



Subject: Asset Management Program Update - Linear Water and Wastewater Assets
To: Corporate and Residential Services Committee
Date Prepared: August 17, 2026
Related Motions: None
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Summary

This information report provides an update on the Corporate Asset Management (AM) Program since the September 2024 update, with a major focus on the current state of East Hants' linear Water and Wastewater assets.

Through the Asset Management Program, staff have developed an internal-use, centralized, spatially accurate inventory of Water and Wastewater mainline pipe, providing staff with a clear picture of what infrastructure we own, where it is, what it is made of, and when segments of the system may require renewal. Beyond building the spatial inventory, staff have developed practical tools that are being used to enhance inspections, locate assets, and track maintenance and repairs, connecting day-to-day operations with longer-term Asset Management and capital planning.

The methodologies and data sources used for developing the inventories, will be described in further detail throughout the report, however, a quick overview of some of the linear water and wastewater assets that the Municipality owns and operates are below:

- 73 km water mainline pipe (servicing approximately 4300 households)
- 88 km wastewater mainline pipe (servicing approximately 4700 households)
- 364 hydrants
- 27 lift stations

The 2026-27 workplan is ongoing, with the linear asset inventory now providing a foundation for operational and long-term capital planning, while work progresses on onboarding the Municipality's vertical Water and Wastewater assets and continuing to advance the Municipality's overall asset management program.

Financial Impact Statement

Asset management data and analysis will support future operating and capital planning and inform associated budget recommendations.

Recommended Motion

That the Corporate and Residential Services Committee recommends to Council that they receive and file the Asset Management Program Update - Linear Water and Wastewater report dated August 17, 2026

Background

Following Council's approval of the Corporate Asset Management Policy in November 2022, staff have provided Council with two program update reports. The May 2024 report provided an overview of the AM Program governance structure, strategy, and roadmap, while the September 2024 report provided a State of the Infrastructure update on the Municipality's Roads assets.

Since the last update, the AM Program has continued to maintain the Roads asset inventories as 'living' inventories, updating them as new assets are taken on. The primary focus of the program has shifted to developing the same data and information framework for the Municipality's linear water and wastewater infrastructure. Developing inventories for linear assets in 2025-26 and shifting to vertical assets in 2026-2027 was an established goal of the AM Program and its business plans, and was also a recommendation in the Servicing Capacity Study completed in 2023.

The same general AM principles used for the Roads asset inventory were applied to the development of the linear Water and Wastewater asset inventories; however, the majority of the Water and Wastewater infrastructure is located underground, making visual verification more of a challenge. To address this, Council's investment in new high-accuracy GPS equipment and an Asset Data Summer Student enabled staff to establish a strong data foundation, by collecting over 5000 accurate locations for Water and Wastewater asset points visible from the surface; primarily wastewater manholes and valve covers. This approach enabled the Municipality to efficiently expand its asset data and establish a reliable spatial foundation for ongoing operational and asset management planning.

Using the high-accuracy GPS point data, existing as-built record drawings, and the institutional knowledge and records maintained by the Water and Wastewater Operations team, staff developed and centralized a spatial inventory of Water and Wastewater linear assets. The inventory includes core Asset Management attributes such as:

- Pipe Material
- Pipe Size (Diameter and Length)
- Construction year
- Function

With these core attributes, along with known unit costs and expected useful lifespans for each material and size of pipe, staff can develop informed age-based replacement estimates and establish a picture of the current State of the Infrastructure for Water and Wastewater linear assets. The results of this work are described in this report.

Inventory work for the Water and Wastewater vertical assets, including treatment plants, towers, and other associated infrastructure, is currently underway. Staff will bring forward a separate State of the Infrastructure report for these vertical assets at a later date.

Discussion

Linear Water and Wastewater Systems Asset Overview

The Municipality provides both Water and Wastewater services in the South Corridor and Commercial GMA Boundary (encompassing parts of Enfield, Elmsdale, and Lantz), and within the Shubenacadie GMA Boundary. Additionally, only Wastewater services are provided within the Milford GMA Boundary. In total, approximately 4,700 households are serviced by municipal wastewater, and 4,300 by municipal water.

In total, the Municipality owns and maintains approximately 73 kilometers of Water mainline and approximately 88 kilometers of Wastewater mainline. Tables 1 and 2 provide a breakdown of the distribution of length for Water and Wastewater mainline pipe by system and other key characteristics. Appendix A shows

maps of Water and Wastewater mainlines in the Regional and Shubenacadie systems, and Wastewater mainlines in the Milford system.

Table 1. Total water pipe length by system

System	Distribution Main Length (km)	Transmission Main Length (km)
Regional Water Distribution System	54.8	8.9
Shubenacadie Water Distribution System	8.2	0.7

Table 2. Total wastewater pipe length by system

System	Gravity Main Length (km)	Force Main Length (km)
Regional Wastewater Collection System	53.5	16.8
Milford Wastewater Collection System	9.2	0.7
Shubenacadie Wastewater Collection System	6.7	0.8

Material, Age and Estimated Replacement Breakdown

The Municipality's Water and Wastewater Pipe inventories include several pipe materials and sizes, reflecting the standards and construction practices in place when the infrastructure was installed. PVC represents the majority of both the Water and Wastewater pipe inventories. Tables 3 and 4 show the distribution of pipe materials across the water and wastewater systems respectively.

Table 3. Distribution of pipe material in municipal water pipe inventory

Material	% of Municipal Water Pipe Inventory
PVC	90.5%
Asbestos Cement	7.4%
HDPE	1.1%
Ductile Iron	0.4%
Copper	0.6%

Table 4. Distribution of pipe material in municipal wastewater pipe inventory

Material	% of Municipal Wastewater Pipe Inventory
PVC	55.7%
Concrete	35.8%
Asbestos Cement	8.0%
Cast Iron	0.4%
Ductile Iron	0.1%

Expected useful life estimates are applied by pipe material and function to support age-based replacement planning. Estimates generally range from 50 to 100 years, and were developed using the 2023 R.V. Anderson Servicing Capacity Study as a baseline, supplemented by information from Statistics Canada's Core Public Infrastructure data for Nova Scotia, and input from Municipal engineering staff. These estimates are planning assumptions and do not represent definitive replacement dates for individual pipes.

Using known construction dates and useful life estimates, staff have identified the approximate timing and scale of potential future pipe renewal. Figure 1 shows the length distribution of Water and Wastewater pipes estimated to reach the end of their useful life within 20-year time frames.

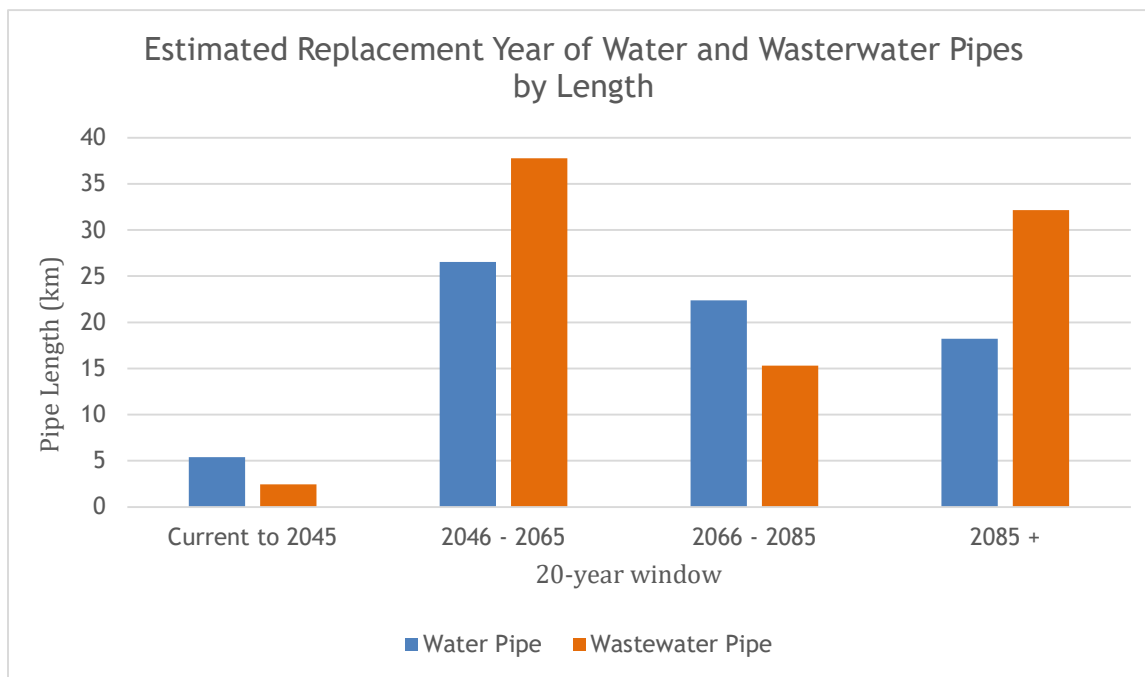


Figure 1. Distribution of water and wastewater pipe by estimated replacement window

Some Water and Wastewater pipes identified in the Current to 2045 time frame, are already reflected in the Municipality’s existing 5-year capital budget. For example, Project #21-029 includes replacement of sections of the original Asbestos Cement water mainline in Shubenacadie. A significant portion of the original Water and Wastewater mainlines throughout the Shubenacadie, Milford, and Regional systems were constructed in the late 1960’s to mid-1970’s, which accounts for the higher volume of pipe estimated for replacement in the 2046-2065 timeframe. More recent development over the last 10-15 years accounts for the significant length of pipe estimated for replacement in the longer term, beyond 2085. Maps showing Water and Wastewater pipes estimated for replacement in the current to 2045, and 2046-2065 timeframes are provided in Appendix B.

Age-based analysis provides a starting point for long-term Asset Management and capital planning, but do not, on their own, determine when a pipe should be replaced. Local risk factors, such as observed condition, operational performance, break history, criticality, and system capacity requirements can influence the priority and timing of infrastructure renewal. As the AM Program applies this asset inventory data to future capital planning and budget recommendations, these factors will be considered at the individual asset and system level to help prioritize recommended projects.

Operationalizing Water and Wastewater Asset Data

The linear Water and Wastewater asset inventories and high-accuracy GPS points are already being used to streamline Water and Wastewater operations. The GPS equipment and mobile mapping tools allow operators to view and quickly locate any point on the map in the field, including assets that may not be readily visible due to snow or other conditions.

Operations staff are also collecting new GPS points and updating asset information in “real-time” when maintenance or repairs occur. This creates a more complete spatial record of asset history that can be considered in future capital planning and decision-making. Figure 2 shows a map of collected points where water related excavations have occurred since staff have been using the GPS equipment. These points largely represent water main and service line break repairs.

Water Excavation GPS Points

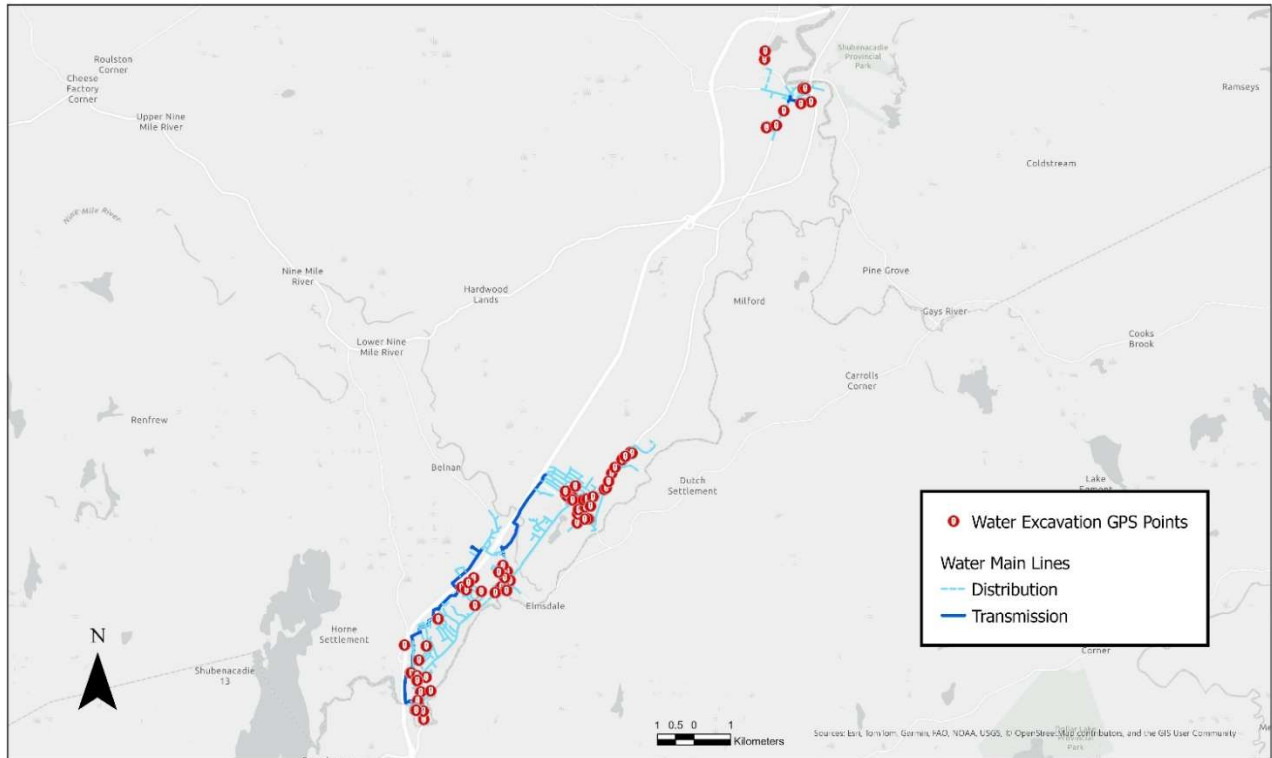


Figure 2. Map showing water excavation GPS points collected by operations team

The Water and Wastewater Operations team is also leveraging the asset data and mobile tools to enhance their hydrant inspection and lift station inspection processes. This is helping to establish more consistent and accessible records of operational activities while continuing to improve the quality and usefulness of asset data. Figure 3 shows two screenshots from the mobile hydrant inspection map and digital form.

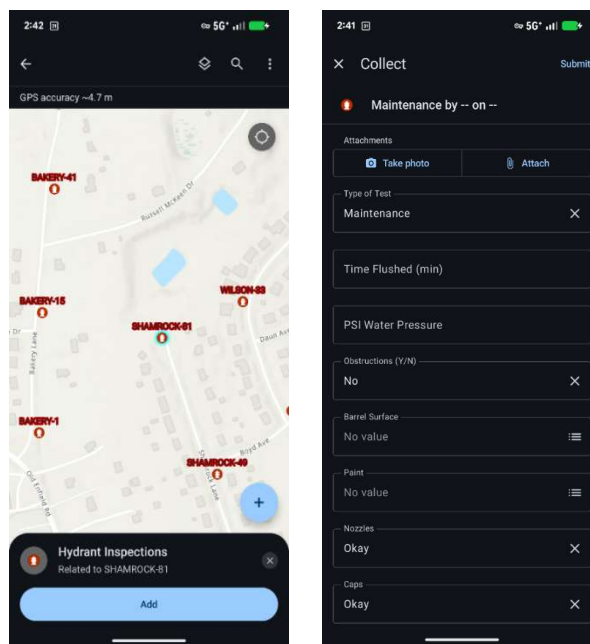


Figure 3. Images of mobile mapping and digital form for hydrant inspections

Next Steps

In addition to the continued use and enhancement of the Water and Wastewater pipe linear inventories, the AM program has begun focusing on a similar inventory process for the Water and Wastewater service vertical assets. This work includes developing more detailed component and equipment inventories for treatment facilities, water towers, and lift stations. This information will support future condition assessment, lifecycle planning, and capital prioritization for these assets. Staff will bring forward a separate AM Program Update Staff Report for vertical assets. Together, the linear and vertical inventories will provide a more comprehensive understanding of the Municipality's Water and Wastewater infrastructure.

Work is also ongoing on to scope a longer-term asset management software solution, as identified in the 2026-27 workplan. Some of the desired capabilities for an asset management software solution include a robust workorder management function that further connects Operations and Maintenance activities to assets, an intuitive asset inventory structure for vertical facilities assets, and some reporting and forecasting capabilities. This work is being considered alongside the Municipality's evaluation of options for the replacement of SAP, with the goal of understanding opportunities for integration and alignment between the two initiatives.

Attachments

Appendix A

Water and Wastewater Linear System Maps

- Water and Wastewater lines in the Regional System
- Wastewater lines in the Milford System
- Water and Wastewater lines in the Shubenacadie System

Appendix B

Water and Wastewater Estimated Replacement Year Maps

- Estimated Replacement Year Current - 2045 Time Period
- Estimated Replacement Year 2046 - 2065 Time Period