



## Public Facilities Committee Report

### City of Newton In City Council

**Wednesday, February 19, 2020**

Present: Councilors Leary (Chair), Kelley, Crossley, Norton, Kalis and Gentile

Absent: Councilors Danberg and Laredo

City Staff Present: Chief Operating Officer Jonathan Yeo, Department of Public Works Chief of Staff Shawna Sullivan, Commissioner of Public Works Jim McGonagle, City Engineer Lou Taverna, Director of Utilities Ted Jerdee, Deputy Utilities Director Doug Valovcin and Environmental Engineer Maria Rose

**#117-20      Acceptance of a sewer extension and easement on Farwell Street**

HER HONOR THE MAYOR requesting the acceptance of 40 linear feet of sewer pipe as a public sewer and the acceptance of a 20' x 40' easement in property known as the Farwell Street Subdivision (Ward 3). The developer shall pay all costs associated with the construction of the sewer pipe and the direct connection to the MWRA trunk interceptor sewer line.

**Action:**      Public Facilities Held 6-0, Public Hearing Continued

**Note:**      Jim McGonagle, Commissioner of Public Works presented the request to hold item #117-20. Commissioner McGonagle explained that there needs to be changes to the language on the Council Order and the Public Works Department will be working with the Law Department on these changes. The changes will need to specify that the Homeowners Association will be accountable for the maintenance of the sewer pipe. Lou Taverna, City Engineer, explained that there are three pipes in question, which are the trunk interceptor (owned and operated by the MWRA), the proposed 40' sewer pipe from the development to the MWRA trunk interceptor (proposed to be owned and operated by the City of Newton) and the small interceptor pipe and the lateral pipes that connect to the proposed six houses (proposed to be owned and operated by the Homeowners Association). Additionally, Mr. Taverna explained that the MWRA is requiring that the City of Newton own the proposed 40' of sewer pipe and the connection to the MWRA trunk interceptor. Commissioner McGonagle explained that the City needs to own the proposed 40' of pipe for the purpose of doing work if the City ever needs to do repairs in that area.

The committee asked the following questions:

Q: Will the language state that even though the City of Newton will own the proposed 40' of sewer pipe, the Homeowner's Association will be responsible for reimbursing the City for the maintenance of the proposed pipe?

A: Mr. Taverna explained that they will be discussing this with the Law Department to get that language into the Council Order.

Q: Why is the Turtle Lane LLC signing off as being responsible in the constructing and the maintenance of the sewer main extension?

A: Commissioner McGonagle explained that as of now they are the Homeowner's Association because there are no houses at the property. Turtle Lane LLC is the owner of the subdivision.

The committee made the following comments.

Turtle Land LLC could be dissolved at any time, which makes it important that there is language that would state the Turtle Lane LLC is serving currently as the Homeowner's Association.

Mr. Taverna explained that the Board of Survey who approved this subdivision has been granted a covenant to cover all the costs of building the roadway and the infrastructure. If the developer leaves tomorrow, then the City has the covenant on the property and could develop on the Farwell Street Subdivision.

The committee will be shown a draft council order.

The public hearing was opened and continued.

Councilor Danberg motioned to hold item #117-20 which passed unanimously.

**Chairs Note:** *The Public Works Department updated the committee on projects in the Water, Sewer and Stormwater Divisions.*

**Note:** Director of Utilities Ted Jerdee presented the attached presentation on projects in the Water, Sewer and Stormwater Divisions.

### **Sewer Capital Improvement Program**

Mr. Jerdee explained that there are 11 project areas and the City is currently going out to bid on area 7. The program development and the configuration of the sewer system is outlined in the attached presentation. Regarding Inflow & Infiltration (I&I) projects, Mr. Jerdee explained where department is for the inspection and assessment phase, which is where the department preforms flow monitoring and tv work. Once it is assessed, a design is put together and construction plans and specs are put out to bid. The following year, after the construction is completed, there is post

flow monitoring to see how much infiltration has been removed from the system. Mr. Jerdee explained what the status is for the 11 projects in inspection and assessment and rehabilitation phases.

Additionally, Mr. Jerdee explained that an underdrain is a perforated pipe that was installed under a sewer during construction to dewater the trench and lower the groundwater table. The underdrains were daylighted out to a stream into a storm drain system. Then the underdrains were back filled, and the sewer was laid on top of it. At manholes, there would be an access port for the underdrain to clean it out. The underdrain is a porous pipe, which means eventually there was exfiltration of sewer or infiltration of water. There was a cross connection between the underdrain carrying groundwater and a sewer carrying wastewater, so there was contamination in the streams. In the 70s or 80s the underdrains that daylighted out to the streams were plugged so then when the high ground water came up the underdrain ports that where in the sewer manholes were infiltrating groundwater into the sewer, which causes capacity issues. The point of the I&I program is to put the system back together. The underdrain access ports are being capped and the sewers and manholes are being lined, which will create a tight sewer system.

Mr. Jerdee explained in FY19 the City hired a firm to come in to look at the condition of the City's pump stations, and overall the condition was good for the age that they are. The electrical and mechanical components have a life span of 40 years and currently the stations are 30 years old. The firm provided recommendations, prioritized lists of projects to meet regulatory standards, best practices and developed budgetary costs for each project. The final report should be out in a month, which could lead to a 10-year plan.

Additionally, Mr. Jerdee explained that the department looked at the unsewered areas in the City, which is shown in the attached presentation. The information given came from records from the Health Department.

Mr. Jerdee additionally explained the Fats, Oils & Grease Program as it interacts with the Sewer Program. The results to date are explained in the attached presentation. The City will be moving towards working in the Upper Falls, Highlands, Waban and part of Oak Hill areas after completing Newton Center. Additionally, Mr. Jerdee explained that all the wastewater from those areas flow into the Quinobequin Pump Station and the City has spent approximately \$20,000 on cleaning out the wet well from grease. The City ordinance states that the discharge limit is 100 mg per liter and anything larger than that the City can fine the business. Mr. Jerdee explained that they regularly pull samples from different areas to test the grease levels and explained that the businesses have been cooperating with cleaning to cause less back-ups.

The committee asked the following questions regarding the Sewer Capital Improvement Program.

Q: Why is the condition of the pipes worse in southern areas of the City but the City was not experiencing a higher level of I&I in those areas?

A: Mr. Jerdee explained that the soil conditions are a factor and are poor in those areas. Additionally, explained when deciding which projects would be done first there was certain criteria that included getting the underdrains capped first, regardless of the flow. The age of the pipe and the flow were also factors. Mr. Jerdee explained he could research this further.

Q: Is there an updated list/map of the properties that remain on septic systems?

A: Maria Rose, Environmental Engineer, explained she does have a cleaned up list because of the National Pollutant Discharge Elimination System (NPDES) Massachusetts Municipal Stormwater Sewer Systems Permit (MS4). Through this permit there are education requirements. Ms. Rose explained that she sent a brochure from the Environmental Protection Agency (EPA) about maintaining septic tanks to these property owners. Mr. Taverna explained that the Health Department are the ones tracking the list of septic tanks.

Q: Can the City require inspections of septic tanks outside of the change in ownership process through the same legislation?

A: Ms. Rose explained that as far as she knows the only way the City can require inspection is through the change in ownership. Additionally, explained that the Health Department would be the best resource for this question.

Q: Is the City having businesses install new equipment or is simply that the businesses need to clean the grease traps more frequently to help with the grease problem?

A: Mr. Jerdee explained that the City goes in to do the inspections and look at the grease traps. The grease traps were approved by the City's Inspectional Services Department, which means the maintenance of the grease trap is the key to solving the problem.

The Chair noted that there should be a Water, Sewer and Stormwater Working Group meeting on the items discussed.

### **Water Main Rehabilitation Program**

Mr. Jerdee explained the Water Rehabilitation Program in the attached presentation. Additionally, Mr. Jerdee explained that last construction season the City started an un-directional flushing program & hydrant inspection (3 year program). The program is dealing with moving water in two different directions at high policies, performing hydrant inspections and exercising valves. Additionally, Mr. Jerdee explained that the Waban Hill Covered Reservoir Improvements went out to bid 6 or 7 years ago and it was not bid on because this is a specialized project. The City is at 95% design on the project and would like to bring the project out to construction so that the City can do it during non-peak flow. The City will be reaching out to large contractors, so they will be able to bid on the project. During the semi-annual leak detection, the City found 68 leaks

and estimated 250 million gallons a year of water loss in calendar year 2019 and the utilities division has repaired 188 leaks. The department is continuing to work on the Needham Street watermain replacement project. Lastly, the department is looking to do another audit of non-revenue water which should be completed by FY21.

The committee asked the following question regarding the Water Main Rehabilitation Program.

Q: When mains are being replaced people are not paying for the water from the temporary water sources, how much of that contributes to the non-revenue water each year?

A: Mr. Jerdee explained that he can get this number for the committee. But when looking at just non-revenue water, based on what the City buys and sells, this is at 28%. But when leaks and other factors (which is accounted for water) are taken into consideration it is at about 17%.

### **Stormwater Collection System**

Mr. Jerdee gave an overview of the Stormwater Collection System and explained the Needham Street Culvert project (attached). As part of the MS4 permit the City looks at Illicit Discharge Detection & Elimination, which is any discharge into a stormwater drain that is not composed entirely of stormwater. A chart of indirect discharge and direct connection is attached. Mr. Jerdee went on to explain the Crystal Lake Management Plan and explained the scope of the work and additional evaluations. Ms. Rose explained that the report has been completed and is posted on the City's Stormwater page. The recommendations are attached.

Additionally, Mr. Jerdee gave the attached overview of the proposed projects for FY 2021-2022 and the proposed MWRA projects.

The committee asked the following questions regarding the Stormwater Collection System.

Q: Regarding the Crystal Lake Management Plan recommendations, what is Alum?

A: Ms. Rose explained that Alum is aluminum sulfate. Jonathan Yeo, Chief Operating Officer, explained that this is a safe treatment and is used in drinking water, ponds and lakes across the state.

Q: Regarding the Lyons Field project, at one point there was a discussion on running the drainage system underneath the diamond, is this still be discussed with the Newton Little League?

A: Mr. Jerdee explained that they are still in contact with the Little League. There is a Weston & Sampson report, where they went out to Lyons Field and did soil samples and other testing. Additionally, Mr. Jerdee explained the utilities department does not feel comfortable running drainage through the diamond but rather run the drainage around the diamond. This is due to landscaping reasons and soil. Mr. Jerdee explained that he has met with the former

Commissioner of Parks & Recreation and the head of the Little League and they are aware of what the City will be doing on the field.

Q: How long do residential meters last?

A: Mr. Jerdee explained that the lifespan is 20 years and the meters are currently at 10 years.

The committee thanked the Public Works Department for their presentation.

**#130-20      President's Reappointment of James Purdy to the Energy Commission**  
PRESIDENT ALBRIGHT reappointing James Purdy, 943 Chestnut Street, Newton Upper Falls to the Energy Commission for a term of office to expire December 31, 2023. (60 days: 04/18/20)

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

**Note:**      With no concerns from the committee, Councilor Crossley motioned to approve which passed unanimously.

**#131-20      President's Reappointment of Michael Gevelber to the Energy Commission**  
PRESIDENT ALBRIGHT reappointing Michael Gevelber, 166 Melrose Street, Auburndale to the Energy Commission for a term of office to expire December 31, 2023. (60 days: 04/18/20)

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

**Note:**      With no concerns from the committee, Councilor Gentile motioned to approve which passed unanimously.

**#132-20      Mayor's Reappointment of Halina Brown to the Energy Commission**  
HER HONOR THE MAYOR reappointing Halina Brown, 56 Cloverdale Road, Newton Highlands to the Energy Commission for a term of office to expire April 15, 2023. (60 days: 04/18/20)

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

**Note:**      With no concerns from the committee, Councilor Danberg motioned to approve which passed unanimously.

The committee adjourned at 8:33 p.m.

**Respectfully Submitted,**

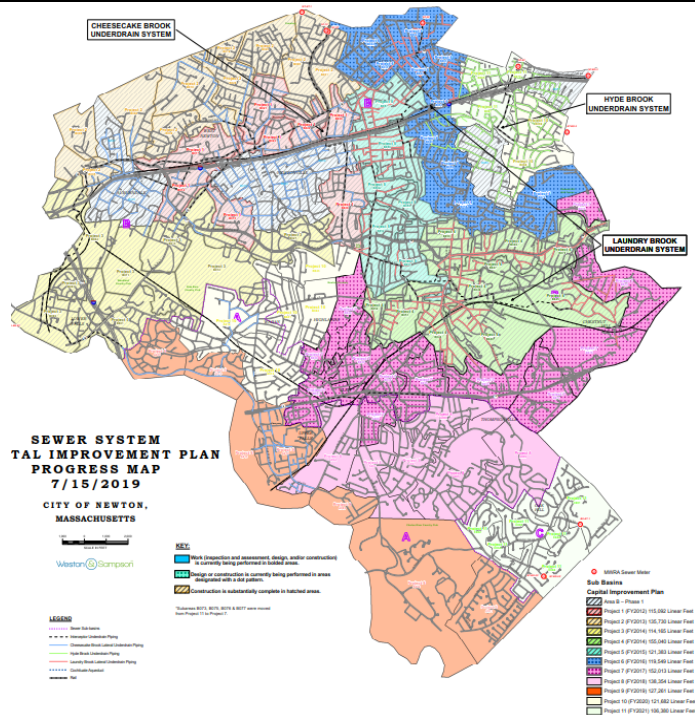
**Alison M. Leary, Chair**

Public Facilities Committee  
 DPW-Utilities Division Update February 2020  
 Theodore Jerdee, Utilities Director  
 tjerdee@newtonma.gov

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Sewer Capital  
 Improvement Program  
 February 2020 Update

11 Project Areas



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## Program Development

- Infiltration and Inflow (I/I)
  - Introduction of groundwater and stormwater through pipes and underdrains
- Sewer Overflow and Back-ups
- Aging Infrastructure
  - Structural problems (breaks, sagging)
  - Intrusion/blockages (roots, grease)
- Steadily increasing MWRA Sewer Assessments

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## City of Newton-Sewer System

- 1.5 million linear feet (284 miles) of pipe
- 9,100 manholes
- 400,000 linear feet (75 miles) of underdrains
- 25,000 + service connections
- 11 Pump Stations
- 14.7 million gallons of average daily sewer flow

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## Sewer Capital Improvement Program - Status

### Inspection and Assessment Status

- CIP Project 1 to 8 Complete
  - 1,240,000 linear feet (235 miles) sewer inspected
  - 7,500 manholes inspected
- CIP Project 9; Ongoing
- CIP Project 10; Spring 2020
- CIP Project 11; Spring 2021



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## Sewer Capital Improvement Program - Status

### Rehabilitation Status

- CIP Projects 1, 2, 3, 4, and 5 Complete
  - 390,000 linear feet (74 miles) sewer rehabilitated
  - 2,900 manholes lined
  - 800 underdrain access points sealed
- CIP Project 6; Ongoing
- CIP Project 7; Start Spring 2020
- CIP Phase 1 Construction Project 11 to be complete 2025
- CIP Phase 2 Sewer System Re-evaluation



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## Newton Pump Station Assessment

### Overall Project Objectives:

- Perform a condition assessment of 11 sewer and 3 water pump station assets and determine criticality.
- Provide recommendations and prioritized list of projects to meet regulatory standards and best practices.
- Develop budgetary costs for each project to assist in a Capital Planning Program

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## Unsewered Areas

- Concord Street/Lafayette Road/Pine Grove Avenue  
Hereford Road/Riverview Avenue/Wabasso Road
  - Approximately 5650 linear feet unsewered
  - 35 properties
  - \$1,174,500 to \$2,571,675



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## Fats, Oils & Grease (FOG) Program Update



**FEBRUARY 19, 2020**

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### The City's implementation of a FOG Management and Control Program will result in actions that will control excessive FOG discharges into the sewer collection system

#### Results to date include:

- Conducted 177 Food servicing establishment FOG inspections leading to 121 follow-up inspections. Over the past year the focus has been on the Newton Center/Chestnut Hill sections.
- Improved maintenance documentation with many switching to the recommended City form developed under this program and posting it near their applicable traps.
- Public outreach in the form of educational fliers. A Flier was developed and mailed to various commercial FOG contributors last year. A flier has been developed and is under review for residential mailing

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## Water Main Rehabilitation Program

- Ongoing projects rehabilitating existing water mains
- Existing mains are either cleaned and lined or replaced
- Since 2009, 11 miles cleaned and lined and 21 miles replaced
- Entire water system has 319 miles of water main
- City wide uni-directional flushing program & hydrant inspection (3 year program)
- Waban Hill Covered Reservoir Improvements
- Semi-annual leak detection city wide
- Needham Street watermain replacement (+/-5000 LF)
- Investigation/Audit of Non-Revenue water

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## Stormwater Collection System



Runaway Brook outfall

- 320 miles of drain pipe
- 12,750 catch basins
- 2 Pump Stations
- 183 exterior outfall/interconnections
- 201 interior outfalls
- 14 miles of streams

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## Needham Street Culvert (South Meadow Brook)

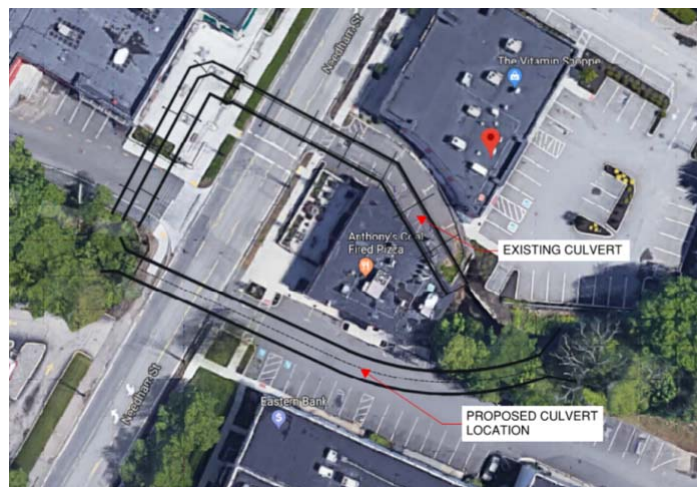
- Approximately 280 feet long
- Structural evaluation performed
- Poor condition; replacement recommended



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## Needham Street Culvert (South Meadow Brook)

- New alignment recommended
- Train tracks no longer conflict
- Approximately \$2,500,000



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## Illicit Discharge Detection & Elimination (IDDE)

**“any discharge to a MS4 (stormwater drain) that is not composed entirely of stormwater”**

### Indirect Discharge

May come from a variety of sources

- Failed septic system
- Hazardous waste spills
- Leaky sewer line
- Grass clippings, leaf litter, pet waste or other solid material dumped into MS4



### Direct Connection

A non-stormwater pipe connected to the Drainage System

- Washing machine
- Sewer Lateral



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## Crystal Lake Management Plan

Scope of Work:

- Review existing Information
  - Water Quality-Lake and Stormwater, Watershed Boundary, Existing and Planned Stormwater Controls, existing Non-structural Source Controls.
- Additional Evaluations
  - In Lake Sediment Sampling
  - Calculate existing Phosphorus loading external to the Lake
  - Additional Opportunities for Structural and Non-structural Controls

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## Crystal Lake Management Plan

### Recommendations:

- **Phosphorus Inactivation Internal to the Lake**
  - Application of Alum Late Spring 2020 w/benefits by Summer 2020
    - Reduce internal load by 90%
  
- **Watershed Management**
  - Continue Aggressive Street Sweeping and Leaf Collection
  - Complete Trowbridge Street Bio-retention swale
  - Two new Infiltration Based Retrofits at Cronin's Cove and at the Intersection of Crystal Street and Lake Avenue
    - Reduce external load by +/-30%

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## Proposed Projects FY 2021-2022

- Large water meter replacement program-commercial properties
- Replacement of +/-5000 LF – 20" diameter watermain on Needham Street between Boylston and Oak Street (circa 1878)
- Bulloughs Pond Dam Phase 2 Inspection Report
- Sediment Removal from 3 City Hall Ponds-Fall 2020/Winter 2021
- Addition of drainage infrastructure and increase maintenance to Lyons Field
- Investigation of the Edmunds Brook Watershed
- Sediment removal-Hahn Brook off Florence Street
- Union Street @ Herrick Rd. drainage investigation & design

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## Proposed MWRA Projects

- Commonwealth Avenue Pump Station Project-Ongoing
- MWRA Section 23 (Ward Street between Manet Road and Waverly Avenue) Replace city's 20" watermain in conjunction with MWRA's watermain-Phase 1
- MWRA Section 23 Ward Street between Waverly Avenue and Center Street-Phase 2
- MWRA Sewer Section 191/192 (along Charles River from Farwell to California Street) Line 60" diameter sewer interceptor.

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