



**NEWTON
CONSERVATORS**

F A L L I S S U E

NEWSLETTER

Newton's land trust working to preserve open space since 1961

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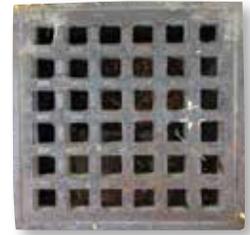
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Water Underground

By Alderman Deborah Crossley



Over the past two years, Newton has accomplished a lot of good work that you cannot see.

That is, the city has been steadily and planfully investing in restoring our sewer and water systems. This year we have set our sights on restoring the stormwater system – that vast network of catch basins, main drains, open streams and culverts that are there to keep our neighborhoods and village centers above water.

Many Conservators are aware that Newton's stormwater system is in need of much repair, that heavy rainstorms cause periodic flooding in some areas around the city, and, as well, that new state requirements are forthcoming that will exact more stringent standards of water quality where our storm water discharges into the environment. Many have observed that the level of system maintenance is inadequate to keep the existing vast network of catchbasins and pipes clean and well functioning.

Neither flooding nor pollution are acceptable outcomes: we want a plan that will bring us to an effective and reliable stormwater management system for the city that will have the least impact on the environment.

When I last wrote to the Conservators in late 2012, (www.newtonconservators.org/storm_water.htm), the city had only begun to implement the strategic plan to restore Newton's sewer and water systems, adopted and funded with the July 2012 (FY13) budget. We drew big plans and they are fully underway.

In fact we have accelerated the sewer restoration work to put the city on track to complete that work in ten, rather than eleven, years. This is the work to clean, line and repair – and occasionally replace – the public sewer mains and manholes in ten Project Areas comprising the entire city.

Remember, work to repair our leaky sewer system is essential and important to keeping our groundwater and stormwater outflows clean. In particular, over a century ago about 70 miles of Newton's sewer mains were installed over underdrains designed to remove water from utility trenches and to divert the natural ground water to allow for development. These are being systematically disconnected and sealed off from the sewer mains as we restore each section of the sewer system. In addition to restoring capacity to the system, cleaning and lining of pipes to remove infiltration (ground water seeping



...Water Underground continued from page 1

into pipes) keeps the City from having to pay to process that ground water with the rest of our sewage. It also eliminates leaching of wastewater contaminants from those pipes into the ground.

So, sewer work is going forward according to plan, and we are beginning to reap the benefits of reducing the amount of clean water Newton pays to process at Deer Island. Weston & Sampson have been engineering solutions and overseeing construction operations; our assertive long-range planning has been recognized by the MWRA; and, in addition, Newton is in line for some significant additional monies in new MWRA grant/loan programs that will be ready to use starting July 2015 (FY16).

STORMWATER ASSESSMENT

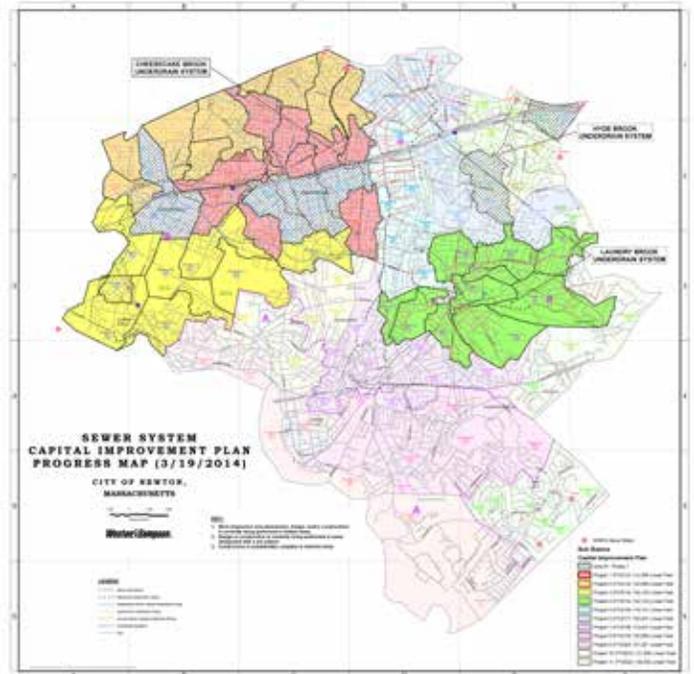
Our stormwater system required further investigation before we could begin to understand the scope of work ahead. The information we had was incomplete and not organized in a useful way.

After interviewing several firms, the project to conduct a citywide stormwater system assessment and develop a Stormwater Infrastructure Improvement Plan (SIIP) was awarded to Weston & Sampson engineers. They hit the ground running, completing all of the field investigation and assimilation of data over the spring and summer. In addition, they have drafted criteria we can use to prioritize the work, which we are reviewing in light of how much work the city can fund and manage in the short and longer term.

So what have we learned to date?

Remember that Newton's stormwater system comprises a vast network of interconnected parts, pieced together over a century of development on land that was once laced with open waterways. The water is, of course, still there, but has been engineered to get it 'out of the way' of our homes and neighborhoods. It is captured via over 12,750 catch basins that have to be kept clean and funneled through about 320 miles of main drains, walled open stream beds and underground culverts.

Engineers walked over 14 miles of stream beds, photographed debris, sediment, etc., identified all 200+ interior inlets and outfalls (to and from culverts), noting conditions. We can now complete the map of the entire system, both above and below ground. They identified and mapped ten flood prone areas around the city. In each case, the problem is defined, visible conditions measured and photographed (such as sediment and debris in open stream beds and culverts), a scope of work anticipated – and needed information identified. It is a comprehensive investigation, sufficient to bring us to the strategic planning stage.



Newton Sewer System Progress Map

What is the nature of the work that is indicated?

There are many repairs to be made to improve the conditions of system elements. We can see crumbling outfalls, spalled concrete, undermined masonry walls fallen into confined stream beds, sediment deposits and debris. There will certainly be some pipe replacements needed. Another way to look at initial projects, however, would be to address a range of repairs specific to resolving problem areas--particularly in flood prone areas. Repairs to improve capacity via increased on-site absorption may as well involve naturalizing certain areas, such as has been proposed for Cheesecake Brook.

Over the next few months, our consultants will be working with city staff from both public utilities and environmental engineering to help us evaluate and to prioritize the work over a period of time, according to relative levels of urgency. The City is planning to incorporate work into next years' capital improvement plan and budget. We are on track to have a plan by the end of the calendar year and to present it to the Board of Aldermen early in the new year.

Which brings us to a big question: How do we pay for this additional work?

Newton was among the first Massachusetts communities to establish a stormwater utility fund. We each pay a flat fee into this fund every quarter – and have been for many years. Residents pay \$25/year, and commercial businesses pay \$150/year. The fund accrues about \$750,000 annually,

but this is not sufficient to cover more than adequate maintenance, operations and small repairs. There is little left over for capital work.

We hope to implement a stormwater fee that is based on impervious area, a proposal first made a few years ago. The goal is to generate sufficient funds to do the capital work and as well as funding a maintenance program that protects our investment.

Using a typical residential property as a base unit (and they are remarkably consistent), commercial rates would vary according to the amount of impervious area they own. So restructured, the corner barber shop would pay a nominal fee, but a mall with a huge parking lot would pay many more times that fee.

What can you do? Stay tuned.

Both the League of Women Voters' Environmental committee, the new Green Decade Water committee and many members of the Newton Conservators have been following our work, including several who have related expertise. We welcome your input. This fall and winter, there will be several meetings of the Board of Aldermen to discuss the stormwater work to and consider rates and the funding plan.

Although many of the participants have changed, the Water-Sewer-Stormwater (WSS) working group continues to meet regularly to review progress and further our goals. Alderman Fuller and I provide updates to the Board of Aldermen several times a year in the Board Friday packet. ■

Wilderness Act Turns Fifty

The Wilderness Act was signed by President Lyndon Johnson fifty years ago—on September 3, 1964. That act set created 54 wilderness areas, a total of 9.1 million acres of land.

The act defined a wilderness as “an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain.”

In the past fifty years, the extent of the protected wilderness has grown to 750 areas and 110 million acres (approximately 5% of the land in the United States), and thirty additional areas await the approval of Congress. In an article on Huffingtonpost.com, Senator Edward Markey points out that areas such as Georges Bank, the Arctic National Wildlife Refuge and the Red Rock wilderness in Utah are yet to be protected.

What was not foreseen in 1964 is the way that humans would affect those wilderness areas through climate change, leading to a marked increase in invasive plant species, a change in water patterns from decreased snow pack (with more flooding in winter and drought in summer), and the



shift of species of plants and animals and decreased biodiversity as the climate warms. Those issues may well lead us to reconsider the current hands-off management approach—not only to wilderness tracts but also to our local conservation lands

For more on the current state of the wilderness in our country, see Senator Markey's thoughts about how we can do more to protect the wilderness at http://www.huffingtonpost.com/rep-ed-markey/from-walden-pond-to-wilde_b_5759694.html.

There is an interesting and well-researched overview of how climate change is likely to affect those areas at www.fs.usda.gov/ccrc/topics/wilderness.

Ron Meador at MinnPost provides an interesting overview of writing on the wilderness at www.minnpost.com/earth-journal/2014/09/happy-50th-wilderness-act-excerpts-weeks-best-coverage. ■

Beth Wilkinson