If the size of the air handling unit is reduced, then the fan motor in the unit is reduced, which means the electrical lines, panels, service, transformer, and generator all get reduced in size. If the air handling unit gets smaller, the ductwork traveling from it gets smaller, which means less weight, which means less steel, smaller foundations, etc.

But wait, there's still more. If the air handling unit is smaller, then it produces less noise. Less noise means less rooftop acoustical screening needed. Less screening means less weight on the roof, which means less steel, and smaller foundations.

There are many examples of this complex issue, and it really is not that complex. Keep in mind that this can also be done in reverse. You can set an energy target for your building project, and work backwards. Then the question becomes, how efficient must my building envelope and HVAC systems be in order to achieve a heating and cooling system that uses "x" amount of energy.

Now the tricky part.

All of the above requires thinking far outside of the industry norms. This requires progressive and open-minded design professionals working as a cohesive unit. This will also require more effort, more time, and potentially more cost up front on a given project. However, the end result is not only a less expensive building to operate, but a less costly building to construct. This does not mean that every building investment will pan out. Some will just not make sense from a cost benefit analysis standpoint. However, you will never know which investments are worth the time or money, without an integrated design approach.

I will say that everything I described above is based on site energy data, and not source energy for the construction materials. The cost and environmental impacts of a smaller AHU, less steel, smaller electrical, smaller pumps, smaller transformers, generators, etc., are not insignificant. I really don't think we should get into source data, as it will really confuse folks, but it is real.

I will finish by saying that Integrated Design is the approach that NPB currently takes, but getting this on the record seems like a great idea.

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**Questions and Short Answers**  
**Newton Building Design and Construction Guidelines**  
**October 4, 2017**

**Why do this?**

To institutionalize what PBD needs to be doing. Articulate PBD and DRC goals and expectations. Create medium for learning and doing best practices.

**Why do it now?**

Newton expects more new construction in coming years. Facilitates policy of continual improvement. Leverage the knowledge we have gained through our recent design and construction experience.

**How realistic is this?**

Is realistic; Newton PBD is already heading in this direction.

**What will it change?**

It will change the designer selection process, and RFQs and Contracts with designers. Encourages design teams to focus on issues we've determined to be important. Establishes the practice of "re-commissioning" after three years of occupancy.

**What are the barriers to implementing this?**

Long-standing industry design and construction practices.

**What is it committing Newton to?**

Implement smarter design. Commits to a process for learning from Newton's design and construction experience.

**How will this impact Newton's costs?**

Reduces operating and maintenance costs.

May add to designer costs of initial analyses, with expected reductions in design development costs.

Short term, construction costs may go up or down depending on each building's circumstances. (Recent PBD experience is that it has reduced construction costs.)

Reduces overall long term costs of constructing and operating Newton's public buildings.