2025
Asset Management Plan

innservices

Version History

Version	InnServices' Board Approval Date	Town of Innisfil's Council Approval Date	Description
1.0	May 19, 2022	June 8, 2022	Initial release of core assets content in compliance with 2022 O. Reg. 588/17 requirements.
1.1	May 9, 2024	June 26, 2024	Updated to include non-core assets content in compliance with 2024 O. Reg. 588/17 requirements.
2.0	June 11, 2025	June 25, 2025	Updated and consolidated to include all assets, proposed levels of service, and financial analysis in compliance with 2025 O. Reg. 588/17 requirements.

InnServices is committed to public transparency and open communication. In this spirit, and in compliance with Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure (O. Reg 588/17), Asset Management Plans are accessible through the InnServices' website. If an alternate format is required, please contact communications@innisfil.ca

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Executive Summary

InnServices owns and manages a large range of water and wastewater assets on the behalf of our community. These assets must be managed efficiently and effectively to ensure that they continue to meet the current and future needs of the community.

The water network supports the delivery of safe potable water services provided by InnServices across the Town of Innisfil. Water network assets include watermains, water laterals, water treatment plants, pumping stations and well houses, water valves, reservoirs and standpipes, water meters, hydrants, valve chambers, and water fittings, fleet and land improvements.

The wastewater network support the collection, treatment and disposal of the waste by InnServices across the Town of Innisfil. Wastewater network assets include gravity mains, force mains, maintenance holes, sanitary laterals, sanitary fittings, pumping stations, waste treatment plants, fleet and land improvements.

AMPs will be updated periodically to meet legislative requirements and to ensure the information remains current. The information and figures within this plan have been developed based on the best available data at the time of the plan's development. The AMPs will guide decision making for Levels of Service (LOS) and lifecycle management activities including the acquisition, operation, maintenance, renewal, and disposal of InnServices' assets.

2025 State of Infrastructure

Asset Inventory:

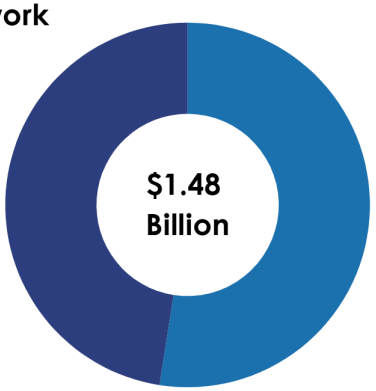
- Water Network Assets
- Wastewater Network Assets

80% of Water Network assets are in good or excellent condition.

55% of Wastewater Network assets are in good or excellent condition.

Total Replacement Value

Wastewater Network
$706.2 Million



Water Network
$779.5 Million

Frequently Asked Questions

What is an asset?
An asset is an item of property owned and maintained by InnServices that is deemed to have a value over a specified threshold. InnServices' assets include a variety of water and wastewater network assets alongside most assets that are housed in facilities operated & maintained by InnServices.

What is an asset category?
An asset category refers to a set of assets that have similar characteristics or functionality. For example "water network" asset types include water mains, hydrants, hydrant leads, water valves, valve chambers, water laterals, facility assets and fleet.

What is Asset Management?
Asset Management involves the strategic oversight of both core and non-core infrastructure assets, including water network, wastewater network, and fleet. This process ensures that assets are maintained effectively throughout their lifecycles to optimize performance and cost efficiency.

What is the objective of asset management?
The objective of asset management is to intervene at strategic points in an asset's lifecycle to extend the expected service life, and thereby maintain its performance. When maintenance activities are scheduled strategically it helps decrease costs by avoiding expensive unplanned or excessive maintenance.

What is an Asset Management Plan?
An Asset Management Plan (AMP) is a strategic document that provides summary level information about the quantity, quality, average age, and replacement value for a particular asset category. It identifies the levels of service to be delivered by the assets and the lifecycle activities required to maintain the assets in a condition that will adequately support this deliverable. Finally, the plan provides a summary of the required investment over the next 10 years.

Why does InnServices need an AMP?
Under the Infrastructure for Jobs and Prosperity Act, 2015, and Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure, each municipality in Ontario has a legislative requirement to develop and maintain AMPs. In addition to the legislative requirement, InnServices benefits from maintaining an effective AMP to help ensure that limited resources are being invested effectively in the assets that need it most to ensure the ongoing delivery of services.

How does InnServices include community feedback in the Plan?
InnServices would provide opportunities for community engagement in asset management planning. InnServices will provide information on the corporate website to facilitate transparency in asset management planning.

Regulatory and Strategic Alignment

Regulatory Requirements
In 2015, the Ontario government introduced the Infrastructure for Jobs and Prosperity Act. The purpose of this Act is to establish mechanisms to encourage principled, evidence-based and strategic long-term infrastructure planning that supports job creation and training opportunities, economic growth and protection of the environment. The Act also serves to incorporate design excellence into infrastructure planning.

Under this Act, the Ontario government also introduced Ontario Regulation 588/17 (O. Reg 588/17) which requires municipalities to prepare an Asset Management Policy and an Asset Management Plan (AMP) in respect of its core and non-core municipal infrastructure assets. The InnServices' AMP has been prepared to meet the 2025 regulatory requirements of O. Reg. 588/17 including the addition of proposed levels of service for each asset category and the lifecycle activities and annual costs needed to achieve these results. Any gaps or weaknesses in compliance are addressed in the Monitoring and Improvement section of the AMP.

Following the 2025 approval, an annual progress report must be submitted to Council identifying InnServices' progress in implementing the AMP, and any factors impeding success.

Improvements in asset management, including opportunities documented in table 13 will be included in the annual report to monitor this progress. The AMP and the Asset Management Policy will be updated every 5 years to ensure these documents remain current and reliable.

InnServices relies on Town's Official Plan for growth within the Community. The Town's Strategic Plan 2023 provides direction on the actions and outcomes the Town is working to achieve in asset management planning. The AMP supports the Town's strategic priorities through fulfillment of the following objectives:

- Improve water and wastewater infrastructure and monitoring programs to continue to protect Innisfil's precious water supply and environment, especially Lake Simcoe.
- Develop a long-term financial plan to guide future policy and budget decisions so that we maintain the Town's financial health and stability.
- Implement a comprehensive asset management program so that we know the condition of infrastructure assets and can prioritize investments to meet the needs of tomorrow.

Furthermore, asset management planning supports the principles of the strategy through continuous improvement in service delivery and ensuring safe and reliable infrastructure.

2019
Asset Management Policy approved by Council.

2022
AMPs for core infrastructure assets approved by Council.

2024
AMPs for non-core infrastructure assets approved by Council.

2025
All AMPs updated to include proposed levels of service.

2026 +
Annual scorecard provided to Council. AMPs and Policy reviewed and updated every 5 years.

Definitions & Acronyms

Asset Performance: The manner in which or the efficiency with which an asset fulfills its intended purpose.
Average Asset Age: The age of the asset since the construction date. As each asset class has various components, the average asset age is used.
Combined Sewers: A type of gravity sewer with a system of pipes, tunnels, and pump stations to transport sewage and stormwater together to a sewage treatment plant or outfall.
Connection-days: The number of properties connected to a municipal system that are affected by a service issue, multiplied by the number of days on which those properties are affected by the service issue.
Core Asset: As per O. Reg. 588/17, Water Assets, Wastewater Assets, Stormwater Management Assets, Roads and Bridges/ Culverts are considered as core assets.
Expected Useful Life: The length of time that assets are designed to provide safe, reliable, and useful service.
Land Improvements: Land improvements include assets such as fences, walkways, parking lots, and outdoor lighting.
Lifecycle Activity: Activities undertaken with respect to a municipal infrastructure asset over its service life, including constructing, maintaining, renewing, operating and decommissioning, and all engineering and design work associated with those activities.
Lifecycle Cost: The cost of activities undertaken with respect to a municipal asset over its service life including reconstructing, maintaining, renewing, operating, and decommissioning including associated design and engineering fees.
New Acquisitions: The planned construction of new assets that are not to replace the existing infrastructure.
Non-Core Assets: O. Reg 588/17 regulation has not defined which non-core assets to include. InnServices classify Fleet and Land Improvement assets as non-core assets.
Renewal: The asset to be replaced or restored to a excellent state as if had become new again.
Replacement Value: The cost in 2025 dollars to rebuild the entire asset regardless of maintenance/rehabilitation strategies. It is assumed as a complete new build of the asset, not including the land acquisition cost.
Sewer Relining: Technique of inserting a liner into a sewer; used to restore sewers nearing the end of their useful life to like-new condition.
Water Network: Water assets that relate to the collection, production, treatment, storage, supply or distribution of water.
Wastewater Network: Wastewater assets that relate to the collection, transmission, treatment or disposal of wastewater, including any wastewater asset that from time to time manages stormwater.

Acronyms:

AMP = Asset Management Plan
CCTV = Closed Circuit Television Video
CI = Continuous Improvement
CPI = Construction Price Index
CVOR = Commercial Vehicle Operators Registration
DC = Development Charges
DCP = Development Charge Prepayments
ECA = Environmental Compliance Approval
FEF = Front End Financing
HEWSF = Housing-Enabling Water Systems Fund
HSWS = Health and Safety Water Stream
LOS = Levels of Service
MCR = Municipal Comprehensive Review
MSP = Master Servicing Plan
NASSCO = National Association of Sewer Service Companies
O. Reg = Ontario Regulation
PACP = Pipeline Assessment Certification Program
PDCA = Plan-Do-Check-Act

Asset Portfolio Overview

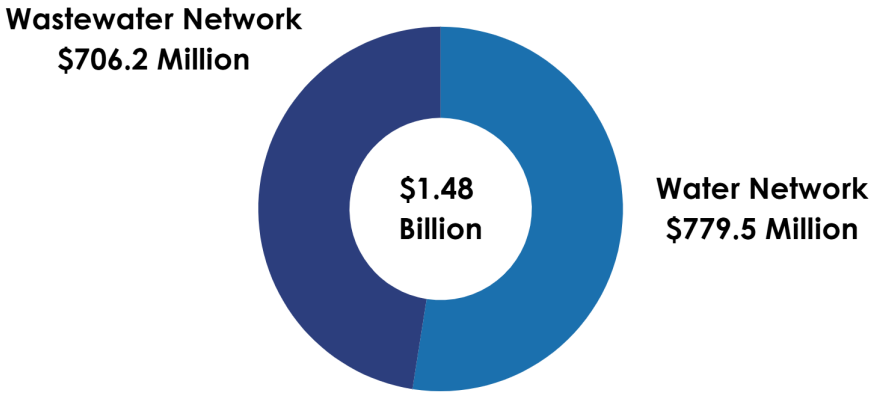
The total replacement cost of the InnServices' asset portfolio is approximately $1.48 Billion.

68% of assets are in good or excellent condition, only 7% of assets are in poor or very poor condition.

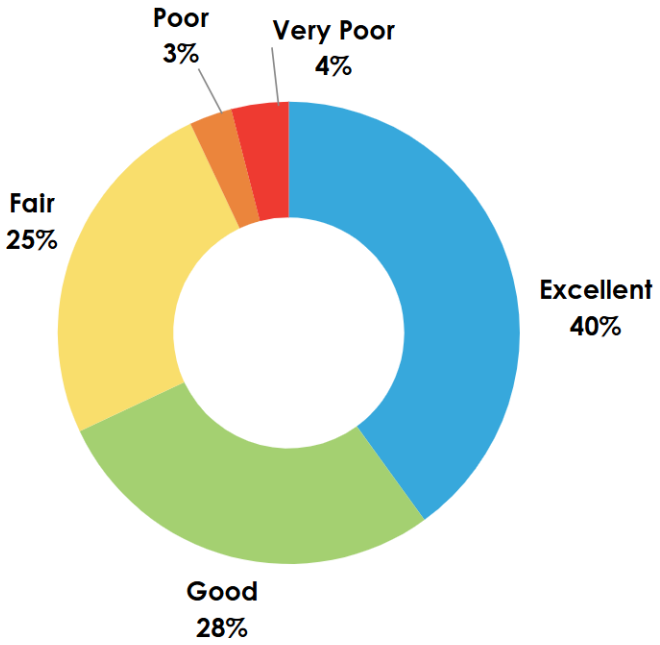
To meet the proposed levels of services and capital rehabilitation/replacement needs for the existing as well as new infrastructure to be built for the next 10 years (2025-2034), InnServices' average annual capital requirement totals $93.5 million. Based on a historical analysis of available capital funding sources, there is currently an annual funding shortfall of $41.2 million for the next 10 years.

It is important to note that this AMP is developed based on the most current processes, data, and information available at the preparation of the AMP. Strategic asset management planning is a continuous commitment for the ongoing refinement of data, processes, and systems.

Replacement Value Summary



Asset Condition Summary



State of Infrastructure

The State of Infrastructure section provides summary level information about InnServices' water and wastewater network assets. This information provides the foundation of InnServices' asset management plans, as having a complete and current understanding of InnServices' state of infrastructure is critical to efficient and effective lifecycle management and financial planning.

Background information and reports used in the preparation of the Asset Management Plans will also be made available publicly through InnServices' website or upon request.

In keeping with O. Reg 588/17 requirements, the following information is provided for each of the water and wastewater asset types currently in scope of InnServices' asset management program:

- **Inventory** (quantity)
- **Estimated Useful Life**
- **Replacement Value**
- **Remaining Useful Life**
- **Average Age**
- **Average Condition**

Water Network

Current Replacement Value

Replacement value is the estimated total cost to replace an asset to the same/current functional standard and varies depending on current market costs. Asset replacement value is determined by estimating the total replacement value of the assets within each asset class.

- **Cost/Unit:** Based on the current capital projects, the cost/ unit is estimated for the infrastructure including the asset removal costs, site work, material costs, and engineering contingencies.

- **CPI (Construction Price Index) Method:** Replacement cost of the assets is estimated by inflating the historical costs using Non-Residential Building Construction Price Indices (NRBCPI) to reflect an assets replacement value in today's dollar (2025).

→ **When are assets replaced?**

Assets are replaced when they no longer add value or serve their initial/intended purpose.

Table 1: Water Network Assets Summary

Asset Type	Quantity	Replacement Value
Watermains	239 km	**$779.5 million**
Water Laterals	131 km	
Water Treatment Plant	1	
Pumping Stations & Well Houses	16	
Water Valves	16101	
Reservoirs & Standpipes*	14	
Water Meters	12977	
Hydrants	1530	
Valve Chambers	98	
Water Fittings	3050	
Fleet	15	
Land Improvements	158	

**Reservoirs and Standpioes include 3 standpipes, 1 water tower, 5 reservoirs, and 2 fire protection cisterns.*

The Current Replacement Value (CRV) detailed in the AMP has become more important as a result of the Ministry of Infrastructure now using this data to determine Ontario Community Infrastructure Funding (OCIF).

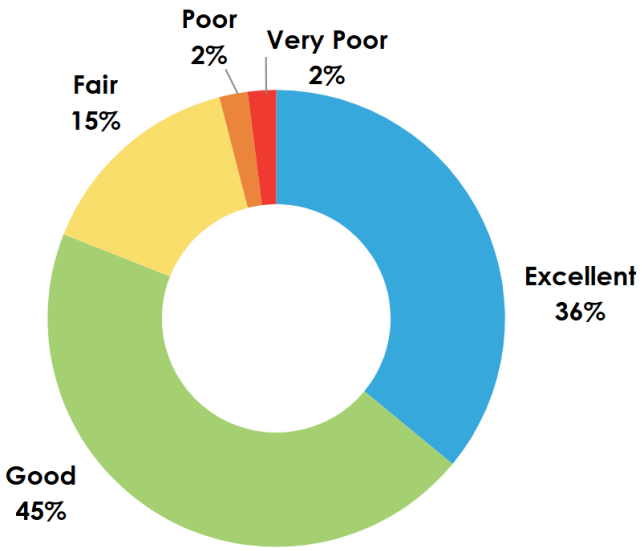
Water Network Condition

Asset condition can be determined through modeling or direct measurement. The modeling approach uses standardized deterioration curves and assigns condition based on the percentage of the expected life remaining. Direct measurement involves inspection of the assets against technical standards to directly determine the current condition.

InnServices is looking at the possibility of conducting condition assessments for watermains and as of now relied on the age-based condition estimates considering the pipe material as per industry standards.

Assessed condition data is invaluable in asset management planning as it reflects the true condition of an asset. Due to the unavailability of assessed condition data for some asset types, age-based estimates are used to determine the condition. The average condition of the water network assets is 71.

Figure 1: Water Network Assets Condition



InnServices conducts condition assessments as needed for critical assets. Third Party Consultant conduct BCA's in accordance with the American Society for Testing and Materials (ASTM) Standards for Property Condition Assessments. Innservices has 19 water facilities including water treatment plant, booster stations, excluding metering stations. Out of the 19 water facilities, 12 facilities were inspected in 2021, 2 in 2024, and remaining 5 are scheduled to be inspected in the next 5 years.

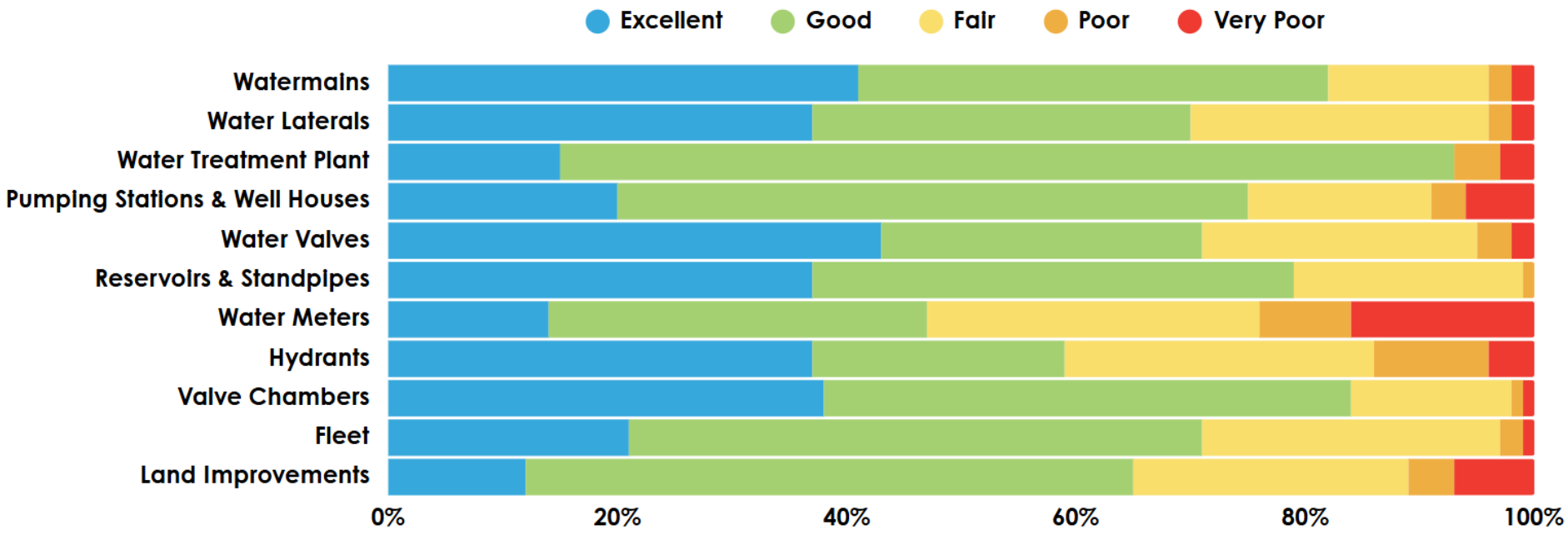
Table 2: Condition Index - Grading Criteria

Condition	BCA Rating	Age -Based Rating	Definition
Excellent	1	80-100	Functioning as intended. No repairs anticipated within 10 years.
Good	2	60-79	Functioning as intended. No repairs anticipated within 5 years.
Fair	3	40-59	Functioning as intended with some deterioration consistent with age of asset. Repairs and/or replacements required within 2 to 5 years.
Poor	4	20-39	Not functioning as intended. Significant repair or replacement within 0 to 1 years.
Very Poor	5	0-19	It is near or beyond its expected service life and shows widespread signs of advanced deterioration

Water Network Condition

Figure 2 shows the asset class condition ratings determined through the building condition assessments and age-based estimates of each asset type. Overall, 80% of water assets are in good or excellent condition, whereas, 5% of assets are in poor or very poor condition. The percentage of assets in a particular condition are weighted with respect to their replacement value.

Figure 2: Water Network Assets - Condition Summary



Wastewater Network

Current Replacement Value

Replacement value is the estimated total cost to replace an asset to the same/current functional standard and varies depending on current market costs. Asset replacement value is determined by estimating the total replacement value of the assets within each asset class.

- **Cost/Unit:** Based on the current capital projects, the cost/unit is estimated for the infrastructure including the asset removal costs, site work, material costs, and engineering contingencies.
- **CPI (Construction Price Index) Method:** Replacement cost of the assets is estimated by inflating the historical costs using Non-Residential Building Construction Price Indices (NRBCPI) to reflect an assets replacement value in today's dollar (2025).

→ **When are assets replaced?**

Assets are replaced when they no longer add value or serve their initial/intended purpose.

Table 3: Wastewater Network Assets Summary

Asset Type	Quantity	Replacement Value
Gravity Mains	155 km	**$706.2 million**
Sanitary Laterals	125 km	
Maintenance Holes	2136	
Forcemains	18 km	
Wastewater Treatment Plants	2	
Pumping Stations	10	
Sanitary Fittings	11423	
Sanitary Valves	225	
Fleet	8	
Land Improvements	146	

The Current Replacement Value (CRV) detailed in the AMP has become more important as a result of the Ministry of Infrastructure now using this data to determine Ontario Community Infrastructure Funding (OCIF).

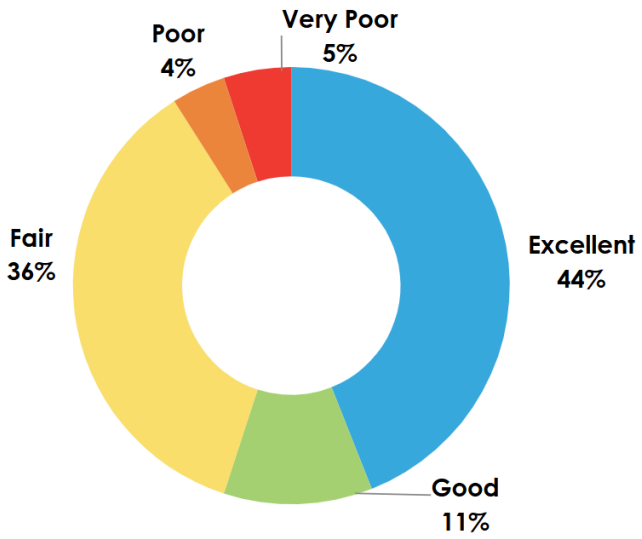
Wastewater Network Condition

Asset condition can be determined through modeling or direct measurement. The modeling approach uses standardized deterioration curves and assigns condition based on the percentage of the expected life remaining. Direct measurement involves inspection of the assets against technical standards to directly determine the current condition.

InnServices has a condition assessment program to investigate current condition of the gravity mains by conducting CCTV inspections. These CCTV inspections are based on Pipeline Assessment Certification Program (PACP) in compliance with NASSCO Standards. Based on the current condition of the gravity main a PACP score is given to a gravity mains ranging between 1 and 5 as shown in Table 4.

Assessed condition data is invaluable in asset management planning as it reflects the true condition of an asset. Due to the unavailability of assessed condition data for some asset types, age-based estimates are used to determine the condition. The average condition of the wastewater network assets is 69.

Figure 3: Wastewater Network Assets Condition



InnServices conducts condition assessments as needed for critical assets. Third Party Consultant conduct BCA's in accordance with the American Society for Testing and Materials (ASTM) Standards for Property Condition Assessments. InnServices has 11 wastewater facilities including wastewater treatment plants, and pumping stations. Out of the 11 wastewater facilities, 6 facilities were inspected in 2021, 1 in 2024 and remaining 4 are scheduled to be inspected in the next 5 years.

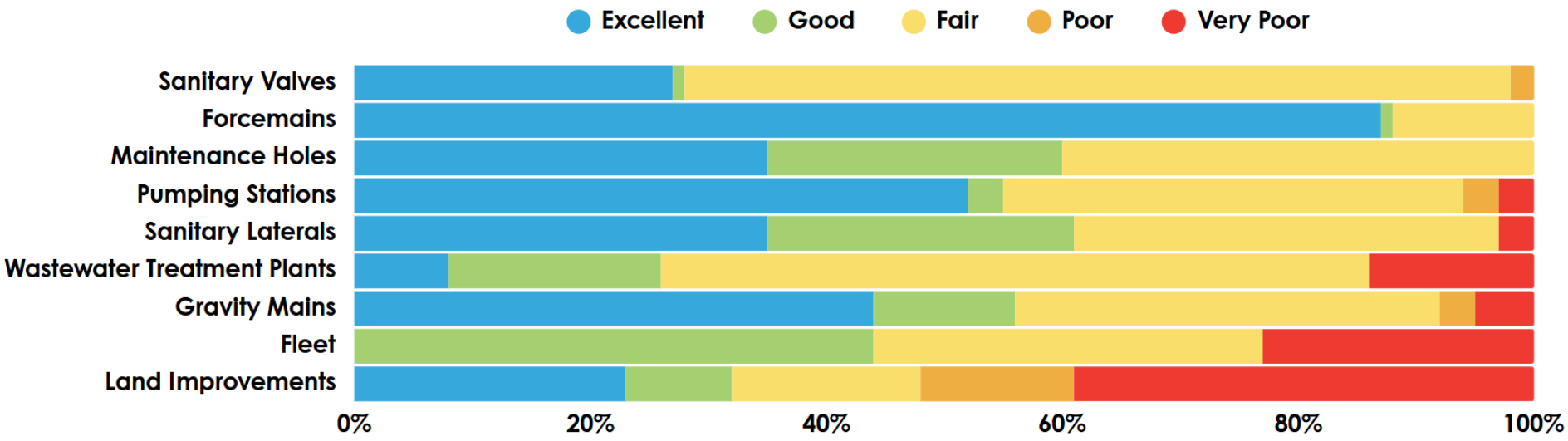
Table 4: Condition Index - Grading Criteria

Condition	BCA & PACP Rating	Age -Based Rating	Definition
Excellent	1	80-100	Functioning as intended. No repairs anticipated within 10 years.
Good	2	60-79	Functioning as intended. No repairs anticipated within 5 years.
Fair	3	40-59	Functioning as intended with some deterioration consistent with age of asset. Repairs and/or replacements required within 2 to 5 years.
Poor	4	20-39	Not functioning as intended. Significant repair or replacement within 0 to 1 years.
Very Poor	5	0-19	It is near or beyond its expected service life and shows widespread signs of advanced deterioration

Wastewater Network Condition

Figure 4 shows the asset class condition ratings determined through the building condition assessments, PACP scores, and age-based estimates of each asset type. Overall, 55% of wastewater assets are in good or excellent condition, whereas 8% of assets are in poor or very poor condition. The percentage of assets in a particular condition are weighted with respect to their replacement value.

Figure 4: Wastewater Network Assets - Condition Summary



Age and Service Life

Average Age

The average age of InnServices assets is determined by analyzing the expected useful life and year built data detailed in the 2024 Tangible Capital Asset (TCA) file. Water and wastewater network assets are analyzed to inform and enable effective lifecycle management activities, such as rehabilitation or replacement.

Expected and Remaining Useful Life

The Expected Useful Life (EUL) is the length of time that assets are expected to provide safe, reliable, and useful service. This value is obtained from the TCA Policy and helps inform the timing of replacement activities. The Remaining Useful Life (RUL) represents the actual length of time an asset has left before requiring replacement. The Average Remaining Useful Life (ARUL) is obtained by subtracting the Average Age from the EUL for each asset sub-type.

In many cases, the service life of an asset can be extended well beyond the original expected life with proactive lifecycle management, however the cost of ownership generally increases as condition worsens and the frequency and cost of repairs increases.

Age, EUL & ARUL Summary of Water Network Assets

Average Age: 21 Years

EUL: 4-100 Years

ARUL: 57 Years

Age, EUL & ARUL Summary of Wastewater Network Assets

Average Age: 23 Years

EUL: 4-80 Years

ARUL: 52 Years

→ **How many assets are older than their expected useful life?**

Only 1.5% of Water and Wastewater Network assets are older than their expected useful life

Levels of Service

Levels of Service (LOS) describe the quantity and performance of services that assets should support during their service life. They provide a direct link between InnServices' strategic objectives, the public's service expectations and the measured performance of the delivered service.

LOS also facilitate a greater understanding of the cost-benefit implications of adjusting the services provided. To be effective, LOS must be documented in ways that are meaningful to both the customers using the service and to the municipal staff that are delivering the services and managing the infrastructure that underlies the service. To ensure effectiveness, two types of LOS have been defined below:

Community - simple qualitative descriptions, in non-technical terms, or images, that describe the public's perception or understanding of a service.

Technical - quantitative metrics that enable staff to measure, track and report on various service attributes such as scope, quality and reliability.

→ **How often are Levels of Service (LOS) updated?**

LOS are updated yearly and documented every 5 years in revisions to asset management plans.

Community and Technical LOS defined by InnServices are summarized in the following tables. These will be used to:

- Identify LOS that service recipients can expect to receive and InnServices' current and future performance in meeting these.
- Identify assets that require attention to ensure that LOS can be delivered and maintained.
- Enable Staff, the Board and Council to discuss and assess the suitability, affordability, and equality of the existing service levels and to determine the effect of increasing or decreasing these levels over time.

Proposed Levels of Service

Proposed LOS is a description(s) that indicates InnServices' proposed performance for each level of Service. For customer LOS, the proposed performances typically describe that InnServices will continue delivering the service as-is, or identifies planned improvements to achieve the proposed performance.

Proposed Technical LOS are numerical values that indicate the proposed performance for each key performance indicator. Typically, the proposed performance is expressed as a specific target, or in relation to the current performance (increase or improve, maintain, decrease, etc.) over time.

The Proposed Levels of Service might be achievable based on the current performance and historical data. It is important to note that a few factors such as growth, ability to invest in asset renewal or growth related projects, increasing project costs, and deferred maintenance may lead to insufficient capital and/or operating funding to meet the proposed level of service.

InnServices has identified the proposed levels of service based on the historical levels of service data to maintain the current asset performance and InnServices' affordability to provide services for the next 10 years.

It should be noted that LOS listed here exceed the current LOS requirements of O. Reg. 588/17.

Community Levels of Service

Community Levels of Service (LOS) are performance measures designed to help the community better understand the services they are receiving and how varying LOS will impact their service experience. Where possible, images are used to further enhance this understanding.

Table 5: Community LOS - Water Network

Service Attribute	Community LOS (Qualitative Descriptions)	Current LOS
Scope	Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal water system.	Appendix A - Levels of Service; Servicing Map
	Description, which may include maps, of the user groups or areas of the municipality that have fire flow.	Appendix A - Levels of Service; Fire Flow Map
Reliability	Description of boil-water advisories and service interruptions.	InnServices does not have any boil water advisories.
Performance	Description of Inspection, maintenance and rehabilitation activities performed to provide the existing LOS.	InnServices actively performing the regular operational inspections, both scheduled and un-scheduled maintenance, and rehabilitation, and renewal strategies based on the asst type.
Quality	Description or images of the condition of water facilities and watermains and how this would affect their use.	Water facilities are evaluated through the Building Condition Assessments, and through regular inspections by InnServices' staff. The BCA analyzes the condition of elements within each facility, providing recommendations for replacement or repair. Majority of the facilities are in good condition require no planned repair or replacement activities within the life of the BCA, whereas Fair or Poor condition will require repairs or replacements within 0 to 10 years. For underground infrastructure such as watermains, InnServices is relying on the watermain break history and age-based condition estimates due to limited access but looking at the possibility of developing a condition assessment program in future.

Technical Levels of Service - Water Network

Technical Levels of Service (LOS) are designed to translate Community LOS into quantitative performance measures, and results that can assist staff responsible for delivering the services and supporting the assets that fulfill the Community LOS. For this version of the Asset Management Plan, performance and quality measures were obtained through Key Performance Indicators and metrics data obtained from staff. The proposed performance for each key performance indicator for the water network assets in shown in the table below which may increase or improve, maintain, decrease, over time.

Table 6: Technical LOS - Water Network

Service Attribute	Performance Measure	Current Performance	Proposed Performance
Scope	Percentage of properties connected to the municipal water system.	63%	65%
	Percentage of properties where fire flow is available.	100%	100%
Reliability	The number of connection-days per year where a boil water advisory notice is in place compared to the total number of properties connected to the municipal water system.	Not Applicable*	Not Applicable*
	The number of connection-days per year due to water main breaks compared to the total number of properties connected to the municipal water system.	0.0085	<0.1
Performance	% of assets in good & excellent condition	80%	75%
	% of assets in poor & very poor condition	5%	<15%
	Average condition of facilities inspected through BCA only	2.05	<2.5
Quality	% of watermains flushed/swabbed (annually)	33%	30-35%
	% of facilities inspected or planned for inspections as per Building Condition Assessments	84%	100%

**InnServices does not have any boil water advisories.*

Table 7: Community LOS - Wastewater Network

Service Attribute	Community LOS (Qualitative Descriptions)	Current LOS
Scope	Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal wastewater system.	Appendix A - Levels of Service; Servicing Map
Reliability	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 system in the following ways: 1) Through holes and cracks in maintenance holes and often caused due to wear & tear 2) Through un-accounted connections of household plumbing items; down spouts, roof leaders and yard drains to the sanitary system. 3) Through floor drains in the flooded basement, or via top of the maintenance holes in a flooded road, etc. Such situations happen only when the storm water management system is overwhelmed and is not capable to handle the rainwater or river flow. 4) At low lying streets/roads during heavy rainfall, overwhelmed water accumulates creating pool which eventually enters through the manhole covers if they are not water tight.
	Description of how sanitary sewers in the municipal wastewater system are designed to be resilient to avoid events described above.	InnServices follows a series of the best engineering design standards that integrate both current & future servicing requirements and land use considerations, when constructing or replacing sanitary sewers. These standards have been determined with consideration of the minimization of sewage overflows, backups, and to reduce the inflow and infiltration.
	Description of the effluent that is discharged from sewage treatment plants in the municipal wastewater system.	Not applicable, there is no individual separate community or ICI (Industrial, commercial and Institutional) based wastewater treatment system discharging their effluents in InnServices' wastewater network. InnServices' wastewater system includes two treatment plants and associated collection network with no intermediate wastewater treatment plants.
Performance	Description of Inspection, maintenance and rehabilitation activities performed to provide the existing LOS	InnServices actively carry out both scheduled and un-scheduled maintenance and inspection on its system that includes CCTV inspection, flushing, station cleanouts, smoke testing, and I and I monitoring, and rehabalitation and renewal stategies based on the asset type.
Quality	Description or images of the condition of wastewater facilities and gravity mains and how this would affect their use.	Wastewater facilities are evaluated through the BCA, and through regular inspections by InnServices' staff. Majority of the facilities are in fair good condition require no planned repair or replacement activities within the life of the BCA, whereas Fair or Poor condition will require repairs or replacements within 0 to 10 years. For underground infrastructure such as gravity mains, InnServices has started a three year condition assessment program in 2022, to investigate the condition by CCTV inspections as per NASSCO Standards. Almost 107 km (70%)of gravity mains have been inspected.

Technical Levels of Service - Wastewater Network

Technical Levels of Service (LOS) are designed to translate Community LOS into quantitative performance measures, and results that can assist staff responsible for delivering the services and supporting the assets that fulfill the Community LOS. For this version of the Asset Management Plan, performance and quality measures were obtained through Key Performance Indicators and metrics data obtained from staff. The proposed performance for each key performance indicator for the wastewater network assets in shown in the table below which may increase or improve, maintain, decrease, over time.

Table 8: Technical LOS - Wastewater Network

Service Attribute	Performance Measure	Current Performance	Proposed Performance
Scope	Percentage of properties connected to the municipal wastewater system.	67%	65%
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.	Not Applicable*	Not Applicable*
	The number of connection-days per year due to wastewater backups compared to the total number of properties connected to the municipal wastewater system.	0	<0.1
	The number of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal wastewater system.	0	<0.01
Performance	% of assets in good & excellent condition	55%	60%
	% of assets in poor & very poor condition	8%	<15%
	Average condition of facilities inspected through BCA only	2.05	<2.5
Quality	% of gravity mains flushed (annually)	33.3%	30-35%
	% of facilities inspected or planned for inspections as per Building Condition Assessments	90%	100%
	% of gravity inspected as per NASSCO Standards	70%	80%

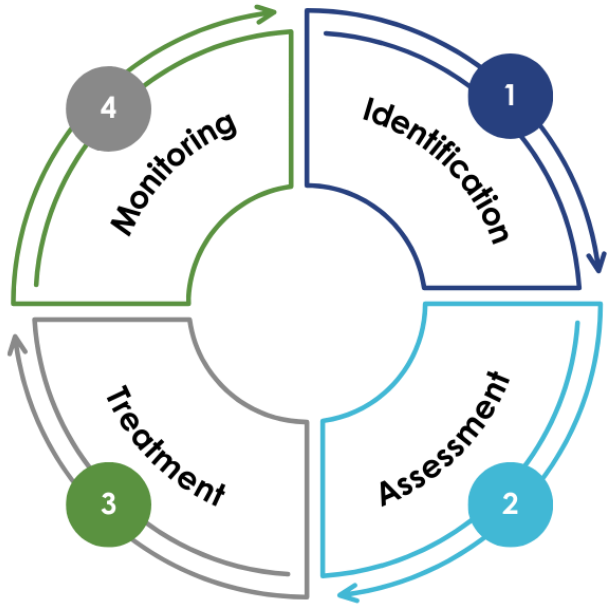
**InnServices does not have any combined sewers.*

Risk Management

In the context of municipal asset management, a **Risk** is an event that, if it occurred, would have an undesirable effect on the delivery of service. Understanding what risks exist for InnServices' each asset category is critical in determining how best to treat them.

Risk is managed through a four-step iterative process of identification, assessment, treatment, and monitoring to ensure that InnServices is adequately prepared for what events may happen and have plans in place to react to events appropriately. This process is outlined in Figure 5, with each step described in further detail.

Figure 5: Risk Management Process



1. **Identification** - Write down all the threats and risks you can think of and ask for ones from other stakeholders. Risks are identified through a number of data sources, including:

- Routine inspections
- Reports and complaints from the public
- Information obtained from past incidents
- Advice from professional bodies
- Past experience of InnServices staff

2. **Assessment** - Evaluate each risk by determining the likelihood and severity of it happening and the level of impact it would have. Each controllable event is evaluated and provided a risk rating (1-5) for each of the following categories:

- **Likelihood (A)**: if the possibility of an identified event is remote, the score will be low (closer to 1)
- **Severity (B)**: greater the implication of the occurrence of an identified event causing harm to persons or property, higher the score will be (closer to 5)
- **Detectability (C):** If an identified event is highly detectable, the score will be low (close to 1)

Risk = Likelihood + Severity + Detectability

Likelihood and Severity are scored based on lower the value, lower the risk. Detectability scores, however, are based on, more detectable an event, lower the score will be. Appendix C includes three tables in reference to likelihood, severity and detectability and these tables provide context and guidance on the rating of risk.

→ **What is InnServices risk management procedure?**

InnServices has a risk management procedure for identifying potential hazards, conducting hazard analysis, and identifying critical control points within InnServices Utilities water and wastewater treatment and supply activities, in a manner consistent with the requirements of the DWQMS and industry standards.

Based on a review of the Total Risk Values and the associated events, a threshold number is chosen such that all events associated with Total Risk Values which are equivalent to or greater than the threshold number are considered critical.

- Total Risk Values less than or equal to 6 are considered low risk.
- Total Risk Values between 7 and 10, inclusive, are considered as moderate risk
- Total Risk Values equal or greater than or equal to 11 are considered high risk.

3. **Treatment** - Implement process changes to reduce the impact of each risk and a response plan for if it happens. The choice of treatment depends on the level of risk that can be reasonably managed and accepted by InnServices (i.e. the risk tolerance).

Risk tolerance is informed not just by the likelihood, detectability and impact of the risk event, but also the cost of treatment and the urgency of the risk in comparison to other priorities. Depending on the nature of the risk event and the level of risk tolerance, treatment can include:

- **Elimination** - process of removing the risk event entirely.
- **Mitigation** - process of reducing the likelihood and/or impact of the risk event
- **Acceptance** - process of retaining the risk as controlling or monitoring it

4. **Monitoring** - InnServices review the progress of the plan and ensure assessment and treatments are adequately addressing the identified risks on annual basis. Continuous monitoring enables InnServices to stay ahead of any potential hazards and ensures that the risk management process and techniques used are current and effective.

InnServices have identified some potential risks mentioned in Appendix D and Appendix F for water and wastewater network respectively, along with outcome strategies to reduce the likelihood and impact.

Lifecycle Management

All municipal infrastructure assets progress through a series of stages referred to as the asset lifecycle. Management of this lifecycle is critical for delivering consistent and reliable service and achieving the lowest possible cost over the expected life of the assets. A fundamental principle of lifecycle management is that maintaining an asset in good condition costs significantly less than reconstructing an asset in poor condition. For municipal water and wastewater network assets, the overall goal is to extend the expected life of the assets while managing risks and minimizing the total lifecycle costs.

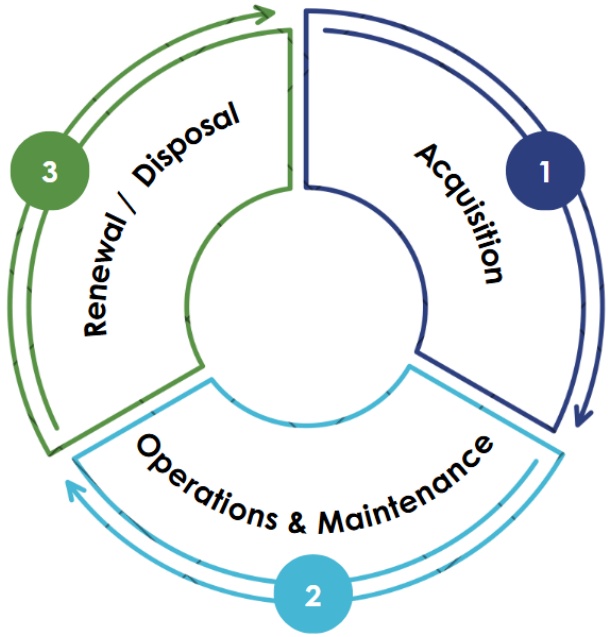
As shown in Figure 6, municipal assets follow an iterative 3-step cycle including acquisition, operations, maintenance, renewal and disposal. As assets progress through each lifecycle stage, different activities or tasks are required to ensure assets are delivering the expected levels of service.

1. **Acquisition** - Municipal infrastructure assets are acquired primarily through assumption of ownership from developers but can also be constructed directly by InnServices through approved capital projects.

2. **Operations and Maintenance (O&M)** - Planned and unplanned routine activities such as inspection, assessment, cleaning, and servicing to fulfill level of service commitments and detect defects before failures occur. Operations and Maintenance activities help resolve minor defects and delay future defects.

3. **Renewal and Disposal** - Capital activities that are beyond the scope of routine maintenance including reconstruction and rehabilitation of assets to enhance their condition and extend the expected life of an asset. Asset disposal occurs when the asset has reached the end of their effective service life.

Figure 6: Asset Lifecycle



Lifecycle Activities

Building on the state of infrastructure and levels of service content, lifecycle activities are the actions utilized by InnServices to operate, maintain, and renew water and wastewater assets in the manner most appropriate to ensure the long-term performance of assets. Determination of the specific action to be taken in the Maintenance and Renewal stages is based on careful consideration of the asset condition, remaining life, and available budget. The timing of the activity also considers competing priorities and related project activities to minimize the risk of having to redo work that is disturbed by a related project. All this helps to ensure that InnServices is performing the most appropriate and cost effective activity to optimize the lifecycle for each asset.

Table 9: Lifecycle Activities - Water Network

Activity	Description of Activities Performed by InnServices
Assessment	• There is no formal condition assessment program in place. However, InnServices keeps a record of water main break history and asset age which helps to determine the condition. • InnServices has a Building Condition Assessment (BCA) Program in place carried out by a third-party consultant. BCA's are completed in accordance with the American Society for Testing and Materials (ASTM) Standards for Property Condition Assessments: Baseline Property Condition Assessment Process (E2018-15). As of 2025, 84 % of water facilities inspected or planned for inspections. • New or larger assets are identified through technical analysis as part of Master Servicing Plans completed every 5 years to service new development. • Reservoirs are inspected every 5 years. • Vehicles are inspected on an annual basis and follow CVOR (Commercial Vehicle Operators Registration) Regulations. • Health & Safety inspections are conducted every 6 months. • Pumps & motors are inspected, externally as well as internally as specified in the operations manual to identify the asset performance and remedial measures. • Generators are inspected on monthly basis as per the operational schedules.
Operations & Maintenance	• Hydrants and valves are inspected to see if they are operable, approximately 20% annually. • InnServices conducts regular inspections to ensure all pumping stations operate in a manner that is free from failure and meets the accepted operational standards and efficiencies. • InnServices performs the ongoing maintenance activities as necessary, such as emergency repairs, hydrant repairs, and exercising valves. • A detailed breakdown of applicable maintenance activities is provided in Appendix B.
Renewal	• Vehicles and facility assets are rehabilitated and upgraded based on the condition, breakage, growth, and compliance as per Ministry Standards. • Alcona Reservoir, 3rd Line Booster Station Innisfil Heights Reservoir, Lakeshore Treatment Plant, Zone 2 Booster Station, New Cookstown Elevated Tank, Town Campus Reservoir, Stroud Storage Facility & Booster Pumping Station, Orbit Booster Pumping Station, Zone 3 Booster Pumping Station & Reservoir are scheduled to be built or upgraded in the next 10 years (2025-2034). • Water assets are either removed during renewal or disconnected and abandoned in place depending on the construction circumstances. Abandoned assets are capped and/or grouted to protect other infrastructure. • Water mains in poor or very poor condition are replaced around their end of its useful life. • Undersized water mains that don't meet capacity requirements are being replaced with larger mains. • Valves, valve chambers, and water laterals are replaced at the same time as water mains and on as need basis.

Lifecycle Activities

Table 10: Lifecycle Activities - Wastewater Network

Activity	Description of Activities Performed by InnServices
Assessment	• InnServices has a condition assessment program to investigate the current condition of the gravity mains as per NASSCO Standards. 70% of the gravity mains are inspected as of 2024. • InnServices has a Building Condition Assessment (BCA) Program in place carried out by a third-party consultant. BCA's are completed in accordance with the American Society for Testing and Materials (ASTM) Standards for Property Condition Assessments: Baseline Property Condition Assessment Process (E2018-15). As of 2025, 90% of Wastewater Facilities inspected or planned for inspections. • New or larger assets are identified through technical analysis as part of Master Servicing Plans completed every 5 years to service new development. • InnServices conducts regular inspections to ensure all pumping stations operate in a manner that is free from failure and meets the accepted operational standards and efficiencies. • Pumps & motors are inspected, externally as well as internally as specified in the operations manual to identify the asset performance and remedial measures. • Generators are inspected on monthly basis as per the operational schedules. • Vehicles are inspected as on annual basis and follow CVOR (Commercial Vehicle Operators Registration) Regulations. • Health & Safety inspections are conducted every 6 months.
Operations & Maintenance	• InnServices performs the ongoing maintenance activities as necessary, such as emergency repairs, maintenance hole repairs, exercising valves. • A detailed breakdown of applicable maintenance activities is provided in Appendix E.
Renewal	• Sanitary sewers in very poor or poor conditions are replaced around their expected useful life. • Vehicles and facility assets are rehabilitated and upgraded based on the condition, breakage, growth, and compliance as per Ministry Standards. • Sandy Cove Pumping Station, Pumping Station 8, Cookstown Wastewater Treatment Plant, Lakeshore Wastewater Treatment Plant Expansion, Pumping Station 3, 20 Sideroad Pumping Station, Pumping Station 22, Innisfil Heights Pumping Station 1, Innisfil Heights Pumping Station 2, Innisfil Heights Pumping Station 3, Innisfil Heights Pumping Station 4, Innisfil Heights Pumping Station 5, Innisfil Heights Pumping Station 6, Stroud Pumping Station, and RVH Sewage Pumping Station are scheduled to be built or upgraded in the next 10 years (2025-2034). • Wastewater assets are either removed during renewal or disconnected and abandoned in place depending on the construction circumstances. Abandoned assets are capped and/or grouted to protect other infrastructure. • Undersized sanitary sewers that don't meet the capacity requirements are replaced with larger mains • Sanitary maintenance holes & laterals are typically replaced with sanitary sewers

Future Demand

InnServices is the municipal service corporation of the Town of Innisfil and rely on Town's Official Plan for growth within the Community. As we look towards the future, it is important that we align asset management planning with local land-use planning and provincial policies. Ontario's Place to Grow Plan sets minimum targets for growth and the Municipal Comprehensive Review (MCR) currently underway by the County of Simcoe will establish the minimum growth (residents and jobs) for Innisfil. Innisfil is expecting its current population to double over the next 30 years. Innisfil's Official Plan "Our Place" guides where Innisfil will direct growth to achieve complete and sustainable communities and will be updated to align with the outcome of the County MCR process.

Growth generates both challenges and opportunities as we navigate and balance the ongoing needs of existing residents while addressing the pressures associated with growth and the incremental increases in costs for operational needs. As we look to the future in addressing the longer term financial requirements related to asset renewal and replacement, careful and prudent planning is necessary to ensure the community remains stable, sustainable and affordable.

InnServices Master Servicing Plan is a comprehensive, long-term master plan that outlines recommendations for building the new infrastructure and expanding the existing infrastructure to meet the future demand. This plan takes into consideration the anticipated growth of the Town of Innisfil and identifies the future locations of water and wastewater facilities and linear infrastructure. It also provides projections for when these assets will be required based on population forecasts.

Demand Forecast

Current Population: 43,326 (2021 Census)
Projected Population: 54,971 (by 2031)

Housing: 6300 new homes by 2031

→ **How many customers are connected to the Wastewater System?**

InnServices is responsible for providing safe and reliable wastewater services to over 13,776 customers.

Climate Demand

InnServices is working with the Town of Innisfil to develop an Integrated Sustainability Master Plan which will identify the vulnerabilities of its infrastructure towards policy formulation and program implementation for projected future climate change impact. Changes to our climate can create challenges for municipalities to maintain the levels of service and can decrease the service life and functionality of these assets. To ensure InnServices' water and wastewater assets are safe and reliable, climate change and the consideration of sustainable materials must be incorporated into the decisions and long-term planning.

We are committed to delivering services in a way that are sustainable and that protect the existing natural environment. InnServices' water and wastewater infrastructure is designed and constructed to resist the impacts of such extreme climate events. Based on past experience, InnServices has implemented corporate processes such as additional staff on call, more training, inclusion of an emergency contingency plan and program, better communication, and adding capacity to the systems to help manage extreme climate events. InnServices inspects and monitors its water and wastewater assets to ensure the safety of the public and staff.

During the acquisition or renewal lifecycle stages, InnServices' staff will prioritize sustainable practices where possible. Staff will explore energy efficiency options to reduce emissions, such as retrofitting existing facilities to reduce emissions, such as retrofitting existing facilities.

Conserving & Enhancing Natural Assets

Planting trees in our community helps by absorbing carbon dioxide and providing shade for cooling.

Decrease watering and grass cutting activities during periods of extreme heat.

Financial Strategy

InnServices' financial summary includes the full consideration of the lifecycle cycle costs of the existing and new water and wastewater infrastructure assets. This summary along with financial policies provide guidance to InnServices while building operating and capital budgets. This financial summary guides InnServices when and where the financial resources will be needed, recognizing the immediate and future needs for the asset renewal, maintenance and growth to meet the infrastructure demands.

The Budget Process
InnServices prepares a budget on an annual basis. The budget is informed by development charges background study, various master plans, water and sewer rate studies, long-term financial plan, and infrastructure needs studies, and asset lifecycle requirements.

Operating Budget
InnServices' operating budgets quantify the expenditures needed to provide services, governance and administration, maintain financial funding for the current & future projects, and to perform the operational and maintenance activities required to maintain current service levels.

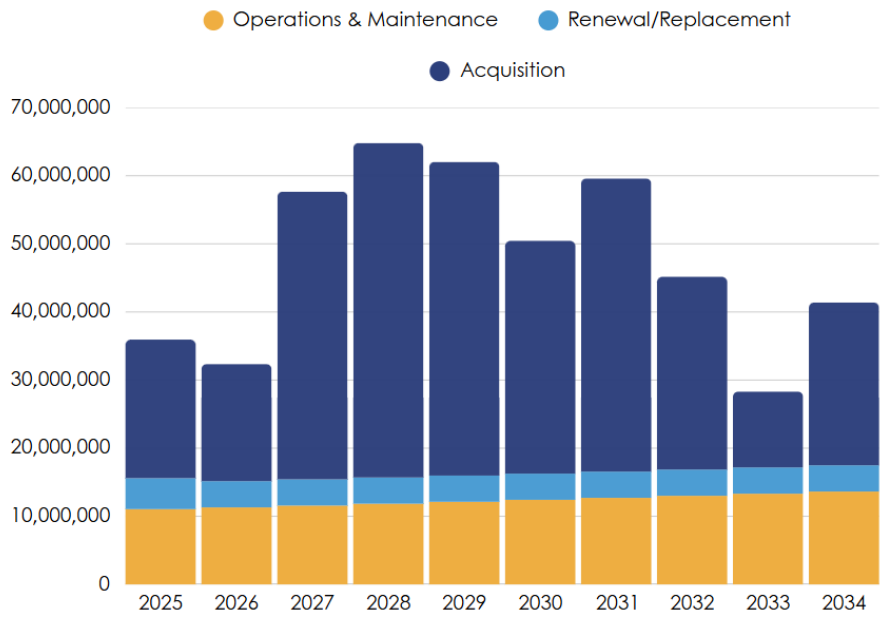
Funding for operating expenditures is provided from water and sewer rates and various non-rates revenue sources including:

- Development charges
- Other user fees
- Interest

10-Year Lifecycle Activities Forecast - Water Network

O. Reg. 588/17 requires municipalities to provide a 10-year forecast that estimates the annual costs of lifecycle activities for water network that will need to be undertaken to maintain the proposed LOS and accommodate expected growth.

Figure 7: 10-Year Lifecycle Activities Forecast - Water Network



Asset renewal/replacement includes the capital costs of the existing water infrastructure to be replaced / rehabilitated in the next 10 years.

Acquisition costs includes the new infrastructure scheduled to be built as per master servicing plan 2023 over the period of next 10 years.

For the Operations & Maintenance costs, the 2024 operational & maintenance budget costs are extrapolated to 2034 with an annual of increase of 3%.

Figure 7 and table 11 below identifies 10 year lifecycle activities forecast scheduled to be completed by 2034.

Table 11: 10-Year Lifecycle Costs - Water Network

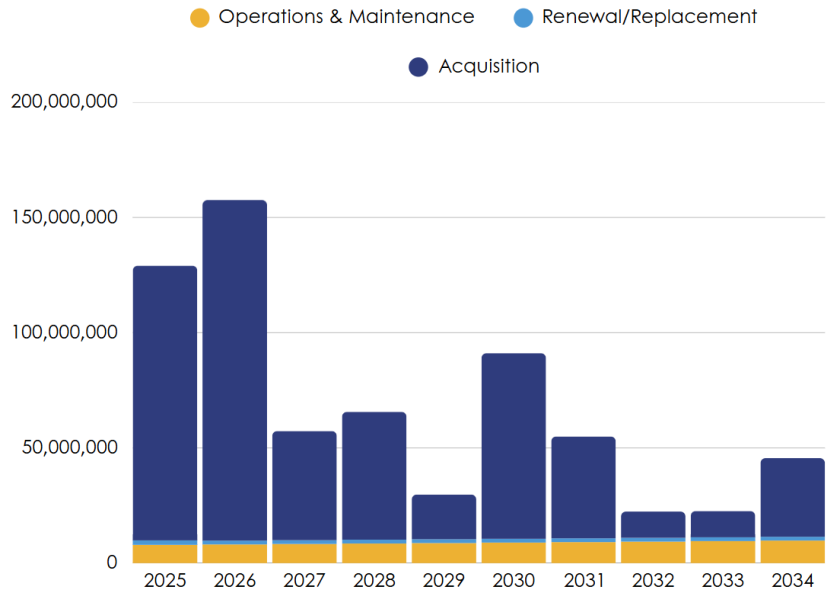
Lifecycle Phase	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Operations & Maintenace	$11.0M	$11.3M	$11.6M	$11.8M	$12.1M	$12.4M	$12.7M	$13.0M	$13.3M	$13.6M
Renewal/ Replacement*	$4.5M	$3.9M	$3.9M	$3.9M	$3.9M	$3.9M	$3.9M	$3.9M	$3.9M	$3.9M
New Acquistions*	$20.3M	$17.2M	$42.2M	$49.1M	$46.1M	$34.2M	$43.0M	$28.3M	$11.2M	$23.9M
Total	**$35.9M**	**$32.4M**	**$57.7M**	**$64.8M**	**$62.0M**	**$50.4M**	**$59.6M**	**$45.2M**	**$28.3M**	**$41.4M**

**Acquisition costs are based on 2023 Master Servicing Plan, and the renewal/replacement costs are estimated w.r.t 2024 costs.*

10-Year Lifecycle Activities Forecast - Wastewater Network

O. Reg. 588/17 requires municipalities to provide a 10-year forecast that estimates the annual costs of lifecycle activities for wastewater network that will need to be undertaken to maintain the proposed LOS and accommodate expected growth.

Figure 8: 10-Year Lifecycle Activities Forecast - Wastewater Network



Asset renewal/replacement includes the capital costs of the existing wastewater infrastructure to be replaced / rehabilitated in the next 10 years.

Acquisition costs includes the new infrastructure scheduled to be built as per master servicing plan 2023 over the period of next 10 years.

For the Operations & Maintenance costs, the 2024 operational & maintenance budget costs are extrapolated to 2034 with an annual of increase of 3%.

Figure 8 and table 12 below identifies 10 year lifecycle activities forecast scheduled to be completed by 2034.

Table 12: 10-Year Lifecycle Costs - Wastewater Network

Lifecycle Phase	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Operations & Maintenance	$7.9M	$8.1M	$8.3M	$8.5M	$8.7M	$8.9M	$9.1M	$9.3M	$9.6M	$9.8M
Renewal/Replacement*	$2.0M	$1.7M	$1.7M	$1.7M	$1.7M	$1.7M	$1.7M	$1.7M	$1.7M	$1.7M
New Acquisitions*	$119.2M	$147.8M	$47.4M	$55.5M	$19.4M	$80.5M	$44.2M	$11.4M	$11.4M	$34.1M
Total	**$129.1M**	**$157.6M**	**$57.4M**	**$65.7M**	**$29.8M**	**$91.1M**	**$55.0M**	**$22.4M**	**$22.7M**	**$45.6M**

**Acquisition costs are based on 2023 Master Servicing Plan, and the renewal/replacement costs are estimated w.r.t 2024 costs*

Financial Strategy

InnServices is experiencing significant growth and demand to provide water and wastewater services to a larger number of existing and future customers in current and new geographic locations in the Town of Innisfil. The long-term financial plan will help guide InnServices financial management in providing strong reliable services to our existing and new customers.

To help facilitate progress on infrastructure projects during this rapid growth stage, InnServices is committed to working with the development community to obtain capital in advance and/or during capital projects in the form of Development Charges ("DCs"), Development Charge Prepayments ("DCPs") and/or Front-End Financing ("FEF"). The Town of Innisfil supports the administrative aspects of the DC process with the developers through the municipal tax and DC charge process. The Town ultimately transitions the funds to InnServices to support the respective development projects. Many of the new projects primarily service new growth areas. Accordingly, the DC's received in advance of the projects are utilized on the new respective projects with the intent to minimize fee increases to existing customers.

InnServices has not historically had external debt, however, given the organic growth and mandated growth from the Province of Ontario, extending to Simcoe County and proportionately to the Town of Innisfil, each of the above sources of funds are being evaluated to help InnServices plan and ultimately to deliver the services required to support growth.

InnServices has examined a number of funding sources to maximize the funding available including the utilization of government assistance, such as grant programs available to reduce the local funding of projects. InnServices successfully obtained HEWS funding of $34,936,328 to support partial cost offsets of the current Lakeshore Wastewater Treatment Plant (LWWTP) Stage 3 expansion Phase 1A project. The projects total cost is approximately $198,000,000 in total over the next 3 years.

The total requirements for funding over the 10 years 2025-2034 to fund Growth, Renewal, and Operations and Maintenance, and average annual amounts for each category are as follows:

- New Acquisitions/Growth: $879,182,193 for 10 years, average annual amount of $87,918,219.
- Renewal/Replacement: $56,000,000 for the 10 years. $6.5M in 2025, and $5.5M 2026-2034.
- Operations & Maintenance: $211,362,000 for 10 years, average annual amount of $21,136,200.

InnServices is actively applying for HSWS funding of approximately $30,000,000 to support the expansion of Lakeshore Water Treatment Plant Phase 3B. Moreover, InnServices has conducted water and wastewater user rate analysis through utilizing an external consulting expertise to ensure our rates are consistent with neighbouring municipalities and standard practices. InnServices adopted a Tiered user rate process effective April 1, 2025 to further help align fees with actual users driving costs to service.

Based on the projected funding sources available, InnServices has a funding shortfall of $412,393,000 over the next 10 years (annual funding shortfall of $41,239,300) stemming from current legislation and policy positions, and anticipated user fees. As noted above, InnServices is actively seeking $30,000,000 in Government support from the HSWS Provincial funding, and also seeking debt financing support for the net funding requirements over the next 10 years. Also, InnServices is in discussions with Commercial and Government Infrastructure Banks/Funds, Federally and Provincially to seek the most cost effective, and preferred repayment terms to help management costs and risks over debt funding shortfalls of uses and sources of funds.

Improvement and Monitoring

In this final section, opportunities for improvement of InnServices asset management program, including AMP content, are identified along with planned activities to strengthen both. These planned activities will ensure that InnServices continues to comply with O. Reg. 588/17 and that the utility of the AMP and the level of data confidence continuously improves over the short to medium term.

Continuous Improvement

The overall approach to monitoring and improving the asset management program and AMP will be consistent with the Plan-Do-Check-Act (PDCA) model. Following this model, staff will monitor the performance of the asset management program and continue to plan and implement corrective actions to ensure that the program and AMP continue to improve and mature over time.

Improvement Plan

Table 13 on the following page, summarizes the improvement opportunities currently identified for this asset management plan and the corrective actions planned for the next three years. A term of three years has been selected to align with the AMP deliverables detailed in O. Reg. 588/17.

→ **What is the Plan-Do-Check-Act (PDCA)?**

The PDCA model is a four-step continuous improvement cycle that helps InnServices' staff monitor performance and make incremental changes to improve the Asset Management Program.

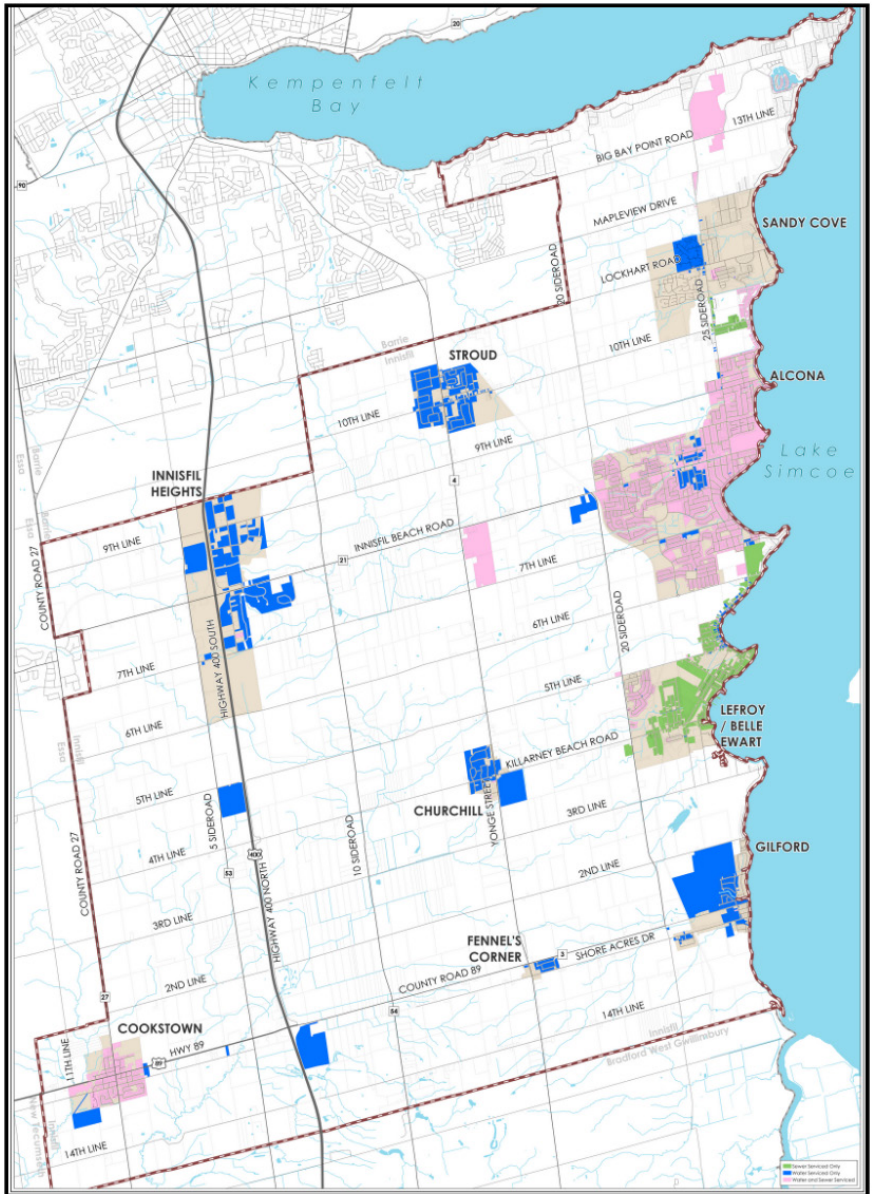
Table 13: Improvement Plan

Opportunity	Actions	Priority
Improve completeness and accuracy of state of infrastructure data for core and non-core assets.	Complete and consolidate water and wastewater facility assets inventory.	High
	Complete condition assessments of all assets.	High
	Implement a Computerized Maintenance Management system.	High
Improve asset management processes for creation, maintenance, and disposal of asset records throughout the asset lifecycle.	Complete mapping of processes.	High
	Prepare standard operating procedure documentation for assets and integrate with year end.	Medium
Improve maturity of level of service reporting for core and non-core assets.	Formalize data gathering and reporting procedures for each LOS	Medium
Enhance long term financial planning for asset lifecycle.	Develop long-term financial plan for the water and wastewater network assets.	High
	Complete water and sewer rates study for the infrastructure needs.	High
Enhance strategic asset management policy.	Complete review and release of the updated policy.	Medium
Enhance public reporting of asset management information.	Enhance asset management content on InnServices' website.	Medium
Enhance asset management links to climate change planning.	Expand climate change coverage in future updates on AMPs.	Medium

Appendix A - Levels of Service Maps

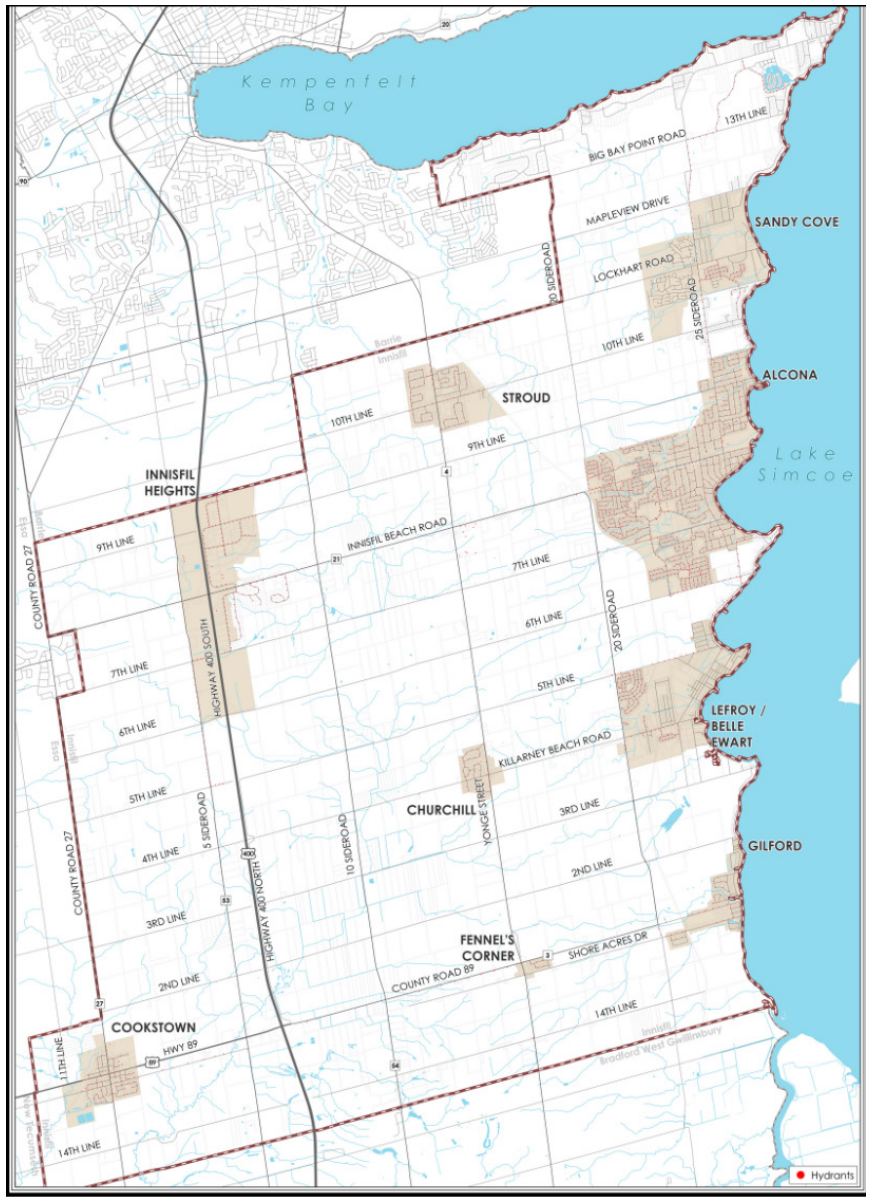
Levels of Service - Servicing Map

- Sewer Serviced Only
- Sewer Serviced Only
- Sewer & Water Serviced



Appendix A - Levels of Service Maps

Levels of Service - Fire Flow Map



Appendix B - Maintenance Activities Water Network

Maintenance	Summary of Activity
Backflow Prevention Program	InnServices staff identify all possible sources that may be a point of potential cross connection contamination and inspections to ensure there is no backflow and there is safe drinking water.
Cleanouts	Carried out regularly to keep machinery, equipment, and work areas clear of dirt, materials, and foreign objects. The preventative measures ensure the asset is running at ideal performance and is easy to access, inspect, and repair when required.
Water Meters	Water meters are replaced at the end of the useful life as well as on need basis.
Facility Assets	Facility equipment such as overhead cranes, straps, harnesses, chain falls, hoisting equipment, forklifts, turbidimeters, flow meters, and genie lifts are inspected externally, every year.
	Equipment is tested and calibrated to their original standard every three months, internally and externally on annual basis. If the asset is determined to be outside of the allowable tolerance even after recalibration will then be repaired or replaced with a back-up.
	Lubricating involves the periodic application of a lubricant (oil, grease, solid) to contact and wear surfaces to prevent wear, corrosion, and friction. Lubrication schedules typically follow manufacturer's recommendations.
Repairs - Watermain breaks and water meters	InnServices Investigates and confirms watermain break, notifies and creates the required work orders and repair instantly.
	Repairs of leaking water meters will be initiated by a complaint from a property owner. Goals are to eliminate leaking water meter, reduce water loss and ensure safety of drinking water.
Spills & Clean Up	Identify the nature and source of spill, containment, and clean-up by InnServices' operation and maintenance staff, if a spill occurred then absorbent materials and sand would be used to aid in clean up, collection of which would be in hazardous waste bins.
Unidirectional Flushing	Unidirectional watermain flushing to address water quality issues related to the accumulated sediment, biofilm, increased chlorine demand, discoloured water, and customer complaints.

Appendix B - Maintenance Activities Water Network

Valves, Hydrants, Valve Chamber	Expose the underground asset to replace, relocate and repair the hydrant, hydrant lead, valve box and chamber to ensure proper operation and continuous supply of safe drinking water to the residents.
	Hydrant pump-out is done every year before the winter for all the hydrants to ensure that hydrant barrels are drained and are free of water over the winter to avoid freezing.
	All frozen hydrants are returned to service in a timely manner during winter conditions. Utilizing a steamer, hydrant is thawed, and barrel is pumped out.
	Hydrant flow testing is part of annual summer maintenance program.
Fleet	Vehicle oil changes between 5000 - 7000 km as per the owner's manual.
	Tire changes every winter and summer season and breakdown maintenance on an as needed basis.
Water Service Lateral Repair & Hard Surface Restoration	InnServices repairs the portion of a water lateral, from the main to the property line as on need basis. InnServices also restores the hard surfaces within the road allowance for the repairs as on need basis.
	Thawing of frozen water services on InnServices' property using an approved thawing machine. Heat is applied to the water service line and as it travels throughout the pipe it thaws the frozen water.

Appendix C - Risk Rating Description Table

Risk Rating Description Table - Likelihood (A)

Risk Rating	Descriptor	Example Description
1	Unlikely	May occur only in exceptional circumstances
2	Rare	Could occur at some point
3	Possible	Might occur at some time/the event should occur at some time
4	Likely	Will probably occur in most circumstances
5	Almost Certain	Is expected to occur in most circumstances

Risk Rating Description Table - Severity (B)

Risk Rating	Descriptor	Example Description
1	Insignificant	Insignificant impact, little disruption to normal operation, low increase in normal operations costs
2	Minor	Minor impact for small geographical area, some manageable operation disruption, some increase in operating costs
3	Moderate	Minor impact for large geographical area, significant modification to normal operation but manageable, operation costs increased, increased monitoring
4	Major	Major impact for small geographical area, systems significantly compromised and abnormal operation if at all, high level of monitoring required
5	Catastrophic	Major impact for large geographical area, complete failure of all systems

Appendix C - Risk Rating Description Table

Risk Rating Description Table - Detectabilty (C)

Risk Rating	Descriptor	Example Description
1	High Detectability	SCADA alarms with auto-dialer programmed alarm
2	Moderate Detectability	Monitored but not alarmed, may require operator to walk by and notice alarm; A problem is indicated by lab test results
3	Detectable	Visually detectable on operator's rounds; Regular maintenance would discover the problem
4	Poor Detectability	Visually detectable, but not inspected on a regular basis; Would not be detected before a problem was evident; Lab tests that are not done on a regular basis (eg. quarterly)
5	Undetectable	Cannot detect

Appendix D - Risk Management Water Network

Risk Management Area: Pumping Stations

Description of Hazard	Risk	Control/Monitoring In Place	Outcome (Strategy to reduce likelihood or impact of risk)
Low Lift pump fails to operate	L	Redundancy: raw water flow continuously monitored	Preventive Maintenance
Redundant raw mains not isolated	H	UV Reactor alarms	Isolation and check valves for both mains, connected to SCADA
Back up Power Failure	L	Monitoring/monthly testing generator	Preventive Maintenance
Loss of control (fibre optic cable, power)	L	Breakers in sub-station	Continuous power monitoring- network switch (comms)
VFD or drive failure	L	RW flow is continuously monitored, redundancy	Preventive Maintenance
Surge Anticipator Valve failure	M	SCADA Monitoring	Preventive Maintenance

Risk Management Area: Water Towers

Description of Hazard	Risk	Control/Monitoring In Place	Outcome (Strategy to reduce likelihood or impact of risk)
Sustained deep freeze-ice build up/extreme weather event	M	Check for visual defects	Install circulation system (Cookstown only) Friday Harbour & Goldcrest: maintain circulation system

Appendix D - Risk Management Water Network

Risk Management Area: Treated Water

Description of Hazardous Materials	Risk	Control/Monitoring In Place	Outcome (Strategy to reduce likelihood or impact of risk)
Highlift fail to operate	M	Redundant equipment/alarms	Preventive Maintenance
Clogged flow control valve plumbing	M	Programmed interlocks / Redundant equipment	Preventive Maintenance
VFD or drive failure	L	Failure alarms / Redundant equipment	Preventive Maintenance
Supply discharge Piping failure (inside plant)	L	SCADA, daily visual inspection	Preventive Maintenance; perform desktop exercise
Loss of water source for chlorinators	L	Alarmed	SCADA (low vacuum alarm)
Treatment Plant Structure Collapse	M	Engineering Standards	Preventive Maintenance
Low Chlorine Residual	M	Flushing, monitoring	Maintain flushing program
Water Level Indicator Failure	L	SCADA, milltronics level sensors, daily checks	Develop redundancies, PM program
Booster pump failures	L	SCADA alarms, redundancy, public notification	Preventive Maintenance
Clogged flow control valve Plumbing	L	Pump fail alarm	Daily Operator checks
Contamination of contact chambers from leaking membranes or other sources	H	Raised hatches with watertight gasket and seals	Procedure for contamination of contact chambers/ clear wells
Structure Collapse	M	Check for visual defects when reservoir is being inspected	Physical inspection/evaluation by structural engineer.
Main Valve Failure	M	Valve & hydrant maintenance program	Repair/replace damaged valves or hydrants. Redundant discharge

Appendix D - Risk Management Water Network

Risk Management Area: Linear & Facility Assets

Description of Hazardous Materials	Risk	Control/Monitoring In Place	Outcome (Strategy to reduce likelihood or impact of risk)
Sustained pressure loss	L	Public notification	Hydraulic modelling (additional services); flushing program
Risk of water lateral disruption	L	Accept and resolve as reported	Repair/replace as on needed basis
Premature failure of facility equipment assets	L	Accept and resolve as reported	Regular/preventative maintenance
Risk of hydrant freezing	M	Mitigate through frequent inspection and maintenance	Winterization of Hydrants

Risk Management Area: Wells

Description of Hazard	Risk	Control/Monitoring In Place	Outcome (Strategy to reduce likelihood or Impact of risk)
Drought - Well dry	M	Monitor levels, redundancy	Source Water Protection Plan, Water Restriction Bylaw
Well Casing Failure	M	Redundancy	Annual Well Inspection program
Sudden change to raw water characteristics	M	Raw water monitoring	Source Water Protection Plan
Well screen failure	M	Monitor Pressure and Flow; lower flow rate	Preventive Maintenance
Back up Power Failure (Long Term Outage)	M	SCADA alarm, Operational checks & testing of generator	Portable generator; primary & essential fuel suppliers

Appendix E: Maintenance Activities Wastewater Network

Maintenance	Summary of Activity
Cleanouts	Carried out regularly to keep machinery, equipment, and work areas clear of dirt, materials, and foreign objects. The preventative measures ensure the asset is running at ideal performance and is easy to access, inspect, and repair when required.
Facility Assets	Pumping station cleaning is done internally as well as externally on an as needed basis.
	Facility equipment is tested and calibrated to its original standard based on regulatory requirements and the owner's manual. If the asset is determined to be outside of the allowable tolerance even after recalibration then be repaired or replaced.
	Lubricating involves the periodic application of a lubricant (oil, grease, solid) to contact and wear surfaces to prevent wear, corrosion, and friction. Lubrication schedules typically follow manufacturer's recommendations.
	Wet well screen cleaning, pumping down and blockage removal is done as identified through the regular inspection of pumping stations.
Hazardous Waste Disposal	Hazardous wastes generated due to spill response activities are to be hauled & disposed of by contractors at Ministry approved locations.
Odour Complaints	For odour complaints, an inspection of the area will be conducted to determine the remedial measures.
Sewer Cleaning & Flushing	Flushing is to occur on a 3 year cycle where pressurized water is used to flush out individual sections of sewer to reduce build-up of material and decrease the risk of blockages.
	Maintenance plans such as emergency flushing are in place for potential sewer gases and sewer blockages.
Sewer Service Lateral Repair & Hard Surface Restoration	InnServices repairs the portion of a sanitary service line, from the sewer to the property line on an as needed basis. InnServices also restores the hard surfaces within the road allowance for the repairs on an as needed basis.
Spills & Clean Up	Identify the nature/source of the spill, containment, and clean-up by InnServices' operation and maintenance staff, if a spill occurs InnServices follow all regulatory procedures to aid in clean up, collection of which would be in hazardous waste bins.
	Bypass installed between maintenance holes to prevent flooding, sewage overflows, and further spills.
Fleet	Vehicle oil changes between 5000 - 7000 km as per the owner's manual.
	Tire changes every winter and summer season and breakdown maintenance on an as needed basis.

Appendix F - Risk Management Wastewater Network

Tables below shows the hazards accounted for the Lakeshore Wastewater Treatment Plant and collection system

Risk Management Area: Collection System

Description of Hazard	Risk	Control/Monitoring In Place	Outcome (Strategy to reduce likelihood or impact of risk)
Faulty lateral connection causing surcharge	M	Residential notification	Public education i.e. grease, non-flushable wipes etc
Failure of gravity main (break or leak)	M	Scheduled inspections	Flushing program in place
Gravity main blockage causing surcharge	M	Scheduled inspections	Flushing program in place
Maintenance Holes- structural issues	M	I & I inspection, CCTV, flushing	Routine inspections
Pumping Stations - equipment failure	M	SCADA, operational checks	On-going maintenance, rounds
Flooding of the stations (overland)	M	Visual checks, customer input, landscaping & weeping tiles, berms	Continued evaluation and monitor for improvement
Premature failure of facility equipment assets	L	Accept and resolved as reported	Regular/preventative maintenance
Risk of sewage bypass	L	Mitigate through frequent inspection and maintenance	I & I

Appendix F - Risk Management Wastewater Network

Risk Management Area: Septic Receiving

Description of Hazard	Risk	Control/Monitoring In Place	Outcome (Strategy to reduce likelihood or impact of risk)
Septic structural issues- storage chamber	L	Scheduled chamber cleaning as needed	Structural assessment when cleaned
Submersible pump (2) fault	L	Redundancy - not critical to operations	Routine maintenance & cleaning of chamber
Dumping of heavy materials such as rags	M	SCADA alarms, operational checks	Modification of design (screening) after upgrade
Septage spills from trucks around inlet area	M	Visual checks, notification from septic hauler	CCTV camera in place,

Risk Management Area: Inlet

Description of Hazard	Risk	Control/Monitoring In Place	Outcome (Strategy to reduce likelihood or impact of risk)
Bar Screen failure	L	Redundancy, Operator Checks	Manually Clear Bar Screen
Dewater belt conveyer-failure	L	Break down maintenance	Manually clean off rags
Aerated grit tanks- airline break	L	Redundancy	Routine maintenance, Change tanks
Grit screw classifier- failure	L	Break down maintenance	Routine maintenance
Alum pumps & tank-pump failure	M	Redundancy, increase delivery status	Routine maintenance
Flowmeter- failure	L	Break down maintenance	Flow would need to be estimated by another method

Appendix F - Risk Management Wastewater Network

Risk Management Area: Aeration

Description of Hazard	Risk	Control/Monitoring In Place	Outcome (Strategy to reduce likelihood of impact of risk)
Structure - Aeration tank -wall/floor cracks	M	Redundancy- multiple tanks	Daily rounds
Blowers	M	3 blowers, running 1 at a time	SCADA alarms
Broken bubblers supporting system	M	Redundancy- multiple tanks	Daily rounds
Bulking/foaming	M	Visual Inspection	Daily rounds
Blower failure due to communications failure	H	Visual Inspection	TBD: Isolate Plant communications, heartbeat Alarm for SCADA failure

Risk Management Area: Clarifiers & Outfall

Description of Hazard	Risk	Control/Monitoring In Place	Outcome (Strategy to reduce likelihood of impact of risk)
Structure - Clarifier tanks (4)-cracks on the floor/wall	M	Redundancy	Daily rounds, routine maintenance
Sludge and scum removal mechanisms	M	Maintenance & Inspections	Daily rounds, routine maintenance
Scum skimmer torque	M	Maintenance & Inspections	Daily rounds
Flow meter failure	L	SCADA monitoring	Annual calibration, daily rounds
Potential collapse of 800 mm diameter X 265 m long effluent pipe	M	Maintenance	Cleaning & inspection
Diffuser ports (18) - zebra mussels colonizing the openings	M	Maintenance	Cleaning & inspection

Appendix F - Risk Management Wastewater Network

Tables below shows the hazards accounted for the Cookstown Wastewater Treatment Plant and collection system

Risk Management Area: Collection System

Description of Hazard	Risk	Control/Monitoring in Place	Outcome (Strategy to reduce likelihood or impact of risk)
Faulty lateral connection causing surcharge	M	Customer Service complaint/inquiry	Evaluate and repair as necessary
Failure of gravity main	M	Inspect as per maintenance schedule	Evaluate and repair as necessary
Forcemain break	M	Inspect	Evaluate and repair as necessary
Maintenance Holes	M	Inspections	Evaluate and repair as necessary
Excessive I & I	M	SCADA high alarms or operator inspections	I and I, repair as necessary
Inflow other than municipal	M	Lab testing/sampling, operator inspection	Bylaw enforcement, Education

Risk Management Area: Raw Wet Wells

Description of Hazard	Risk	Control/Monitoring in Place	Outcome (Strategy to reduce likelihood or impact of risk)
Raw pumps	L	Redundancy, SCADA	Evaluate and repair as necessary
Raw feed pipe to grit tank	M	Inspect	Develop strategy- contingency plan
Excess I & I	M	SCADA alarms	I & I, Repair
Floats	M	SCADA alarms	Inspect, repair as necessary
Inflow with high solids	L	Lab testing/sampling	Maintenance, training for users

Appendix F - Risk Management Wastewater Network

Risk Management Area: Lagoons

Description of Hazard	Risk	Control/Monitoring in Place	Outcome (Strategy to reduce likelihood or impact of risk)
Valve(s) failure	M	Exercise as per maintenance schedule	Evaluate and repair as necessary
Berms	M	Visual inspection, pest control (muskrats)	Frequent inspection, berm maintenance
Effluent pump failure	M	Redundancy	Preventive/Breakdown maintenance
Spreading invasive weeds- milfoil	M	Visual inspection	Dredge and weed control (external party)
Failure to discharge effluent	M	Visual inspection, lab results	Contingency plan; obtain permission for alternative discharge (extend season, alter parameters)

Risk Management Area: Outfall

Description of Hazard	Risk	Control/Monitoring in Place	Outcome (Strategy to reduce likelihood or impact of risk)
Piping integrity compromised	M	Inspections, customer service complaint	Halt discharge, evaluate and repair as necessary
Damaged Maintenance holes	L	Inspections	Evaluate and repair as necessary
Outfall location	M	Inspections	Evaluate and repair as necessary