STAFF REPORT
EXECUTIVE SUMMARY & RECOMMENDATION

The following executive summary provides a brief description about the report and the recommendation advises on any action being requested from Council.

Subject: **2022 Asset Management Plan**

Executive Summary:

This report outlines the delivery of the Asset Management Plan for Council's approval.

Recommendation:

1. **That Staff Report DSR-089-22 regarding the Town of Innisfil's 2022 Asset Management Plan (AMP), dated June 8, 2022, be received; and**

2. **That Council approve the Town of Innisfil's 2022 AMP, recognizing that there are no immediate financial impacts in the recommended motion to approve the Staff Report and AMP; and**

3. **That costs associated with the implementation of any activities and projects included in the AMP will be identified through future budget requests.**

2022 Asset Management Plan

Staff Report DSR-089-22

One Town One Team

To: Mayor, Deputy Mayor and Members of Council

From: Trish Kernen, Business Performance Specialist

Date: June 8, 2022

Recommendation:

1. **That Staff Report DSR-089-22 regarding the Town of Innisfil's 2022 Asset Management Plan (AMP), dated June 8, 2022, be received; and**

2. **That Council approve the Town of Innisfil's 2022 AMP, recognizing that there are no immediate financial impacts in the recommended motion to approve the Staff Report and AMP; and**

3. **That costs associated with the implementation of any activities and projects included in the AMP will be identified through future budget requests.**

Background:
On June 26, 2019, Council approved Asset Management Policy 001-13-2019 (AMP) which outlines the goals and objectives of providing the best possible service to residents in a consistent and responsible way that supports a sustainable community. Approving this Policy was the first step in achieving compliance with the requirements of Ontario Regulation 588/17 (O. Reg. 588/17) made under the Infrastructure for Jobs and Prosperity Act, 2015, which defines the legislated deliverables and timeline related to Asset Management Planning for Municipal Infrastructure.

The next step required by O. Reg. 588/17 is the preparation of a Council-approved AMP to be completed in three phases:

i) Phase I, to be completed by July 1, 2022, requires information about the Town's core infrastructure assets, which include water, wastewater, stormwater, roads, bridges, and structural culverts.
ii) Phase II, to be completed by July 1, 2024, expands upon Phase I, to include non-core assets such as facilities, fleet, parks, and recreation equipment and road signs.
iii) Phase III, to be completed by July 1, 2025, expands upon Phase II and requires further details about future levels of service and financial plans to deliver these.

In compliance with the Phase I requirement, the Town's 2022 AMP is comprised of individual documents, provided here as Attachments 1 to 4, covering the following asset categories:

- Transportation Network (includes roads, bridges, structural culverts, and sidewalks)
- Stormwater Network
- Water Network
- Wastewater Network

Each of the documents was prepared using a common template, developed by Staff to be more functional and visually appealing.

The Water Network and Wastewater Network AMPs have been reviewed by the Board of InnServices Utility Inc. and were approved at the Board Meeting held on May 19, 2022.

Analysis/Consideration:
The primary focus for the 2022 AMP is compliance with O. Reg. 588/17. With this in mind, the template was designed to include the following sections, specified in the regulation:

- State of Infrastructure (includes inventory, replacement cost, average age, and condition)
- Levels of Service
- Risk Management
- Future & Climate Demands
- Lifecycle Management
- Financial Summary
- Monitoring & Improvement

Working with subject matter experts across the Town and InnServices, Staff have reconciled data from multiple sources including Master Plans, Reports and Studies, Tangible Capital Asset (TCA) records, asset databases, and budgets and forecasts, to develop each of the required sections of the AMP. A detailed review of AMPs from the 15 official comparator municipalities, detailed in DSR-110-15, was completed, along with AMPs of numerous other municipalities across the province and abroad to adopt the most effective and efficient elements of asset management planning.

Staff have reviewed and analysed the data for each asset category to determine the overall replacement value and average condition for the Town's core infrastructure assets. Overall, these assets represent a total replacement value of $1.6 Billion, with 78% having a condition of good or better.

Community Strategic Plan Alignment:
The 2022 AMP aligns with the Community Strategic Plan by contributing towards the achievement of the following strategic goals and objectives:

Grow:
1.1 Plan for and Manage Growth
1.3 Improve Service Offerings

Connect:
2.2 Enhance Movement of People

Sustain:
3.1 Maintain and Protect Existing Infrastructure
3.2 Promote Environmental Sustainability
3.3 Ensure Financial Stability

The AMP will align with the above strategic goals and objectives by helping to ensure that assets are regularly inspected, performing to established targets and enabling the delivery of efficient and desirable levels of service to the community. The AMP will also promote and support sound financial investment decisions for asset lifecycle activities to ensure that assets are operated, maintained, and renewed in the most efficient and responsible manner.

Financial Consideration:
There are no immediate financial impacts in the recommended motion to adopt the staff report and 2022 AMP. The costs associated with implementing the activities and projects will be identified through future budget requests.

Local Impact:
Innisfil residents are directly impacted by asset management planning, through the strategic, community and technical levels of service outlined in the AMP. Levels of Service are the direct link between Innisfil's Strategic Objectives, the public's service expectations, and the measured performance of the delivered service.

Options/Alternatives:
Council could request that Staff modify the attachments that comprise the Town's 2022 AMP. Council approval is required by July 1, 2022, for the Town to remain compliant with O. Reg. 588/17.

Conclusion:
The Town's 2022 AMP is being presented for Council's information and approval to achieve compliance with O. Reg. 588/17. Approval of the 2022 AMP enables the Town to remain compliant with legislated requirements and continue to develop and mature its asset management program. It also provides the Town with another valuable tool to guide decisions and develop funding requirements for the Town's core infrastructure networks.

In preparation of the Phase II AMP deliverables, staff will continue to work collaboratively to improve our data and expand the scope of the AMP to include non-core assets.

Prepared By:
Trish Kernen, Business Performance Specialist
Ken Schuyler, Head of Enterprise Strategy & Business Planning

Approved By:
Mike Melinyshyn, Chief Financial Officer / Director of Corporate Services

Attachments:
Attachment 1 - Transportation Network Asset Management Plan
Attachment 2 - Stormwater Network Asset Management Plan
Attachment 3 - Water Network Asset Management Plan
Attachment 4 - Wastewater Network Asset Management Plan

Reference Material:
Community Strategic Plan

TOWN OF INNISFIL
TRANSPORTATION NETWORK ASSET MANAGEMENT PLAN 2022

VERSION HISTORY

Version	Date	Description
1.0	June 8, 2022	Council Approval

TABLE OF CONTENTS

EXECUTIVE SUMMARY

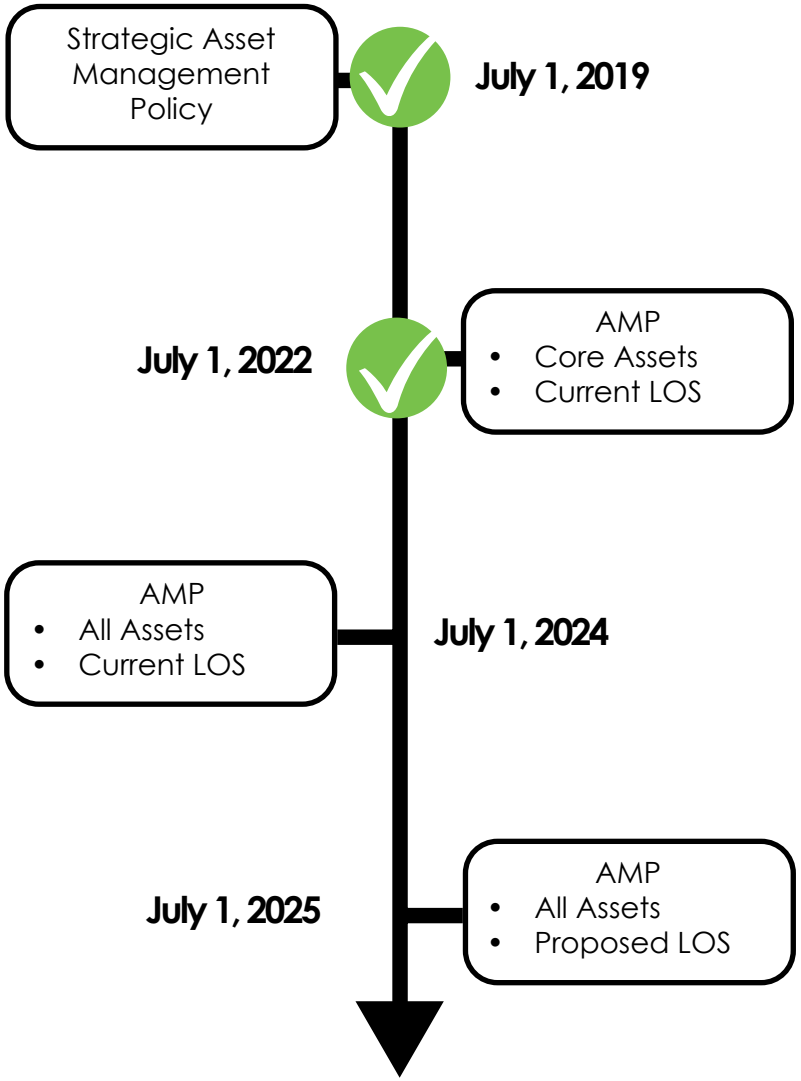
The Town of Innisfil (Innisfil) owns and manages a large range of assets on behalf of our community. These assets deliver a number of services which must be managed in a cost effective way, while ensuring they continue to meet the needs of the community now and in the future.

The Transportation Network Asset Management Plan (AMP) focuses on Innisfil's Transportation Network and specifies the requirements for effective management of this asset group and the corresponding financial implications. Transportation Network assets include roads, structures and sidewalks and are an important part of Innisfil's infrastructure, providing safe and efficient movement of people and goods within the municipality and to and from adjacent communities.

Innisfil 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, the AMP will be accessible through the Town of Innisfil website. Background information and reports used in the preparation of the AMP will also be made available publicly through Innisfil's website or upon request.

The AMP will be updated periodically to meet legislative requirements and 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 AMP will assist Innisfil to make appropriate decisions regarding the acquisition, operation, maintenance, renewal, and disposal of core infrastructure assets.

Figure 1: O. Reg. 588/17 Timeline



INTRODUCTION

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, and incorporates design excellence into infrastructure planning.

Under this Act, the Ontario government also introduced O. Reg. 588/17 which requires that every municipality shall prepare an AMP in respect of its core municipal infrastructure assets by July 1, 2022. The Regulation further defines core municipal infrastructure assets to include roads, bridges, structural culverts, stormwater, water and wastewater.

The AMP has, in part, been prepared to meet the 2022 regulatory requirements of O. Reg. 588/17. Any gaps or weaknesses in compliance are addressed in the Monitoring & Improvement section of the AMP.

The Transportation Network asset category is a major component of Innisfil's core infrastructure assets. These assets provide valuable services to the public including accessible and efficient connection options for movement and active transportation throughout Innisfil and adjoining communities. Effective maintenance and renewal of these assets is critical to ensuring that they continue to deliver adequate levels of service and provide benefits to current and future generations.

The AMP demonstrates Innisfil's responsible and systematic approach to asset management, compliance with regulatory requirements and commitment to fulfilling the following objectives of the Community Strategic Plan:

- Plan for and Manage Growth
- Improve Service Offerings
- Maintain and Protect Existing Infrastructure
- Ensure Financial Stability

The AMP achieves this outcome by delivering on the following key elements of effective asset management planning:

- Developing and maintaining a complete and accurate database of inventory and state of infrastructure information.
- Defining levels of service that consider the public's expectations and meet the strategic needs of Innisfil.
- Employing a lifecycle approach.
- Reviewing current and future demands.
- Managing risks associated with the assets and the services they provide.
- Ensuring continuous improvement in the asset management practice and plans.

The reader will further benefit by consulting the following documentation:

- Municipal Bridge Inspection Report
- Road Needs Study Report
- Sidewalk Needs Study Report
- Transportation Master Plan
- Approved Budgets
- The Official Plan (Our Place)

FREQUENTLY ASKED QUESTIONS

What is an asset?
An asset is an item of property owned by Innisfil that is deemed to have value. Innisfil's assets include core infrastructure assets (i.e. roads, bridges, structural culverts, and stormwater elements), and non-core assets (i.e. buildings, land, vehicles, and playground equipment).

What is an asset category?
An asset category refers to a set of assets that have similar characteristics or purpose. For example "Transportation Network" asset types include roads, structures, and sidewalks.

What are the objectives of asset management?
The objectives of asset management is to intervene at strategic points in an asset's life cycle 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 Innisfil 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 AMP's. In addition to the legislative requirement, Innisfil 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 Innisfil include community feedback into the Plan?
Innisfil will endeavour to provide opportunities for community engagement in asset management planning. Innisfil will provide information on the corporate website to facilitate transparency in asset management planning.

STATE OF INFRASTRUCTURE

The State of Infrastructure section provides summary level information about Innisfil's Transportation Network assets, which include:

- Roads - arterial, collector and local
- Structures - vehicle bridges, structural culverts, and pedestrian bridges
- Sidewalks - asphalt and concrete

In compliance with O. Reg. 588/17, the following information is provided for each asset type:

- Inventory (quantity)
- Replacement Value
- Expected Life and Average Age
- Average Condition

This information provides the foundation of the Town's asset management plan as having a complete and current understanding of the Town's state of infrastructure is critical to efficient and effective lifecycle management and financial planning.

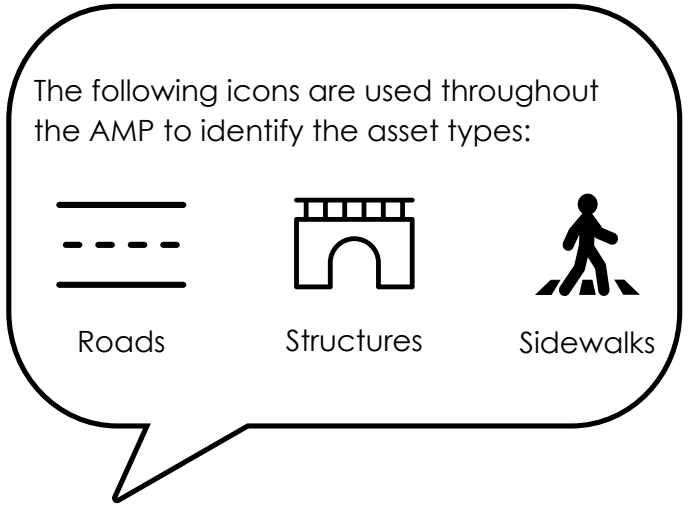


Table 1: Transportation Network Asset Summary

Asset Type	Quantity	Replacement Value	Average Age	Average Condition*
	755 lane km	$185.6 million	26 years	68.1 (Good)
	42	$33.9 million	20 years	76.9 (Good)
	96 km	$15.2 million	19 years	87.4 (Good)

*Average condition measured from 0 - 100 with larger numbers indicating better condition.

Inventory

Asset inventory was determined through the review of data in the 2021 Tangible Capital Assets (TCA) file and cross referenced with the County of Simcoe's Geographic Information System (GIS) database. Innisfil's TCA and GIS database are updated frequently to ensure all assets are kept current and information is available to staff. Table 2 summarizes Innisfil's Transportation Network assets, with asset sub-types listed below in further detail:

Road assets are classified into three sub-types:

- **Arterial** - major transportation routes carrying heavy volumes of inter-municipal traffic
- **Collector** - collect traffic from individual local roads and direct it to arterial roads, County roads or Provincial highways.
- **Local** - move traffic throughout a settlement area as defined in the Town's Official Plan and provide access to properties.

Structure assets are classified into three sub-types:

- **Vehicle Bridges** - a roadway or walkway for the passage of vehicles, pedestrians or cyclists across an obstruction, gap or facility.
- **Structural Culverts** - similar to a vehicle bride, however the main purpose is to provide drainage under a road or passage accessed by vehicles, pedestrians or cyclists and which is greater than or equal to three metres in span.
- **Pedestrian Bridges** - a walkway for the passage of pedestrians, cyclists, and maintenance vehicles, such as those used for snow clearing.

Sidewalk assets are classified into two sub-types:

- **Asphalt Sidewalk** - walkway comprised of aggregates, binder and filler.
- **Concrete Sidewalk** - walkway comprised of cement, water, aggregate and sand.

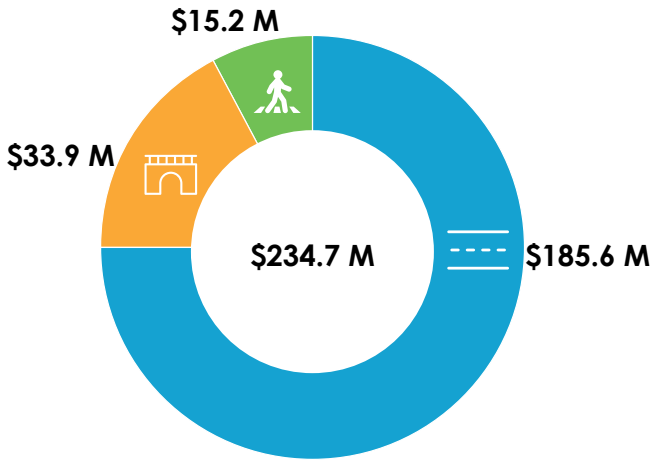
Table 2: Inventory - Transportation Network Assets

Asset Type	Asset Sub-Type	Quantity	Total
	Arterial	8	755 lane km
	Collector	235	
	Local	512	
	Vehicle Bridges	12	42
	Structural Culvert	23	
	Pedestrian Bridges	7	
	Asphalt Sidewalk	6	96 km
	Concrete Sidewalk	90	

Replacement Value

Asset replacement value is determined by estimating the total replacement cost of the assets within each asset category. For roads and structures, consultant estimates provided to Innisfil through the most recent Road Needs Study and Municipal Bridge Inspection Report have been used. Sidewalk replacement value was determined through an analysis of the initial value data detailed in the 2021 TCA file. Figure 2 shows the breakdown and total replacement value for Transportation Network assets.

Figure 2: Replacement Value - Transportation Network Assets



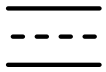
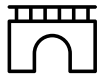
Expected Life

The expected life of assets is the length of time that assets are designed to provide safe, reliable, and useful service. In many cases, the service life of an asset can be extended well beyond the original expected life with proactive lifecycle management, but the cost of ownership generally increases as condition worsens and the frequency and costs of repairs increases. Table 3 provides the life expectancies of various Transportation Network asset types as defined in Innisfil's TCA Policy (2016).

Average Age

Average Age is determined by analyzing the Year Built data detailed in the 2021 TCA file. As shown in Table 3 below, road assets have an average age of 26 years, structure assets have an average age of 20 years, and sidewalks have an average age of 19 years.

Table 3: Expected Life & Average Age - Transportation Network Assets

Asset Type	Asset Sub-Type	Expected Life (Years)	Average Age (Years)
	High Class Bituminous (HCB) Surface*	20	26
	Low Class Bituminous (LCB) Surface*	10	
	Gravel Road	20	
	Road Sub-Base	50	
	Vehicle Bridge	75	20
	Structural Culvert - Concrete	75	
	Structural Culvert - Metal	20	
	Pedestrian Bridge	25	
	Asphalt Sidewalk	15	19
	Concrete Sidewalk	25	

*High Class Bituminous (HCB) (hot mix), is a surface treatment comprising of hot mixed, hot laid asphalic mixtures manufactured and placed within specified tolerances. Low Class Bituminous (LCB) (surface treated roads), are surface treatments consisting of emulsified or liquid asphalt and select aggregate over a prepared granular base or an existing surface. Associated with light to medium volume roads. (Ministry of Transportation Inventory Manual for Municipal Roads, February 1991).

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 expected life remaining. Direct measurement involves inspection of the assets against technical standards to directly determine the current condition. For Transportation Network assets, the Town employs the more accurate approach of direct measurement and conducts inspections on a regular basis to obtain this data.

Road Condition

Condition data of gravel roads was obtained from the 2018 Road Needs Study that gathered data in accordance with the Ministry of Transportation (MTO) Inventory Manual for Municipal Roads. Condition of paved roads was obtained from the 2021 Streetscan Survey that gathered data in accordance with the American Society for Testing Materials (ASTM) D6433 Standard Practice for Roads and Parking Lots Pavement Condition Index Surveys. Road condition is measured using a Pavement Condition Index (PCI).

Structure Condition

Condition data was obtained from the 2020 Municipal Bridge Inspection Report, that gathered data through visual inspections carried out on an element-by-element basis in accordance with the Ministry of Transportation (MTO) Ontario Structure Inspection Manual (OSIM), under the direct supervision of a Professional Engineer. Structure condition is measured using a Bridge Condition Index (BCI).

Sidewalk Condition

Condition data was gathered through the 2017 Sidewalk Needs Study and the 2021 Streetscan Survey. In both cases, data was gathered in accordance with customized rating systems due to the absence of an available standard. The 2017 study also gathered data to assess compliance with the Accessibility for Ontarians with Disabilities Act (AODA). Sidewalk condition is measured using a Sidewalk Condition Index (SCI).

Table 4: Transportation Network Asset Condition

Asset Type	Transportation Network Asset Condition		
	Condition Index & Ratings	**Average Condition**	**Condition Summary**
	Pavement Condition Index (PCI) **0-39** Poor | **40-59** Fair | **60-100** Good	68.1	71.6% 16.0% 12.4%
	Bridge Condition Index (SCI) **0-49** Poor | **50-69** Fair | **70-100** Good	76.9	76.2% 21.4% 2.4%
	Sidewalk Condition Index (SCI) **0-39** Poor | **40-59** Fair | **60-100** Good	87.4	92.0% 5.5% 2.5%

Good News!
Transportation Network asset types have an average condition of "good".

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 Innisfil's strategic objectives, the public's service expectations and the measured performance of the delivered service and enable 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, three types of LOS have been defined below:

Strategic

Qualitative statements that describe the primary service delivery objectives and provide links with one or more objectives of Innisfil's Community Strategic Plan.

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.

The specific LOS defined by Innisfil are summarized in the following tables. These will be used to:

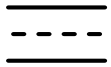
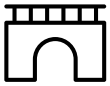
- Identify LOS that service recipients can expect to receive and Innisfil's current performance in meeting these.
- Identify assets that require attention to ensure that LOS can be delivered and maintained.
- Enable Staff and Council to discuss and assess the suitability, affordability and equality of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

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

Strategic LOS

Strategic LOS performance measures are aligned with Innisfil's strategic goals and objectives in the Community Strategic Plan, Innovative Innisfil 2030. For Innisfil's Transportation Network asset categories, strategic LOS are summarized in the following table:

Table 5: Strategic LOS

Asset Type	Performance Measure	Strategic Objectives Supported
	Provide comfortable, safe and efficient roadways.	 1.1 Plan for and Manage Growth 1.3 Improve Service Offerings 2.2 Enhance Movement of People 3.1 Maintain and Protect Existing Infrastructure 3.3 Ensure Fiscal Responsibility
	Provide safe and reliable bridges and road culverts.	
	Provide comfortable and accessible pedestrian walkways.	

Community LOS

Community LOS performance measures are 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.

For this version of the AMP, compliance with O. Reg. 588/17 has been the driving force for defining Community LOS. All service attributes and performance measures defined in the regulation for roads and structures have been included. These have been augmented with additional Community LOS covering the scope and quality of sidewalks.

Table 6: Community LOS - Roads

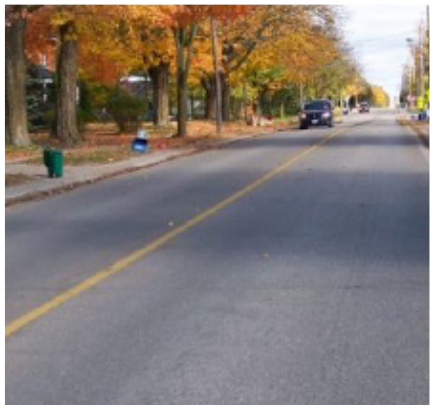
<table>
<tr><th>Service Attribute</th><th>Performance Measure</th><th colspan="3">Current LOS</th></tr>
<tr><td>Scope</td><td>Description, which may include maps, of the road network in the municipality and its level of connectivity.</td><td colspan="3">Innisfil maintains 755 lane kilometers of roads over a total land area of 262.7 square kilometers. Integrated with the Provincial and County grid-based road network, Town-owned roads provide for travel within and between settlement areas and access to regional arteries and provincial highways, including County Road 27 and Highways 400 and 89.
See Appendix A for a map of Innisfil's road network.</td></tr>
<tr><td rowspan="2">Quality</td><td rowspan="2">Description or images that illustrate different levels of road class pavement condition.</td><td>Good</td><td>Fair</td><td>Poor</td></tr>
<tr><td>  </td><td>  </td><td>  </td></tr>
</table>

Table 7: Community LOS - Structures

Service Attribute	Performance Measure	Current LOS		
Scope	Description of the traffic supported by municipal bridges.	Innisfil maintains 42 structures including 12 vehicle bridges, 7 pedestrian bridges, and 23 structural culverts. Vehicle bridges and structural culverts support the passage of all vehicle types including heavy transport, emergency service, non-commercial as well as bicycles and pedestrians. Pedestrian bridges support the passage of pedestrians, bicycles, and light utility vehicles. There are currently no load limits on vehicle bridges located in Innisfil.		
Quality	Description or images of the condition of bridge assets and how this would affect their use.	**Good**	**Fair**	**Poor**
				
Quality	Description or images of the condition of structural culvert assets and how this would affect their use.	**Good**	**Fair**	**Poor**
				

Table 8: Community LOS - Sidewalks

Service Attribute	Performance Measure	Current LOS		
Scope	Description of the traffic that is supported by municipal sidewalks.	Innisfil maintains 96 kilometers of sidewalks. These provide safe access for pedestrians and bicycles.		
Quality	Description or images of the condition of asphalt sidewalk assets and how this would affect their use.	**Good**	**Fair**	**Poor**
				
Quality	Description or images of the condition of concrete sidewalk assets and how this would affect their use.	**Good**	**Fair**	**Poor**
				

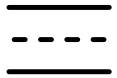
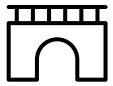
Technical LOS

Technical 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 Transportation Network AMP, compliance with O. Reg. 588/17 is the driving force for defining Technical LOS. All service attributes and performance measures defined in the regulation for roads and structures have been included. These have been augmented with additional Technical LOS covering the scope and quality of sidewalks.

91.2% of Transportation Network assets are in fair or better condition.

Table 9: Technical LOS

Asset Type	Service Attribute	Performance Measure	Current Performance
	**Scope**	Number of lane-kilometers of arterial roads as a portion of 262.7 square kilometers of land area in Innisfil.	0.03
	Scope	Number of lane-kilometers of collector roads as a portion of 262.7 square kilometers of land area in Innisfil.	0.90
	Scope	Number of lane-kilometers of local roads as a portion of 262.7 square kilometers of land area in Innisfil.	1.95
	Quality	For paved roads in the municipality, the average surface condition.	68.4 (Good)
	Quality	For unpaved roads in the municipality, the average surface condition.	64.5 (Good)
	Reliability	Percentage of roads in Fair or better condition.	87.6% (Good)
	**Scope**	Percentage of bridges in the municipality with loading or dimensional restrictions.	0%
	Quality	For bridges in the municipality, the average bridge condition index value.	78.1 (Good)
	Quality	For structural culverts in the municipality, the average bridge condition index value.	76.0
	Reliability	Percentage of structures in Fair or better condition.	97.6% (Good)
	**Scope**	Number of kilometers of sidewalks as a proportion of 262.7 square kilometers of land area of the municipality.	0.02
	Quality	For asphalt sidewalks in the municipality, the average sidewalk condition index value.	58.6 (Fair)
	Quality	For concrete sidewalks in the municipality, the average sidewalk condition index value.	89.9 (Good)
	Reliability	Percentage of sidewalks in Fair or better condition.	97.4% (Good)

RISK MANAGEMENT

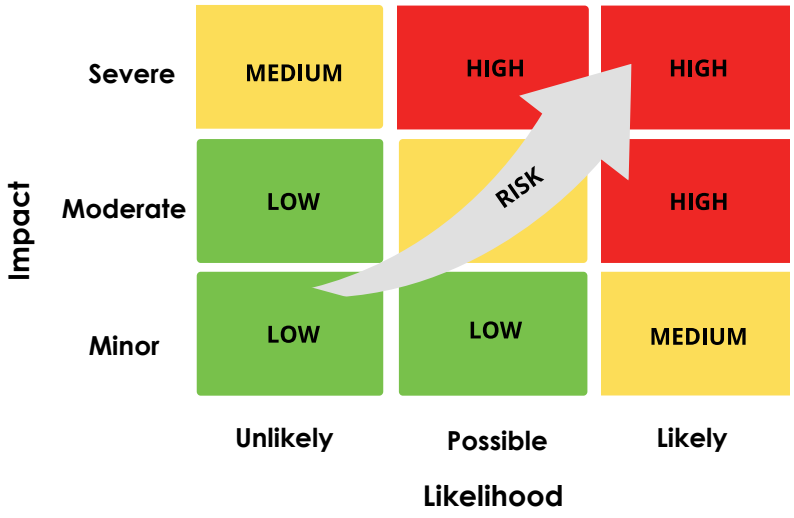
In the context of municipal asset management, a risk is an event that, if it occurred, would have an undesirable effect on the delivery of service. Risk can be defined as the product of the likelihood and impact of the event:

Risk = Likelihood x Impact

Likelihood - measures the probability of the event occurring.
Impact - measures the severity of the consequence.

As illustrated in Figure 3, risk increases as the likelihood and/or impact of an event increases.

Figure 3: Risk Matrix



Managing Risk

Risk is managed through a process of identification, assessment, treatment, and monitoring to ensure that Innisfil is adequately prepared for what events may happen and have plans in place to react to events appropriately. This process is outlined in Figure 4 below, with descriptions to follow:

Figure 4: Risk Management Process

1. Identification

Write down all the threats and risks you can think of and ask for ones from other stakeholders.

2. Assessment

Evaluate each risk by determining the likelihood of it happening and the level of impact it would have.

3. Treatment

Implement process changes to reduce the impact of each risk and a response plan for if it happens.

4. Monitoring

Review the progress of the plan and ensure assessments and treatments are adequately addressing identified risks.

Identifying Risks

Risk 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 Town staff

Once risks have been identified, assessed and assigned a risk rating, a treatment plan needs to be determined. The choice of treatment depends on the level of risk that can be reasonably managed and accepted by Innisfil (i.e. the risk tolerance). Risk tolerance is informed not just by the likelihood 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 is.

In Table 10 below, staff have identified a number of risks associated with Transportation Network assets to demonstrate the application of the risk management methodology.

Table 10: Sample Risks - Transportation Network Assets

Risk	Likelihood	Impact	Risk Rating	Treatment
Risk of road potholes	Likely	Minor	Low	Accept and resolve as reported
Risk of snow/ice covered roads	Possible	Moderate	Medium	Mitigate through winter operations activities
Minor damage due to accident, vandalism, weather, etc.	Possible	Minor	Low	Accept
Moderate damage due to accident, vandalism, weather, etc.	Possible	Moderate	Medium	Accept
Severe damage due to accident, vandalism, weather, etc.	Unlikely	Severe	Medium	Accept
Premature road/structure failure	Unlikely	Severe	Medium	Mitigate through frequent inspection and maintenance
Premature sidewalk failure	Unlikely	Minor	Low	Mitigate through periodic inspection and maintenance

FUTURE DEMAND

Demand Forecast
Per the 2021 census, the Town of Innisfil has a population of approximately 43,326 people. This is forecast to increase to 54,970 by 2031. This includes roughly 420 new housing units per year which will require the acquisition of new infrastructure assets to ensure that service levels are maintained.

Future Growth
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.

Challenges and Opportunities
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. Innisfil's Transportation Master Plan (TMP) is reviewed and updated every 5 years to respond to changes in growth, both within Innisfil and in adjacent municipalities.

The Orbit
The Orbit is a new proposed transit-oriented community to be built around a future GO Station at 6th Line and east of 20th Sideroad. The Orbit will be developed as a sustainable, higher density complete community with new residential, recreational and commercial development opportunities, cutting-edge technology and an active transportation network. The Orbit is expected to house a population of more than 20,000 people in the next 30 years. For more information on this project and other future development with Innisfil, please visit https://www.getinvolvedinnisfil.ca/

CLIMATE DEMAND

Innisfil is working towards the development of an Integrated Sustainability Master Plan which will identify the risks and impacts that climate change has on core infrastructure assets. Changes to our climate can create challenges for municipalities to meet the desired levels of service and can decrease the service life and functionality of these assets. To ensure Innisfil's assets are safe and reliable, climate change and the consideration of sustainable materials must be incorporated into the decisions and long-term planning for the municipality.

All of Innisfil's Transportation Network assets are designed to resist the effects of weathering due to rain, ice, wind, and snow. Due to the nature of the construction materials used for these assets (i.e. concrete and steel), they are by nature resistant to many of the effects of climate change. During periods of extreme weather such as a major rain event or high water levels due to flooding from other regions, Transportation Network assets are inspected and monitored more frequently to ensure the safety of the public and staff.

LIFECYCLE MANAGEMENT

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. The overall goal is to extend the expected life of the assets while managing risks and minimizing the total lifecycle costs. The stages of lifecycle management are as follows:

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

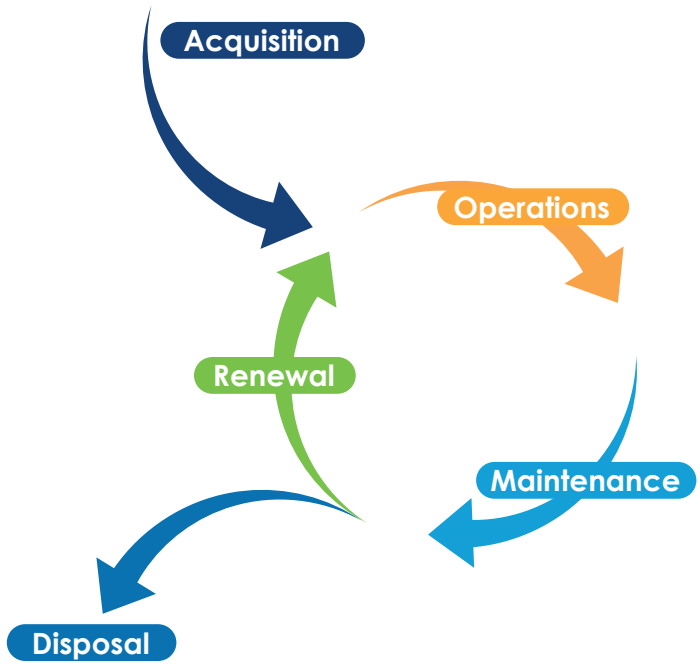
Operations
Planned, periodic activities such as inspection, assessment, cleaning, and servicing to fulfill LOS commitments and detect defects before failures occur.

Maintenance
Routine activities, planned and unplanned, to resolve minor defects and delay future defects.

Renewal
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 the asset.

Disposal
Removal of assets that have reached the end of their effective service life.

Figure 5: Asset Lifecycle

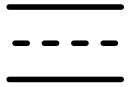
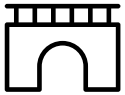


Lifecycle Activities

Building on the state of infrastructure and levels of service content, lifecycle activities are the actions utilized by Innisfil to operate, maintain, and renew Transportation Network assets in the manner most appropriate to ensure the long-term performance of the 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 Innisfil is performing the most appropriate and cost effective activity to optimize the lifecycle for each asset.

Table 11: Lifecycle Activities - Transportation Network Assets

Activity			
Monitoring	• Road patrol	• Road patrol	• Road patrol
Inspection & Assessment	• Roads Needs Study (RNS) Report prepared every 5 years	• Municipal Bridge Inspection Report prepared every 2 years	• Sidewalk Needs Study (SNS) Report prepared every 5 years
Operations	• Sweeping • Plowing • Sanding and salting • Debris removal • Pot-hole repair	• Sweeping • Debris removal	• Sweeping • Debris Removal
Maintenance	• Crack-sealing • Rout-and-seal • Grading • Dust Control • Gravel addition	• Deck drain and bearing seat flushing • Expansion joint cleaning	• Crack-sealing • Patching • Overlay • Jacking
Renewal	• Slurry seal • Overlay • Pulverize-and-pave • Reconstruction	• Reconstruction	• Reconstruction

FINANCIAL SUMMARY

The Budget Process
The Town of Innisfil prepares a multi-year budget every two years that includes a two-year operating budget and two-year capital budget to address immediate needs and an eight-year capital forecast to address expected future needs. The budget is informed by Innisfil's community strategic plan, extensive community engagement, various master plans and infrastructure needs studies, and asset lifecycle requirements.

Operating Budget
Innisfil's operating budget quantifies the expenditures needed to provide municipal programs, services, governance and administration, maintain financial reserves for future projects and fund the operation and maintenance activities required to maintain current service levels.

Funding for operating expenditures is provided from property taxes and various non-tax revenue sources including:

- Development fees
- Program and license fees
- Fines and penalties
- Interest
- Dividends

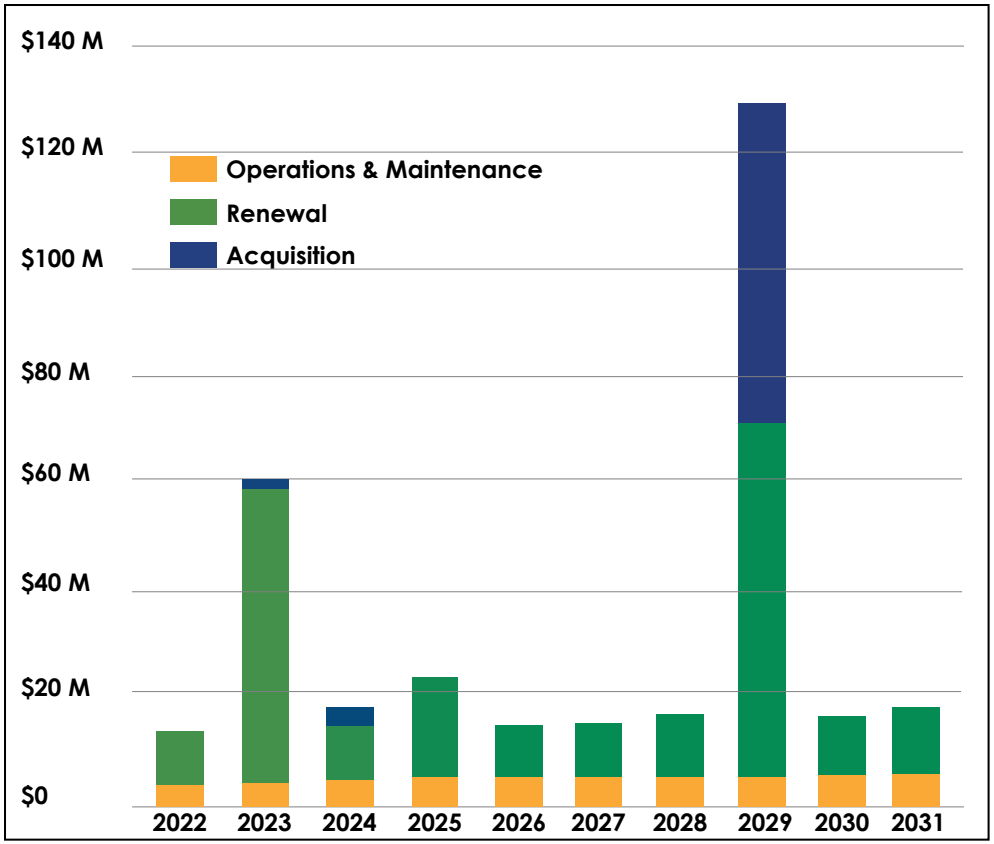
Capital Budget and Forecast
Consistent with the provincial and federal mandates for ten-year capital plans to properly address asset management planning and qualify for grant opportunities, Innisfil prepares a two-year capital budget and an eight-year capital forecast. The proposed budget and forecast provide the public, Council and staff with a longer-term path for capital initiatives, recognizing immediate and future needs that include existing asset replacements and growth required infrastructure demands.

The 2021/2022 capital budget and forecast have been developed within the COVID lens and utilizing the recent community needs assessment study, existing master plans, development charges background study, asset management planning and other input documents that guide the focus to where and when financial resources are needed. The capital budget and forecast also fund the acquisition, renewal and disposal activities required to maintain current service levels. Funding for capital expenditures is more involved and has been summarized in Table 12 below:

Table 12: Capital Revenue Sources

Revenue Source	Description	Growth or Renewal
Alternative Revenue Sources (ARS)	Money received from the Ontario Lottery & Gaming Corporation (OLG) generated from Gateway Casinos Innisfil, formerly known as Georgian Downs, is transferred in accordance with policy CP.07-11-05 to the Alternative Revenue Source (ARS) Reserve Fund. The utilization of ARS is intended for the "benefit to existing taxpayers" (non-growth) portion of growth related capital projects, and one-time strategic initiatives.	Growth
Capital Tax Levy	The amounts collected annually through the operating budget for the 1% capital levy are transferred into this reserve. These funds are used to fund the repair and replacement of existing assets, or to fund new assets/projects that are not eligible for funding from development charges.	Renewal
Development Charges	Development charges are collected on new construction. These funds are restricted in use through provincial legislation and can be used solely for the purpose of growth related capital projects, such as new vehicles required for operational activities, facilities needed to accommodate various services throughout Innisfil, new parks and amenities, and various growth studies. These funds must be reported annually on how they were used.	Growth
Restricted Reserve Funds	This fund is used primarily to fund the urbanization of 7th and 8th Line and is developer funded. Funds in this category are restricted in how they can be utilized, either by legislation or agreement. The largest reserve fund in this category is the 7/8th line reserve fund. Innisfil collects funds through the 7/8th line developer's agreement at time of building permit issuance. The funds collected are transferred to a reserve fund and used as a funding source for capital works related to the 7/8th line agreement.	Growth & Renewal
Tax Supported Reserves	Through the operating budget, amounts are collected annually and set aside in defined reserves. This category is comprised largely of fleet reserve revenues. These fleet reserves are used for the replacement of Town fleet. Also Included in this category are funds utilized from library and building inspection capital reserves.	Renewal
Grants & Other Recoveries	Grant funds received from federal and provincial government related programs, such as the Federal Gas Tax program and the Ontario Community Infrastructure Fund (OCIF). Other recoveries include amounts received from external parties.	Renewal

Figure 6: 10-Year Lifecycle Activities Forecast - Transportation Network



10-Year Lifecycle Activities Forecast

O. Reg. 588/17 requires municipalities to provide a 10-year forecast that estimates the annual costs of lifecycle activities that will need to be undertaken to maintain the current LOS and accommodate expected growth. This forecast is presented in Figure 6 and Table 14 and has been prepared from the 2021/2022 budget and forecast extrapolated to 2031 using an inflation rate of 3%.

The following significant projects are identified to explain the increased funding requirement in 2023, 2025, and 2029:

Table 13: Significant Projects - Transportation Network

Capital Project #	Cost	Year
RDS309	$20 M	2023
RDS276	$24 M	2023
RDS356	$7 M	2025
RDS316	$6 M	2029
RDS312	$7 M	2029
RDS338	$43 M	2029
RDS248	$59 M	2029

Table 14: 10-Year Financial Summary - Transportation Network

Lifecycle Phase	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Operations & Maintenance	$4.95 M	$5.00 M	$5.27 M	$5.10 M	$5.15 M	$5.20 M	$5.25 M	$5.31 M	$5.36 M	$5.41 M
Renewal	$9.37 M	$54.87 M	$11.19 M	$19.98 M	$10.91 M	$11.26 M	$11.83 M	$67.88 M	$12.27 M	$12.64 M
Acquisition	$0	$185 K	$2.37 M	$0	$0	$0	$0	$59.12 M	$0	$0
Total	**$14.32 M**	**$60.05 M**	**$18.84 M**	**$25.08 M**	**$25.08 M**	**$16.47 M**	**$17.09 M**	**$132.32 M**	**$17.64 M**	**$18.06 M**

MONITORING & IMPROVEMENT

In this final section, opportunities for improvement of Innisfil's asset management program, including AMP content, are identified along with planned activities to strengthen both. These planned activities will ensure that Innisfil 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 15 on the following page, summarizes the improvement opportunities currently identified 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 and summarized in Figure 1 of the AMP.

Table 15: Improvement Plan

Opportunity	Actions	Priority
Improve completeness and accuracy of state of infrastructure data for core assets.	Complete condition assessments of all stormwater mains and ponds.	High
	Validate remaining useful life data for core assets missing construction dates.	Medium
	Complete mapping of tangible capital assets data into GIS inventory for core assets.	High
	Improve replacement cost information for stormwater assets.	Medium
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 core and non-core asset records management.	Medium
Improve maturity of level of service reporting for core and non-core assets.	Expand LOS definitions for core and non-core assets.	Medium
	Establish LOS targets.	High
	Formalize data gathering and reporting procedures for each LOS.	Medium
Improve maturity of risk identification and treatment.	Establish risk management committee.	Medium
	Prepare risk management register for Town of Innisfil.	High
Expand asset management program to include non-core assets.	Define non-core asset categories and types.	High
	Establish inventory systems for each non-core asset type.	High
	Gather state of infrastructure data for all non-core assets.	High
	Expand asset management standard operating procedures to cover non-core assets.	Medium
	Complete mapping of tangible capital asset data to inventories for non-core assets.	High
Enhance long term financial planning for asset lifecycle.	Identify costs associated with target levels of service and scenarios to achieve same.	High
Enhance strategic asset management policy.	Complete review and release of updated policy.	Low
Enhance public reporting of asset management information.	Enhance asset management content on Town of Innisfil website.	Low
Enhance asset management links to climate change planning.	Expand climate change coverage in 2024 and 2025 AMP's.	Medium

APPENDIX A - INNISFIL ROAD NETWORK

TOWN OF INNISFIL
STORMWATER NETWORK ASSET MANAGEMENT PLAN 2022

VERSION HISTORY

Version	Date	Description
1.0	June 8, 2022	Council Approval

TABLE OF CONTENTS

EXECUTIVE SUMMARY

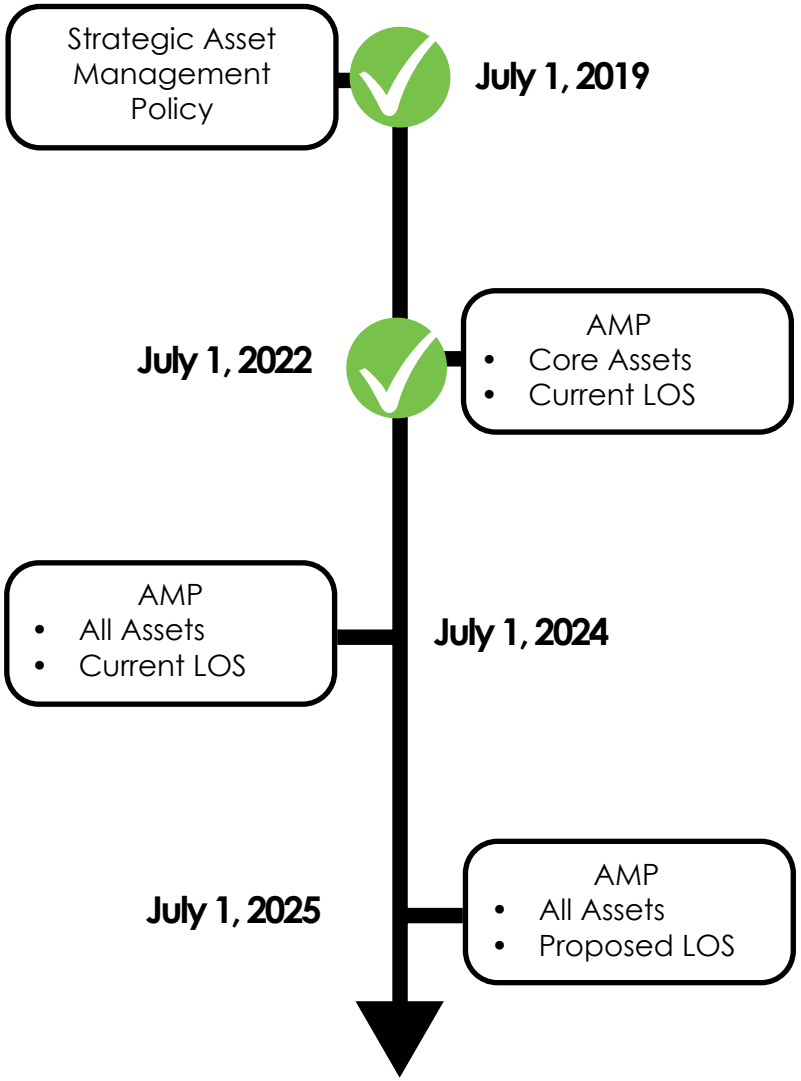
The Town of Innisfil (Innisfil) owns and manages a large range of assets on behalf of our community. These assets deliver a number of services which must be managed in a cost effective way, while ensuring they continue to meet the needs of the community now and in the future.

The Stormwater Network Asset Management Plan (AMP) focuses on Innisfil's Stormwater Network and specifies the requirements for effective management of this asset group and the corresponding financial implications. Stormwater Network assets includes pipes, catch basins, maintenance holes and ponds and are an important part of Innisfil's infrastructure, providing safe and efficient management of stormwater runoff within the Town.

Innisfil 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), the AMP will be accessible through the Town of Innisfil website. Background information and reports used in the preparation of the AMP will also be made available publicly through Innisfil's website or upon request.

The AMP will be updated periodically to meet legislative requirements and ensure the information remains current. The information and figures within the AMP have been developed based on the best available data at the time of the plan's development. The AMP will assist Innisfil to make appropriate decisions regarding the acquisition, operation, maintenance, renewal, and disposal of core infrastructure assets.

Figure 1: O. Reg. 588/17 Timeline



INTRODUCTION

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, and incorporates design excellence into infrastructure planning.

Under this Act, the Ontario government also introduced O. Reg. 588/17, which requires that every municipality shall prepare an AMP in respect of its core municipal infrastructure assets by July 1, 2022. The Regulation further defines core municipal infrastructure assets to include roads, bridges, structural culverts, stormwater, water and wastewater.

The AMP has, in part, been prepared to meet the 2022 regulatory requirements of O. Reg. 588/17. Any gaps or weaknesses in compliance are addressed in the Monitoring & Improvement section of the AMP.

The Stormwater Network asset category is a major component of Innisfil's core infrastructure assets. These assets provide valuable services to the public including collection, conveyance, treatment and control of stormwater runoff to help maintain or improve the ecological health of our lakes and streams, and reduce flooding within the Town. Effective maintenance and renewal of these assets is critical to ensuring that they continue to deliver adequate levels of service and provide benefits to current and future generations.

The AMP demonstrates Innisfil's responsible and systematic approach to asset management, compliance with regulatory requirements and commitment to fulfilling the following objectives of the Community Strategic Plan:

- Plan for and Manage Growth
- Improve Service Offerings
- Maintain and Protect Existing Infrastructure
- Ensure Financial Stability

The AMP achieves this outcome by delivering on the following key elements of effective asset management planning:

- Developing and maintaining a complete and accurate database of inventory and state of infrastructure information.
- Defining levels of service that consider the public's expectations and meet the strategic needs of Innisfil.
- Employing a lifecycle approach.
- Reviewing current and future demands.
- Managing risks associated with the assets and the services they provide.
- Ensuring continuous improvement in the asset management practice and plans.

The reader will further benefit by consulting the following documentation:

- Stormwater Management Master Plan
- Lake Simcoe Protection Plan
- Approved Budgets
- The Official Plan (Our Place)

FREQUENTLY ASKED QUESTIONS

What is an asset?
An asset is an item of property owned by Innisfil that is deemed to have value. Innisfil's assets include core infrastructure assets (i.e. roads, bridges, structural culverts, and stormwater elements), and non-core assets (i.e. buildings, land, vehicles, and playground equipment).

What is an asset category?
An asset category refers to a set of assets that have similar characteristics or purpose. For example "Stormwater Network" asset types include stormwater collection and conveyance and stormwater treatment and control.

What are the objectives of asset management?
The objectives of asset management is to intervene at strategic points in an asset's life cycle 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 Innisfil 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 AMP's. In addition to the legislative requirement, Innisfil 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 Innisfil include community feedback into the Plan?
Innisfil will endeavour to provide opportunities for community engagement in asset management planning. Innisfil will provide information on the corporate website to facilitate transparency in asset management planning.

STATE OF INFRASTRUCTURE

The State of Infrastructure section provides summary level information about Innisfil's Stormwater Network assets, which include:

- Stormwater Collection & Conveyance - mains, laterals, maintenance holes, and catch basins
- Treatment & Control - oil and grit separators (OGS), low impact development (LID), and stormwater management ponds

In compliance with O. Reg. 588/17, the following information is provided for each asset type:

- Inventory (quantity)
- Replacement Value
- Expected Life and Average Age
- Average Condition

This information provides the foundation of the Town's asset management plan as having a complete and current understanding of the Town's state of infrastructure is critical to efficient and effective lifecycle management and financial planning.

The following icons are used throughout the AMP to identify the asset types:

Stormwater Collection & Conveyance

Stormwater Treatment & Control

Table 1: Stormwater Network Asset Summary

Asset Type	Asset Sub-Types	Quantity	Replacement Value	Average Age	Average Condition*
	Mains	86.3 km	$89 Million	Unknown	 **1.5 (Good)**
	Laterals	1178			
	Maintenance Holes	985			
	Catch Basins	1897			
	OGS	6	$37.3 Million	7 years	Unknown
	LID	6		4 years	Unknown
	Stormwater Management Ponds	42		22 years	Unknown

*Average condition measured from 0-5, with smaller numbers indicating better condition.

Inventory

Asset inventory was determined through the review of data in the 2021 Tangible Capital Assets (TCA) file and cross referenced through data within the County of Simcoe's Geographic Information System (GIS) database. Innisfil's TCA and GIS database are updated frequently to ensure all assets are kept current and information is available to staff. Table 2 summarizes Innisfil's Stormwater Network assets, with asset sub-types listed below in further detail:

Stormwater Collection & Conveyance assets are classified into four (4) sub-types:

- **Mains -** The primary part of the underground (piped) stormwater management system that are used to collect and convey stormwater runoff and snow melt to a discharge point such as a stormwater management facility, stream, river, or lake.
- **Laterals -** The secondary underground (piped) stormwater management system that collects and conveys stormwater runoff from properties to the stormwater mains.
- **Maintenance Holes -** Underground vaults that are strategically placed to allow access for maintenance of the underground stormwater system, as well as allow for the systems flow direction to change without 'bending' the pipe. Maintenance Holes also allow for multiple stormwater pipes to come together at one location. Maintenance holes can also double as a catch basin if installed at a strategic location.
- **Catch Basins** - (or storm drains) are the main way stormwater gets into our underground pipe system. The metal grates that can be seen at the edge of the road are only a portion of the catch basin structure. Under the grate is a concrete barrel that collects the water. They are also designed to capture heavy debris and grit at the bottom of the barrel. The barrel is attached to a pipe (sometimes referred to as a lead) which allows the water to flow to the mains.

Stormwater Treatment and Control assets are classified into three (3) sub-types:

- **Oil & Grit Separators (OGS) -** An underground device that captures oil and sediments from stormwater runoff and snow melt. By capturing the contaminants, it prevents them from entering into our streams, rivers and lakes. OGS units also prolong maintenance required on downstream stormwater management facilities.
- **Low Impact Development (LID) Facilities -** Are practices that are used to increase infiltration of stormwater into the soil where generated. This infiltration allows stormwater to be filtered and/or absorbed by plants. Example of LID are enhanced grass swales, permeable pavers/pavement, and rain gardens (bio-retention).
- **Stormwater Management Ponds**
  Stormwater management ponds are man-made ponds which receive and retain stormwater runoff and snow melt and allow solids to settle to the bottom. These ponds are designed to hold water during an event and slowly release the runoff at a predetermined rate over time after the storm event has passed. Stormwater management pond assets are classified as either "wet" or "dry":
  - **Wet Ponds/Wetlands -** Designed to contain water at all times. The water level rises and falls with each storm event to help control the flow of runoff into local creeks and streams. The ponds are sized to meet local needs and contain aquatic plants that help improve water quality before it is released from the pond.
  - **Dry Ponds** - Designed to be dry most of the time and only briefly detain water during more severe stormwater events.

Replacement Value

Asset replacement value is determined by estimating the total replacement cost of the assets within each asset category. For Stormwater Network assets, the replacement cost data detailed in the Town's 2014 AMP was used as a base for analysis. The 2014 data was extrapolated and adjusted for inflation to determine the current replacement value. For Stormwater Management Ponds, replacement value was determined using cost estimates from the risk report provided for the 2022 Stormwater Master Plan update. Figure 2 shows the breakdown and total replacement value for Stormwater Network assets.

Expected Life

The expected life of assets is the length of time that assets are designed to provide safe, reliable, and useful service. In many cases, the service life of an asset can be extended well beyond the original expected life with proactive lifecycle management, but the cost of ownership generally increases as condition worsens and the frequency and costs of repairs increases. Table 2 provides the life expectancies of various Stormwater Network asset types as defined in Innisfil's Tangible Capital Asset Policy (2016).

Average Age

Average Age is determined by analyzing the Year Built data detailed in the 2021 Tangible Capital Assets (TCA) File. As shown in Table 2, the average age of Stormwater Collection assets is unknown.

Figure 2: Replacement Value - Stormwater Network Assets

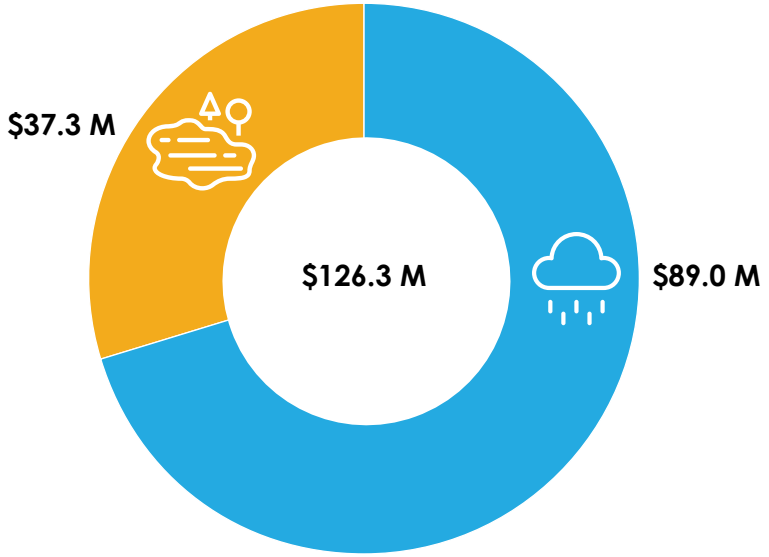


Table 2: Expected Life & Average Age - Stormwater Network Assets

Asset Type	Asset Sub-Type	Expected Life	Average Age
	Mains	75	Unknown
	Laterals	75	
	Maintenance Holes	75	
	Catch Basins	50	
	OGS	50	7
	LID	50	4
	Stormwater Management Ponds	50	22
	• Wet Ponds/Wetlands	50	20
	• Dry Ponds	50	29

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 expected life remaining. Direct measurement involves inspection of the assets against technical standards to directly determine the current condition. For Stormwater Network assets, the Town employs the more accurate approach of direct measurement and conducts inspections on a regular basis to obtain this data.

Stormwater Collection & Conveyance Condition

Currently, condition data is only gathered for stormwater mains. Condition is determined through Closed Circuit Television (CCTV) inspection and assessment in accordance with the National Association of Sewer Service Companies (NASSCO) Pipeline Assessment Certification Program (PACP). Other Stormwater Collection & Conveyance assets are reviewed regularly to determine maintenance needs without the assignment of a condition rating.

Stormwater Treatment & Control Condition

Currently, Stormwater Treatment & Control assets are reviewed annually to determine maintenance needs without the assignment of a condition rating.

Canadian Infrastructure Report Card

The Canadian Infrastructure Report Card is a collaborative project that provides condition data on Canada's municipally-owned infrastructure assets to help inform lifecycle decision making across all provinces and municipalities. The 2019 Report Card outlines that although 40-60% of stormwater infrastructure is in good to very good condition there are many assets that have no condition data available. Historically, stormwater data collection was a low-priority activity, however with growing concerns of climate change, it is imperative that Stormwater Network asset condition data is reported on to ensure these assets are sustainable and effective in controlling increased precipitation from major storm events.

Table 3: Stormwater Main Asset Condition

Asset Type	Asset Sub-Type	Condition Index & Ratings			Average Condition	Condition Summary*
		Overall Pipe Grade				
	Mains	**3.5 - 5** Poor	**2.5 - 3.4** Fair	**0 - 2.4** Good	**1.5 (Good)**	**30%** **11%** **3%** **56%**

*The Town has an active program underway to complete CCTV inspection and condition analysis of all stormwater mains. As of year-end 2021, 44% of the mains have been completed. The remaining mains will be completed from 2022-2023.

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 Innisfil's strategic objectives, the public's service expectations and the measured performance of the delivered service and enable 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, three types of LOS have been defined below:

Strategic

Qualitative statements that describe the primary service delivery objectives and provide direct links with one or more objectives of Innisfil's Community Strategic Plan.

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.

The specific LOS defined by Innisfil are summarized in the following tables. These will be used to:

- Identify LOS that service recipients can expect to receive and Innisfil's current performance in meeting these.
- Identify assets that require attention to ensure that LOS can be delivered and maintained.
- Enable Staff 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.

It should be noted that the Community and Technical LOS listed here are those required by O. Reg. 588/17.

Strategic LOS

Strategic LOS performance measures are aligned with Innisfil's strategic goals and objectives in the Community Strategic Plan, Innovative Innisfil 2030. For Innisfil's Stormwater Network asset categories, strategic LOS are summarized in the following table:

Table 4: Strategic LOS - Stormwater Network

Asset Type	Performance Measure	Strategic Objectives Supported
	Provide adequate collection and conveyance capacity and backflow mitigation.	 1.1 Plan for and Manage Growth 1.3 Improve Service Offerings 2.2 Enhance Movement of People 3.1 Maintain and Protect Existing Infrastructure 3.3 Ensure Fiscal Responsibility
	Provide adequate and effective treatment and control of stormwater.	

Community LOS

Community LOS performance measures are 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.

For this version of the AMP, compliance with O. Reg. 588/17 has been the driving force for defining Community LOS. All service attributes and performance measures defined in the regulation for stormwater have been included.

Table 5: Community LOS - Stormwater Network

Service Attribute	Performance Measure	Current LOS
Scope	Description which may include maps, of the user groups or areas of the municipality that are protected from flooding, including the extent of the protection provided by the municipal stormwater management system.	To protect areas from flooding, stormwater is conveyed across the Town of Innisfil through 86.3km of stormwater pipes (mains), as well as along open channels, ditches, swales, and natural watercourses. OGS and SWM Facilities help to control the quantity and quality of stormwater. Innisfil is located within two Conservation Authority regulatory limits: Lake Simcoe Region Conservation Authority (LSRCA) and Nottawasaga Valley Conservation Authority (NVCA), both which have developed floodplain mapping. The mapping delineates which properties within Innisfil could be subject to flooding during major storm events. To calculate these events, the Conservation Authority's use the Ministry of Natural Resources and Forestry (MNRF) Regulatory Flood Definition Zones, dividing the province into three different flood zones. Each zone outlines a Regulatory storm event, which is either the 100-year return period storm or the observed rainfall from a historic storm, whichever is greater. LSRCA uses the Hurricane Hazel Storm and NVCA uses the Timmins Storm. At present, Innisfil does not have municipal infrastructure such as dams or dykes that have been constructed to provide flood protection. Development that has occurred since the 1990's has required stormwater management to ensure that new construction does not increase the risk of flooding to the existing developments downstream.

Technical LOS

Technical 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 Stormwater Network AMP, compliance with O. Reg. 588/17 is the driving force for defining Technical LOS. All service attributes and performance measures defined in the regulation for stormwater have been included.

A 100-year storm delivers a rainfall amount that has a 1% chance of occurrence at that location in that year.

Table 6: Technical LOS - Stormwater Network

Service Attribute	Performance Measure	Current Performance
Scope	Percentage of properties in municipality resilient to 100-year storm	At present time, Innisfil has not determined the 100-year storm floodlines in our watercourses as only the regulatory floodpain has been mapped by the Conservation Authorities. The 100-year storm floodlines would be smaller in most cases than that of the Regional floodplain. A flood study is currently underway in Innisfil to update the areas flooded due to the Regulatory storm and the frequency storm. The study is scheduled to be completed by the end of 2022, at which time the properties resilient to the 100-year storm will be known.

RISK MANAGEMENT

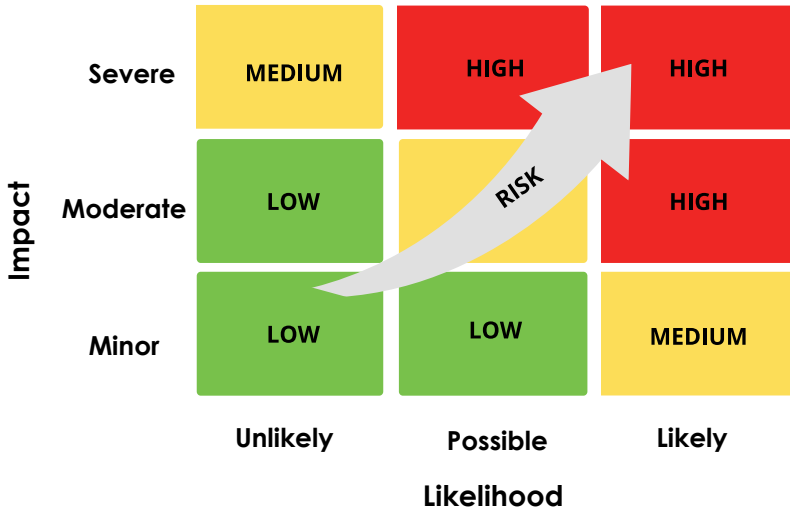
In the context of municipal asset management, a risk is an event that, if it occurred, would have an undesirable effect on the delivery of service. Risk can be defined as the product of the likelihood and impact of the event:

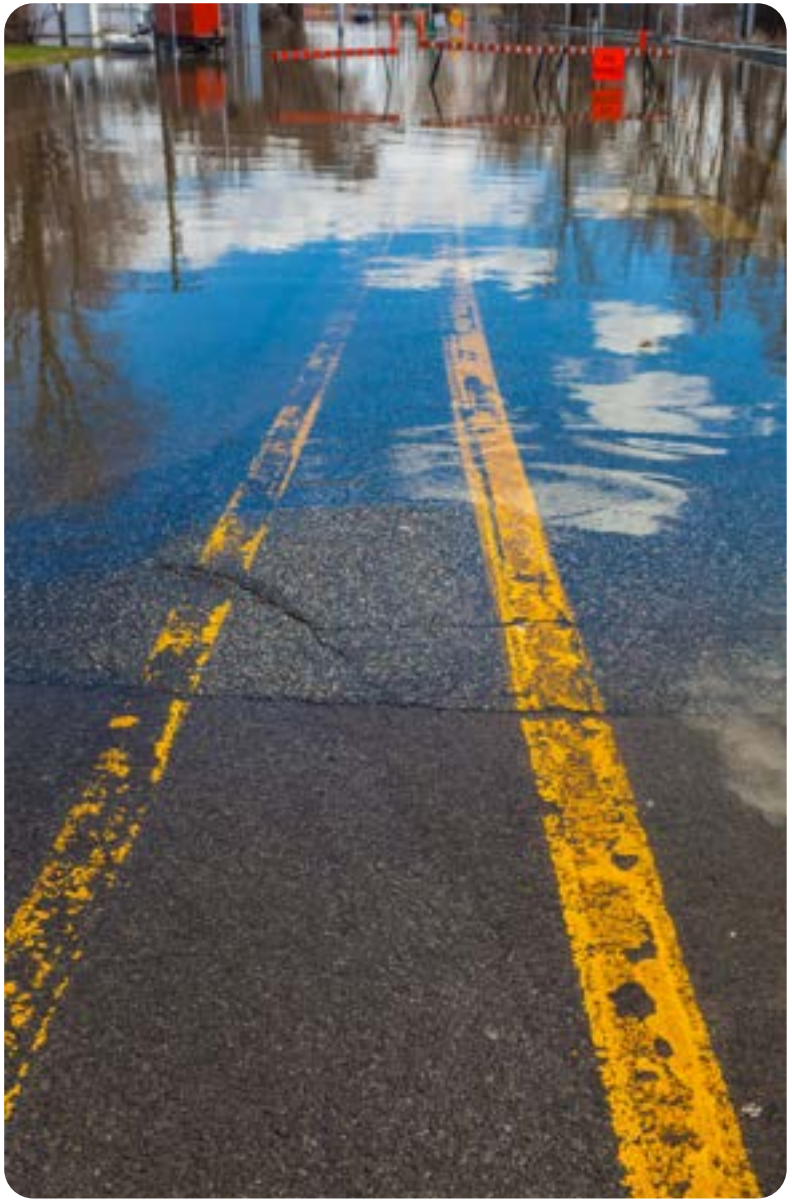
Risk = Likelihood x Impact

Likelihood - measures the probability of the event occurring.
Impact - measures the severity of the consequence.

As illustrated in Figure 3, risk increases as the likelihood and/or impact of an event increases.

Figure 3: Risk Matrix





Managing Risk

Risk is managed through a process of identification, assessment, treatment, and monitoring to ensure that Innisfil is adequately prepared for what events may happen and have plans in place to react to events appropriately. This process is outlined in Figure 4 below, with descriptions to follow:

Figure 4: Risk Management Process

1. Identification

Write down all the threats and risks you can think of and ask for ones from other stakeholders.

2. Assessment

Evaluate each risk by determining the likelihood of it happening and the level of impact it would have.

3. Treatment

Implement process changes to reduce the impact of each risk and a response plan for if it happens.

4. Monitoring

Review the progress of the plan and ensure assessments and treatments are adequately addressing identified risks.

Identifying Risks

Risk 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 Town staff

Once risks have been identified, assessed and assigned a risk rating, a treatment plan needs to be determined. The choice of treatment depends on the level of risk that can be reasonably managed and accepted by Innisfil (i.e. the risk tolerance). Risk tolerance is informed not just by the likelihood 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 is.

In Table 7 below, staff have identified a number of risks associated with Stormwater Network assets to demonstrate the application of the risk management methodology.

Table 7: Sample Risks - Stormwater Network Assets

Risk	Likelihood	Impact	Risk Rating	Treatment
Risk of stormwater overflow on roads	Likely	Minor	Low	Accept and resolve as reported
Minor damage due to accident, vandalism, weather, etc.	Possible	Minor	Low	Accept
Moderate damage due to accident, vandalism, weather, etc.	Possible	Moderate	Medium	Accept
Severe damage due to accident, vandalism, weather, etc.	Unlikely	Severe	Medium	Accept
Premature stormwater asset failure	Unlikely	Severe	Medium	Mitigate through frequent inspection and maintenance

FUTURE DEMAND

Demand Forecast
Per the 2021 census, the Town of Innisfil has a population of approximately 43,326 people. This is forecast to increase to 54,970 by 2031. This includes roughly 420 new housing units per year which will require the acquisition of new infrastructure assets to ensure that service levels are maintained.

Future Growth
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.

Challenges and Opportunities
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. Innisfil's Stormwater Management Master Plan is reviewed and updated every 5 years to to respond to changes in growth, both within Innisfil and in adjacent municipalities, and to comply with the Lake Simcoe Protection Plan.

The Orbit
The Orbit is a new proposed transit-oriented community to be built around a future GO Station at 6th Line and east of 20th Sideroad. The Orbit will be developed as a sustainable, higher density complete community with new residential, recreational and commercial development opportunities, cutting-edge technology and an active transportation network. The Orbit is expected to house a population of more than 20,000 people in the next 30 years. For more information on this project and other future development with Innisfil, please visit https://www.getinvolvedinnisfil.ca/

CLIMATE DEMAND

Innisfil is working towards the development of an Integrated Sustainability Master Plan which will identify the risks and impacts that climate change has on core infrastructure assets. Changes to our climate can create challenges for municipalities to meet the desired levels of service and can decrease the service life and functionality of these assets. To ensure Innisfil's assets are safe and reliable, climate change and the consideration of sustainable materials must be incorporated into the decisions and long-term planning for the municipality.

Innisfil's Stormwater Network assets are designed to resist the effects of weathering due to rain, ice, wind, and snow. As climate change progresses, the intensity and frequency of storms will increase, and Innisfil will need to adapt to deliver the same LOS. During periods of extreme weather, such as a major rain event or high water levels due to flooding from other regions, Stormwater Network assets are inspected and monitored more frequently to ensure the safety of the public and staff.

Climate change model forecasts indicate that the Lake Simcoe watershed will experience major shifts in temperature resulting in less snow and more rain during winter months, warmer weather with higher humidity levels, and more frequent and intense rain and extreme weather events. With these forecasts in mind, Stormwater Network assets will need to be monitored and inspected even more frequently to ensure the impacts of climate change are not adversely affecting municipal stormwater infrastructure.

LIFECYCLE MANAGEMENT

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. The overall goal is to extend the expected life of the assets while managing risks and minimizing the total lifecycle costs. The stages of lifecycle management are as follows:

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

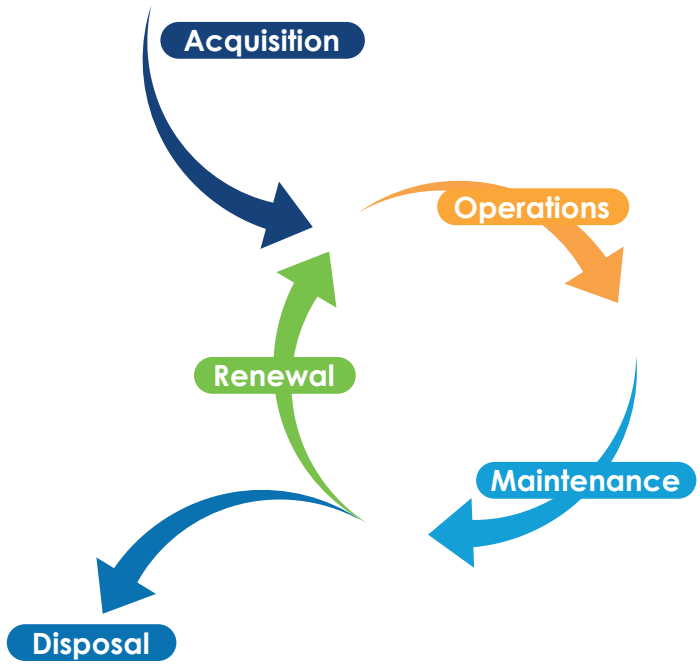
Operations
Planned, periodic activities such as inspection, assessment, cleaning, and servicing to fulfill LOS commitments and detect defects before failures occur.

Maintenance
Routine activities, planned and unplanned, to resolve minor defects and delay future defects.

Renewal
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 the asset.

Disposal
Removal of assets that have reached the end of their effective service life.

Figure 5: Asset Lifecycle



Lifecycle Activities

Building on the state of infrastructure and levels of service content, lifecycle activities are the actions utilized by Innisfil to operate, maintain, and renew Stormwater Network assets in the manner most appropriate to ensure the long-term performance of the 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 Innisfil is performing the most appropriate and cost effective activity to optimize the lifecycle for each asset.

Table 8: Lifecycle Activities - Stormwater Network Assets

Activity		
Monitoring	• Road Patrol	• Road Patrol
Inspection & Assessment	• CCTV Inspections Report prepared every 5 years • CCTV inspections of storm sewer	• OGS inspection & clean-out / servicing • LID inspections • SWM Pond inspections • Sediment Survey
Operations	• Stormwater patrol • Condition assessment • Sweeping • Debris removal • Catch basin cleanouts	• Sweeping • Debris removal
Maintenance	• Catch basin repairs • Culvert flushing & steaming • Flood control • Municipal drains maintenance • Invasive species control • Ditch maintenance	• LID maintenance • Invasive species control • SWM retrofits & cleanouts • Invasive species control • Vegetation removal around maintenance infrastructure and access routes
Renewal	• Flood relief • Erosion control repairs • Restoration • Staged rehab opportunities at various levels of condition • Armor stones / headwall repairs • Infrastructure replacement based on condition, age, & the lifecycle management strategies • Capacity enhancements	• Cleanout • End of life replacement • Additions of new units & retrofits • As per identified opportunities Stormwater Pond cleaning • Flood relief • Renewal or replacement of components • Assumption of development-based SWM facilities as required

FINANCIAL SUMMARY

The Budget Process
The Town of Innisfil prepares a multi-year budget every two years that includes a two-year operating budget and two-year capital budget to address immediate needs and an eight-year capital forecast to address expected future needs. The budget is informed by Innisfil's community strategic plan, extensive community engagement, various master plans and infrastructure needs studies, and asset lifecycle requirements.

Operating Budget
Innisfil's operating budget quantifies the expenditures needed to provide municipal programs, services, governance and administration, maintain financial reserves for future projects and fund the operation and maintenance activities required to maintain current service levels.

Funding for operating expenditures is provided from property taxes and various non-tax revenue sources including:

- Development fees
- Program and license fees
- Fines and penalties
- Interest
- Dividends

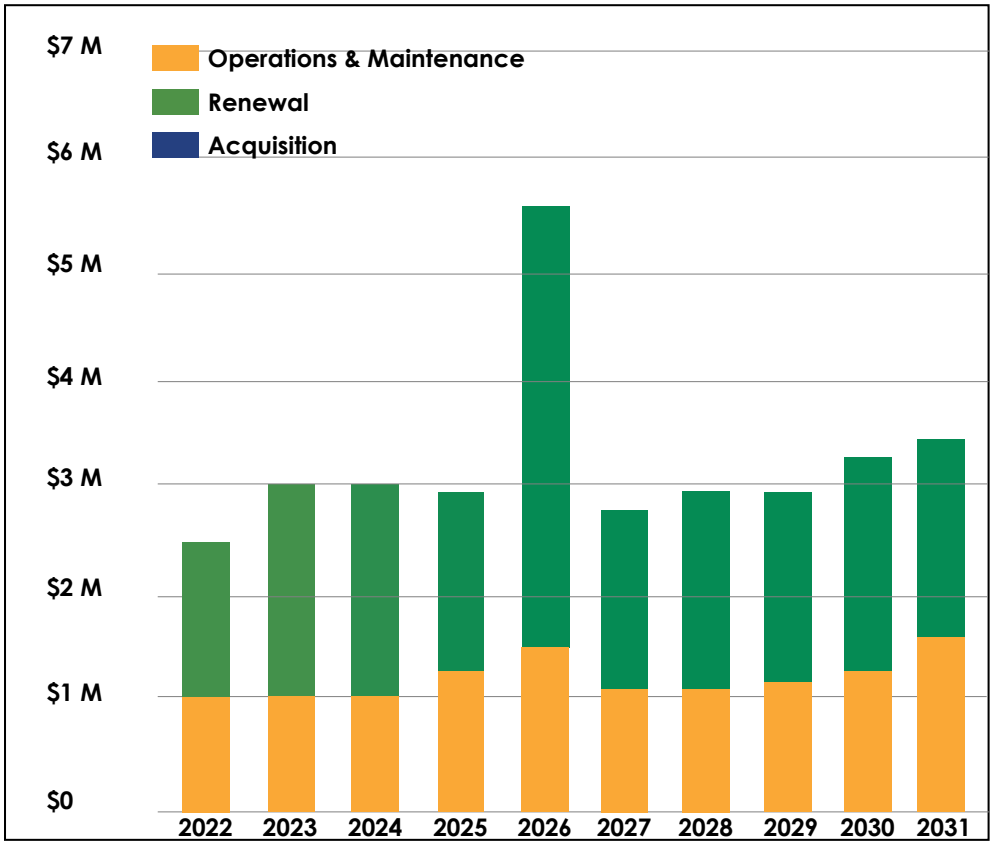
Capital Budget and Forecast
Consistent with the provincial and federal mandates for ten-year capital plans to properly address asset management planning and qualify for grant opportunities, Innisfil prepares a two-year capital budget and an eight-year capital forecast. The proposed budget and forecast provide the public, Council and staff with a longer-term path for capital initiatives, recognizing immediate and future needs that include existing asset replacements and growth required infrastructure demands.

The 2021/2022 capital budget and forecast have been developed within the COVID lens and utilizing the recent community needs assessment study, existing master plans, development charges background study, asset management planning and other input documents that guide the focus to where and when financial resources are needed. The capital budget and forecast also fund the acquisition, renewal and disposal activities required to maintain current service levels. Funding for capital expenditures is more involved and has been summarized in Table 9 below:

Table 9: Capital Revenue Sources

Revenue Source	Description	Growth or Renewal
Alternative Revenue Sources (ARS)	Money received from the Ontario Lottery & Gaming Corporation (OLG) generated from Gateway Casinos Innisfil, formerly known as Georgian Downs, is transferred in accordance with policy CP.07-11-05 to the Alternative Revenue Source (ARS) Reserve Fund. The utilization of ARS is intended for the "benefit to existing taxpayers" (non-growth) portion of growth related capital projects, and one-time strategic initiatives.	Growth
Capital Tax Levy	The amounts collected annually through the operating budget for the 1% capital levy are transferred into this reserve. These funds are used to fund the repair and replacement of existing assets, or to fund new assets/projects that are not eligible for funding from development charges.	Renewal
Development Charges	Development charges are collected on new construction. These funds are restricted in use through provincial legislation and can be used solely for the purpose of growth related capital projects, such as new vehicles required for operational activities, facilities needed to accommodate various services throughout Innisfil, new parks and amenities, and various growth studies. These funds must be reported annually on how they were used.	Growth
Restricted Reserve Funds	This fund is used primarily to fund the urbanization of 7th and 8th Line and is developer funded. Funds in this category are restricted in how they can be utilized, either by legislation or agreement. The largest reserve fund in this category is the 7/8th line reserve fund. Innisfil collects funds through the 7/8th line developer's agreement at time of building permit issuance. The funds collected are transferred to a reserve fund and used as a funding source for capital works related to the 7/8th line agreement.	Growth & Renewal
Tax Supported Reserves	Through the operating budget, amounts are collected annually and set aside in defined reserves. This category is comprised largely of fleet reserve revenues. These fleet reserves are used for the replacement of Town fleet. Also Included in this category are funds utilized from library and building inspection capital reserves.	Renewal
Grants & Other Recoveries	Grant funds received from federal and provincial government related programs, such as the Federal Gas Tax program and the Ontario Community Infrastructure Fund (OCIF). Other recoveries include amounts received from external parties.	Renewal

Figure 6: 10-Year Lifecycle Activities Forecast - Stormwater Network



10-Year Lifecycle Activities Forecast

O. Reg. 588/17 requires municipalities to provide a 10-year forecast that estimates the annual costs of lifecycle activities that will need to be undertaken to maintain the current LOS and accommodate expected growth. This forecast is presented in Figure 6 and Table 11 and has been prepared from the 2021/2022 budget and forecast extrapolated to 2031 using an inflation rate of 3%.

The following significant projects are identified to explain the increased funding requirement in 2026 and 2031:

Table 10: Significant Projects - Stormwater Network

Capital Project #	Cost	Year
ENG59	$456 K	2026
SWM1	$513 K	2026
SWM2	$1.5 M	2026
ENG59	$528 K	2031

Table 11: 10-Year Financial Summary - Stormwater Network

Lifecycle Phase	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Operations & Maintenance	$1.02 M	$1.03 M	$1.04 M	$1.23 M	$1.52 M	$1.08 M	$1.09 M	$1.11 M	$1.32 M	$1.66 M
Renewal	$1.52 M	$2.00 M	$1.99 M	$1.66 M	$4.06 M	$1.76 M	$1.82 M	$1.87 M	$1.93 M	$1.98 M
Acquisition	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$2.54 M**	**$3.03 M**	**$3.04 M**	**$2.89 M**	**$5.59 M**	**$2.85 M**	**$2.91 M**	**$2.98 M**	**$3.25 M**	**$3.65 M**

MONITORING & IMPROVEMENT

In this final section, opportunities for improvement of Innisfil's asset management program, including AMP content, are identified along with planned activities to strengthen both. These planned activities will ensure that Innisfil 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.

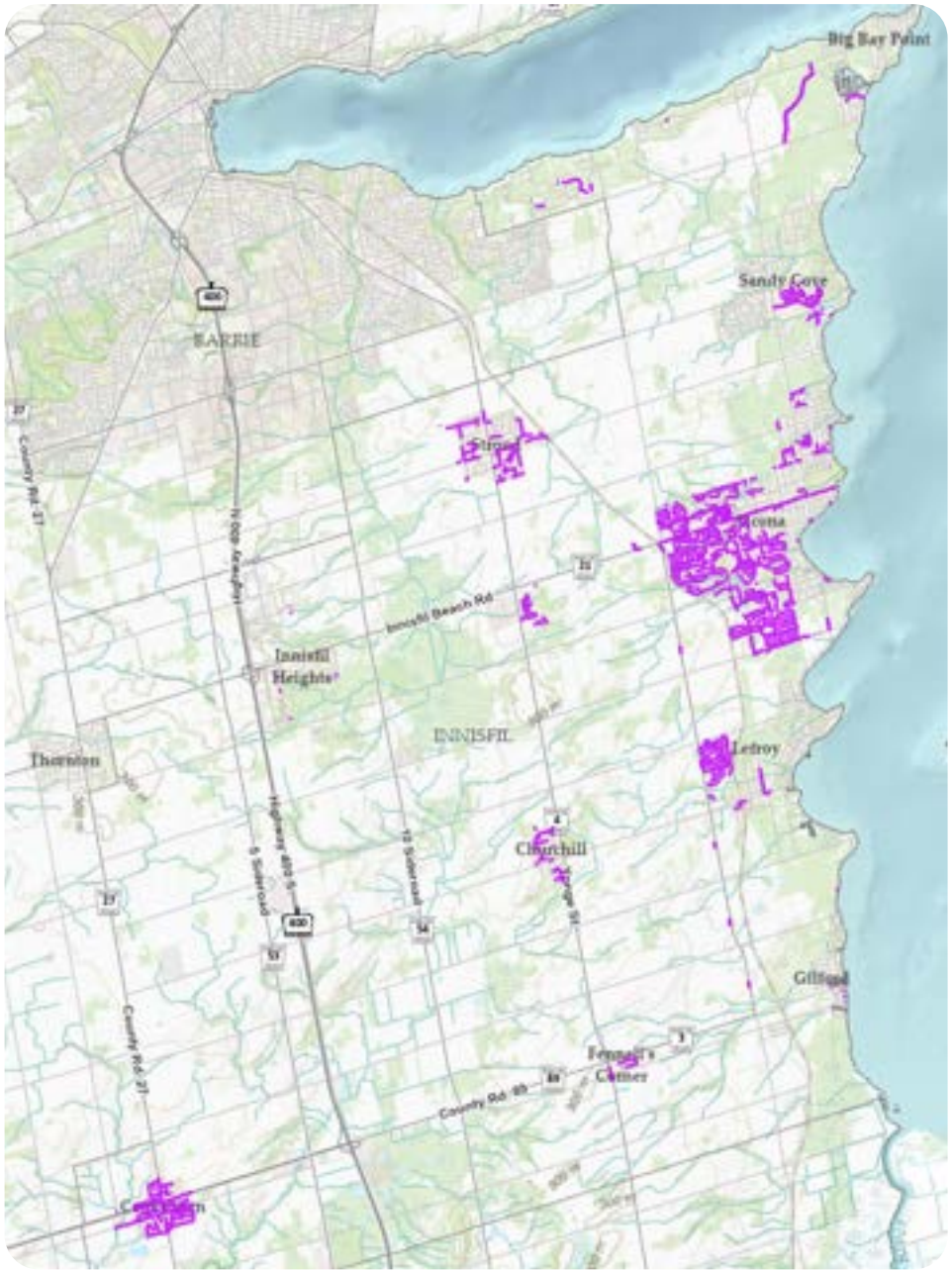
Improvement Plan

Table 12 on the following page, summarizes the improvement opportunities currently identified 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 and summarized in Figure 1 of the AMP.

Table 12: Improvement Plan

Opportunity	Actions	Priority
Improve completeness and accuracy of state of infrastructure data for core assets.	Complete condition assessments of all stormwater mains and ponds.	High
	Validate remaining useful life data for core assets missing construction dates.	Medium
	Complete mapping of TCA data into GIS inventory for core assets.	High
	Improve replacement cost information for stormwater assets.	Medium
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 core and non-core asset records management.	Medium
Improve maturity of level of service reporting for core and non-core assets.	Expand LOS definitions for core and non-core assets.	Medium
	Establish LOS targets.	High
	Formalize data gathering and reporting procedures for each LOS.	Medium
Improve maturity of risk identification and treatment.	Establish risk management committee.	Medium
	Prepare risk management register for Town of Innisfil.	High
Expand asset management program to include non-core assets.	Define non-core asset categories and types.	High
	Establish inventory systems for each non-core asset type.	High
	Gather state of infrastructure data for all non-core assets.	High
	Expand asset management standard operating procedures to cover non-core assets.	Medium
	Complete mapping of TCA data to inventories for non-core assets.	High
Enhance long term financial planning for asset lifecycle.	Identify costs associated with target levels of service and scenarios to achieve same.	High
Enhance strategic asset management policy.	Complete review and release of updated policy.	Low
Enhance public reporting of asset management information.	Enhance asset management content on Town of Innisfil website.	Low
Enhance asset management links to climate change planning.	Expand climate change coverage in 2024 and 2025 AMP's.	Medium

APPENDIX A - INNISFIL STORMWATER MAINS



innservices

INNSERVICES UTILITIES INC.
WATER NETWORK ASSET MANAGEMENT PLAN 2022

VERSION HISTORY

Version	Date	Description
1.0	May 19, 2022	Board Approval
1.1	June 8, 2022	Council Approval

TABLE OF CONTENTS

EXECUTIVE SUMMARY

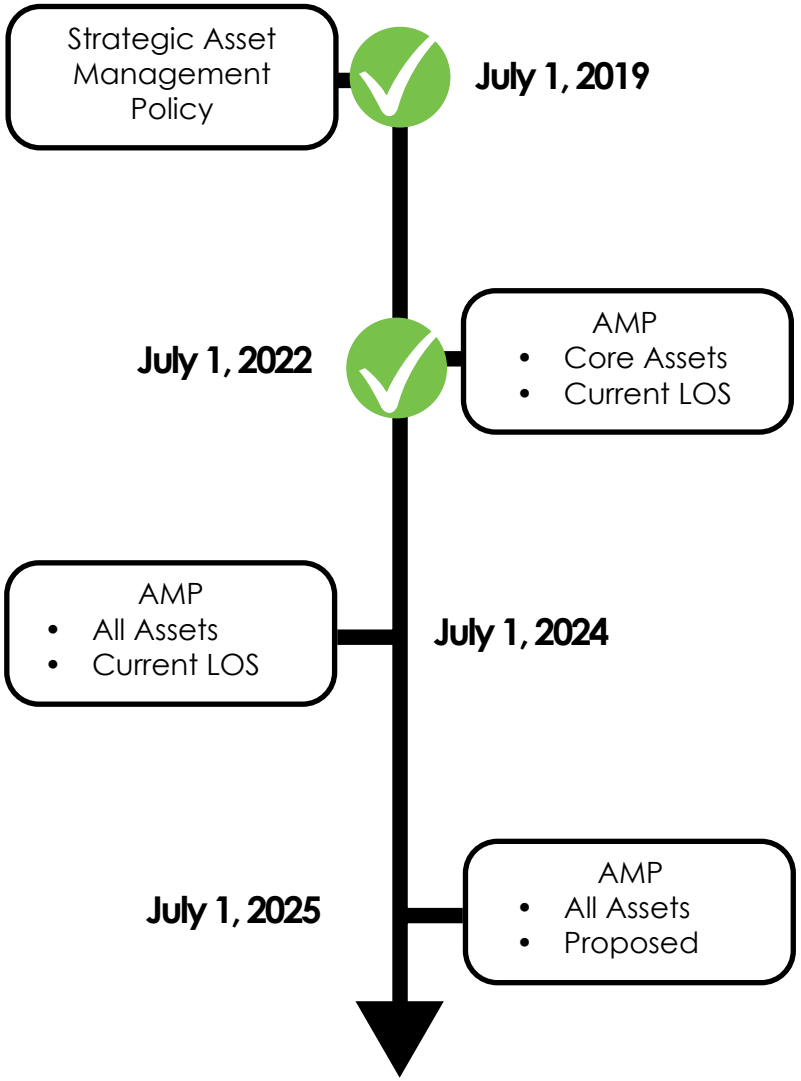
InnServices owns and manages a large range of water assets on the behalf of our community. These assets provide services that are to be managed in a cost-effective way, while ensuring they continue to meet the needs of the community now and in the future.

The Water Network Asset Management Plan (AMP) focuses on InnServices' water assets and specifies the requirements for effective management of the assets and their corresponding financial implications. Water assets include water mains, water valves, hydrants, water services, fleet, and water facility assets. These assets are responsible for the delivery of potable water services provided by InnServices.

InnServices is committed to public transparency and open communication. In this spirit, and in compliance with O. Reg. 588/17, the AMP will be accessible through the InnServices' website. Background information and reports used in the preparation of this plan will also be made available publicly upon request.

To ensure the AMP is current and meeting the legislative requirements an updated plan will be completed every two years to ensure an accurate representation of data is provided to the community. The information and figures within the AMP have been developed based on the best available data at the time of the plan's development. The AMP will assist InnServices to make appropriate decisions regarding the acquisition, operation maintenance, renewal, and disposal of water infrastructure assets.

Figure 1: O. Reg. 588/17 Timeline



INTRODUCTION

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, and that incorporates design excellence into infrastructure planning.

Under this Act, the Ontario government also introduced Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure. This regulation requires that every municipality shall prepare an AMP in respect of its core municipal infrastructure assets by July 1, 2022. The Regulation further defines core municipal infrastructure assets to include roads, bridges, and structural culverts (i.e., transportation), stormwater assets, water and wastewater assets.

The AMP has, in part, been prepared to meet the 2022 regulatory requirements of O. Reg 588/17. Any gaps or weaknesses in compliance are addressed in the Monitoring & Improvement section of the AMP.

The Water Network is a component of InnServices' core infrastructure assets. Water assets provide valuable services to the public, such as safe drinking water. Effective maintenance and renewal of these assets is crucial to ensure that they continue to deliver adequate levels of service and provide benefits to current and future generations.

The AMP demonstrates InnServices' responsible and systematic approach to asset management, compliance with regulatory requirements and commitment to fulfilling the following objectives of the Community Strategic Plan:

- Plan for and Manage Growth
- Improve Service Offerings
- Maintain and Protect Existing Infrastructure
- Ensure Financial Stability

The AMP achieves this outcome by delivering on the following key elements of effective asset management planning:

- Developing and maintaining a complete and accurate database of inventory and state of infrastructure information.
- Defining levels of service that consider the public's expectations and meet strategic needs of InnServices.
- Employing a lifecycle approach.
- Reviewing current and future demands.
- Managing risks associated with the assets and the services they provide.
- Ensuring continuous improvement in the asset management practice and plans.

The reader will further benefit by consulting the following documentation:

- The Official Plan (Our Place)
- Master Servicing Plan
- Water & Wastewater Rates Study

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 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 are the objectives of asset management?
The objectives of asset management are to intervene at strategic points in an asset's lifecycle to extend the expected service life, and thereby maintaining its performance. When maintenance activities are scheduled strategically it helps to decrease costs, rather than the increased costs of unplanned maintenance or excessive planned 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 level of service 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 AMP's. 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 the most to ensure the ongoing delivery of services.

How does InnServices include community feedback into 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.

DEFINITIONS & ACRONYMS

Core Asset: As per O. Reg. 588/17, Water Assets, Wastewater Assets, Stormwater Management Assets, Roads and Bridges/ Culverts are considered as core assets.
Water Assets: Water assets that relate to the collection, production, treatment, storage, supply or distribution of water.
Replacement Value: The cost in 2021 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.
Expected Useful Life: The length of time that assets are designed to provide safe, reliable, and useful service.
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.
Remaining Service Life: The estimated remaining useful life of the asset based on age only.
New Acquisitions: The planned construction of new assets that are not to replace the existing infrastructure.
Asset Performance: The manner in which or the efficiency with which an asset fulfills its intended purpose.
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.
Renewal: The asset to be replaced or restored to a excellent state as if had become new again.
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.
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.
Average Risk Rating: Risk ratings weighted by costs and averaged to determine the overall risk of an individual asset category.

Acronyms:
AMP = Asset Management Plan
LOS = Levels of Service
CPI = Construction Price Index
CVOR = Commercial Vehicle Operators Registration
ECA = Environmental Compliance Approval
CI = Continuous Improvement
PDCA = Plan-Do-Check-Act
DWQMS = Drinking Water Quality Management Standard
MCR = Municipal Comprehensive Review
MSP = Master Servicing Plan
O. Reg = Ontario Regulation

ASSET HIERARCHY

Asset Hierarchy

InnServices has adopted an asset hierarchy approach to develop the framework for categorizing the asset portfolio into the appropriate linkages between the assets. The asset hierarchy in the AMP is illustrated as parent-child type relationship, with 4 levels:

- Level 1: Service
- Level 2: Major Group
- Level 3: Segment
- Level 4: Data

Below is the detailed asset hierarchy of Water Network assets:

Table 1: Water Network Asset Hierarchy

Level 1	Level 2	Level 3	Level 4
Water Network	Water Linear Assets	Watermains	Type, Size, Material
		Water Laterals	Type, Size, Material
		Water Valves	Type, Size
		Hydrants	Purpose, Size
		Hydrant Leads	Type, Size, Material
		Valve Chambers	Type, Size
	Water Facility Assets	Water Treatment Plant	Process Area, Component
		Pumping Stations & Well Houses	Process Area, Component
		Reservoirs & Standpipes	Component
		Process & Yard Piping	Component
		Equipment & Furnishings	Component
		Services	Component
		Pumps & Motors	Component
		Miscellaneous Assets	Component
		Land Improvements	Component
	Water Fleet Assets	Vehicles & Trailers	Type

STATE OF INFRASTRUCTURE

The State of Infrastructure section provides summary level information about Innservices' Water Network assets, which includes:

- Water Linear assets
- Water Facility assets
- Water Fleet assets

In compliance with O. Reg. 588/17, the following information is provided for each asset type:

- Inventory (quantity)
- Replacement value
- Expected Life, average age, and service life remaining
- Average condition

This information provides the foundation to the InnServices AMP, as having a complete and current understanding of the state of infrastructure is critical for efficient and effective lifecycle management and financial planning.

The following icons are used throughout the AMP to identify the asset types:


Water Linear Assets


Water Facility Assets


Water Fleet Assets

Table 2: Water Linear Assets Summary

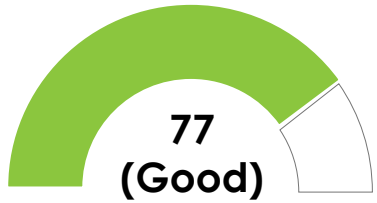
Asset Type	Asset Sub-Types	Quantity	Replacement Value	Average Age	Average Condition
	Valve Chambers	96	$483.5 million	18.9 years	 77 (Good)
	Hydrant Leads	3.7 km			
	Hydrants	1357			
	Water Valves	15071			
	Water Laterals	115.8 km			
	Watermains	219.6 km			

Table 3: Water Facility Assets Summary

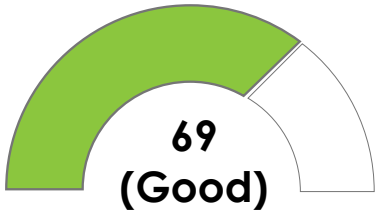
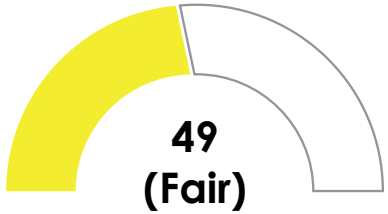
Asset Type	Asset Sub-Types	Quantity	Replacement Value	Average Age	Average Condition
	Land Improvements	19	$158.2 million	16.8 years	
	Miscellaneous	11			
	Pumps & Motors	70			
	Services	27			
	Process & Yard Piping	36			
	Reservoirs & Standpipes	15			
	Pumping Stations & Well Houses	14			
	Equipment & Furnishings	201			
	Lakeshore WTP	1			

Table 4: Water Fleet Assets Summary

Asset Type	Asset Sub-Types	Quantity	Replacement Value	Average Age	Average Condition
	Vehicles & Trailers	13	$787.2 thousand	5.9 years	

Water Network Inventory

Asset inventory was determined through the review of data in the 2021 Tangible Capital Assets (TCA) File and cross referenced through data within the County of Simcoe's Geographic Information System (GIS) database. InnServices' TCA and GIS database are updated frequently to ensure all assets are kept current and information is available to staff. Table 1 summarizes InnServices' Water Network asset hierarchy, with asset sub-types and data available.

Water Linear assets are classified into six (6) sub-types:

- **Valve Chambers** -A concrete chamber used to house pumps or valves, accessible through a surface maintenance hole.
- **Hydrant Leads** - Connecting pipe between water main and a hydrant. Standardized in size and material.
- **Hydrants** - An above ground fixture connected to the water main through a hydrant lead. Typically used for fighting fires and flushing.
- **Water Laterals** - The water service line that provides water from the water main to a property.
- **Water Valves** - A fitting onto water mains and hydrant leads that allows to control the flow of water through the pipe.
- **Water Mains** - Pipeline laid within the public right of way, used to transport potable water to the community & hydrants.

Water Facility assets are classified into nine (9) sub-types:

- **Water Treatment Plant**: A compound facility designed to use physical and chemical processes to improve water quality to meet the regulatory requirements.
- **Pumping Stations & Well Houses** - Pumping station is defined as a facility of pumps housed in a building designed to boost water pressure from one place to another. Well house is a small building that collects raw well water and provides treatments before being distributed to the community.
- **Reservoir & Standpipes** - Reservoir is a structure designed to store water. Standpipe is a type of reservoir consisting of a vertical ground level storage tank to store water.
- **Process & Yard Piping** - Any water main, lateral, valves, or fittings installed within the facilities for the treatment and distribution of water.
- **Equipment & Furnishing** - It includes frequency drives, lifting equipment, cameras, portable radios, shelving, cabinets contained in the InnServices' facilities.
- **Services** - A grouping that includes facility related assets such as HVAC and motor control systems.
- **Pumps & Motors** - A class that groups all mechanical pumps and motors within the InnServices' facilities.
- **Miscellaneous Assets** - These assets are the facility assets which do not follow any particular asset grouping.
- **Land Improvements** - Land Improvements Include assets such as fences, walkways, parking lots, and outdoor lighting.

Water Fleet assets are classified into one (1) sub-type:

- **Vehicles & Trailers** - Assets used to transport people or goods related to water activities or management.

Replacement Value - Water Linear Assets

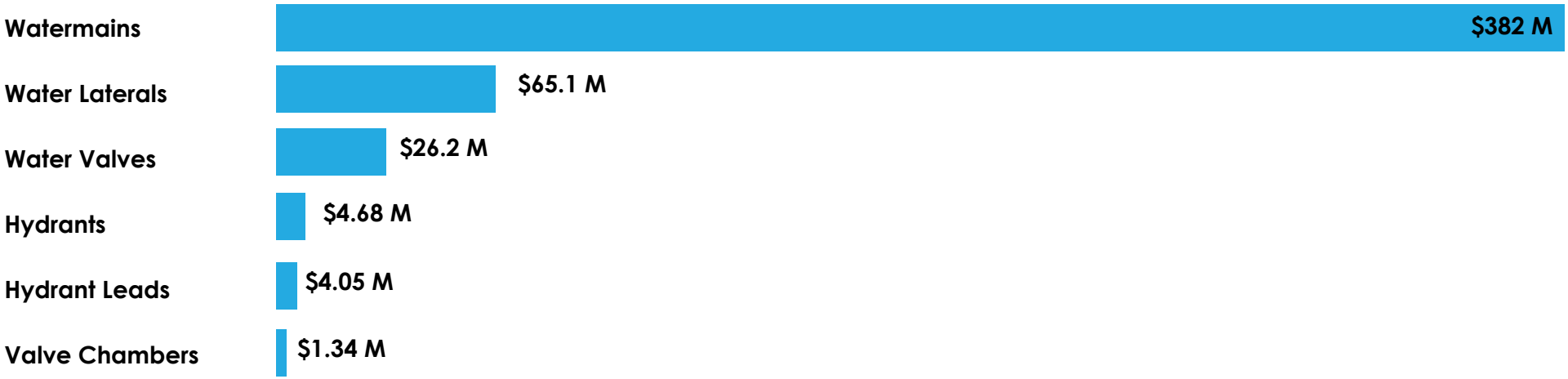
Asset replacement value is determined by estimating the total replacement value of the assets within each asset class. All Water network assets analyzed in the AMP have a total replacement value of $642.6 million. The replacement value of the Water Linear and Water Fleet assets is estimated by using the Cost/Unit method. However, Construction Price Index (CPI) Method is used to estimate the replacement value of the water facility assets.

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

CPI (Construction Price Index) Method: Replacement cost of the facility 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 (2021).

The distribution of the Water Linear replacement value is predominantly in Watermains. Figure 2 displays the total replacement value of Water Linear Assets.

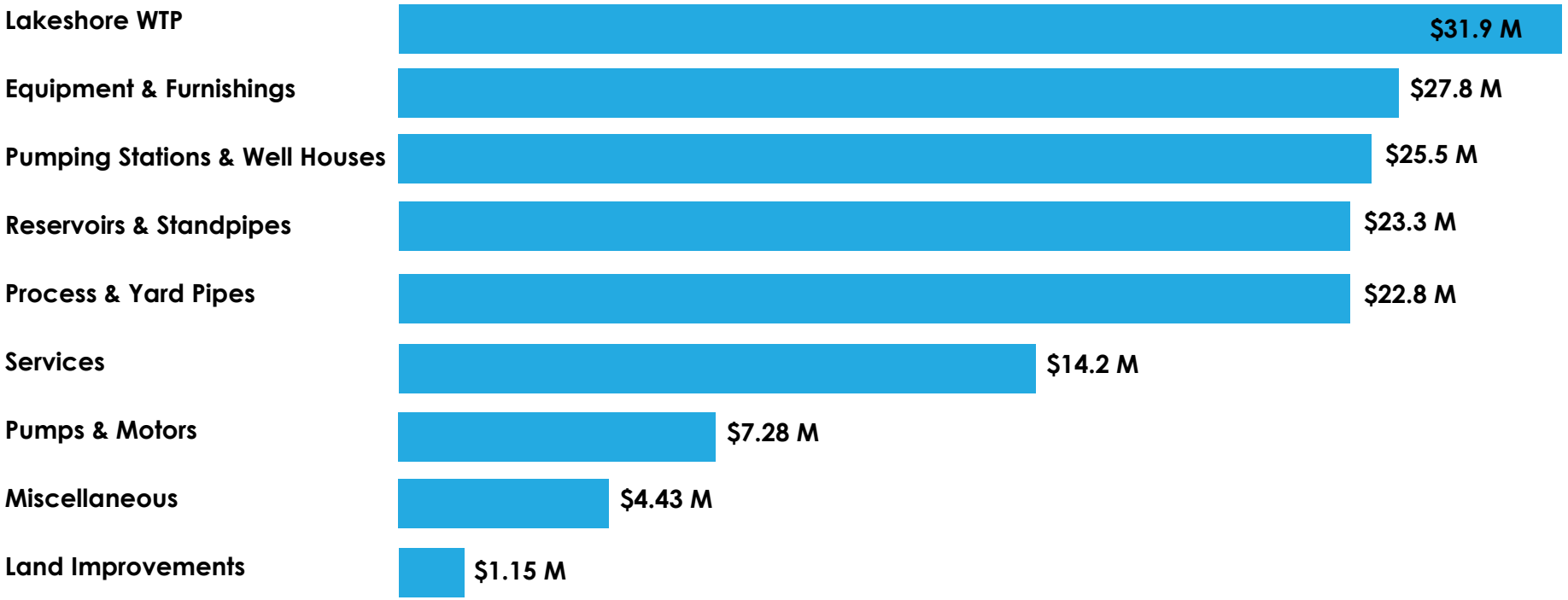
Figure 2: Replacement Value of Water Linear Assets:



Replacement Value - Water Facility Assets

Water Facility assets analyzed in the AMP have a total replacement value of $158.3 million. Figure 3 displays the total replacement value of each asset class. As per the asset hierarchy approach, the Water Facility assets are broken down into nine (9) segments as shown in Figure 3.

Figure 3: Replacement Value of Water Facility Assets



The distribution of the water network replacement value is predominantly in water mains and water facility assets. The replacement value of the water network assets are with respect to 2021. Replacement value within the AMP should be reviewed periodically and revised as needed for more accurate capital projections.

Replacement Value - Water Fleet Assets

Water Fleet assets analyzed in the AMP have a total replacement value of $0.79 million. The replacement value of Water Fleet assets is estimated using the Cost/Unit method and is displayed in Figure 4.

Figure 4: Replacement Value of Water Fleet Assets

Expected Life
The expected life of assets is the length of time that assets are designed to provide safe, reliable, and useful service. 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 the condition deteriorates and the frequency and costs of repairs increase.

Average Age
The average age is estimated as of 2021 by analyzing the in-service year data and the expected useful life.

Service Life Remaining
Service life remaining represents the difference between the expected useful life and average age. The assets within each asset class are weighted with respect to replacement value to estimate the average age and average service life remaining. Table 5, 6, and 7 provides a summary of expected life, average age, and service life remaining of the InnServices' Water Network assets.

Table 5: Expected Life, Average Age and Servicing Life Remaining - Water Linear Assets

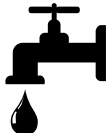
Asset Type	Asset Sub-Types	Expected Life (Years)	Average Age (Years)	Service Life Remaining (Years)
	Valve Chambers	75	15.3	59.8
	Hydrant Leads	80	17.4	62.6
	Hydrants	50	18.1	31.9
	Water Valves	75	18.4	56.6
	Water Laterals	75	19.2	55.8
	Watermains	60-90	19.0	68.5

Table 6: Expected Life, Average Age and Servicing Life Remaining - Water Facility Assets

Asset Type	Asset Sub-Types	Expected Life (Years)	Average Age (Years)	Service Life Remaining (Years)
	Land Improvements	20-75	13.1	15.8
	Miscellaneous	40	39.1	4.7
	Pumps & Motors	10-30	8.1	20.3
	Services	20-35	14.4	18.7
	Process & Yard Piping	50-75	19.0	52.1
	Reservoirs & Standpipes	75-100	18.3	71.5
	Pumping Stations & Well Houses	75	25.5	49.5
	Equipment & Furnishings	4-75	11.0	18.2
	Lakeshore WTP	20-75	12.8	45.9

Table 7: Expected Life, Average Age and Servicing Life Remaining - Water Fleet Assets

Asset Type	Asset Sub-Types	Expected Life (Years)	Average Age (Years)	Service Life Remaining (Years)
	Vehicles & Trailers	10-15	5.9	5.1

Condition

The assessed condition data allows InnServices to more confidently determine the remaining service life of the assets and help identify the infrastructure needs to maximize an asset's useful life while lowering the total lifecycle costs.

InnServices conducts condition assessments as on need basis for the critical assets. Due to the unavailability of the assessed condition of the infrastructure, age-based estimates are used to project the current condition of assets through lifecycle modelling. The modelling approach uses standardized deterioration curves and assigns a condition, based on the percentage of expected life remaining.

For the AMP, a five-level condition rating approach was used with each condition rating being of equal range. Descriptions of the different condition ratings used for the AMP is shown in the Table 8.

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, age-based estimates are used to determine the condition. The average condition of the water network assets is 75.

Figure 5: Condition of Water Network

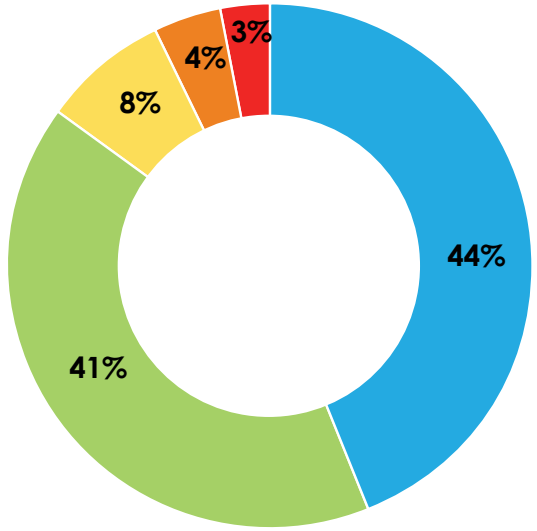


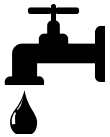
Table 8: Condition Assessment Descriptions

Condition Index	Condition Description
80-100 Excellent	The asset is fit for the future. It is well maintained, in good condition, new or recently rehabilitated.
60-79 Good	The asset is adequate. It is acceptable and generally approaching the mid-stage of its expected service life.
40-59 Fair	The asset requires attention. The asset shows signs of deterioration and some elements exhibit deficiencies.
20-39 Poor	There is an increasing potential for its condition to affect the service it provides. The asset is approaching the end of its service life, and a large portion of the system exhibits significant deterioration.
0-19 Very Poor	The asset is unfit for sustained service. It is near or beyond its expected service life and shows widespread signs of advanced deterioration.

Water Linear Assets Condition

Table 9 shows the asset class condition ratings determined through the age-based estimates of each asset type. Overall, 90% of water linear assets are in good or excellent condition, whereas, 4% 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.

Table 9: Water Linear Assets - Condition Summary

Asset Type	Asset Sub-Types	Average Condition	Condition Summary
	Valve Chambers	80	41% 57% 2%
	Hydrant Leads	78	51% 37% 9% 3%
	Hydrants	64	39% 15% 28% 14% 4%
	Water Valves	75	44% 41% 10% 5%
	Water Laterals	76	45% 44% 5% 6%
	Watermains	78	45% 46% 5% 4%

90% of Water Linear assets are in good or excellent condition

Water Facility Assets Condition

Water Facility assets are further broken down into more detailed segments as shown in Table 10. The majority of Water Facility assets are in good condition with an average condition rating of 69, whereas, 14% of assets are in poor or very poor condition.

Table 10: Water Facility Assets - Condition

Asset Type	Asset Sub-Types	Average Condition	Condition Summary
	Land Improvements	56	34% 22% 8% 36%
	Miscellaneous	12	7% 17% 76%
	Pumps & Motors	72	50% 13% 31% 6%
	Services	59	36% 15% 13% 20% 16%
	Process & Yard Piping	74	33% 56% 9% 2%
	Reservoirs & Standpipes	80	49% 43% 8%
	Pumping Stations & Well Houses	66	41% 5% 39% 15%
	Equipment & Furnishings	61	42% 7% 26% 6% 19%
	Lakeshore WTP	81	53% 47%

Water Facility assets are mostly in good condition with an average rating of 69.

Water Fleet Assets Condition

Water Fleet assets are further broken down into more detailed segments in Table 11. 48% of Water Fleet assets are in good or excellent condition, whereas, 52% of assets are in poor or very poor condition.

Table 11: Water Fleet Assets - Condition Summary

Asset Type	Asset Sub-Types	Average Condition	Condition Summary
	Vehicles & Trailers	49	

48% of Water Fleet assets are in good or excellent condition.

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 Innisfil's strategic objectives, the public's service expectations and the measured performance of the delivered service and enable 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, three types of LOS have been defined below:

Strategic

A qualitative statement that describes the primary service delivery objective and links directly with one or more objectives of Innisfil's Community Strategic Plan.

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.

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

It should be noted that the included Community and Technical LOS exceed the current LOS requirements of O. Reg. 588/17.

Strategic LOS

Strategic LOS performance measures are aligned with Innisfil's strategic goals and objectives in the Community Strategic Plan, Innovate Innisfil 2030. InnServices relies on the Town's community strategic plan. For InnServices' asset categories, strategic levels of service are summarized in the following table:

Table 12: Strategic LOS

Performance Measure	Strategic Objective Supported
Provide safe drinking water as per the requirements of the Drinking Water Quality Management Standard (DWQMS).	 1.1 Plan for and manage growth 2.2 Enhance movement of people 3.1 Maintain and protect existing infrastructure 3.3 Ensure fiscal responsibility

Community LOS

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

For this version of the AMP, compliance with O. Reg. 588/17 has been the driving force for defining Community LOS. As such, the service attributes for water infrastructure are taken directly from the regulation.

Table 13: Community LOS

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 Maps
	Description, which may include maps, of the user groups or areas of the municipality that have fire flow.	Appendix A - Levels of Service Maps
Reliability	Description of boil-water advisories and service interruptions.	InnServices does not have any boil water advisories.

Technical LOS

Technical 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.

Compliance with O. Reg. 588/17 is the driving force for defining Technical LOS. All service attributes and performance measures defined for the assets in the regulation have been included. InnServices has defined a few technical LOS under the performance service attribute which is not mandated by O. Reg. 588/17.

Table 14: Technical LOS

Service Attribute	Performance Measure	Current Performance
Scope	Percentage of properties connected to the municipal water system.	75%
	Percentage of properties where fire flow is available.	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
	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
Performance	Actual Reinvestment Rate.	0.59%
	Percentage of assets in 'Good' or 'Excellent' condition.	85%
	Percentage of assets in 'Poor' or 'Very Poor' condition.	6.45%
	Average risk rating associated to the water network.	4.19

RISK MANAGEMENT

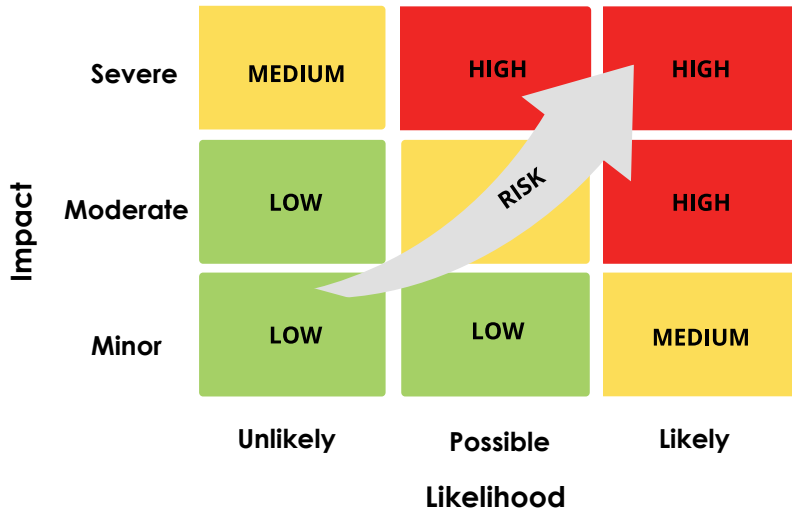
In the context of municipal asset management, a risk is an event that, if it occurred, would have an undesirable effect on the delivery of service. Risk can be defined as the product of the likelihood and impact of the event:

Risk = Likelihood x Impact

Likelihood - measures the probability of the event occurring.
Impact - measures the severity of the consequence.

As illustrated in Figure 6, risk increases as the likelihood and/or impact of an event increases.

Figure 6: Risk Matrix



Managing Risk

Risk is managed through a 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 7 below, with descriptions to follow.

Figure 7: Risk Management Process

1. Identification

Write down all the threats and risks you can think of and ask for ones from other stakeholders.

2. Assessment

Evaluate each risk by determining the likelihood of it happening and the level of impact it would have.

3. Treatment

Implement process changes to reduce the impact of each risk and a response plan for if it happens.

4. Monitoring

Review the progress of the plan and ensure assessments and treatments are adequately addressing identified risks.

Identifying Risks

Risk are identified through a number of data sources, including:

- Routine inspections
- Reports and customer service requests
- Information obtained from past incidents
- Advice from professional bodies
- Past experience of InnServices staff

Once risks have been identified, assessed and assigned a risk rating, a treatment plan needs to be determined. The choice of treatment depends on the level of risk that can reasonably managed and accepted by InnServices (i.e. the risk tolerance). Risk tolerance is informed not just by the likelihood 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 is.

In Table 15 below, InnServices has identified a number of risks associated with Water Network assets to demonstrate the application of the risk management methodology.

Table 15: Sample Risks - Water Network Assets

Risk	Likelihood	Impact	Risk Rating	Treatment
Risk of watermain breaks	Possible	Moderate	Medium	Accept and resolve as reported
Risk of service disruptions	Unlikely	Severe	Medium	Accept and resolve as reported
Minor damage due to accident, vandalism, weather, etc.	Possible	Minor	Low	Accept
Moderate damage due to accident, vandalism, weather, etc.	Possible	Moderate	Medium	Accept
Severe damage due to accident, vandalism, weather, etc.	Possible	Severe	High	Accept
Premature failure of facility assets such as equipments, valves	Possible	Severe	High	Accept and resolve as reported
Risk of water laterals freezing	Unlikely	Moderate	Low	Mitigate through frequent inspection and maintenance
Risk of hydrant freezing	Unlikely	Moderate	Low	Mitigate through frequent inspection and maintenance

FUTURE DEMAND

Demand Forecast
Per the 2021 census, the Town of Innisfil has a population of approximately 43,326 people. This is forecast to increase to 54,970 by 2031. This includes roughly 420 new housing units per year which will require the acquisition of new infrastructure assets to ensure that service levels are maintained.

Future Growth
As we look towards the future of growth, 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. InnServices Utilities Inc. is a wholly-owned Municipal Services Corporation of the Town of Innisfil and it relies on the Town's Official Plan.

Challenges and Opportunities
Growth generates both challenges and opportunities as InnServices navigates and balances the ongoing needs of existing residents while addressing the pressures associated with growth and the incremental increases in costs for operational needs. As InnServices looks to the future of growth and 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 (MSP) is reviewed and updated every 5 years to respond to changes in growth based on the Town of Innisfil's Official Plan, and Growth Plan. The most recent MSP was developed in 2018 to identify the recommended new capital water infrastructure projects to accommodate the employment & population growth to the year 2031. InnServices will be updating the 2018 MSP in 2023.

The Orbit
The Orbit is a new proposed transit-oriented community to be built around a future GO Station at 6th Line and east of 20th Sideroad. The Orbit will be developed as a sustainable, higher density complete community with new residential, recreational and commercial development opportunities, cutting-edge technology and an active transportation network. The Orbit is expected to house a population of more than 20,000 people in the next 30 years. For more information on this project and other future development with Innisfil, please visit https://www.getinvolvedinnisfil.ca/

CLIMATE DEMANDS

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 assets are safe and reliable, climate change and the consideration of sustainable materials must be incorporated into the decisions and long-term planning.

InnServices' water network assets are susceptible to extreme weather events putting environmental and public health and safety in danger. InnServices' water 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 assets to ensure the safety of the public and staff.

LIFECYCLE MANAGEMENT

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 a good condition asset costs significantly less than reconstructing a poor condition asset. The overall goal is to extend the expected life of the assets while managing risks and minimizing the total lifecycle costs. The stages of lifecycle management are as follows:

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.

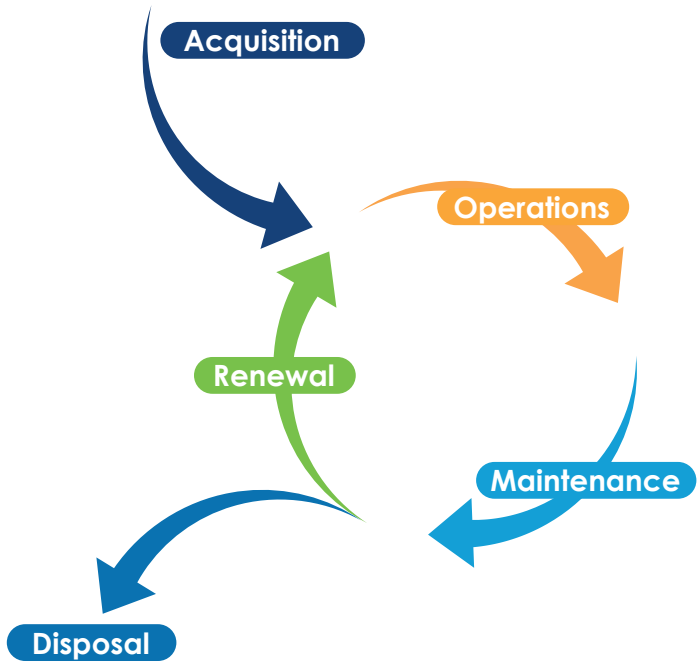
Operations
Planned, periodic activities such as inspection, assessment, cleaning, and servicing to fulfill LOS commitments and detect defects before failures occur.

Maintenance
Routine activities, planned and unplanned, to resolve minor defects and delay future defects.

Renewal
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 the asset.

Disposal
Removal of assets that have reached the end of their effective service life.

Figure 8: 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 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 16: 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 which helps to determine the condition. • New or larger assets are identified through technical analysis as part of Master Servicing Plans completed every 5 years to service new development.
Operations	• 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. • Reservoirs are inspected every 5 years. • 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 on an annual basis and follow CVOR (Commercial Vehicle Operators Registration) Regulations. • Health & Safety inspections are conducted every 6 months.
Maintenance	• InnServices performs the ongoing maintenance activities as necessary, such as emergency repairs, hydrant repairs, 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, Innisfil Heights Reservoir, Lefroy Reservoir, Lakeshore Treatment Plant, Zone 2 Booster Station, Cookstown Standpipes are scheduled to be upgraded in the next 10 years (2021-2031). • 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 (e.g., Cookstown) that don't meet the capacity requirements are replaced with larger mains. • Valves, valve chambers, and water laterals are replaced at the same time as water mains and on as need basis.

FINANCIAL SUMMARY

InnServices' financial summary includes the full consideration of the lifecycle cycle costs of the existing and new water 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. However, InnServices is working on developing a 10-year long financial plan to address the needs of the existing as well as new water infrastructure.

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.

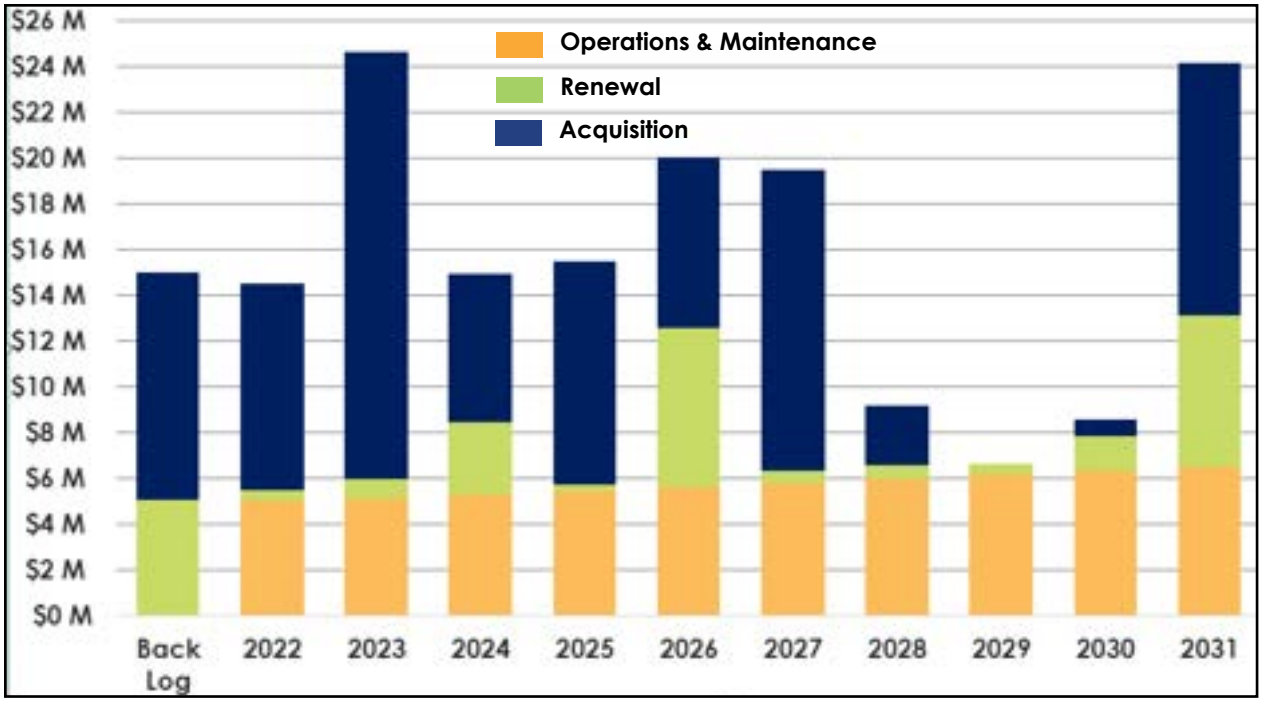
Capital Budget
InnServices' capital budget accounts for the lifecycle activities that would need to be undertaken to maintain the current levels of service over the next 10 years. This is required to not only satisfy provincial requirements but to also allow InnServices to qualify for grant and funding opportunities. InnServices prepares annual capital budget and provides to the Board and staff for a longer-term path for capital initiatives, recognizing immediate and future needs that include existing asset replacements and growth required infrastructure demands.

The 2022 capital budget has been developed within the COVID lens along with existing master servicing plan, a development charges background study, Asset Management Planning and other input documents that guide the focus to where and when financial resources are needed. The capital budget is used to fund the acquisition, renewal and maintain current service levels.

Table 17: Capital Revenue Sources

Revenue Source	Description	Growth or Renewal
Development Charges	Development charges are collected for new construction. These funds are restricted in use through provincial legislation and are used solely for the purpose of specific growth-related capital projects, such as new water infrastructure and facilities needed to accommodate growth and various growth studies. These funds must be reported annually on how they were used.	Growth
Rates Revenue	This category is comprised largely of water rates revenue. Amounts are collected monthly to support the ongoing maintenance, rehabilitation, or replacement of the existing water infrastructure.	Renewal
Grants & Other Recoveries	Grant funds received from the federal and provincial government related to water infrastructure (if InnServices qualify). Grant funds can also be received from other agencies or external parties.	Renewal / Growth

Figure 9: 10-Year Lifecycle Activities Forecast - Water Network



10-Year Lifecycle Activities Forecast

O. Reg. 588/17 requires municipalities to provide a 10-year forecast that estimates the annual costs of lifecycle activities that will need to be undertaken to maintain the current levels of service and accommodate expected growth. This forecast is presented in Figure 9 and Table 18.

Asset renewal includes the capital costs for 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 the Master Servicing Plan over the period of next 10 years . For the Operations & Maintenance costs, the 2021 operational & maintenance budget costs are extrapolated to 2031.

Table 18: 10-Year Financial Summary - Water Network

Lifecycle Phase	Back Log	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Operations & Maintenance	$0	$4.9 M	$5.1 M	$5.2 M	$5.4 M	$5.5 M	$5.7 M	$5.9 M	$6.1 M	$6.2 M	$6.4 M
Renewal	$5.0 M	$462 K	$854 K	$3.1 M	$281 K	$6.9 M	$558 K	$637 K	$475 K	$1.5 M	$6.5 M
Acquisition	$9.9 M	$9.0	$18.6 M	$6.4 M	$9.7 M	$7.4 M	$13.1 M	$2.6 M	$0	$736 K	$11.0 M
Total	**$15.0 M**	**$14.4 M**	**$24.6 M**	**$14.9 M**	**$15.4 M**	**$20.0 M**	**$19.4 M**	**$9.1 M**	**$6.5 M**	**$8.5 M**	**$24.1M**

MONITORING & IMPROVEMENT

In this final section of the AMP, opportunities for improvement of InnServices' asset management program and the AMP 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 asset management program performance ongoing and continue to plan and implement corrective actions to ensure that program and AMPs continue to improve and mature over time.

Improvement Plan

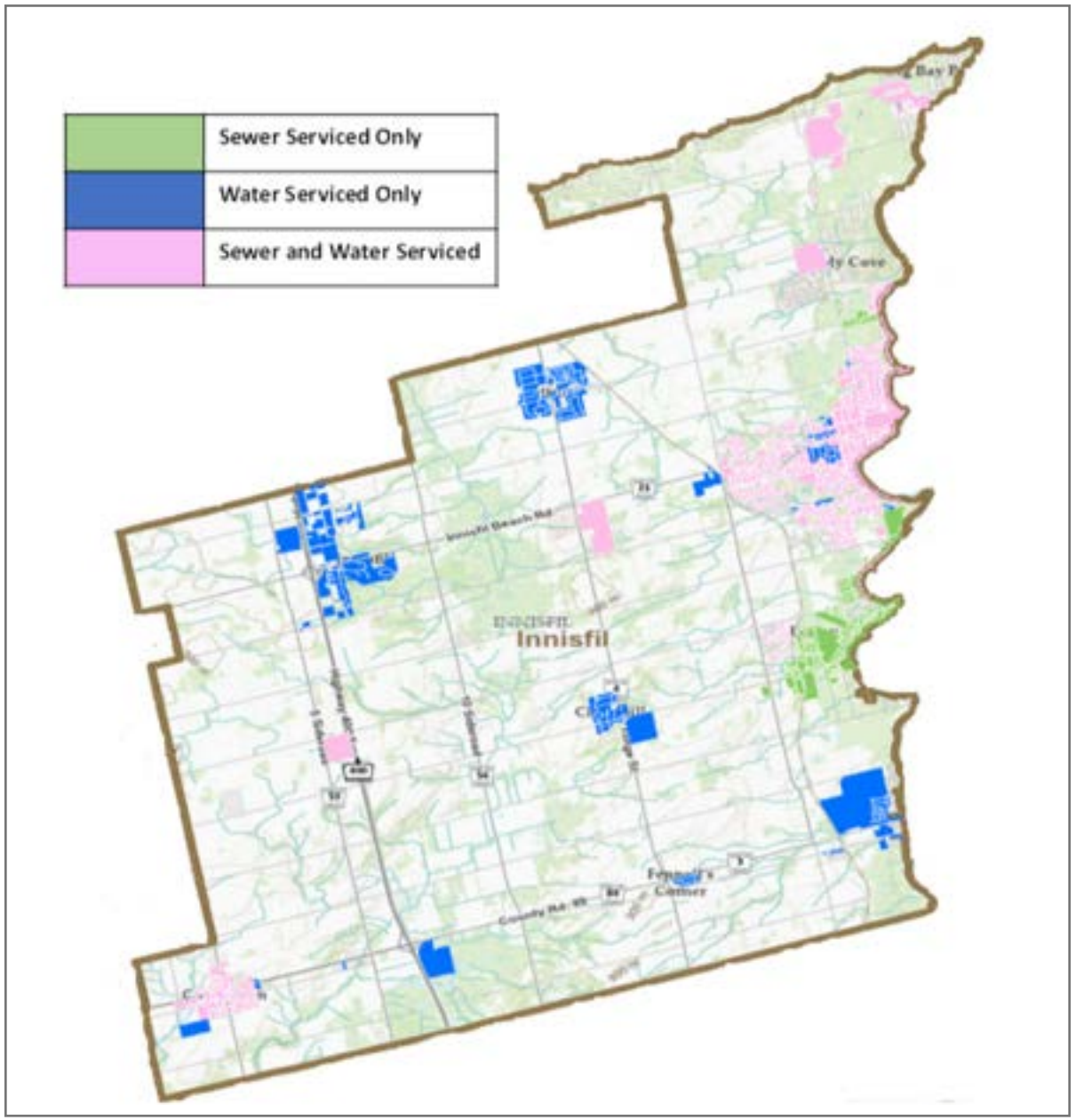
Table 19 on the following page, summarizes the improvement opportunities currently identified and the corrective actions planned for the next three years. A term of three years has been selected to align with the AMP deliverables detailed in O. Reg. 588/17 and summarized in Figure 1 of the AMP.

Table 19: Improvement Plan

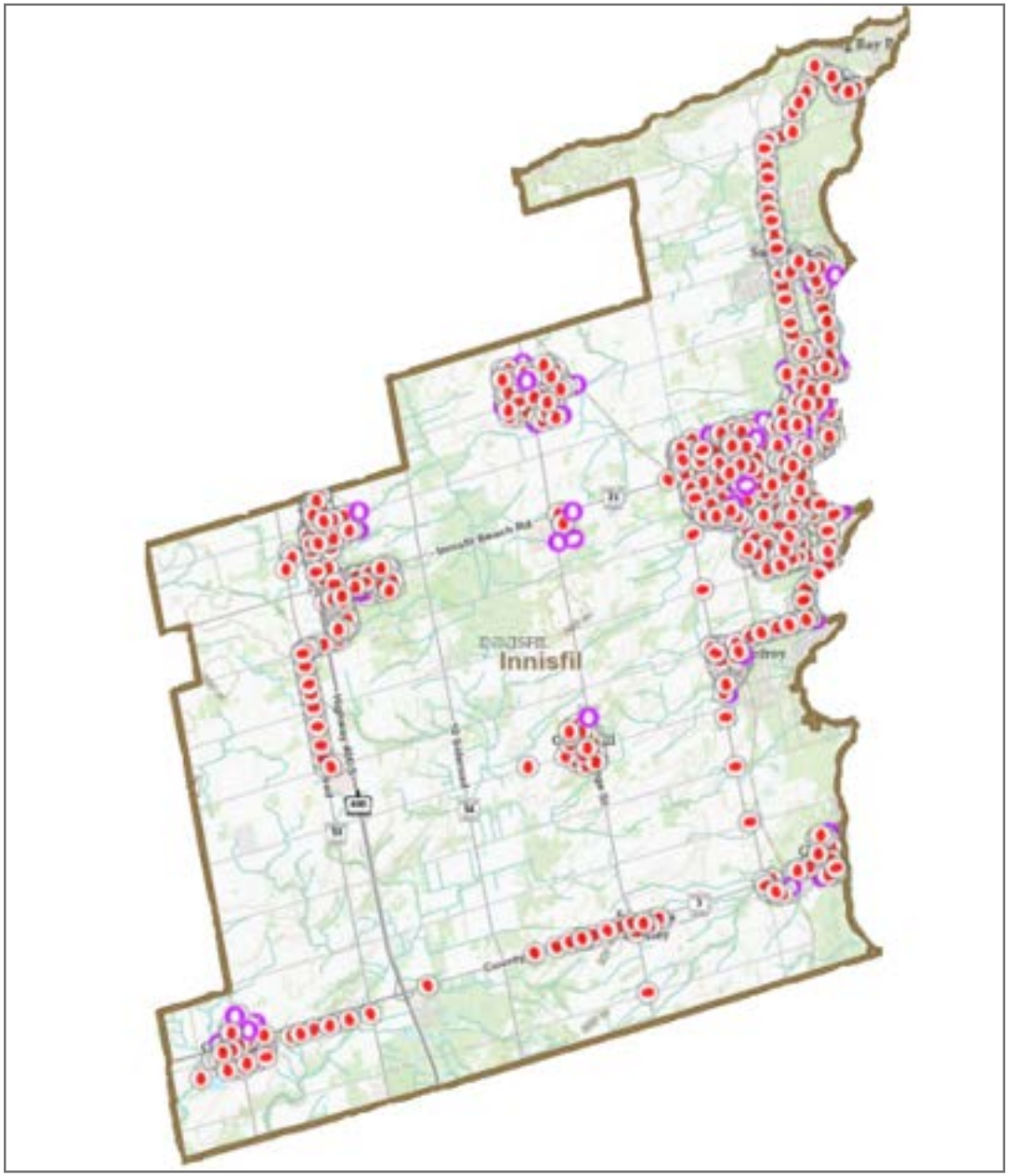
Opportunity	Actions	Priority
Improve completeness and accuracy of state of infrastructure data.	Complete water linear and facility assets inventory.	High
	Complete condition assessments of all the assets.	High
	Complete mapping of tangible capital assets data into GIS inventory.	High
Improve asset management processes for creation, maintenance, and disposal of asset records.	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.	Expand level of service definitions for all the assets.	Medium
	Establish level of service targets.	High
	Formalize data gathering and reporting procedures for each level of service.	Medium
Improve maturity of risk identification and treatment.	Establish risk management committee.	Medium
	Revise & update risk framework for assets.	Medium
Expand asset management program.	Establish inventory systems for facility assets.	High
	Gather state of infrastructure data for facility assets.	High
Enhance long term financial planning for asset lifecycle.	Identify costs associated with target levels of service and scenarios to achieve same.	High
Enhance strategic asset management policy.	Complete review and release of updated policy.	Low
Enhance public reporting of asset management information.	Enhance asset management content on InnServices' website.	Low
Enhance asset management links to climate change planning.	Expand climate change coverage in 2024 and 2025 AMP's.	Medium

APPENDIX A - LEVEL OF SERVICE MAPS

Levels of Service - Servicing Map



Levels of Service - Fire Flow Map



APPENDIX B - MAINTENANCE ACTIVITIES

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.
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 the 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 the 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.
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.

Maintenance	Summary of Activity
Fleet	Vehicle oil changes between 5000 - 7000 km as per the owner's manual.
	Tire changes every winter and summer season, and breakdown maintenance as on need 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.

innservices

INNSERVICES UTILITIES INC.
WASTEWATER NETWORK ASSET MANAGEMENT PLAN 2022

VERSION HISTORY

Version	Date	Description
1.0		Board Approval

TABLE OF CONTENTS

EXECUTIVE SUMMARY

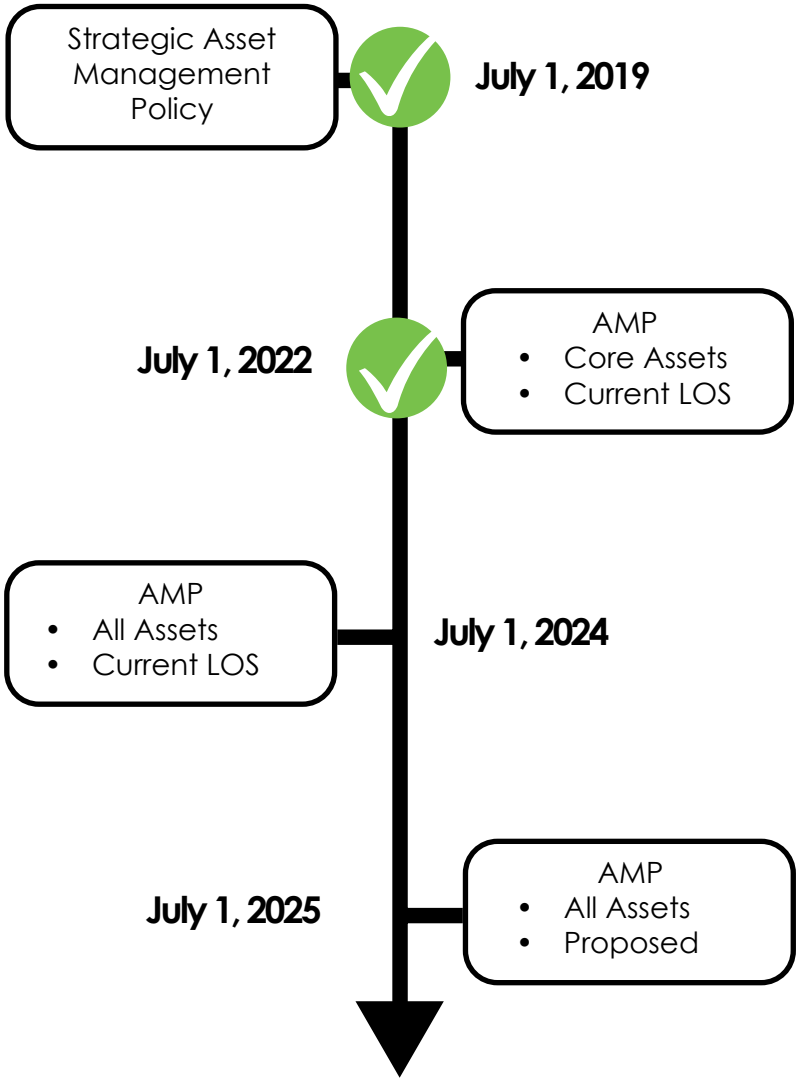
InnServices owns and manages a large range of wastewater assets on the behalf of our community. These assets provide services that are to be managed in a cost-effective way, while ensuring they continue to meet the needs of the community now and in the future.

The Wastewater Network Asset Management Plan (AMP) focuses on the InnServices wastewater assets and specifies the requirements for effective management of the assets and their corresponding financial implications. Wastewater assets include sanitary sewers, force mains, maintenance holes, sanitary services, fleet, pumping stations, and wastewater treatment plants. These assets are responsible for the collection, treatment and disposal of the wastewater.

InnServices is committed to public transparency and open communication. In this spirit, and in compliance with O. Reg. 588/17, the AMP will be accessible through the InnServices' website. Background information and reports used in the preparation of this plan will also be made available publicly upon request.

To ensure the AMP is current and meeting the legislative requirements an updated plan will be completed every two years to ensure an accurate representation of data is provided to the community. The information and figures within the AMP have been developed based on the best available data at the time of the plan's development. The AMP will assist InnServices to make appropriate decisions regarding the acquisition, operation maintenance, renewal, and disposal of wastewater infrastructure assets.

Figure 1: O. Reg. 588/17 Timeline



INTRODUCTION

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, and that incorporates design excellence into infrastructure planning.

Under this Act, the Ontario government also introduced Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure. This regulation requires that every municipality shall prepare an AMP in respect of its core municipal infrastructure assets by July 1, 2022. The Regulation further defines core municipal infrastructure assets to include roads, bridges, and structural culverts (i.e., transportation), stormwater, water and wastewater assets.

The AMP has, in part, been prepared to meet the 2022 regulatory requirements of Ontario Regulation 588/17. Any gaps or weaknesses in compliance are addressed in the Monitoring & Improvement section of the AMP.

The Wastewater network is a component of InnServices' core infrastructure assets. These assets provide valuable services to the public, such as safe waste treatment and disposal, and to assist in maintaining the health of the environment. Effective maintenance and renewal of these assets is crucial to ensure that they continue to deliver adequate levels of service and provide benefits to current and future generations.

This plan demonstrates InnServices' responsible and systematic approach to asset management, compliance with regulatory requirements and commitment to fulfilling the following objectives of the Community Strategic Plan:

- Plan for and Manage Growth
- Improve Service Offerings
- Maintain and Protect Existing Infrastructure
- Ensure Financial Stability

The AMP achieves this outcome by delivering on the following key elements of effective asset management planning:

- Developing and maintaining a complete and accurate database of inventory and state of infrastructure information.
- Defining levels of service that consider the public's expectations and meet strategic needs of InnServices.
- Employing a lifecycle approach.
- Reviewing current and future demands.
- Managing risks associated with the assets and the services they provide.
- Ensuring continuous improvement in the asset management practice and plans.

The reader will further benefit by consulting the following documentation:

- The Official Plan (Our Place)
- Master Servicing Plan
- Water & Wastewater Rates Study

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 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 "wastewater network" asset types include gravity mains, force mains, maintenance holes, sanitary laterals, facility assets and fleet.

What are the objectives of asset management?
The objectives of asset management are to intervene at strategic points in an asset's lifecycle to extend the expected service life, and thereby maintaining its performance. When maintenance activities are scheduled strategically it helps to decrease costs, rather than the increased costs of unplanned maintenance or excessive planned 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 level of service 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 AMP's. 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 the most to ensure the ongoing delivery of services.

How does InnServices include community feedback into 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.

DEFINITIONS & ACRONYMS

Core Asset: As per O. Reg. 588/17, Water Assets, Wastewater Assets, Stormwater Management Assets, Roads and Bridges/ Culverts are considered as core assets.
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.
Replacement Value: The cost in 2021 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.
Expected Useful Life: The length of time that assets are designed to provide safe, reliable, and useful service.
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.
Remaining Service Life: The estimated remaining useful life of the asset based on age only.
New Acquisitions: The planned construction of new assets that are not to replace the existing infrastructure.
Asset Performance: The manner in which or the efficiency with which an asset fulfills its intended purpose.
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.
Renewal: The asset to be replaced or restored to a excellent state as if had become new again.
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.
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.
Average Risk Rating: Risk ratings weighted by costs and averaged to determine the overall risk of an individual asset category.
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.
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.

Acronyms:
AMP = Asset Management Plan
LOS = Levels of Service
CPI = Construction Price Index
CVOR = Commercial Vehicle Operators Registration
CCTV = Closed Circuit Television Video
ECA = Environmental Compliance Approval
CI = Continuous Improvement
PDCA = Plan-Do-Check-Act
MCR = Municipal Comprehensive Review
MSP = Master Servicing Plan
O. Reg = Ontario Regulation
NASSCO = National Association of Sewer Service Companies

ASSET HIERARCHY

Asset Hierarchy

InnServices has adopted an asset hierarchy approach to develop the framework for categorizing the Wastewater network portfolio into the appropriate linkages between the assets. The asset hierarchy in the AMP is illustrated as parent-child type relationship, with 4 levels:

- Level 1: Service
- Level 2: Major Group
- Level 3: Segment
- Level 4: Data

Below is the detailed asset hierarchy of Wastewater Network assets:

Table 1: Wastewater Network Asset Hierarchy

Level 1	Level 2	Level 3	Level 4
Wastewater Network	Wastewater Linear Assets	Gravity Mains	Type, Size, Material, Slope
		Sanitary Laterals	Type, Size, Material
		Maintenance Holes	Type, Size
		Forcemains	Type, Size, Material
	Wastewater Facility Assets	Wastewater Treatment Plants	Process Area, Component
		Pumping Stations	Component
		Process & Yard Piping	Component
		Equipment & Furnishings	Component
		Services	Component
		Pumps & Motors	Component
		Sanitary Valves	Component
		Land Improvements	Component
		Miscellaneous Assets	Component
	Wastewater Fleet Asset	Vehicles & Trailers	Type

STATE OF INFRASTRUCTURE

The State of Infrastructure section provides summary level information about Innservices' Wastewater Network assets, which includes:

- Wastewater Linear Assets
- Wastewater Facility Assets
- Wastewater Fleet Assets

In compliance with O. Reg. 588/17, the following information is provided for each asset type:

- Inventory (quantity)
- Replacement Value
- Expected Life, Average Age, and Service Life Remaining
- Average Condition

This information provides the foundation to the InnServices AMP, as having a complete and current understanding of the state of infrastructure is critical to efficient and effective lifecycle management and financial planning.

The following icons are used throughout the AMP to identify the asset types:


Wastewater Linear Assets


Wastewater Facility Assets


Wastewater Fleet Assets

Table 2: Wastewater Linear Assets Summary

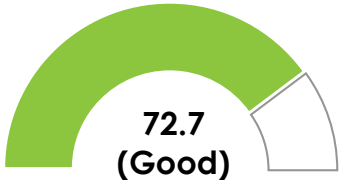
Asset Type	Asset Sub-Type	Quantity	Replacement Value	Average Age	Average Condition
	Forcemains	14.9 km	$435.9 million	21.4 years	 **72.7 (Good)**
	Maintenance Holes	1964			
	Sanitary Laterals	114.7 km			
	Gravitymains	144.8 km			

Table 3: Wastewater Facility Assets Summary

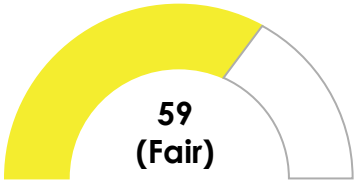
Asset Type	Asset Sub-Type	Quantity	Replacement Value	Average Age	Average Condition
	Wet Wells	15	$151.2 million	25.2 years	
	Land Improvements	79			
	Santiary Valves	224			
	Pumps & Motors	72			
	Services	17			
	Equipment & Furnishings	201			
	Process & Yard Piping	16			
	Pumping Stations	9			
	Wastewater Treatment Plants	2			

Table 4: Wastewater Fleet Assets Summary

Asset Type	Asset Sub-Type	Quantity	Replacement Value	Average Age	Average Condition
	Vehicles & Trailers	7*	$470 thousand	9.9 years	

*** Fleet quantity includes 4 vehicles and 3 trailer assets**

Wastewater Network Inventory

Asset inventory was determined through the review of data in the 2021 Tangible Capital Assets (TCA) File and cross referenced through data within the County of Simcoe's Geographic Information System (GIS) database. InnServices' TCA and GIS database are updated frequently to ensure all assets are kept current and information is available to staff. Table 1 summarizes InnServices' Wastewater Network asset hierarchy, with asset sub-types and data available.

Wastewater Linear assets are classified into four (4) sub-types:

- **Force Mains** - Pressurized pipelines that transport wastewater uphill from lower elevation pumping stations to wastewater treatment plants.
- **Maintenance Holes** - Vertical concrete shafts used for inspection and maintenance, and to vent gasses out of gravity mains.
- **Sanitary Laterals** - The sewage service line that drains wastewater from a property into a gravity main.
- **Gravity Mains** - Pipeline laid typically under the centre line of the road, used to transport wastewater to a pumping station.

Wastewater Facility assets are classified into nine (9) sub-types:

- **Wet Wells** - the structure where the raw sewage is collected prior to passing through the lift pumps or being processed in a treatment plant.
- **Land Improvements** - Include assets such as fences, walkways, parking lots, and outdoor lighting.
- **Sanitary Valves** - An element in the wastewater treatment plants to control the flow and pressure of wastewater related liquids.
- **Pumps & Motors** - A class that groups all mechanical pumps and motors within InnServices' facilities.
- **Services** - A grouping that includes facility related assets such as HVAC and motor control systems
- **Equipment & Furnishings** - It includes frequency drives, lifting equipment, cameras, portable radios, shelving, and cabinets contained in the InnServices' facilities.
- **Process & Yard Piping** - Any main, lateral, valves, or fittings installed within the facilities for the collection, treatment and distribution of the wastewater.
- **Pumping Stations** - It is typically designed to handle wastewater that is fed from underground gravity pipelines and is pumped to a wastewater plant.
- **Wastewater Treatment Plants** - A plant designed to remove enough contaminants and impurities from wastewater so that it is suitable to be released into the environment.

Wastewater Fleet assets are classified into one (1) sub-type:

- **Vehicles & Trailers** - Assets used to transport people or goods related to wastewater activities or management.

Replacement Value - Wastewater Network Assets

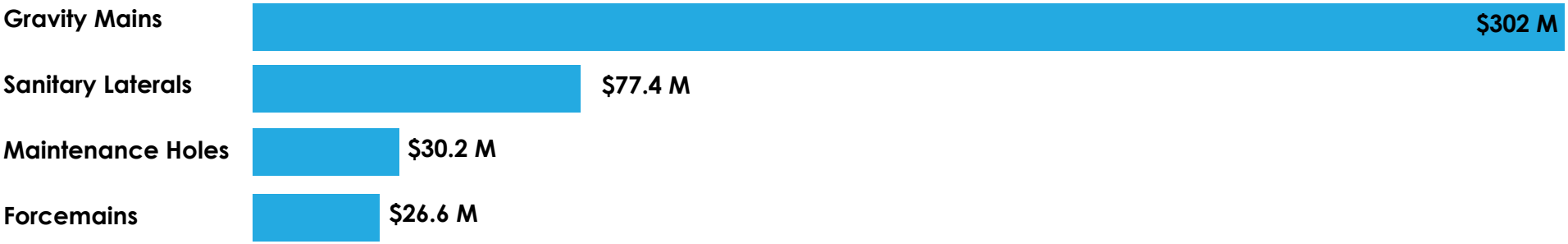
Asset replacement value is determined by estimating the total replacement value of the assets within each asset class. All wastewater network assets analysed in the AMP have a total replacement value of $588 million. The replacement value of the Wastewater Linear and Wastewater Fleet assets is estimated by using the Cost/Unit method. However, Construction Price Index (CPI) Method is used to estimate the replacement value of the Wastewater Facility assets.

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

CPI (Construction Price Index) Method: Replacement cost of the facility 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 (2021).

The distribution of the wastewater network replacement value is predominantly in gravity mains and wastewater facility assets. Figure 2 displays the total replacement value of Wastewater Linear Assets.

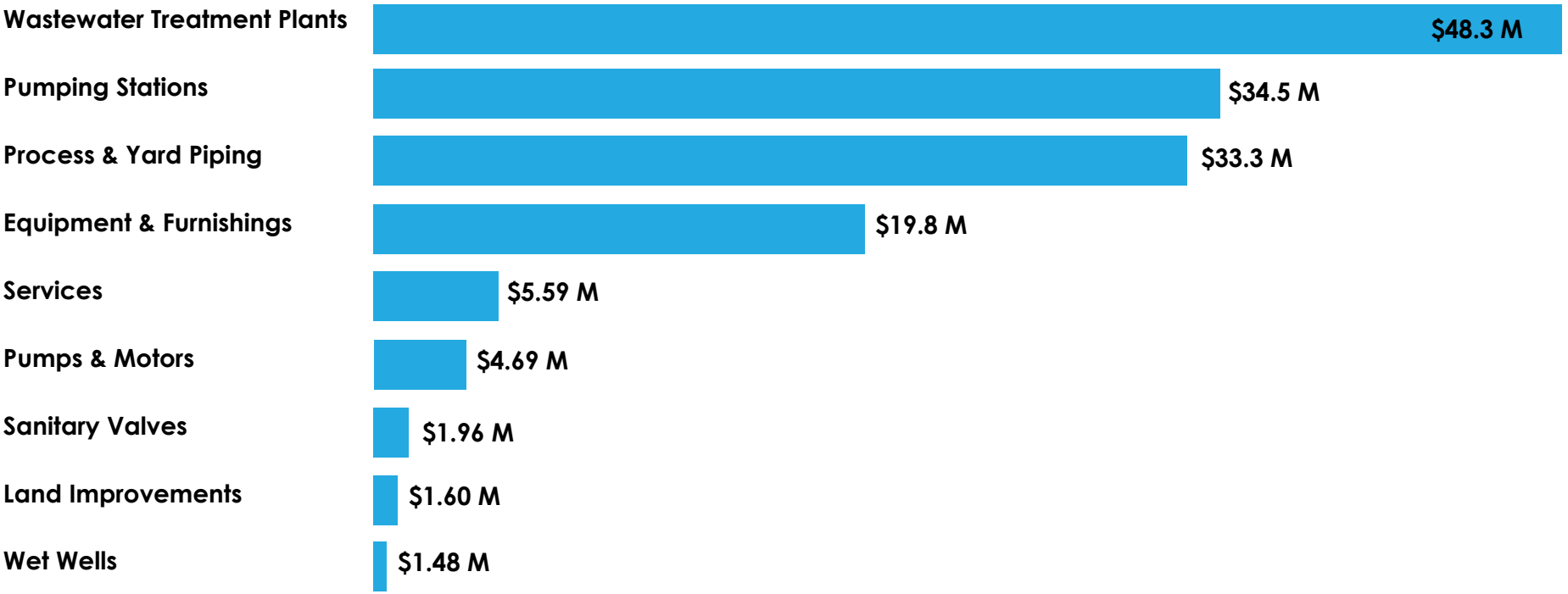
Figure 2: Replacement Value of Wastewater Linear Assets



Replacement Value - Wastewater Facility Assets

Wastewater Facility assets analyzed in the AMP have a total replacement value of $151.2 million. Figure 3 displays the total replacement value of each asset class. As per the asset hierarchy approach, the Wastewater Facility assets are broken down to nine segments as shown in Figure 3.

Figure 3: Replacement Value of Wastewater Facility Assets



Replacement Value - Wastewater Fleet Assets

Wastewater Fleet assets analyzed in the AMP have a total replacement value of $0.47 million. The replacement value of Wastewater Fleet assets is estimated using the Cost/Unit method and is displayed in Figure 4.

Figure 4: Replacement Value of Wastewater Facility Assets

Expected Life
The expected life of assets is the length of time that assets are designed to provide safe, reliable, and useful service. 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 the condition deteriorates and the frequency and costs of repairs increase.

Average Age
The average age is estimated as of 2021 by analyzing the in-service year data and the expected useful life.

Service Life Remaining
Service life remaining represents the difference between the expected useful life and average age. The assets within each asset class are weighted with respect to replacement value to estimate the average age and average service life remaining. Table 5, 6, and 7 provides a summary of expected life, average age, and service life remaining of the InnServices' Wastewater Network assets.

Table 5: Expected Life, Average Age and Servicing Life Remaining - Wastewater Linear Assets

Asset Type	Asset Sub-Type	Expected Life (Years)	Average Age (Years)	Service Life Remaining (Years)
	Forcemains	75	13.5	61.5
	Maintenance Holes	75	20.5	54.4
	Sanitary Laterals	75	21.3	53.7
	Gravity Mains	70-80	22.2	57.5

Table 6: Expected Life, Average Age and Servicing Life Remaining - Wastewater Facility Assets

Asset Type	Asset Sub-Type	Expected Life (Years)	Average Age (Years)	Service Life Remaining (Years)
	Wet Wells	40	28.2	11.7
	Land Improvements	20-30	28.1	3.6
	Sanitary Valves	30-75	31.5	41.6
	Pumps & Motors	25-30	21.4	7.7
	Services	20-35	16.8	15.7
	Equipment & Furnishings	10-40	18.1	16.0
	Process & Yard Piping	50-75	29.7	44.7
	Pumping Stations	75	18.7	56.2
	Wastewater Treatment Plants	40-100	30.6	45.8

Table 7: Expected Life, Average Age and Servicing Life Remaining - Wastewater Fleet Assets

Asset Type	Asset Sub-Type	Expected Life (Years)	Average Age (Years)	Service Life Remaining (Years)
	Vehicles & Trailers	10-15	9.8	1.1

Condition

The assessed condition data allows InnServices to more confidently determine the remaining service life of the assets and help identify the infrastructure needs to maximize an asset's useful life while lowering the total lifecycle costs.

InnServices conducts condition assessments as on need basis for the critical assets. Due to the unavailability of the assessed condition of the infrastructure, age-based estimates are used to project the current condition of assets through lifecycle modelling. The modelling approach uses standardized deterioration curves and assigns a condition, based on the percentage of expected life remaining.

For the AMP a five-level condition rating approach was used with each condition rating being of equal range. Descriptions of the different condition ratings used for the AMP is shown in the Table 8.

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, age-based estimates are used to determine the condition. Overall, the average condition of InnServices' Wastewater Network assets is good with an average condition of 69.

Figure 5: Condition of Wastewater Network

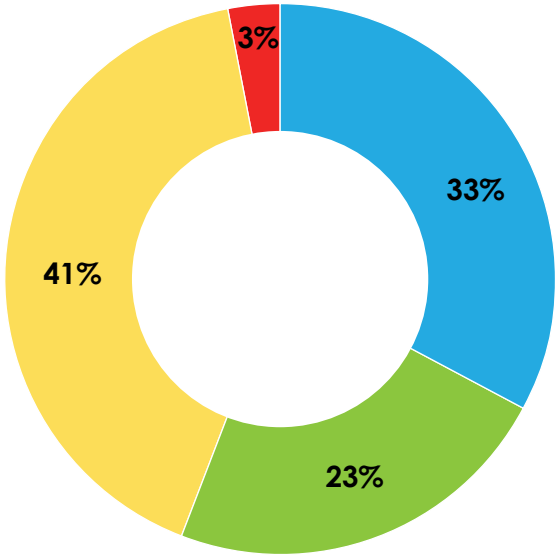


Table 8: Condition Assessment Descriptions

Condition Index	Condition Description
80-100 Excellent	The asset is fit for the future. It is well maintained, in good condition, new or recently rehabilitated.
60-79 Good	The asset is adequate. It is acceptable and generally approaching the mid-stage of its expected service life.
40-59 Fair	The asset requires attention. The asset shows signs of deterioration and some elements exhibit deficiencies.
20-39 Poor	There is an increasing potential for its condition to affect the service it provides. The asset is approaching the end of its service life, and a large portion of the system exhibits significant deterioration.
0-19 Very Poor	The asset is unfit for sustained service. It is near or beyond its expected service life and shows widespread signs of advanced deterioration.

Wastewater Linear Assets Condition

Table 9 shows the asset class condition ratings determined through the age-based estimates of each asset type. Overall, 63% of Wastewater Linear assets are in good or excellent condition, whereas, 0% assets are in poor or very poor condition. The percentage of assets in a particular condition are weighted with respect to their replacement value.

Table 9: Wastewater Linear Assets - Condition Summary

Asset Type	Asset Sub-Types	Average Condition	Condition Summary
	Forcemains	82	72% 28%
	Maintenance Holes	73	36% 29% 35%
	Gravity Mains	72	36% 26% 38%
	Sanitary Laterals	72	34% 27% 39%

63% of Wastewater Linear assets are in good or excellent condition.

Wastewater Facility Assets Condition

Wastewater Facility assets are further broken down into more detailed segments as shown in Table 10. 34% of Wastewater Facility assets are in good or excellent condition, whereas, 14% assets are in poor or very poor condition. The majority of Wastewater Facility assets are in fair condition with an average condition rating of 59.

Table 10: Wastewater Facility Assets - Condition Summary

Asset Type	Asset Sub-Types	Average Condition	Condition Summary
	Pumping Stations	75	50% 3% 47%
	Equipment & Furnishings	40	31% 4% 2% 6% 57%
	Services	50	23% 38% 39%
	Pumps & Motors	27	12% 13% 9% 3% 63%
	Process & Yard Piping	60	4% 21% 75%
	Sanitary Valves	56	4% 9% 84% 3%
	Wastewater Treatment Plants	60	3% 25% 72%
	Land Improvements	12	2% 9% 89%
	Wet Wells	30	11% 4% 75% 10%

Wastewater Facility assets are mostly in fair condition with an average condition rating of 59.

Wastewater Fleet Assets Condition

Wastewater Fleet assets are further broken down into more detailed segments in Table 11. 26% of Wastewater Fleet assets are in poor condition, whereas, 74% assets are in very poor condition.

Table 11: Wastewater Fleet Assets - Condition Summary

Asset Type	Asset Sub-Types	Average Condition	Condition Summary
	Vehicles & Trailers	14	

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 Innisfil's strategic objectives, the public's service expectations and the measured performance of the delivered service and enable 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, three types of LOS have been defined below:

Strategic

A qualitative statement that describes the primary service delivery objective and links directly with one or more objectives of Innisfil's Community Strategic Plan.

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.

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

It should be noted that the included Community and Technical LOS exceed the current LOS requirements of O. Reg. 588/17.

Strategic LOS

Strategic LOS performance measures are aligned with Innisfil's strategic goals and objectives in the Community Strategic Plan, Innovate Innisfil 2030. InnServices rely on the Town's community strategic plan. For InnServices' asset categories, strategic levels of service are summarized in the following table:

Table 12: Strategic LOS

Performance Measure	Strategic Objective Supported
Committed to maintain the health of our environment and protecting Lake Simcoe through the best management practices and technological advancements and as per the requirements of Environmental Compliance Approval(s) (ECA).	Grow Connect Sustain 1.1 Plan for and manage growth 2.2 Enhance movement of people 3.1 Maintain and protect existing infrastructure 3.3 Ensure fiscal responsibility

Community LOS

Community LOS performance measures are designed to help the community better understand the services they are receiving and how varying levels of service will impact their service experience. Where possible, images are used to further enhance this understanding. For this version of the AMP, compliance with O. Reg. 588/17 has been the driving force for defining Community LOS. As such, the service attributes for wastewater infrastructure are taken directly from the regulation.

Table 13: Community LOS

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 Maps
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 the maintenance holes and sewers often caused due to age (wear and 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, as to the best of wastewater department's database there is no individual separate community or ICI (Industrial, commercial and Institutional) based wastewater treatment system discharging their effluents in the InnServices' wastewater network. InnServices wastewater system includes two treatment plants and associated collection network with no intermediate wastewater treatment plants.

Technical LOS

Technical 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.

Compliance with O. Reg. 588/17 is the driving force for defining Technical LOS. All service attributes and performance measures defined for the assets in the regulation have been included. InnServices has defined a few technical LOS under the performance service attribute which is not mandated by O. Reg. 588/17.

Table 14: Technical LOS

Service Attribute	Performance Measure	Current Performance
Scope	Percentage of properties connected to the municipal wastewater system.	75%
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.	InnServices does not have combined sewers.
	The number of connection-days per year due to wastewater backups compared to the total number of properties connected to the municipal wastewater system.	0.0006
	The number of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal wastewater system.	0.0002
Performance	Actual Reinvestment Rate	0.38%
	Percentage of assets in 'Good' or 'Excellent' condition	56.06%
	Percentage of assets in 'Poor' or 'Very Poor' condition	3.4%
	Average risk rating associated to the wastewater network	4.92

RISK MANAGEMENT

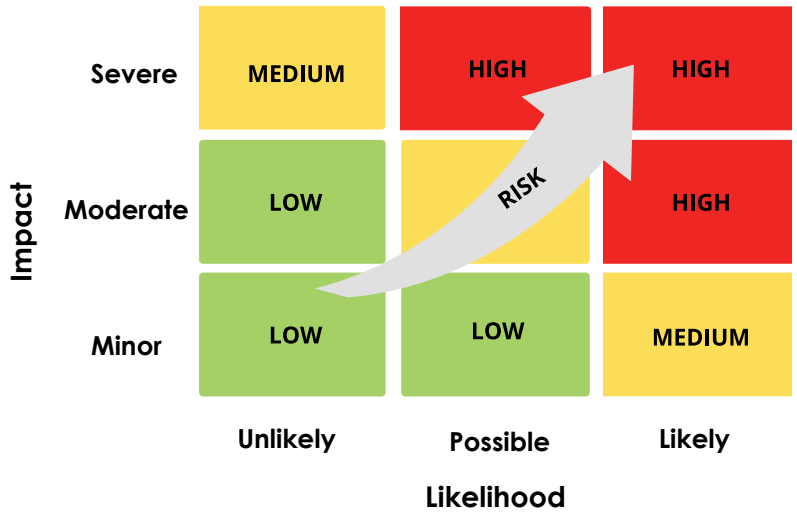
In the context of municipal asset management, a risk is an event that, if it occurred, would have an undesirable effect on the delivery of service. Risk can be described as the product of the likelihood and impact of the event:

Risk = Likelihood x Impact

Likelihood - measures the probability of the event occurring.
Impact - measures the severity of the consequence.

As illustrated in Figure 6, risk increases as the likelihood and/or impact of an event increases.

Figure 6: Risk Matrix



Managing Risk

Risk is managed through a 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 7 below, with descriptions to follow.

Figure 7: Risk Management Process

1. **Identification**

Write down all the threats and risks you can think of and ask for ones from other stakeholders.

2. **Assessment**

Evaluate each risk by determining the likelihood of it happening and the level of impact it would have.

3. **Treatment**

Implement process changes to reduce the impact of each risk and a response plan for if it happens.

4. **Monitoring**

Review the progress of the plan and ensure assessments and treatments are adequately addressing identified risks.

Identifying Risks

Risk are identified through a number of data sources, including:

- Routine inspections
- Reports and customer service requests
- Information obtained from past incidents
- Advice from professional bodies
- Past experience of InnServices staff

Once risks have been identified, assessed and assigned a risk rating, a treatment plan needs to be determined. The choice of treatment depends on the level of risk that can reasonably managed and accepted by InnServices (i.e. the risk tolerance). Risk tolerance is informed not just by the likelihood 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 is.

In Table 15 below, InnServices has identified a number of risks associated with Wastewater Network assets to demonstrate the application of the risk management methodology.

Table 15: Sample Risks - Wastewater Network Assets

Risk	Likelihood	Impact	Risk Rating	Treatment
Risk of sewer blockage	Possible	Moderate	Medium	Accept and resolve as reported
Risk of service disruption	Unlikely	Severe	Medium	Accept and resolve as reported
Minor damage due to accident, vandalism, weather, etc.	Possible	Minor	Low	Accept
Moderate damage due to accident, vandalism, weather, etc.	Possible	Moderate	Medium	Accept
Severe damage due to accident, vandalism, weather, etc.	Possible	Severe	High	Accept
Premature failure of facility equipment assets	Possible	Sever	High	Accept and resolve as reported
Risk of sewage bypass	Unlikely	Moderate	Low	Mitigate through frequent inspection and maintenance

FUTURE DEMAND

Demand Forecast
Per the 2021 census, the Town of Innisfil has a population of approximately 43,326 people. This is forecast to increase to 54,970 by 2031. This includes roughly 420 new housing units per year which will require the acquisition of new infrastructure assets to ensure that service levels are maintained.

Future Growth
As we look towards the future of growth, 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. InnServices Utilities Inc. is a wholly-owned Municipal Services Corporation of the Town of Innisfil and it relies on the Town's Official Plan.

Challenges and Opportunities
Growth generates both challenges and opportunities as InnServices navigates and balances the ongoing needs of existing residents while addressing the pressures associated with growth and the incremental increases in costs for operational needs. As InnServices looks to the future of growth and 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 (MSP) is reviewed and updated every 5 years to respond to changes in growth based on the Town of Innisfil's Official Plan, and Growth Plan. The most recent MSP was developed in 2018 to identify the recommended new capital wastewater infrastructure projects to accommodate the employment & population growth to the year 2031. InnServices will be updating the 2018 MSP in

The Orbit
The Orbit is a new proposed transit-oriented community to be built around a future GO Station at 6th Line and east of 20th Sideroad. The Orbit will be developed as a sustainable, higher density complete community with new residential, recreational and commercial development opportunities, cutting-edge technology and an active transportation network. The Orbit is expected to house a population of more than 20,000 people in the next 30 years. For more information on this project and other future development with Innisfil, please visit https://www.getinvolvedinnisfil.ca/

CLIMATE DEMANDS

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 wastewater assets. To ensure InnServices' wastewater assets are safe and reliable, climate change and the consideration of sustainable materials must be incorporated into the decisions and long-term planning.

InnServices' wastewater network assets are susceptible to extreme weather events putting environmental and public health and safety in danger. InnServices' 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 wastewater assets to ensure the safety of the public and staff.

LIFECYCLE MANAGEMENT

Lifecycle Management
All 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 assets in good condition, costs significantly less than reconstructing a poor condition asset. The overall goal is to extend the expected life of the assets while managing risks and minimizing the total lifecycle costs. The stages of lifecycle management are as follows:

Acquisition
Infrastructure assets are acquired primarily through assumption of ownership from developers but can also be constructed directly by InnServices through approved capital projects.

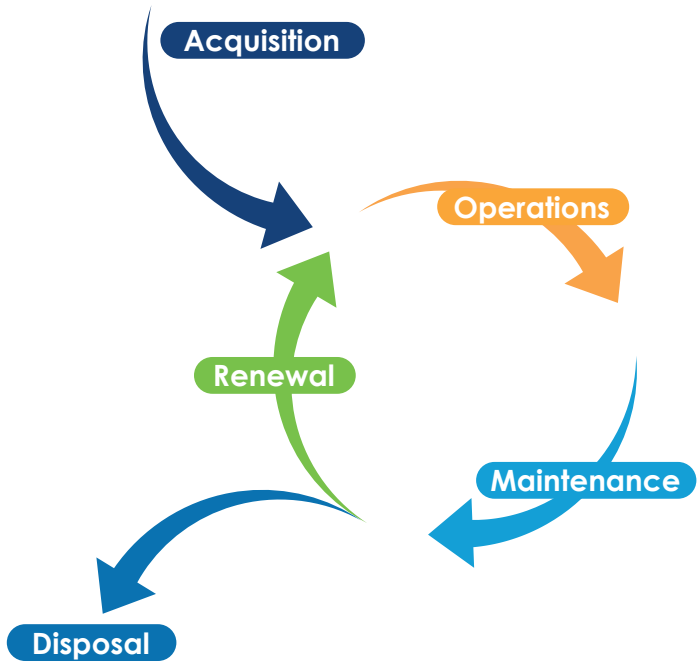
Operations
Planned, periodic activities such as inspection, assessment, cleaning, and servicing to fulfill LOS commitments and detect defects before failures occur.

Maintenance
Routine activities, planned and unplanned, to resolve minor defects and delay future defects.

Renewal
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 the asset.

Disposal
Removal of assets that have reached the end of their effective service life.

Figure 8: 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 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 16: Lifecycle Activities - Wastewater Network

Activity	Description of Activities Performed by InnServices
Assessment	• There is no formal condition assessment program in place. However, InnServices is starting a condition assessment program to investigate the condition of sanitary sewers as per NASSCO Standards. • New or larger assets are identified through technical analysis as part of Master Servicing Plans completed every 5 years to service new development.
Operations	• 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.
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 B.
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. • 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 . • InnServices would adopt relining of sanitary sewers as a major rehabilitation strategy. • Sanitary maintenance holes & laterals are typically replaced with sanitary sewers.

FINANCIAL SUMMARY

InnServices' financial summary includes the full consideration of the lifecycle cycle costs of the existing and new 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. However, InnServices is working on developing a 10-year long financial plan to address the needs of the existing as well as new wastewater infrastructure.

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.

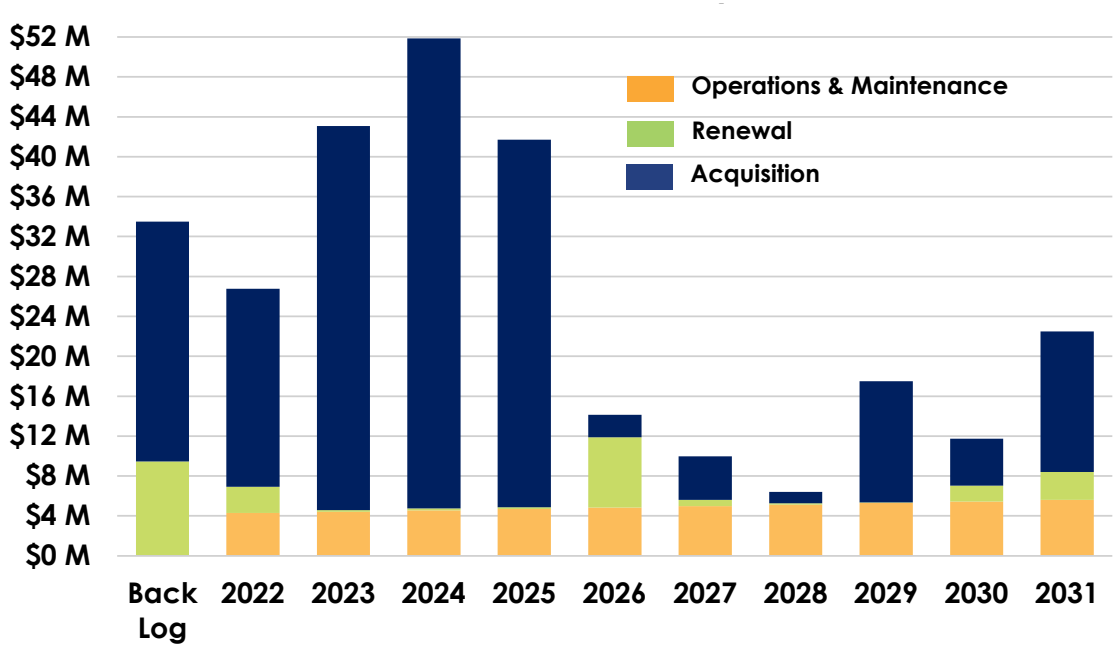
Capital Budget
InnServices' capital budget accounts for the lifecycle activities that would need to be undertaken to maintain the current levels of service over the next 10 years. This is required to not only satisfy the provincial requirements but to also allow InnServices to qualify for grant and funding opportunities. InnServices prepares annual capital budget and provides to the Board and staff for a longer-term path for capital initiatives, recognizing immediate and future needs that include existing asset replacements and growth required infrastructure demands.

The 2022 capital budget has been developed within the COVID lens along with existing master servicing plan, a development charges background study, asset management planning and other input documents that guide the focus to where and when financial resources are needed. The capital budget is used to fund the acquisition, renewal and maintain current service levels.

Table 17: Capital Revenue Sources

Revenue Source	Description	Growth or Renewal
Development Charges	Development charges are collected for new construction. These funds are restricted in use through provincial legislation and are used solely for the purpose of specific growth-related capital projects, such as new wastewater infrastructure and facilities needed to accommodate growth and various growth studies. These funds must be reported annually on how they were used.	Growth
Rates Revenue	This category is comprised largely of sewer rates revenue. Amounts are collected monthly to support the ongoing maintenance, rehabilitation, or replacement of the existing wastewater infrastructure.	Renewal
Grants & Other Recoveries	Grant funds received from the federal and provincial government related to wastewater infrastructure (if InnServices qualify). Grant funds can also be received from other agencies or external parties.	Renewal / Growth

Figure 9: 10-Year Lifecycle Activities Forecast - Wastewater Network



10-Year Lifecycle Activities Forecast

O. Reg. 588/17 requires municipalities to provide a 10-year forecast that estimates the annual costs of lifecycle activities that will need to be undertaken to maintain the current levels of service and accommodate expected growth. This forecast is presented in Figure 9 and Table 18.

Asset renewal includes the capital costs for 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 the Master Servicing Plan over the period of next 10 years. For the Operations & Maintenance costs, the 2021 operational & maintenance budget costs are extrapolated to 2031.

Table 18: 10-Year Financial Summary - Wastewater Network

Lifecycle Phase	Back Log	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Operations & Maintenance	$0	$4.2 M	$4.4 M	$4.5 M	$4.6 M	$4.8 M	$4.9 M	$5.1 M	$5.2 M	$5.4 M	$5.6 M
Renewal	$9.4 M	$2.6 M	$149 K	$190 K	$172 K	$7.0 M	$641 K	$128 K	$78 K	$1.6 M	$2.8 M
Acquisition	$24.0 M	$19.8 M	$38.5 M	$47.1 M	$36.8 M	$2.2 M	$4.3 M	$1.1 M	$12.1 M	$4.7 M	$14.0 M
Total	**$33.5 M**	**$26.7 M**	**$43.0 M**	**$51.8 M**	**$41.6 M**	**$14.1 M**	**$9.9 M**	**$6.4 M**	**$17.4 M**	**$11.7 M**	**$22.4 M**

MONITORING & IMPROVEMENT

In this final section of the Wastewater AMP, opportunities for improvement of InnServices' asset management program and the AMP 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 asset management program performance ongoing and continue to plan and implement corrective actions to ensure that program and AMPs continue to improve and mature over time.

Improvement Plan

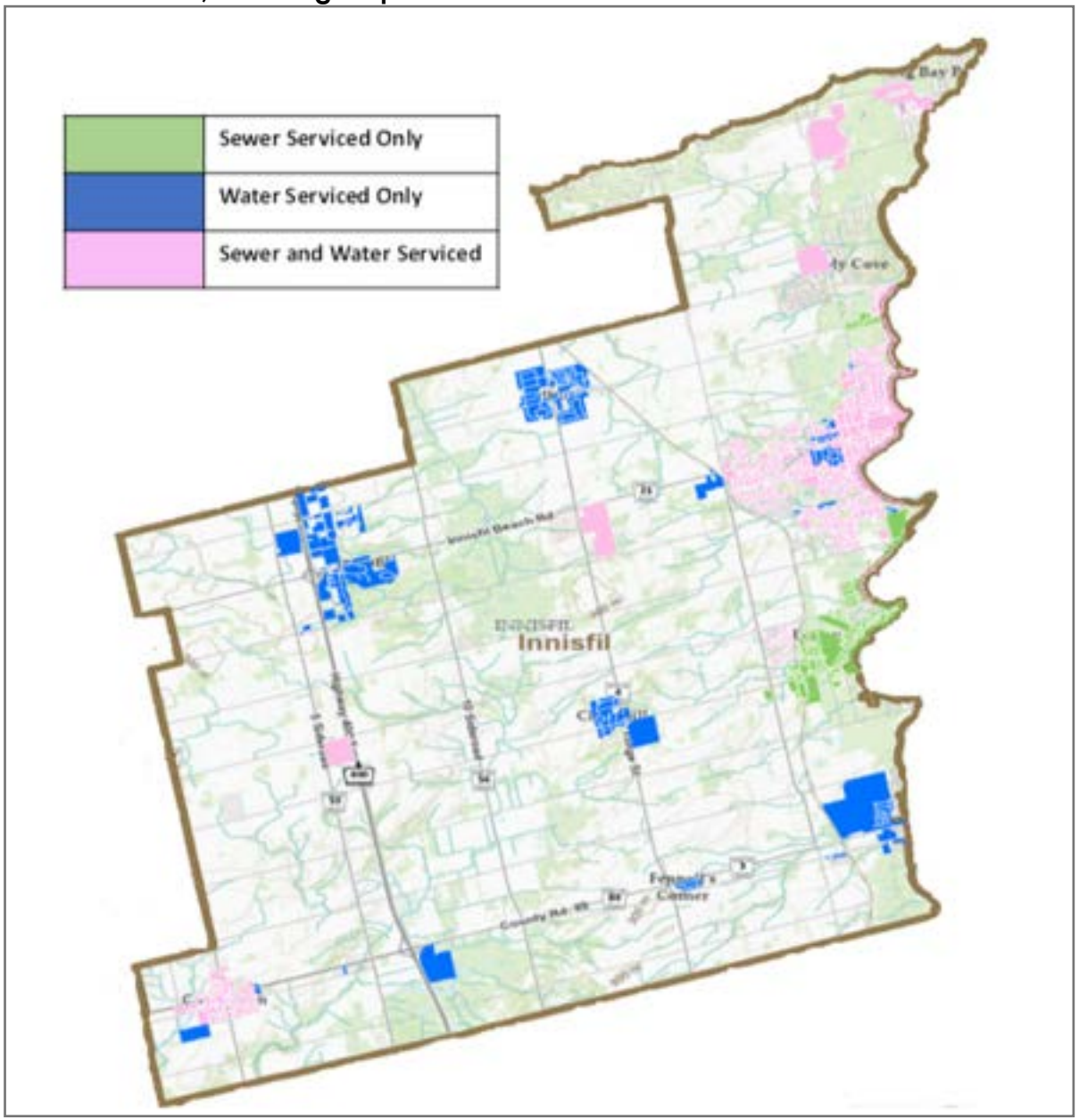
Table 19 on the following page, summarizes the improvement opportunities currently identified and the corrective actions planned for the next three years. A term of three years has been selected to align with the AMP deliverables detailed in O. Reg. 588/17 and summarized in Figure 1 of the AMP.

Table 19: Improvement Plan

Opportunity	Actions	Priority
Improve completeness and accuracy of state of infrastructure data.	Complete wastewater linear and facility assets inventory.	High
	Complete condition assessments of all the assets.	High
	Complete mapping of tangible capital assets data into GIS inventory.	High
Improve asset management processes for creation, maintenance, and disposal of asset records.	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.	Expand level of service definitions for all the assets.	Medium
	Establish level of service targets.	High
	Formalize data gathering and reporting procedures for each level of service.	Medium
Improve maturity of risk identification and treatment.	Establish risk management committee.	Medium
	Revise & update risk framework for assets.	Medium
Expand asset management program	Establish inventory systems for facility assets.	High
	Gather state of infrastructure data for facility assets.	High
Enhance long term financial planning for asset lifecycle	Identify costs associated with target levels of service and scenarios to achieve same.	High
Enhance strategic asset management policy.	Complete review and release of updated policy.	Low
Enhance public reporting of asset management information.	Enhance asset management content on InnServices' website.	Low
Enhance asset management links to climate change planning.	Expand climate change coverage in 2024 and 2025 AMP's.	Medium

APPENDIX A - LEVEL OF SERVICE MAPS

InnServices LOS, Servicing Map



APPENDIX B - MAINTENANCE ACTIVITIES

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 3-4 year cycle (based on contract prices) where pressurized water is used to flush out individual sections of sewer to reduce build-up of material and decrease the risk of blockages.
	Reactive maintenance plans such as emergency flushing are in place for potential sewer gases and blockages of sewers.
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 basement 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.