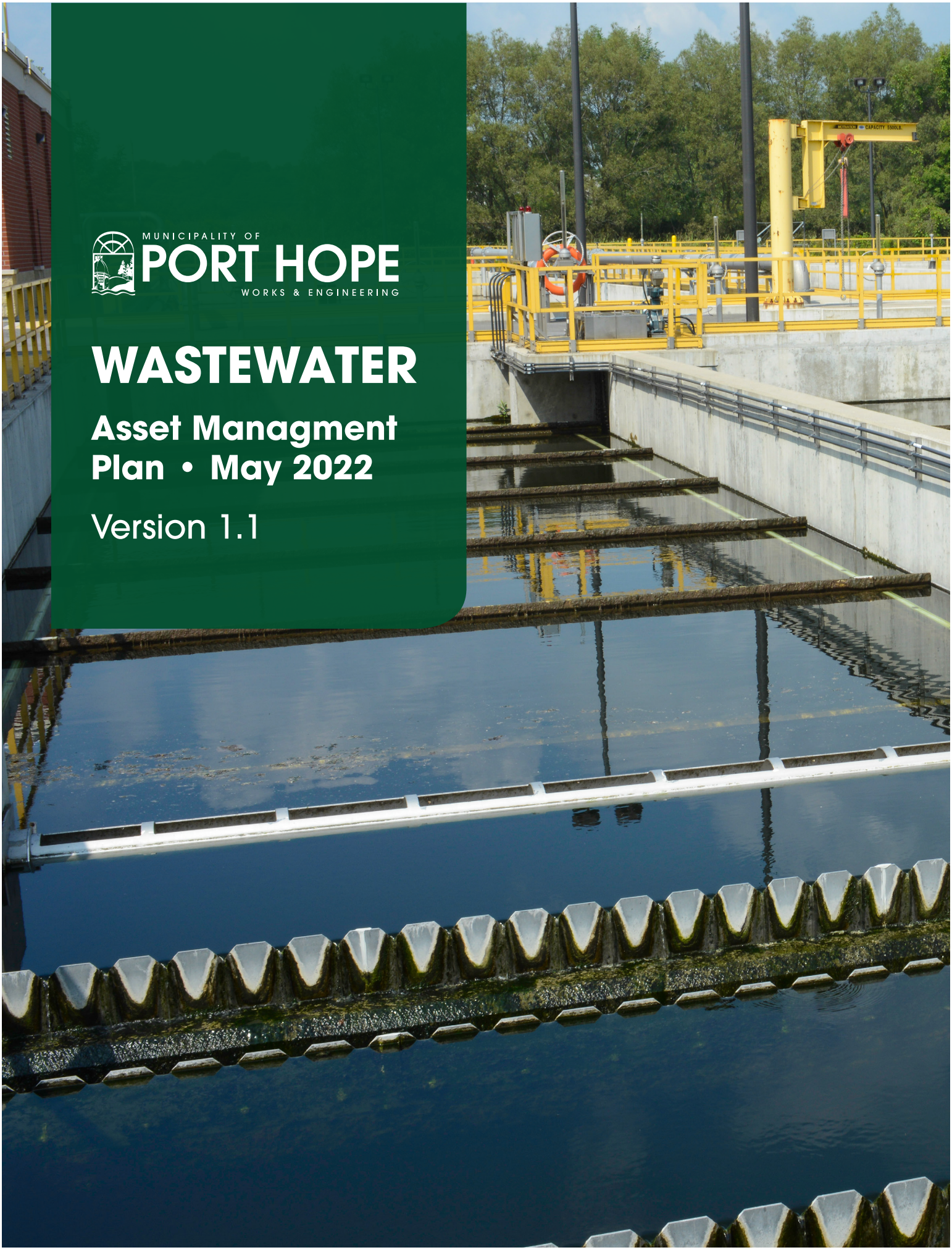
MUNICIPALITY OF
PORT HOPE
WORKS & ENGINEERING

WASTEWATER

Asset Managment Plan • May 2022

Version 1.1



Contents

Introduction

Background

Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure requires all municipalities to prepare baseline asset management plans for their core municipal infrastructure assets supporting the delivery of drinking water, wastewater, stormwater, and transportation. The Municipality of Port Hope has a developing Asset Management program that is advancing and refining a clear picture of its infrastructure assets and maintaining them responsibly, balancing affordability, risk, and service levels. The Provincial regulation requires the Municipality shift its reporting slightly to present the cost of maintaining all core assets in their present state, with no changes to the service level, for the next 10 years.

To meet the Provincial requirements, the Municipality of Port Hope has created this first version of its **Wastewater Asset Management Plan (Wastewater AMP)**. It reports the current state of the assets, levels of service provided, strategies, and activities applied by the Municipality, historical and forecasted financial details, and potential improvement actions. It is a strategic document that provides a snapshot of current conditions and establishes a basis for future asset management planning and decision making.

Asset Categories and Types

The Wastewater AMP satisfies the Provincial requirements for wastewater assets that relate to the treatment or collection of wastewater. This includes the wastewater treatment plant, pump stations, sewer mains (inclusive of sewer services). These assets support the treatment and provision of a safe environment to residents, businesses and visitors within the Municipality.

Wastewater Asset Categories and Segments

Gravity Sewer

A **gravity sewer** is a conduit utilizing the energy resulting from a difference in elevation to remove unwanted water.

Forcemain

A **force main** is a pressurized sewer pipe that conveys wastewater under pressure from the discharge side of the pump. Force mains are used where gravity is not enough to move sewage or stormwater runoff through a sewer line

Maintenance Hole

The purpose of a **Wastewater Maintenance Hole** is to allow for a human access point at certain intervals of a wastewater drainage system for inspection and maintenance purposes.

Wastewater Treatment Plant

Port Hope Wastewater System can collect and treat an impressive 11,300 cubic meters of wastewater per day. The system consists of the **Wastewater Treatment Plant** (WWTP), the Collection System and also receives Septage hauling from residents that are not connected to the system. The WWTP provides mechanical screening and grit removal, preliminary treatment through 3 aeration tanks, secondary treatment through clarifiers and effluent disinfection prior to outfall into Lake Ontario. The WWTP is located at 100 Lake St in the Municipality of Port Hope. The Municipality is the Owner and Operator of the Port Hope Wastewater System that serves the community of Port Hope

Sludge Storage

Sludge holding tanks provide **sludge storage** of biosolids and can serve as a location for thickening before further processing or disposal. Mixing in sludge holding tanks provides uniform sludge concentration, prevents sludge stratification, and ensures a homogeneous feed to dewatering equipment.

Mill Street Pumping Station

The **Mill Street Wastewater Pumping Station** (WWPS) is the largest of the Municipality's three (3) pumping stations located in the collection system. Originally constructed in 1956 and upgraded in 2000/2001 the Mill Street WWPS is a wet well/dry well style station, located at 90 Mill Street South, ±60 m south of Shuter Street on the east shore of the Ganaraska River. The Mill Street WWPS's catchment is area encompasses approximately 80% of the Port Hope wastewater (sanitary sewage) collection system including the discharge from the AON WWPS, historic downtown and other areas with older infrastructure as well as the majority of industrial/commercial lands.

Hope Street Pumping Station

The **Hope Street Wastewater Pumping Station** (WWPS) is the smallest of the Municipality's three (3) pumping stations. Constructed in 1987/1988 the Hope Street WWPS is a submersible (wet well) style station located at 305 Hope Street North

AON Pumping Station

The **AON Wastewater Pumping Station (WWPS)** is a wet well/dry well style station constructed in 2005/2006 and located at 435 Lakeshore Road ±200 m south of Lakeshore Road. The catchment area serviced by the AON WWPS generally encompasses most lands west of Toronto Road

State of Local Infrastructure

Inventory and Valuation

The assets covered in the Wastewater AMP have a replacement value of approximately **$188.78 million.** This includes an inventory of over 78 kilometres of gravity sewer, 4 kilometers of forcemain and 1,163 maintenance hole structures, 1 wastewater treatment plant, 3 pumping stations and 1 sludge storage facility.

	Wastewater Linear Collection	Wastewater Facilities
Inventory	78 km of gravity sewer 4 km of forcemain 1,163 maintenance hole structures	1 wastewater treatment plant 3 pumping stations 1 sludge storage facility
Replacement Costs	**$123,605,787**	**$65,143,000**

Replacement costs for wastewater linear collection are based on benchmark costs for wastewater sewer main projects, as identified in Table 3-3 of the 2020 Water and Wastewater Rate Study. Costs were adjusted to 2022 using Non-Residential Building Construction Price Index (NRBCPI).

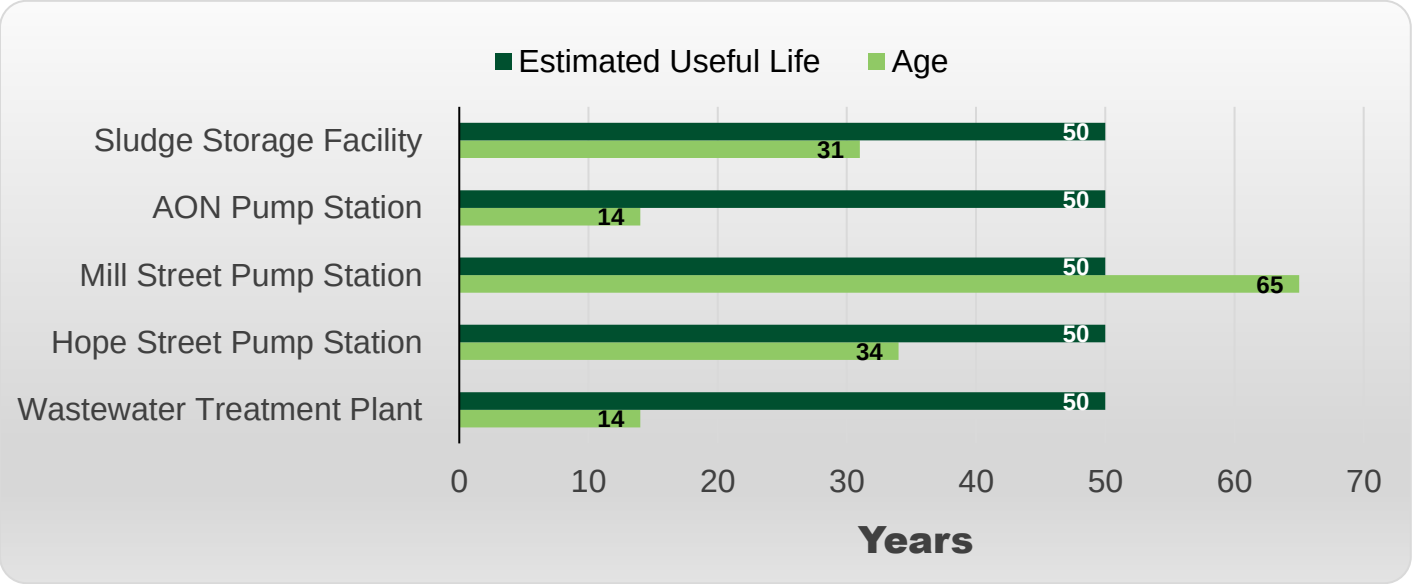
The wastewater facilities were developed using the 2016 AMP values and adjusted for inflation. Replacement values for all facilities will be reviewed and updated as the condition assessments are completed over time. In correlation to the other asset classes the Wastewater AMP replacement costs can be related to the table below.

Asset Class	Quantity	Unit	Historical Cost	Replacement Value	Historical (3 year) average of actual annual replacement	Required Annual Lifecycle Cost	Average annual Lifecycle Cost as % of Replacement Cost
Bridges & Culverts	20	each	$7.23 million	$55.68 million	0	$1.13 million	2%
Water Facilities	5	each	$24.40 million	$48.27 million	$0.41 million	$1.61 million	3%
Wastewater Facilities	**6**	**each**	**$40.22 million**	**$65.14 million**	**$0.13 million**	**$1.87 million**	**3%**
Other Facilities	35	each	$29.62 million	$58.98 million	TBD in next AMP update	TBD in next AMP update	TBD in next AMP update
Water Linear	96	km	$30.56 million	$139.16 million	$1.79 million	$1.86 million	2%
Wastewater Linear	**83**	**km**	**$17.86 million**	**$123.60 million**	**$1.36 million**	**$2.36 million**	**2%**
Transportation Services	690	km	$49.27 million	$321.73 million	$1.14 million	$8.04 million	2%
Storm Sewer Linear	66	km	$17.53 million	$92.32 million	$0.34 million	$1.89 million	2.7% for SWMP & 2.0% for linear
Equipment	140	each	$2.59 million	$3.19 million	TBD in next AMP update	TBD in next AMP update	TBD in next AMP update
Land Improvements	208	each	$9.21 million	$14.90 million	TBD in next AMP update	TBD in next AMP update	TBD in next AMP update
Technology	29	each	$2.52 million	$2.93 million	TBD in next AMP update	TBD in next AMP update	TBD in next AMP update
Vehicles	158	each	$11.68 million	$14.26 million	TBD in next AMP update	TBD in next AMP update	TBD in next AMP update
Totals			**$242.68 million**	**$940.17 million**	**$5.18 million**	**$18.74 million**	

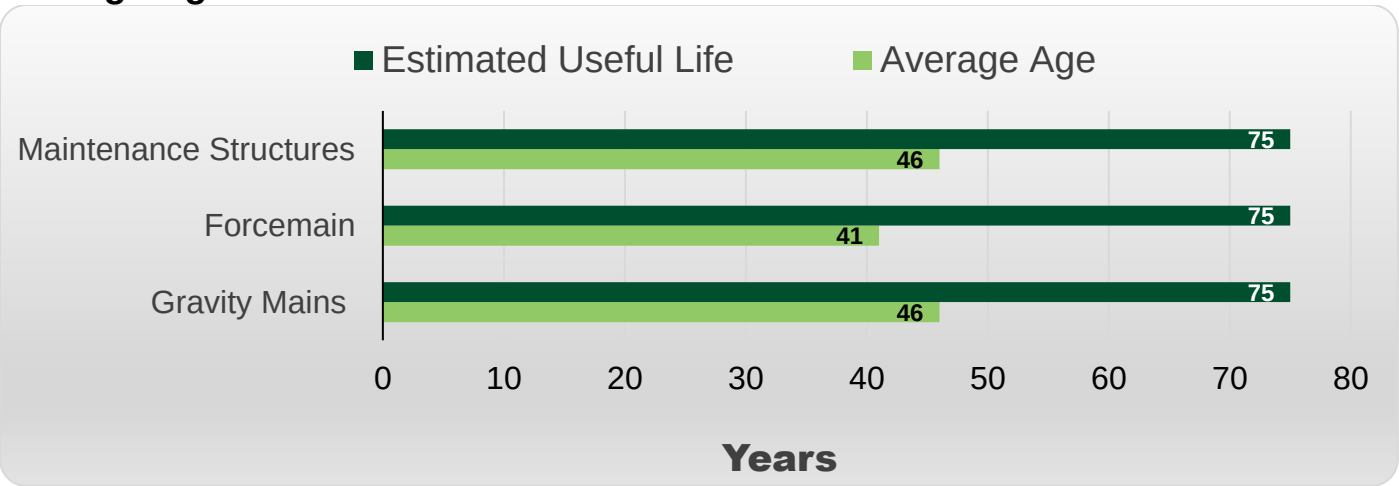
Age and Condition

The age of an asset gives a sense of how close it is to the end of its service life and what renewal interventions may be appropriate. The average age of the Municipality's linear collection system and wastewater facilities are shown in the figures below, however since construction, various assets within the facilities have been renewed, replaced or otherwise maintained to ensure reliable operation. Where construction dates were unavailable in our inventories and GIS mapping, construction dates have been assumed to correspond with other proximate buried linear infrastructure.

Age of Wastewater Facilities



Average Age of Linear Collection



Condition Collection

The Municipality assesses the condition of its Wastewater assets on a regular basis using a variety of techniques, as summarized in the table below.

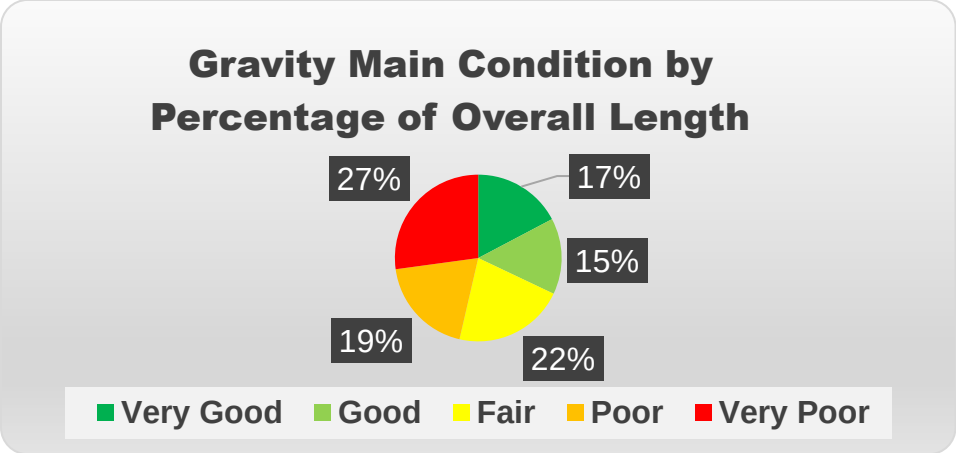
Asset Category	Condition Data Collection Techniques	Frequency
Gravity Mains	Closed Circuit TV Inspections (CCTV)	The system is broken into four quadrants. One quadrant is inspected annually. Additional inspections occur dependent on level of risk; some sewers have more frequent inspection requirements
Forcemains	Do not currently assess (Hydraulic analysis may be included in 2025 AMP)	
Maintenance Structures	Expert grading by physical assessment and scoring during CCTV inspections	The system is broken into four quadrants. One quadrant is inspected annually. Additional inspections occur dependent on level of risk; some sewers have more frequent inspection requirements
Wastewater Facilities	Condition Assessments (facility, electrical, process piping, HVAC, etc.); work order records from maintenance activities	Condition assessments vary but are typically performed within a 5-year cycle; work order records are ongoing

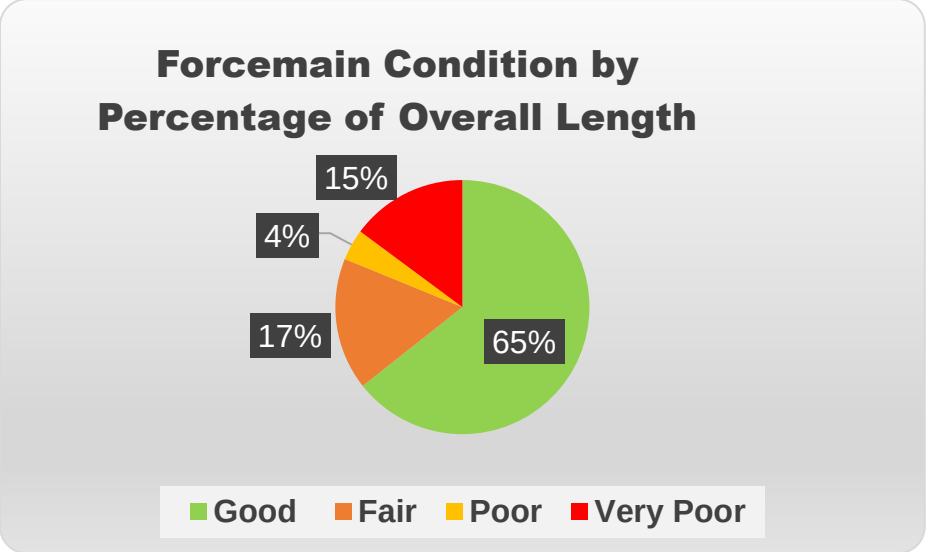
Based on condition data, supplemented by subject matter expert knowledge and professional judgment, the condition of assets is rated on a scale from “Very Good” to “Very Poor” as shown in the table below. The update to the AMP in 2025 will summarize condition as weighted inclusive of CCTV and inspection reports records for facilities. Condition data for maintenance structures is currently being consolidated and will be included in the next update.

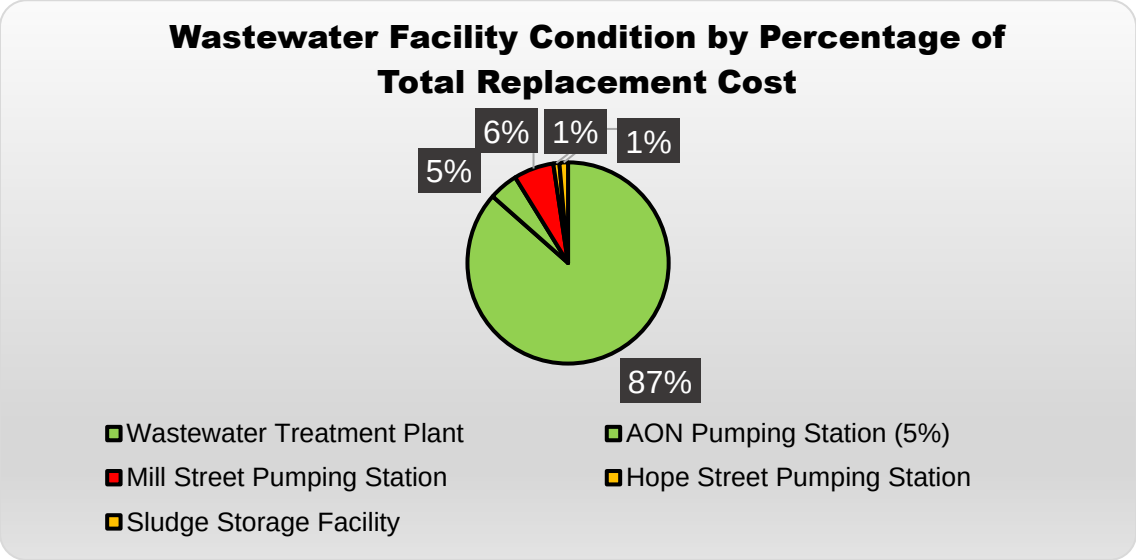
Wastewater Condition Indices

Rating	Rating Description	Remaining Useful Life	Condition Index Linear (probability of failure)	Condition Index Wastewater Facilities
Very Good	**Very Good – Fit for Future** Well maintained, good condition, new or recently rehabilitated	80 to 100%	1	5
Good	**Good – Adequate for Now** Acceptable, generally in mid stage of expected service life	60 to 79%	>1 to ≤2	4
Fair	**Fair – Requires Attention** Signs of deterioration, requires attention, some elements exhibit deficiencies	40 to 59%	>2 to ≤3	3
Poor	**Poor – Increasing potential of affecting service** Approaching end of service life, condition below standard, large portion of system exhibits significant deterioration	20 to 39%	>3 to ≤4	2
Very Poor	**Very Poor – Unfit for Sustained Service** Near or beyond expected service life, widespread signs of advanced deterioration, some assets may be unusable.	0 to 19%	>4 to ≤5	1

The overall condition of Wastewater assets is Good and a breakdown for the various asset types is shown in the figures below.


Gravity Main Condition by Percentage of Overall Length
27%
17%
15%
19%
22%
Very Good
Good
Fair
Poor
Very Poor


Forcemain Condition by Percentage of Overall Length
15%
4%
17%
65%
Good
Fair
Poor
Very Poor


Wastewater Facility Condition by Percentage of Total Replacement Cost
6%
1%
1%
5%
87%
Wastewater Treatment Plant
AON Pumping Station (5%)
Mill Street Pumping Station
Hope Street Pumping Station
Sludge Storage Facility

Levels of Service

The State of the Infrastructure section of the asset management plan provides an overview of the capital assets that support provision of the Municipality's services. The information presented in that section includes asset quantities, replacement cost valuation, age, and condition.

Physical condition of the assets is not sufficient to comprehensively capture the levels of service provided by the Municipality. To cover aspects of services not directly linked to asset condition, a broader levels of service framework has been developed. The levels of service framework presented in this section of the asset management plan contains the following elements:

- Service attributes which identify relevant aspects or characteristics of a service.
- Level of service statements which describe service attributes from a non-technical point of view.
- Performance measures which enable quantitative measurement to support the level-of-service statements.

For each performance measure, the current performance is reported. The Municipality will track and report on the current performance on an annual basis. In the future, targets for each performance measure will be chosen that balance regulatory requirements, the needs/expectations of service users, and various external trends and pressures, with the cost of delivering the service.

Two sets of tables are provided in each of the following subsections. The first table identifies relevant service attributes and defines the community levels of service for each of those attributes. The service attributes are intended to capture all major aspects that are of interest to the users of a service. The community levels of service include qualitative information such as images of assets providing different levels of service and maps, as well as statements describing what the Municipality intends to deliver, generally described from the user's perspective. The second table describes the performance measure(s) connected to each of the service attributes and identifies the current performance for each performance measure.

The Wastewater AMP establishes preliminary level of service measures and the current level of service being provided. The measures align with both Municipal goals and Provincial requirements and recognize that wastewater assets should:

- Reliably capture, convey and treat wastewater while minimizing overflows and backups
- Treat sewage before discharge to the lake
- Recycle biosolids into the environment

A future version of the Wastewater AMP will go a step further and include Council's target service levels for each measure.

Community Qualitative Descriptions

Service Attribute	Community Levels of Service	Qualitative Description
Scope	Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal wastewater system. *	The wastewater system provides for the collection and treatment of wastewater generated by residential and non-residential properties within the Municipality's urban boundary. Except for two streets (approximately 20 properties), all properties within the Municipality's urban boundary have wastewater servicing. The Municipality's Wastewater Treatment Plant also receives imported sewage and septic waste to service rural residents through the hauled sewage/septic receiving station. The scope of the Municipality's wastewater collection system is illustrated by the map in Appendix 1. The map shows the geographical distribution of municipal wastewater mains and forcemains within the Urban Area.
Reliability	Description of how combined sewers in the municipal wastewater system are designed with overflow structures in place which allow overflow during storm events to prevent backups into homes. *	The Municipality's wastewater collection systems are nominally separate, meaning that sanitary and stormwater flows are carried in different pipes with different destinations, however stormwater inflows and infiltrates into the sanitary system from numerous sources.
	Description of the frequency and volume of overflows in combined sewers in the municipal wastewater system that occur in habitable areas or beaches.*	The Municipality does not have a combined system. By managing separate systems for wastewater and stormwater the Municipality dramatically reduces the risk of any overflow to the river or lake during wet weather flows.
	Description of how stormwater can get into sanitary sewers in the municipal wastewater system, causing sewage to overflow into streets or backup into homes. *	Stormwater can enter sanitary sewers via extraneous flow. Extraneous flow has two distinct components: inflow and infiltration. Infiltration is water entering the sanitary system through sources such as rainfall river water, groundwater, snowmelt, or infiltrated rainfall. The pathways for infiltration include defects and damage, such as cracks in sewers, maintenance hole

Service Attribute	Community Levels of Service	Qualitative Description
		and laterals. Infiltration typically enters the system slowly over time with gradual changes in flow rates. Inflow is typically water entering the sanitary system through sources such as rainfall, runoff, river water and groundwater. Inflow enters sanitary systems via illegal direct connections to sewers through floor drains, foundation drains, roof drains, cross-connections, internal overflows (although these occurrences are rare they are occasionally observed through CCTV inspections and corrected), maintenance hole covers, building catchbasins and unsealed openings in a construction site. Inflow typically enters the system with a fast response and can cause fast and extreme changes in flow rates. Infiltration uses baseline sewer capacity but rarely causes flooding or overflows by itself. Inflow is the primary cause for sewer capacity to be exceeded for short periods of time, causing flooding and overflows to occur. Note that the Municipality has made significant investments to reduce risk of overflow and to reduce the impacts on receiving watercourses.
	Description of how sanitary sewers in the municipal wastewater system are designed to be resilient to avoid events described above *	The Municipality has several programs in place to avoid and minimize occurrences of stormwater getting into sanitary sewers. These programs include maintenance hole grouting/repair/replacement and inflow and infiltration analysis during storm events.
	Description of the effluent that is discharged from sewage treatment plants in the municipal wastewater system. *	The Municipality's Wastewater Treatment Plant discharges effluent into Lake Ontario. Municipal staff put forth all efforts to operate the plant at maximum removal efficiencies and within the rated capacity of the facility. The final effluent design objectives are identified in the facility's Environmental Compliance Approval (8519-BKNN7C).

* Required by Ontario Regulation 588/17.

(1) See Appendix 1 for a map of the areas of the municipality that are connected to the municipal Wastewater System.

Technical Metrics

Service Attribute	Performance Measure	2020-2021 Performance
Scope	Percentage of properties connected to the municipal wastewater system. *	56% of all properties within the municipality are connected to the Wastewater System and 75% of properties within the Urban boundary (and system limits) are connected to the Wastewater System.
Reliability	The number of events per year where combined sewer flow in the municipal wastewater system exceeds system capacity compared to the total number of properties connected to the municipal wastewater system. *	0 days exceeding capacity compared to 4,454 wastewater system customer connections. 0%
Reliability	The number of connection-days per year due to wastewater backups compared to the total number of properties connected to the municipal wastewater system. *	93 connection days compared to 4,454 wastewater system customer connections. 2% total.
Reliability	The number of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal wastewater system. *	There were 3 violations per year compared to 4,454 wastewater system customer connections. 0.07%
Reliability	Percentage of gravity sewers flushed and inspected within the past four years. [1]	100%
Reliability	Ratio of wet weather to dry weather flows.	15:04
Reliability	The number of odour complaints received during reporting period.	Staff have received 5 reports of odour complaints
Safety	Incidents of a bypass or overflow at the treatment plant	0
Sustainability	Annual Average Daily Influent Flow vs. Max Day Influent Flow	4,850 m3/day vs 12,744 m3/day 43% of total capacity in 2021 vs. 48% of total capacity in 2020

		As reported in the 2021 Annual Performance Report - WWTP

[1] Percentage of sewer length.

* Required by Ontario Regulation 588/17.

Asset Management Strategy

Practices, Procedures and Tools

The Municipality has well-established overall principles, framework and decision-making approaches for asset management, and these are presented in the 2016 Asset Management Plan. They provide a holistic approach to asset management as demonstrated by the capital investment prioritization process that drives the decision-making towards meeting the desired levels of service at the lowest lifecycle cost.

Future Demand and Service Enhancement

Port Hope's population is expected to increase to 20,850 people by 2029, an increase of 17.31% over the next 7 years. The Municipality's Official Plan provides the vision for the future growth of the Municipality including areas identified for intensification. Further Projections for the urban area are referenced in Northumberland County's Municipal Comprehensive Review – Long-Term Growth Forecast and Urban Land Needs Analysis which projects growth for the urban area up to 2051. The Official Plan is supported by the Development Charges Study and Wastewater Rate Study to ensure that wastewater services will be available to support future growth.

In addition to the growth and enhancement objectives of the Municipality's master plans, asset management planning also needs to consider the Climate Action Plan goals for both resiliencies to changing climate and reduction of greenhouse gas emissions. Existing assets must be maintained, and new assets brought into service, to meet these various growth and service enhancement objectives.

Lifecycle Management and Risk

Lifecyle management activities refer to the set of planned activities and actions undertaken to maintain the current levels of service and achieve good economic life of the assets. The activities undertaken range from operations and maintenance activities, including planned and reactive maintenance, renewal activities (such as condition assessments and rehabilitations), disposal activities and non-infrastructure solutions (such as policies and processes that reduce costs, mitigate risks or maintain/enhance service delivery).

In developing the Wastewater AMP, a preliminary estimate of future costs was generated based on the Municipality's budgeted 10-year capital forecast which, at this time, provides the best available information for generating this estimate. It was developed through a collaborative effort of Watson & Associates Economists Ltd. Combined with staff input that aligns with the Municipality's current decision-making and asset capital expenditure processes. The lifecycle activities that will be required over the 10-year period are based on the asset management strategies that currently captured in the Annual Capital and Operating Budget processes. For wastewater assets, this includes operational and maintenance strategies, asset management decision making, lifecycle cost and value optimisation, options analysis, ageing assets strategy, non-infrastructure solutions, capital investment planning, condition assessment programs, as well as consideration of water service impacts and impacts to other services.

The Municipality applies a risk-based approach to prioritizing asset renewals. The risk assessment frameworks and methods vary across the different types of assets but are generally based on the

importance of each asset in terms of service delivery/ continuity and the number of users who could be impacted.

Wastewater Collection Linear

Category	Frequency
Inspection and Condition Assessment	The Municipality uses its CCTV equipment to inspect the wastewater collection system (including wastewater mains and maintenance holes) and assign a Quick Score Rating (Q.S.R.) to each sewer segment based on the NASSCO Pipeline Assessment Certification Program. This methodology assigns each segment of sewer a Q.S.R. based on defects, with a Q.S.R. of 1 being the least severe and a Q.S.R. of 5 being the most severe representing sewers with major structural defects and failures.
Major Lifecycle Activities - Operating	**Flushing program** – Municipal staff perform regular flushing of wastewater mains using a rented vacuum truck (rented for approximately 4 months per year and shared with the Roads department). Wastewater mains get flushed on a 4–5-year cycle, aligned with the CCTV inspection program noted above. **Lateral repairs** – the Municipality performs inspections of service laterals in response to service requests received from the public. Furthermore, the Municipality maintains a list of properties that are known trouble spots and inspects the respective laterals semi-annually. Where it is determined that maintenance is not an option, a replacement would be undertaken. Lateral repairs that are not addressed through broader capital projects are funded out of the operating budget. Historically, the Municipality has performed on average approximately 12 lateral repairs annually. **Lateral inspection ports** – The Municipality has been installing clean-out inspection ports at the property line to facilitate above-ground maintenance (e.g., if there is ever need for inspection, flushing or rodding). Approximately 6 to 12 cleanout inspection ports are installed on an annual basis. **Maintenance hole adjustments** – Municipal staff perform adjustments on an as-needed basis (i.e., if the maintenance hole cover has significantly raised or sunk).
Major Lifecycle Activities - Capital	Wastewater main replacements are completed as needed and, where possible, are aligned with other asset replacements through a coordinated reconstruction program. Replacements of wastewater mains typically include replacement of maintenance holes and wastewater services to the property line. For long-term capital planning purposes and budgeting, wastewater mains are assumed to have a useful life of 75 years, with a relining taking place part-way through the lifecycle, around age 40-50.
Identification of Short-term Priorities	The Municipality developed a 10-year forecast of lifecycle activities as part of the 2020 Water & Wastewater Rate Study. The forecast contained in the Water & Wastewater Rate Study is the basis for developing annual capital budgets and is supplemented with priorities that are identified through ongoing operations.
Growth-related	Future population and employment growth in the Municipality is expected to result in incremental service demands that may impact the current level of service. The

Category	Frequency
Lifecycle Needs	growth-related capital investments related to wastewater mains include various main upgrades and new inspection equipment which are summarized in the Municipality's development charges background study.

Wastewater Facilities

Lifecycle Activities	Frequency
Inspections and Condition Assessment	Condition assessments completed to review the condition of the various existing assets and systems at each facility and identify current and longer-term needs based on asset lifecycles. Recently completed assessments include: • Port Hope Wastewater Treatment Plant Condition Assessment and Needs Study (January 2020) • Mill Street Wastewater Pumping Station Condition Assessment and Needs Study (December 2019) • AON Wastewater Pumping Station Condition Assessment and Needs Study (December 2019) • Hope Street Wastewater Pumping Station Condition Assessment and Needs Study (August 2019)
Major Lifecycle Activities - Operating	Preventative maintenance activities for equipment are scheduled and completed routinely along with other lifecycle replacement needs.
Major Lifecycle Activities - Capital	Lifecycle replacements and rehabilitations of facility components are completed as needed. For long-term capital planning purposes and budgeting, some facilities have been broken down into major facility components that are assigned useful lives ranging from 20 years for mechanical and electrical elements to 50 years for structural elements. Other facilities have not yet been broken down into major components and are planned for using an overall useful life of 50 years.
Identification of Short-term Priorities	The Municipality maintains a 10-year capital plan for wastewater facilities that was developed and is updated with input from the following sources: • Input from Municipal staff with respect to projects that are required to address operational-level items or provide continuity of ongoing maintenance programs • Condition assessment reports • Long-term asset planning for facilities that may require major lifecycle rehabilitation within a 10-year planning period.
Growth-related	Future population and employment growth in the Municipality is expected to result in incremental service demands that may impact the current level of service. The growth-related capital investments related to wastewater facilities include pumping

Lifecycle Activities	Frequency
Lifecycle Needs	station upgrades and are summarized in the Municipality's development charges background study which is updated every five years.

The Municipality continues to invest in maintaining infrastructure and has been increasing its capital investments to align with long-range forecasts available in the 2016 AMP, Development Charges Study and Water & Wastewater Rate Study. The Municipality's existing funding model incurs an annual shortfall to maintain critical infrastructure in a state of good repair. There are annual contributions to the Asset Management Reserve to increase the current funding model. Changes will again impact the financing strategy when the new service levels are defined in the next version of the asset management plans, which are due in 2025.

Annual Reinvestment required based on Lifecycle Management Strategy costs

Asset Category	Quantity	Unit of Measure	Replacement Cost	Average Annual Lifecycle Cost (Capital)	Average Annual Lifecycle Cost as % of Replacement Cost	2016 Canadian Infrastructure Report Card Reinvestment Rate – Low Target	2016 Canadian Infrastructure Report Card Reinvestment Rate – High Target	Annual Reinvestment Rate based on Useful Life Analysis
Wastewater Linear	82	km	$123,605,787	$2,359,119	1.9%	1.0%	1.3%	
Wastewater Facilities	5	each	$65,143,000	$1,872,151	2.9%	1.7%	2.5%	2.9%
Wastewater Maintenance Structures	1,163	each	Incl. with linear	Incl. with linear				

Improvement and Monitoring Plan

Based on the snapshot of current conditions and existing plans presented in the Wastewater AMP, areas of potential improvement include:

- Asset information and data quality
- Condition data tracking and asset valuation
- Lifecycle renewal needs forecasting
- Climate change resiliency
- Equity and inclusion

The Wastewater AMP will be reviewed and updated on a regular basis and over time these improvements will be reflected in future versions of the plan.

More Information

For more information about asset management, or to learn more about the Municipality's Asset Management Program, please visit porthope.ca.

Appendix 1
Wastewater Asset Management Plan
Facilities and Collection System

MUNICIPALITY OF
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Highway of Heroes
Toronto Rd
Jocelyn St
UNION CEMETERY
GANARASKA REGION CONSERVATION AREA
WLADYKE PARK
TOWN AGRICULTURAL PARK
KING'S FIELD PARK
PORT HOPE GOLF AND COUNTRY CLUB
Fort Hope
Peter St

Legend

- Wastewater Facilities
- Maintenance Structure
- Gravity Main
- Forcemain

Quadrant

- 1
- 2
- 3
- 4

0 0.25 0.5 1 Kilometers