

CITY OF NEWTON

IN BOARD OF ALDERMEN

PUBLIC FACILITIES COMMITTEE REPORT

WEDNESDAY, JANUARY 4, 2012

Present: Ald. Salvucci (Chairman), Lennon, Albright, Crossley, Danberg, Laredo and Lappin

Absent: Ald. Gentile

Also present: Ald. Fuller

City staff: Josh Morse (Facilities and Operations Supervisor; Public Buildings Department), Stephanie Gilman (Public Buildings Commissioner), Michael Cronin (Director of Operations; School Department), Fred Russell (Utilities Director; Department of Public Works), Dave Turocy (Commissioner of Public Works) and Robert Rooney (Chief Operating Officer)

REFERRED TO PUBLIC FACILITIES AND FINANCE COMMITTEES

#380-11 **HIS HONOR THE MAYOR** requesting authorization to appropriate and expend the sum of four hundred eighty-five thousand dollars (\$485,000) from bonded indebtedness for the purpose of funding masonry repairs at various schools.
[10/31/11 @ 2:48 PM]

ACTION: **APPROVED 7-0**

NOTE: The Public Buildings Department staff provided the attached breakdown of the cost and location of the masonry repairs at various schools. The breakdown includes a summary of the proposed repairs at four school buildings and cost estimates for each of the projects. The total cost of the proposed repairs is \$485,000. The projects are multi-phased projects and are at different levels of completion. The Public Buildings Department is proposing comprehensive masonry repairs at these locations instead of addressing individual problems as they become emergent. The Public Buildings Department is using McGinley, Kalsow and Associates, historic and envelope specialists, to design the masonry projects.

The proposed masonry repairs at Ward Elementary School will address the worst areas of deteriorating brickwork. The estimated cost of the repairs is \$250,000, which will make the building envelope much tighter and eliminate water infiltration. Once the water infiltration is addressed, Public Buildings Department can begin to focus on interior maintenance issues within the building. Additional masonry repairs at this school are included in the FY2013 and FY2014 Capital Improvement Plans.

There are several areas in the Bowen Elementary School where water infiltration is causing damage to classrooms. There are also building envelope cracks at the stairs, foundation, and ramps. All of the problems are located in the older portion of the school. The Public Buildings Department is taking a phased approach to the needed repairs. The first step is to investigate and identify where the water infiltration is occurring. The docket item request includes \$25,000 for design to address the necessary preservation of the building envelope. Funding for the actual repairs is included in the FY2013 Capital Improvement Plan, although the repairs may exceed the designated funds.

There is water infiltration at the Underwood Elementary School on the left hand side of the building where the decorative sandstone meets the masonry at the roofline. The water is leaking into the building at a stairway by the gymnasium. The cost to address the issue is estimated to be \$50,000. It is an acute issue and not a systemic problem. There are no other masonry issues at the school, as there has been work on the masonry and windows in the past few years.

A section of brick on the Crafts Street side of the Education Center is bowing and peeling off the building. In addition, there is water infiltration in the building in the area of the Springboard Program, which is located in the far end of the building towards Watertown Street. The estimate for the repair is \$125,000 for design and construction. The repair will prevent further deterioration of the building. The Education Center building is expected to be used by the City for the next several years and the building envelope needs to be protected.

The requested \$485,000 includes \$35,000 for the design of the severely deteriorated exterior stairs at the Bigelow Middle School. The FY2013 Capital improvement Plan includes \$350,000 for the construction of the stairs, which is an estimate. There have been a number of temporary repairs on the stairs over the years but none of those repairs addressed the root cause of the deterioration. There are drainage problems under and behind the stairs and the stairs will continue to deteriorate unless the drainage issues are addressed. The construction portion of the project will be phased and the Public Building Department will work with the school department and other City departments to coordinate the construction of the stairs.

The Public Buildings Department will work with the Purchasing Agent to determine the best procurement method in terms of whether to bid out the masonry repair projects as a whole or individually. The Committee requested that the Public Buildings Department provide drawings for the projects that display the scope of the work at each school. With that, Ald. Lappin moved approval of the request, which carried unanimously.

REFERRED TO PUBLIC FACILITIES AND FINANCE COMMITTEES

#379-11 HIS HONOR THE MAYOR requesting authorization to appropriate and expend the sum of four hundred fifty thousand dollars (\$450,000) from bonded indebtedness for the purpose of funding mechanical upgrades at various schools.
[10/31/11 @ 2:48 PM]

ACTION: **APPROVED 6-0 (Danberg not voting)**

NOTE: The requested \$450,000 will be used to replace two boilers: one at the Mason Rice Elementary School and one at the Lincoln Eliot Elementary School. The cost and summary of each replacement is attached. There are two 59-year-old boilers at the Mason Rice School, which both work but one has three failed sections and needs to be replaced. The new boiler will be more efficient and should function for at least the next 25 years.

There are two boilers at the Lincoln Eliot that function but one of the boilers has failed mud drums and is leaking badly making it unreliable. The new boiler will provide the school with a reliable, efficient, and fully functional boiler for many years to come.

The replacement costs for each school is \$225,000 and includes burners, lines, insulation, design, and other related boiler replacement costs. Both replacement projects include providing the school with natural gas service, if it is feasible. The cost of the Mason Rice asbestos abatement is much lower as the boiler room was already abated; however, the cost for equipment is slightly higher at Mason Rice due to larger size of that school. The projects should be designed in late February or early March, sent out to bid in mid to late March and construction should begin in late spring.

There is an annual maintenance contract in place for the boilers throughout the City. In addition, the Public Buildings Department is working with the custodial staff to identify problems with boilers before they do significant damage to the heating system. With that, Ald. Lappin moved approval, which carried unanimously.

REFERRED TO PUBLIC FACILITIES AND FINANCE COMMITTEES

#378-11 **HIS HONOR THE MAYOR** requesting authorization to appropriate and expend the sum of three hundred fifteen thousand dollars (\$315,000) from bonded indebtedness for the purpose of funding the emergency generator upgrades at various schools. [10/31/11 @ 2:48 PM]

ACTION: **APPROVED 6-0 (Danberg not voting)**

NOTE: The request for \$315,000 includes \$150,000 for additional funding for the emergency generator replacement at the Education Center, \$65,000 for a generator at the Burr Elementary School, and \$100,000 for a generator at the Bigelow Middle School. A summary of each project and breakdown of the costs is attached.

Supplemental funds are required for the emergency generator at the Education Center because of changes in the life-safety code requirements for emergency generators. The school has inadequate emergency power systems, which need to be upgraded along with the generator replacement. The Education Center is the communication center for the School Department, which means it must have backup power to continue with all of its operations during a power failure.

The Public Buildings Department has met with Fire Department and Inspectional Services to determine what buildings require full backup emergency generators. It was determined that the Burr Elementary School and Bigelow Middle School do not require emergency generators but generators that provide enough power to ensure that people can safely exit the building during a power outage. The cost of generators drops significantly if they are not required to provide backup power in case of an outage. Ald. Albright moved approval of the item, which carried by a vote of six in favor, none opposed, and Ald. Danberg not voting.

REFERRED TO PUBLIC FACILITIES AND FINANCE COMMITTEES

#377-11 **HIS HONOR THE MAYOR** requesting authorization to appropriate and expend the sum of two hundred thousand dollars (\$200,000) from bonded indebtedness for the purpose of funding electrical upgrades in various schools. [10/31/11 @ 2:48 PM]

ACTION: **APPROVED 6-0 (Danberg not voting)**

NOTE: The electrical infrastructure at the Countryside, Memorial Spaulding, and Franklin Elementary School needs to be addressed. The Public Buildings Department provided the attached information on the projects. There is water infiltration around the electrical panels, failing electrical panels, failing junction boxes and other electrical components that are outdated and should be upgraded at the Countryside School. In addition, the work will include the installation of an alarm system to alert the custodians if there is a flooding issue in the boiler room. The estimated cost of the work at Countryside School is \$70,000.

The electrical upgrades at the Memorial Spaulding School include replacement of failing electrical panels, new junction boxes, and upgrades to other electrical components. As the infrastructure at the school has expanded, the electrical demand has increased. Therefore, the electrical loads need to be balanced at the electrical panels throughout the school. The cost of the work at the Memorial Spaulding is estimated to cost \$40,000.

The Franklin School is almost at electrical capacity. In order to provide more electricity the electrical service may need to be increased unless it is possible to balance the load on the electrical panels. The Franklin School will also receive new electrical panels, new junction boxes, and improved electrical components as part of this project. The Franklin School upgrades are expected to cost \$70,000.

These electrical upgrades will provide safer electrical systems at these schools. The costs may increase but the estimates are in the area of the real costs. Ald. Lappin moved approval, which carried unanimously.

#385-07 ALD. SCHNIPPER AND GENTILE updating the Public Facilities Committee on the progress of the Newton North High School Project. [11/21/07 @ 10:23 AM]

ACTION: **HELD 6-0 (Danberg not voting)**

NOTE: The item was held without discussion, as Ald. Gentile was unavailable to provide an update.

#208-08 ALD. GENTILE, SANGIOLO, SALVUCCI AND SCHNIPPER requesting a discussion on establishing a permanent Building Committee in the City of Newton. [05/16/08 @ 11:47 AM]

ACTION: **NO ACTION NECESSARY 6-0 (Danberg not voting)**

NOTE: See below note.

#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]

ACTION: **HELD 6-0 (Danberg not voting) AS AMENDED TO INCLUDE ITEM F**

NOTE: The Mayor recently established a committee to look at amending the City's Ordinance 5-58 related to the Site Plan Approval process. As part of that committee's work, they will look at the new Massachusetts School Building Authority's (MSBA) requirement that all cities and towns appoint a building committee to provide oversight for school building construction or renovation before applying for MSBA funding. They will also investigate the possibility of establishing a Building Committee for all building construction and renovation.

The Public Facilities Committee members opted to amend the above docket item by adding the following language: (f) establishment of a committee to provide oversight for public building construction and renovation during all phases of planning, design, and construction. The new language negates the need for Docket Item #208-08; therefore, the item was voted no action necessary.

The Public Facilities Committee also requested that the Executive Department provide the charge of the new committee and any other newly established committee to the Board of Aldermen. With that, the Committee voted unanimously to support a motion of hold on the amended item.

REFERRED TO PUBLIC SAFETY & PUBLIC FACILITIES COMMITTEES

#152-06 **PS&T COMMITTEE** requesting discussion re Road Classification Design Types (as outlined by the Planning and Development Department) for future use as an overall management tool for the City.

PS&T APPROVED 8-0 on 10/18/06

ACTION: **NO ACTION NECESSARY 6-0 (Danberg not voting)**

NOTE: The Transportation Advisory Committee is in the process of reviewing and amending the proposed road classification design types. It is expected that the Transportation Advisory Committee will present a new version of the road classification design types in the future. The Committee felt that the above item should be voted no action necessary and a new docket item created when the road classification design revisions were ready to be reviewed by the Board of Aldermen.

Chairman's Note: The Committee received a presentation on the water, sewer, and stormwater system capital needs, which is attached. The presentation served as a preview to a larger presentation to the Board of Aldermen in the near future. A committee was formed to look at water, sewer, and stormwater system capital needs. The Committee met weekly through November 2011 and the presentation is a result of their work.

The sewer infrastructure improvements are needed to reduce infiltration and inflow into the sewer system, reduce sewer back-ups and overflows. The City will also benefit, as the Massachusetts Water Resource Authority (MWRA) assessments will be reduced, as a result of the reduction of infiltration and inflow. It is estimated that approximately 60% of the sewerage treated by the MWRA is a result of inflow and infiltration. The City will work to address the public portion of the inflow and infiltration sources through improvements to the sewer system. Capital improvements will also improve the sewer system performance and reduce emergency repairs.

The water system improvements would include piping improvement projects, rectifying deficiencies in fire flow, analysis of the City's storage and supply requirement as they relate to water tanks and a program to maintain the system. Improvements to the stormwater system include an evaluation of the current stormwater fee, development of plans to address phosphorous control and pollution prevention as required by new Environmental Protection permitting requirements, an updated management plan, and a maintenance program.

Respectfully submitted,

Anthony J. Salvucci, Chairman

School Building Masonry Repairs \$485,000

- **Ward School Masonry Repairs**, will address the worst areas of deteriorated brickwork that have active leaks. This is the first phase of a multi-phase masonry project. This project has been designed, and these funds will be to continue with the second phase of repairs.
- **Bowen School Masonry Repairs**, will investigated and repair general building envelope cracks at the foundation, stairs and ramps. Funding is for destructive testing in FY2012. Funding for the remediation work will be in FY2013.
- **Ed Center and Underwood School Masonry Repairs**, is for general masonry repairs to prevent further deterioration or unsafe conditions.
- **Bigelow Main Entrance Stair Design**, is for the design of a comprehensive repair to the failing stairs. This will address the drainage behind and beneath the stairs which is the root cause of the failure.

Ward: \$250,000.00(construction)

Bowen: \$25,000.00(design only)

Ed Center: \$125,000.00(design and construction)

Underwood: \$50,000.00(design and construction)

Bigelow: \$35,000.00(design and construction)

Total: \$485,000.00

These cost estimates are based on scope, square foot costs, and costs of previous similar projects. Design is assumed to make up 10% of the project cost, contingency is built in at 5%.

School Building Mechanical Upgrades \$450,000

Mason Rice has 2 boilers that are 59 years old. They are both functional, but one of them has multiple failed sections, and needs to be replaced. This boiler room was abated previously, so there will be very minimal asbestos abatement.

Asbestos Abatement: \$1000.00
Environmentalist: \$250.00
Boiler: \$140,000.00
Condensate Pumps and Tank: \$15,000.00
Burner and Lines: \$25,000.00
Insulation: \$15,000.00
Design: \$18,750.00
Contingency: \$10,000.00

Total: \$225,000.00

Lincoln Elliot has 2 boilers that are 46 years old. They are both functional, but one of the boilers has failed mud drums, and is leaking badly. Additionally it has become more and more unreliable over the past few years.

Asbestos Abatement: \$10,000.00
Environmentalist: \$2000.00
Boiler: \$136,750.00
Condensate Pumps and Tank: \$12,500.00
Burner and Lines: \$25,000.00
Insulation: \$10,000.00
Design: \$18,750.00
Contingency: \$10,000.00

Total: \$225,000.00

These cost estimates are based on previous boiler replacement projects.

Emergency generator replacement and life safety improvements \$315,000.00

Education Center emergency generator replacement, is the additional funding required to complete the project. The cost estimate as provided by RDK Engineers breaks out all of the costs associated with this work. The additional cost is a result of the life safety code requirements that now need to be met due to the work being performed. The Education Center is the central hub for IT and communications for the school department, and therefore needs to have not only emergency power, but also backup power. This will allow operations to continue in the event of inclement weather or prolonged power outages. This project will replace the emergency generator and transfer switch, as well as pull in additional key loads to the emergency power system. We will also be addressing the lack of emergency lighting, and exit signs throughout the building, all of which are required by building code.

\$150,000.00

For breakdown, please see the attached cost estimate from RDK Engineers.

Burr emergency generator replacement and life safety improvements, is the replacement of the existing generator which is greater than 50 years old, as well as life safety improvements throughout the school.

Design: \$6,500.00

Generator and transfer switch: \$36,750.00

Exit signs and emergency lights: \$18,500.00

Contingency: \$3,250.00

Total: \$65,000.00

Bigelow emergency generator replacement and life safety improvements, is the replacement of the existing generator which is greater than 50 years old, as well as life safety improvements throughout the school.

Design: \$10,000.00

Generator and transfer switch: \$45,000.00

Exit signs and emergency lights: \$40,000.00

Contingency: \$5,000.00

Total: \$100,000.00

Grand Total: \$315,000.00

These cost estimates are based on recent similar projects.

Electrical Upgrades at Various Schools \$200,000.00

Electrical Upgrades at Various Schools \$200,000.00

Countryside Electrical Upgrades, this project will replace failing electrical panels, junction boxes, and other outdated electrical components. This will also seal the penetrations where water is entering and leading to detrimental conditions.

Memorial Spaulding Electrical Upgrades, this project will replace failing electrical panels, junction boxes, and other outdated electrical components.

Franklin Electrical Upgrades, this project will replace failing electrical panels, junction boxes, and other outdated electrical components. We will also address load imbalances which may include an electrical service upgrade.

Countryside: \$70,000.00

Memorial Spaulding: \$40,000.00

Franklin: \$70,000.00

Design: \$20,000.00

Total: \$200,000.00

These cost estimates are based on previous electrical upgrades and known issues at each school. In many cases this work will be replacing existing equipment, therefore design may be minimal. Additionally this work is widespread, but relatively small, so we may utilize our electrical service contractor for some of this work.

Water, Sewer and Stormwater
System Capital Needs
Overview
January 2012

Sewer System

Sewer Infrastructure Needs

- Infiltration and Inflow (I/I)
- Eliminate Sanitary Sewer Overflows
- Reduce Sewer Back-ups
- Update Aging Infrastructure

Infiltration and Inflow

- What it is—
- Infiltration is groundwater that enters the sewer system through damaged infrastructure
- Inflow is rainwater that enters the sewer system through improperly connected piping or damaged infrastructure

MWRA estimates of Newton I/I (2010)

03-Jun-11

TABLE 2 - 2010 MWRA COMMUNITY WASTEWATER FLOW COMPONENT ESTIMATES (CY10-12 MONTHS)

| COMMUNITY | A Community Demographics | | C No. of Connects to MWRA System | | D Miles of Local Sewers (3) | | E No. of Meters for Permanent System | | 2010 Averages (1) | | | Components of Average Daily Flow (Estimated) (2) | | | | | | O Peak Month ADF (MGD) | | P Percent Peak Month ADF (6) | |
|------------------------|--------------------------|--------------------|----------------------------------|--------------|-----------------------------|---------------|--------------------------------------|---------------|--------------------------|--------------------------------|----------------------------|--|---|-----------------------------|-------------------------------------|----------------------|-----------------------------------|------------------------|----------------------------|------------------------------|---|
| | Population | Sewered Population | System | Meters | Meters | Meters | Meters | Meters | Average Daily Flow (MGD) | Percent Average Daily Flow (6) | Selected Dry Day ADF (MGD) | Infiltration Daily Average (MGD) | Infiltration As % of Average Daily Flow | Average Sanitary Flow (MGD) | Sanitary As % of Average Daily Flow | Average Inflow (MGD) | Inflow As % of Average Daily Flow | Peak Month ADF (MGD) | Percent Peak Month ADF (6) | | |
| | | | | | | | | | | | | | | | | | | | | F | G |
| Arlington | 41,144 | 40,733 | 321 | 106 | 7 | 5.40 | 1.61% | 4.42 | 1.82 | 33.7% | 2.60 | 48.1% | 0.98 | 18.1% | 13.00 | 1.87% | | | | | |
| Ashland | 15,796 | 11,847 | 2 | 66 | 2 | 1.26 | 0.37% | 1.14 | 0.34 | 27.0% | 0.80 | 63.5% | 0.12 | 9.5% | 2.20 | 0.32% | | | | | |
| Bedford | 13,146 | 12,357 | 2 | 78 | 2 | 2.64 | 0.79% | 2.39 | 1.09 | 41.3% | 1.30 | 49.2% | 0.25 | 9.5% | 5.42 | 0.78% | | | | | |
| Belmont | 23,356 | 22,912 | 2 | 78 | 2 | 3.60 | 1.07% | 2.86 | 1.26 | 35.0% | 1.60 | 44.4% | 0.74 | 20.6% | 8.92 | 1.29% | | | | | |
| BWSC (5) | 608,352 | 607,744 | 234 | 858 | 33 | 98.35 | 29.25% | 79.87 | 21.87 | 22.2% | 58.00 | 59.0% | 18.48 | 18.8% | 170.88 | 24.64% | | | | | |
| Braintree | 34,422 | 34,388 | 15 | 140 | 7 | 6.27 | 1.86% | 5.56 | 2.16 | 37.6% | 3.20 | 51.0% | 0.71 | 11.3% | 11.33 | 1.63% | | | | | |
| Brookline (5) | 54,809 | 54,699 | 9 | 111 | 12 | 10.96 | 3.26% | 8.78 | 4.28 | 39.1% | 4.50 | 41.1% | 2.19 | 20.0% | 26.21 | 3.78% | | | | | |
| Burlington | 25,034 | 25,009 | 0 | 115 | 1 | 3.82 | 1.14% | 3.40 | 1.40 | 36.6% | 2.00 | 52.4% | 0.43 | 11.3% | 8.69 | 1.25% | | | | | |
| Cambridge (5) | 101,388 | 101,287 | 116 | 148 | 9 | 17.91 | 5.33% | 13.46 | 2.46 | 13.7% | 11.00 | 61.4% | 4.44 | 24.8% | 30.06 | 4.33% | | | | | |
| Canton | 21,916 | 14,355 | 63 | 62 | 6 | 2.27 | 0.68% | 2.01 | 0.82 | 36.1% | 1.19 | 52.4% | 0.26 | 11.5% | 5.05 | 0.73% | | | | | |
| Chelsea (5) | 38,203 | 38,203 | 40 | 41 | 5 | 5.26 | 1.56% | 4.74 | 2.24 | 23.6% | 2.80 | 53.3% | 0.72 | 23.2% | 8.95 | 1.29% | | | | | |
| Dedham | 24,132 | 22,684 | 25 | 89 | 6 | 3.86 | 1.15% | 3.69 | 1.69 | 35.0% | 1.80 | 46.4% | 0.63 | 18.4% | 10.14 | 1.46% | | | | | |
| Everett | 37,269 | 37,269 | 20 | 57 | 7 | 5.58 | 1.66% | 5.28 | 2.88 | 28.9% | 3.50 | 62.7% | 0.50 | 16.7% | 10.94 | 1.58% | | | | | |
| Frammingham | 64,786 | 59,603 | 4 | 275 | 4 | 7.23 | 2.15% | 6.49 | 3.29 | 45.2% | 2.40 | 33.1% | 1.11 | 15.6% | 16.24 | 2.34% | | | | | |
| Hingham | 7,555 | 6,869 | 1 | 31 | 1 | 1.29 | 0.38% | 1.19 | 0.40 | 31.0% | 0.80 | 63.5% | 0.12 | 9.5% | 3.38 | 0.49% | | | | | |
| Holbrook | 10,663 | 8,991 | 2 | 31 | 2 | 0.83 | 0.25% | 0.77 | 0.30 | 36.3% | 0.50 | 60.8% | 0.07 | 10.8% | 1.60 | 0.23% | | | | | |
| Lexington | 30,332 | 30,211 | 17 | 170 | 4 | 5.83 | 1.73% | 5.28 | 2.52 | 43.2% | 2.40 | 45.1% | 0.72 | 15.6% | 16.24 | 2.34% | | | | | |
| Malden | 55,712 | 55,656 | 242 | 100 | 6 | 9.25 | 2.75% | 8.10 | 3.82 | 33.5% | 5.00 | 54.1% | 1.11 | 12.4% | 16.19 | 2.33% | | | | | |
| Medford | 55,565 | 55,509 | 71 | 113 | 6 | 8.87 | 2.64% | 7.20 | 2.14 | 30.4% | 4.50 | 50.7% | 1.61 | 18.8% | 20.04 | 2.89% | | | | | |
| Melrose | 26,782 | 26,755 | 187 | 74 | 5 | 4.30 | 1.28% | 3.39 | 1.24 | 34.7% | 1.90 | 44.2% | 0.91 | 21.2% | 10.12 | 1.46% | | | | | |
| Milton | 26,272 | 24,433 | 45 | 83 | 14 | 3.79 | 1.13% | 2.92 | 1.52 | 40.1% | 1.40 | 36.9% | 0.87 | 23.0% | 11.05 | 1.59% | | | | | |
| Natick | 31,975 | 27,786 | 27 | 124 | 4 | 2.73 | 0.81% | 2.57 | 0.77 | 28.2% | 1.80 | 65.9% | 0.16 | 4.9% | 3.90 | 0.56% | | | | | |
| Norham | 28,263 | 27,246 | 21 | 131 | 2 | 4.31 | 1.28% | 3.69 | 1.69 | 38.6% | 2.00 | 46.4% | 0.63 | 18.4% | 10.67 | 1.54% | | | | | |
| Newton | 83,271 | 82,022 | 51 | 271 | 7 | 17.72 | 5.27% | 14.69 | 7.69 | 43.4% | 7.00 | 39.5% | 3.03 | 17.1% | 44.01 | 6.35% | | | | | |
| Norwood | 28,172 | 27,665 | 30 | 83 | 6 | 4.77 | 1.42% | 3.91 | 1.51 | 31.6% | 2.40 | 50.3% | 0.86 | 16.0% | 12.36 | 1.78% | | | | | |
| Quincy | 91,622 | 91,613 | 56 | 202 | 6 | 15.29 | 4.55% | 13.15 | 4.65 | 30.4% | 8.50 | 55.6% | 2.14 | 14.0% | 32.81 | 4.73% | | | | | |
| Randolph | 30,168 | 30,138 | 2 | 101 | 2 | 3.64 | 1.08% | 3.11 | 1.11 | 30.5% | 2.00 | 54.9% | 0.53 | 14.6% | 8.55 | 1.23% | | | | | |
| Reading | 23,129 | 22,158 | 2 | 96 | 2 | 3.09 | 0.92% | 2.75 | 1.25 | 40.5% | 1.50 | 48.5% | 0.34 | 11.0% | 7.05 | 1.02% | | | | | |
| Revere | 55,341 | 55,286 | 3 | 78 | 1 | 7.69 | 2.29% | 6.29 | 2.49 | 32.4% | 3.80 | 49.4% | 1.40 | 18.2% | 14.67 | 2.12% | | | | | |
| Somerville (5) | 74,405 | 74,405 | 43 | 128 | 7 | 11.85 | 3.52% | 7.83 | 2.53 | 21.4% | 5.30 | 44.7% | 4.02 | 33.9% | 24.95 | 3.60% | | | | | |
| Stonham | 21,508 | 21,121 | 23 | 63 | 3 | 3.51 | 1.04% | 2.76 | 0.96 | 27.4% | 1.80 | 51.3% | 0.75 | 21.4% | 9.32 | 1.34% | | | | | |
| Stoughton | 26,951 | 17,922 | 1 | 72 | 2 | 3.65 | 1.09% | 3.16 | 1.66 | 45.5% | 1.50 | 41.1% | 0.48 | 13.2% | 8.37 | 1.21% | | | | | |
| Wakefield | 24,706 | 23,965 | 10 | 93 | 2 | 4.68 | 1.39% | 4.01 | 2.31 | 49.4% | 1.70 | 36.3% | 0.67 | 14.3% | 11.96 | 1.72% | | | | | |
| Walpole | 23,086 | 16,391 | 1 | 59 | 2 | 2.30 | 0.68% | 2.02 | 0.82 | 35.7% | 1.20 | 52.2% | 0.27 | 11.7% | 5.05 | 0.73% | | | | | |
| Waltham | 60,325 | 60,265 | 3 | 138 | 3 | 10.40 | 3.09% | 8.92 | 2.92 | 28.1% | 6.00 | 57.7% | 1.49 | 14.3% | 23.31 | 3.36% | | | | | |
| Watertown | 32,521 | 32,521 | 14 | 75 | 3 | 4.11 | 1.22% | 3.49 | 1.19 | 29.0% | 2.30 | 56.0% | 0.62 | 15.1% | 8.79 | 1.27% | | | | | |
| Wellesley | 26,985 | 26,364 | 2 | 130 | 3 | 3.85 | 1.14% | 3.19 | 1.49 | 38.7% | 1.70 | 44.2% | 0.66 | 17.1% | 10.43 | 1.50% | | | | | |
| Westwood | 14,010 | 13,310 | 3 | 77 | 3 | 1.53 | 0.46% | 1.32 | 0.52 | 34.0% | 0.80 | 52.3% | 0.22 | 14.4% | 3.70 | 0.53% | | | | | |
| Weymouth | 53,272 | 51,088 | 17 | 238 | 4 | 8.02 | 2.39% | 6.84 | 3.14 | 39.2% | 3.70 | 46.1% | 1.18 | 14.7% | 18.46 | 2.66% | | | | | |
| Wilmington | 21,679 | 4,032 | 2 | 20 | 1 | 1.49 | 0.44% | 1.29 | 0.49 | 32.9% | 0.80 | 53.7% | 0.20 | 13.4% | 3.39 | 0.49% | | | | | |
| Winchester | 21,137 | 21,116 | 72 | 83 | 7 | 2.48 | 0.74% | 2.08 | 0.98 | 39.5% | 1.10 | 44.4% | 0.40 | 16.1% | 5.75 | 0.83% | | | | | |
| Winthrop | 20,154 | 20,154 | 21 | 36 | 6 | 2.43 | 0.72% | 2.03 | 1.03 | 42.4% | 1.00 | 41.2% | 0.40 | 16.5% | 4.67 | 0.67% | | | | | |
| Woburn | 37,042 | 35,190 | 18 | 141 | 13 | 8.13 | 2.42% | 7.13 | 2.63 | 32.3% | 4.50 | 55.4% | 1.00 | 12.3% | 16.42 | 2.37% | | | | | |
| Totals/Averages | 2,146,356 | 2,073,272 | 1,840 | 5,265 | 234 | 336.25 | 100.00% | 276.69 | 99.40 | 29.6% | 177.29 | 52.7% | 59.58 | 17.7% | 693.53 | 100.0% | | | | | |

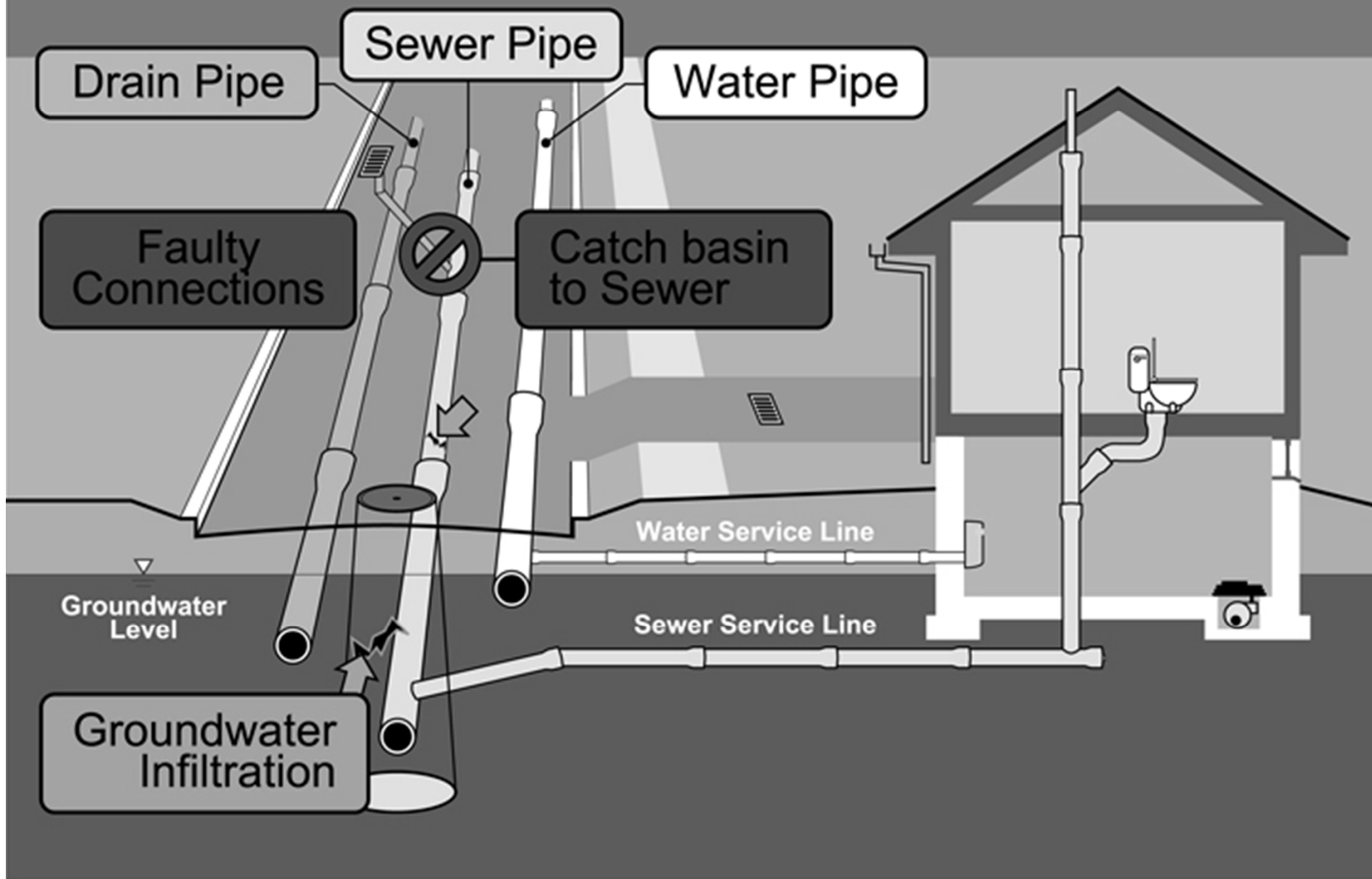
43.4% INFILTRATION
17.1% INFLOW

Column Summations: Average Daily Flow (ADF) Column F = I+K+M Average Dry Day Flow Column H = I+K

FOOTNOTES:

- (1) Figures tabulated using data from the MWRA Wastewater Metering System for Calendar Year 2010.
- (2) Wastewater flow components are estimated through engineering analysis by MWRA staff.
- (3) Miles of Local Sewers are from MWRA's regional collection system database or as reported by the Community and do not include service laterals.
- (4) Average Daily Inflow is calculated as a total inflow over the period of January through December 2010 divided by 365 days. Actual inflow during a specific storm event must be calculated separately.
- (5) Community with combined sewers. Inflow figures include combined flow during storm events tributary to MWRA's WWTP.
- (6) Percent average Daily Flow and Percent Peak Month ADF are the two flow-based components of MWRA's Wholesale Sewer Rate Methodology.

Public Infiltration/Inflow Sources



Capital Improvement Program (Sewer)

- Remove Public Infiltration/Inflow Sources
- Improve Sewer System Performance
- Reduce Costly Emergency Repairs
- Update Aging Infrastructure
- Mitigate MWRA Rate Increases
- Reduce Energy Consumption

Data Collection to Prioritize Future Sewer Investment

- MWRA Flow Meter Data
- Underdrain Areas
- Pipe Material & Age
- Operation & Maintenance Problem Areas

Investment Benefits

- Reduced Sanitary Sewer Overflows
- Rehabilitate Aging Sewer Infrastructure
 - Reduce more costly future repairs
 - Reduce emergency/reactive maintenance
 - Improve sewer service to residents
- Reduce Infiltration and Inflow
- Reduce MWRA Assessments

Water System

Background info

- Approximately 318 miles of water main.
- Approximately 165 miles of unlined cast iron pipe.
- Newton consumes approximately 10 MGD on average.
- Oldest pipes still in service from 1876.
- Pipe sizes range from 2" to 20" diameter.

Identifying Needs: Water Distribution Model

- Review any growth/water demand impacts
- Identify benefits from past piping improvement projects
- Identify deficiencies in fire flows
- Consider storage/supply requirements
- Identify long-term capital program to maintain water system

Capital Improvement Plan (Water)

- ISO (fire flow) and capacity of piping.
- Lining of unlined cast iron pipe.
- Water storage tank needs analysis
- Coordination with roadwork

Stormwater system

Background info

- Approximately 320 miles of drain pipe.
- Approximately 12,750 catch basins.
- Stormwater fee established in 2006
 - \$25 residential; \$150 commercial
- 155 major outfalls.
- Approximately 7 miles of streams.

Identifying Needs:

- Reevaluate Stormwater Fee structure.
- Next cycle of NPDES MS4 Permit requires development of Phosphorous Control Plan and Stormwater Pollution Prevention Plan for municipal properties.
- Update Stormwater Management Plan.
- Identify long-term capital program to maintain drain system

Thank You!