Project Descriptions for January 3, 2018

Board of Trustees Meeting

Clean Water Commitments

Billerica CW-17-15

Sewer Contract 36 is the third priority Needs Area from the Town's Comprehensive Wastewater Management Plan. The project consists of areas of sewer replacement, extension of new sewer, removal of failing and/or improperly operating septic systems and connection to sewer, and the construction of two new pump stations. The Project will aid in reducing degradation to the water resources in the Concord River Watershed and the Shawsheen River Basin, as well as protect the public health from the chronic septic failures documented in the area. The Project includes approximately 5.3 miles of new sewer, 2.8 miles of sewer replacement and construction of two new pump stations. The Project is designed and shovel ready once spring Town Meeting approves it and all SRF paperwork is complete.

Gloucester CW-17-24

Gloucester is essentially an island community surrounded by ocean, marshes and beaches. Residents of Gloucester, as well as people from all over the North Shore, enjoy these natural resources on a daily basis for walking, swimming and boating. The DPW and Goose Cove pumping stations are both located in close proximity to these important resources. An evaluation of wastewater pump stations in Gloucester was completed in 2010. The evaluation determined the DPW and Goose Cove Pump Stations to have the first and second highest priority rehabilitation needs of all the 29 pump stations in the City, due to a large volume of daily flow and station age and condition. Rehabilitation of these two stations will ensure continued protection for Gloucester's important natural resources.

Haverhill CW-17-14

The major components of the project include: improvements to the WWTF's secondary treatment system (aeration blowers and sludge pumps/piping, as well as appurtenant electrical upgrades) which will improve the ability to meet the NPDES permit limits; upgrades to the City-wide Supervisory Control and Data Acquisition (SCADA) system, including WWTF and pump stations; upgrades at two significant pump stations to address repeated mechanical issues; and an odor control biofilter to mitigate impacts on abutting residents.

MWRA CW-17-32

The Chelsea Screenhouse Upgrade project is one of two wastewater system improvement projects that have been identified by the MWRA as critical. This project addresses critical needs for system rehabilitation and optimization of the wastewater collection system. Work to be carried out includes the following: replacement of the two dry side mechanical screens in their entirety and replacement of the fixed screen portion of both installations with a 8-foot high screen; rehabilitation of the two wet side mechanical screens with new carriage assemblies; provide all four screens with improved carriage assemblies including submersible motor enclosures to protect the brake motors; replacement of all seven sluice gates; replace the sluice gate hydraulic operating system with electric actuators; replacement of eight ultrasonic water

level monitoring devices and add two new ultrasonic censors; replacement of eight ultrasonic water level monitoring devices and add two new ultrasonic censors; replacement of grating and plates that cover flow channels; installation of security measures including three card reader panels, motion detectors, and door and window alarms; replacement of HVAC exhaust fan and associated ductwork.

MWRA CW-17-33
Contract No. 7110 HVAC Equipment Replacement -
Replacement of various Heating, Ventilation and Cooling units through the treatment plant. Replacements include fan coil units, air handling units, chiller systems, the WWTP central HVAC control system, and 29 existing fume hoods in the Laboratory
Contract Nos. 7059/7420 Switchgear and NMPS MCC Replacements -
Replacement of various electrical low voltage distribution equipment that provides power to critical pumping stations and laboratory processes
Contract No. 7051 Fire Alarm Replacement -
Replacement of the central fire detection and alarm system throughout the treatment plant.

This project will ensure that the plant continues to meet its discharge permit requirements by replacing obsolete equipment and systems. Some of the contracts are expected to result in decreased maintenance and/or operating costs. All equipment is at the end of its useful life.

MWRA CW-17-34
This project includes upgrades to the Deer Island Wastewater Treatment Plant automation and central control systems as well as improvements and upgrades to several existing interceptors and pump stations that are in need of replacement and/or modernization. The project is intended to extend current asset life and improve system operability.

MWRA CW-17-35
MWRA has three remote headworks - Chelsea Creek, Columbus Park, and Ward Street - which were built and placed into operation in the 1960's. All wastewater flows from the MWRA Northern Service Area is collected at the remote headworks before reaching the Deer Island Treatment Plant. Preliminary treatment and flow control are performed at the remote headworks facilities. This project addresses aging infrastructure and will improve operational reliability by replacing all mechanical, electrical, HVAC, plumbing, and appurtenant equipment at all three facilities.

MWRA CW-17-36
After extensive alternatives analysis and pilot testing, MWRA has determined that disk filter technology is the best feasibly alternative for meeting the current and upcoming discharge phosphorous concentration limits at the Clinton wastewater treatment plant (WWTP). This project is for the installation of the full-scale disk filter phosphorous removal system at the WWTP. This will help ensure that NPDES discharge permit limits are met.

Revere CW-17-26
The continuation of the implementation through construction contracts of the Illicit Connection and Sump Pump Removal Program is essential for the City of Revere to meet its goals and

comply with the Consent Decree. There is a significant number of illicit sump pumps, roof drains, roof leaders, driveway drains, yard drains, etc. connections from private homes and businesses that must be removed from the sewer in order to remove inflow and increase the wastewater capacity of the City's sewer system. These contracts become the mechanism to remove inflow.

Revere CW-17-27
The Phase VIII Construction Project will include the removal of inflow/infiltration (I/I) from the City's sewer system. Infiltration and inflow contributes excess volume to the sanitary sewer, which contributes to overflows and capacity issues. Construction will include the redirection of public and private inflow sources discovered during Phase VIII Field Investigations, Illicit Discharge Detection and Elimination (IDDE) source removal, and drainage improvements. Construction will also include pump station improvements (both stormwater and wastewater), CIPP (Cured in Place Pipe) lining, sewer spot repairs, replacements, new sewer lines, cleaning, and additional wastewater metering.

Revere CW-17-28
The continuation of the illicit connections and sump pump detection program is important in the City's efforts to remove inflow from the sanitary sewer system. This program will continue the inspections of private homes and businesses to identify sources of inflow from sump pumps, roof leaders, roof drains, driveway drains, yard drains, etc

Revere CW-17-29
The Phase IX Field Investigations and Illicit Discharge Detection and Elimination (IDDE) are vital planning projects for the City of Revere in its assessment of the City's wastewater and stormwater systems. The field investigations will include IDDE, CCTV of both drains and sewers, dye testing, smoke testing, and private building inspections. The deficiencies discovered in the system during the investigations will be addressed and corrected by the City in future construction projects.

Taunton CW-17-19
The Taunton WWTF receives all of its flow from the Main Lift Pump Station, and improvements to the station are required to provide reliable operation. This project will replace the existing station and include new screening facilities, new pumps and force main, electrical equipment and controls. The primary goals of the project are to provide more reliable service, increase pumping capacity, and reduce combined sewer overflows into the Taunton River. Currently, when flows exceed the capacity of the Main Lift station, the system surcharges and overflows into the river. Pumps frequently clog with debris, which will be greatly reduced by a screening system. The project is also being done in anticipation of WWTF upgrades in the near future.

West Springfield CW-17-30
The sewer pump station project implements CIP recommendations including replacement of outdated pumps, controls, emergency power generators, emergency lighting, ventilation and air quality monitoring system, dry well flood alarms, heating systems, and building foundation repairs. The I/I project implements SSES recommendations including 11 sewer disconnections, 128 manhole rehabilitations including grouting, wall rehabilitation and corbel repair, 250 ft of

cured-in-place liners, 600 ft of CCTV inspection, 14 spot liner repairs, and 83 sewer lateral inspections. The flood control pump station improvements implement critical electrical improvements including upgrade of main load centers, light panels, exterior lights and emergency lighting. Improved efficiencies provide better, more efficient and more cost effective treatment.

Drinking Water Commitments

Bridgewater DW-17-11
This project includes the construction of a 1.62 MGD manganese greensand water treatment plant to treat elevated iron and manganese from the Town of Bridgewater's High Street Wells. The Town is concerned about provided high levels of manganese to their customers based on the USEPA's health advisory for manganese. Currently, blended phosphates are added to sequester iron. This practice is not sufficient and therefore the Town is seeking to improve this water quality by constructing a new treatment facility.

Brockton DW-17-10
The City of Brockton has been working to locate, clean, and operate all crossover and mainline valves within the 24" transmission mains connecting Silver Lake Water Treatment Plant and the Brown's Crossing Pump Station (East Bridgewater). This assessment was done in response to a pipe failure within this line and the crossover valves could not be operated to isolate the pipe break. This caused a shutdown of the plant for a day and great concern for the integrity of these pipes and their valves. Through their assessment, several crossing locations have been identified that will be replaced to prevent these issues.

MWRA DW-17-15
This project is the construction of an emergency pump station to pump water from the Wachusett Aqueduct to the Carroll Water Treatment Plant (CWTP). The pump station will provide redundancy in the event of failure at the Cosgrove Tunnel or Intake and for the inspection/rehabilitation of the Cosgrove Tunnel. The pump station will be able to deliver 240 million gallons per day of raw water to the CWTP during a planned or emergency shutdown of the Cosgrove Tunnel. This flow rate represents the full water demand from CWTP during the fall, winter, and spring low-flow seasons and mitigates potential disruption of service to Northborough, Southborough, Marlborough, and Westborough State Hospital.

Revere DW-17-14
This project involves the replacement of approximately 600 lead services throughout the City of Revere. The City has identified 250 active lead services to date throughout the ongoing automatic meter replacement program. Based on the number of properties in the City that have been inspected, and extrapolating that value based on identified lead services found to date, an estimation of citywide lead services needing replacement has been determined to be approximately 600 services. The adverse health effects of lead exposure in children and adults are well documented, and no safe blood level threshold in children has been established. Lead exposure causes neurological and cognitive impairments in children and fetuses and can cause

high blood pressure and kidney problems in adults. Removal of lead service connections addresses a critical public health challenge.

Wareham Fire District DW-17-09
This project includes the construction of a 3.0MGD ground water treatment plant, expandable to 4.5MGD, which includes: iron and manganese removal for compliance with secondary standards; disinfection with ultraviolet light, and/or free chlorine to address the groundwater rule or possible reclassification as groundwater under the influence of surface water; and corrosion control. The project may also include treatment for pesticides and herbicides from nearby agricultural activity that have been detected in groundwater sources. This work will remove the public health threats posed by various contaminants and ensure excellent drinking water quality. The project will also include alternative energy generation using wind or solar power to reduce energy consumption from fossil fuel sources; and will include passive solar design elements to reduce energy consumption.

West Springfield DW-17-13
The project includes a new 300,000 gallon elevated water storage tank, a transmission main from the existing high pressure service area to supply the new pressure zone, and improvements to the existing pumping station serving the high pressure zone to meet increased demand. Work also involves replacing approximately 2,200 existing meters and a Town wide leakage testing plan and implementation. This will enable the Town to recover costs of under-registering meters and significantly reduce the amount of unaccounted for water. It will also ensure adequate water supply for drinking and fire protection.

Drinking Water Agreements

Eastham DW-17-01
This project consists of constructing a town-wide water system, the core of which is under construction as Phase 1. In this Phase 2, the town will construct the remainder of the distribution system such that every property in Town has the ability to connect to the water system. Contract 2A of this Phase will consist of installing the District H well field and approximately 19 miles of distribution system piping, extending the availability of public water to more areas of town.