



Sewer Works

Newsletter of the Hull Sewer Department Winter 2020

Operations Message

Most if not all reading this Newsletter have been impacted in some way by the various projects (see below) being performed throughout the sewer system. While many of these projects have been visible to all, there are just as many projects being performed within the treatment facility and remote pumping stations that may not be as apparent. We are well underway in the implementation of our capital improvement program that was planned four years ago. Significant progress has been made and continues to be made with each of the projects summarized below to meet our goals of Reliability, Redundancy and Resilience. These projects are being done in recognition of the recommended projects and funding plan approved at the prior two annual Town Meetings. We again thank you for your patience, understanding and cooperation as we undertake these important projects.

John J. Struzziery, P.E., Director of Wastewater Operations

Project Updates:

Nantasket Avenue Interceptor Sewer: As of January 17th, the contractor has completed 13 of 19 pipeline installations to rehabilitate the existing sewer. Manhole rehabilitation is following pipelining. Good progress is being made and project completion is expected by the end of February if we continue to get good weather. **NOTE: If heavy snow is forecasted, work will be halted and the bypass pipe will be removed from the road until conditions improve.**

Atlantic Avenue Sewer Improvements: Much of the planned work has been completed, however, due to conditions different from what was expected, a trenchless approach to what was planned is no longer viable and a change order is being processed that will result in digging and replacing the existing sewer between Montana Avenue and Driftway. Work is now projected to be complete by early May.

Coordination with Roadway Program: Most of the sewers and storm drains within the roadways scheduled to be paved this year have been inspected and condition assessments made to determine what areas can be repaired with trenchless techniques. There are several repairs that require excavation. Some of these repairs have been made already and others will be planned as part of separate projects in advance of the paving.

Sewer System Evaluation Survey:

- **Outfall** - Last Fall we completed the side scan sonar, remotely operated vehicle and dive inspections of the outfall, verified the pipeline location with coordinates, and located 17 of the 36 diffuser heads. It appears the pipe is in good condition; however, there are areas in the outfall that have deposited sand that limits the pipe capacity. Continued monitoring to verify trends over time and assess if other diffusers can be found will be the next steps.

Sewer Bill Reminder: This billing period maintains the Town Meeting approved increase of 7.5% in the sewer user rate.

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A walk through some of the many steps to a successful Cured-in-Place Pipeline (CIPP) operation:



The sewer flow must be bypassed leaving a clean, empty pipe to work with.



The felt/resin liner is pulled through the existing pipe and steam is used to cure the liner.

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Good News: Over the past quarter, it is apparent that we have received fewer calls for backups-we would like to think that our prior messages are starting to take affect: **Nothing down the toilet but Paper, Pee and Poo (the 3 Ps Wipes clog pipes even if they say they are flushable)-discard wipes in the trash. Contain grease and discard in the trash, not the sewer. Hair, dental floss, and facial tissue also clog sewers-discard in the trash. Image courtesy of MWRA.**



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Check status of construction projects and updates on our web page
<https://www.town.hull.ma.us/sewer-department>



Weekly project updates on the ongoing construction projects are on our Facebook page-check us out and **Like** us.

- *Underground Piping* - A condition assessment of underground piping at the treatment facility is underway to determine what if any work is needed for continued service. Test pits, corrosion testing and ultra-sonic thickness testing is planned over the coming months.
- *Collection System* - We are awaiting the results and recommendations of the smoke testing work that was performed last Fall. We expect there will be supplemental monitoring, recommended sewer and storm drain repairs, targeted inspections of some homes to investigate connections to the sewer, and other recommendations focused on reducing the amount of groundwater infiltration and storm inflow into the sewer system.

WWTF HVAC: Final design of the replacement HVAC system at the treatment facility is expected in early February. Construction is expected about mid-year.

Critical Replacements: A new 8-inch portable pump and generator were purchased that will provide greater redundancy and capabilities should any existing pump operation or power be disrupted.

Facilities and Resiliency Plan: The focus of this project is to combine all past studies, reports and operating history at the treatment facility into one combined document that provides recommended improvements that will serve the facility's needs for the next 20 years. We have been meeting regularly with our consultant and expect a draft report by the end of February.

Pumping Station Upgrades & Resiliency: This assessment of the pumping stations is part of the facilities and resiliency plan noted above. There were three pump stations initially targeted for review with a fourth added due to the condition found in making the overall assessment. We expect that there may be several rebuilds of the pumping stations especially the waterfront locations.

Reliability Centered Maintenance (RCM): The analysis/training program is complete and we have returned comments on a draft report from the consultant.

Grants Update:

- CZM Facilities & Resiliency Design: Early-stage design of WWTF perimeter flood protection. We expect to have a 35% Conceptual Design technical memo this month. The memo will establish the design approaches, project design criteria and identify permitting needs. Pre-permitting meetings are being coordinated with multiple agencies.
- CEC: An Artificial Intelligence platform is being implemented to analyze and forecast WWTF flow and load data, which will be used to improve energy efficiency in our operations. The system has been set up and kicked off for influent and effluent pumping as well as aeration basin controls.
- FEMA: We expect to hear shortly about the electrical equipment and controls relocation to the second floor of the administration building to protect critical equipment to maintain system functionality during a significant storm event.

Looking Ahead: Currently (January 2020) we are in our annual budget preparation cycle that will be reviewed with the Town Manager, Select Board, and Advisory Committee before being presented for approval at the May Town Meeting. As part of this planning, we are also updating and preparing the next series of capital projects that will be the basis for an additional bond authorization that will be requested for approval.

Sewerology

Trenchless Technology: Utility construction work that has little or no excavation from the surface generally resulting in being faster, less impact, and less cost compared to conventional excavation work.

Cured-In-Place Pipelining (CIPP): A method of rehabilitating sewer pipes by installing a felt or other fabric liner such as fiberglass, saturated with resin, inside the pipe, heating the resin with steam, hot water, or ultra violet light to trigger a reaction with the resin, allowing the liner to cool, to create a hard pipe inside the existing pipe to provide long-term structural integrity and corrosion resistance to the existing concrete sewer pipe in our system. This is the process being performed along Nantasket Avenue.



Manhole Rehabilitation: A method of reconstructing the inside walls of the manholes by cleaning and preparing the surface, spraying a 1/8" thickness of cement mortar, and then spraying an epoxy coating for corrosion resistance. This is the process being performed along Nantasket Avenue (see image to left).

Bypass Pumping: The orange pumps and black pipe along Nantasket Avenue is the method being used to divert wastewater from the sewer being lined which must be done by bypass flows in this manner.

Lateral Lining: A method of CIPP used on the property services between each house and the mainline sewer, similar to CIPP described above, only on a smaller scale. This is the process being performed along Atlantic Avenue.