2025 ASSET MANAGEMENT PLAN ~ ADDENDUM

Building upon the 2024 Asset Management Plan, this addendum identifies proposed levels of service, a funding strategy to meet those targets, and acts as a tool to guide infrastructure investment to meet strategic goals and support the long-term sustainability of the Township.

WOOLWICH TOWNSHIP

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This Asset Management Plan was prepared by:

TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES TABLES

DEFINITIONS

Asset

An item, thing or entity that has potential or actual value to an organization. The value can be tangible or intangible, financial or non-financial, and includes consideration of risks and liabilities.

Asset Hierarchy

A classification system that is used to group assets with similar characteristics or functions. In this AMP, it is used to organize asset data/information using a common framework (or “language”) to assist in understanding, communicating and visualizing groups of assets.

Asset Inventory

A comprehensive listing and physical count of all municipal infrastructure assets, including their location, condition, and basic characteristics. The asset inventory serves as a foundational database that catalogs what assets exist, where they are located, and their current physical state through inspections and assessments.

Asset Management (AM)

Planned actions and coordinated activities of an organization to optimally and sustainably manage its assets that will enable the assets to provide the desired level of service in a sustainable way, while managing the risk at the lowest life-cycle cost. It encompasses all asset types, tangible or intangible, individual components or complex systems, and all activities involved in the asset’s lifecycle from acquisition/creation, through maintenance to renewal or disposal.

Asset Management Plan (AMP)

A strategic document (long-term) that states how a group of assets is to be managed over a period of time. The plan describes the characteristics and condition of infrastructure assets, the levels of service expected from them, planned actions to ensure the assets are providing the expected level of service, and financial strategies to implement the planned actions. Specific criteria to be included is defined in Ontario Regulation (O. Reg.) 588/17, as amended by O. Reg. 193/21.

Asset Management System

A management system that includes a series of interrelated processes and documentation that directs and delivers the discipline of asset management within an organization.

Asset Register

A formal, structured database that records detailed information about each asset including acquisition costs, depreciation, replacement values, maintenance history, and financial accounting data. The asset register builds upon the asset inventory by adding financial and lifecycle management information necessary for accounting, budgeting, and strategic planning purposes.

Capital Cost/Expenditures

One-time investments in the acquisition, construction, major rehabilitation, or replacement of infrastructure assets that extend their useful life or significantly improve their capacity. Substantial financial outlays, such as capital expenditures, are often amortized over multiple years and result in assets or asset improvements that provide benefits beyond the current fiscal year.

Computerized Maintenance Management System (CMMS)

A software system used to support scheduling, monitoring and reporting on work orders for maintenance and operational activities.

Core Municipal Infrastructure Asset (Core Asset)

Any municipal infrastructure asset that is a:

- Water asset that relates to the collection, production, treatment, storage, supply, or distribution of drinking water;
- Wastewater asset that relates to the collection, transmission, treatment, or disposal of wastewater, including any wastewater asset that from time to time manages stormwater;
- Stormwater management asset that relates to the collection, transmission, treatment, retention, infiltration, control, or disposal of stormwater;
- Road; or,
- Bridge or culvert.

Current Levels of Service (LOS)

The existing standard of infrastructure service delivery that the community currently receives, measured through specific performance indicators such as response times, service reliability, quality metrics, and customer satisfaction levels. This represents the baseline against which improvements or changes are evaluated.

Customer/Community Levels of Service (LOS)

Customer Levels of Service (also known as Community Levels of Service) measures are typically expressed in non-technical terms and describe the general public's understanding of services being provided by infrastructure systems. Customer LOS

measures are typically related to the service that is provided by the overall system supporting the service delivery, rather than the specific assets.

Decision Support System (DSS) Tool

The Townships' integrated data management and analysis platform built on SQL Server database architecture with Power BI visualization capabilities. This DSS tool enables staff to access, analyze, and visualize asset management data, financial information, and performance metrics to support informed decision-making regarding infrastructure investments, maintenance priorities, and service delivery planning.

Estimated Service Life (ESL)

The estimated period of time (usually in years) that an asset is in use or is expected to be available for use, assuming perfect construction and general maintenance is carried out. ESLs may vary according to material type or functional component.

Funding Shortfall

A spending shortfall in comparison to an established need. This can include the accumulated deficit that results year over year due to financial shortfalls.

Infrastructure

The physical structures and associated facilities that form the foundation of development, and by or through which a public service is provided.

Level of Service (LOS)

The parameters or combination of parameters that reflect the social, political, economic, and environmental outcomes the organization delivers. Level of service statements describe the outputs or objectives of the organization’s activities that are intended to be delivered to the community.

Lifecycle Activity

Activities undertaken with respect to an infrastructure asset over its service life, including constructing, maintaining, renewing, operating, and decommissioning, and all engineering and design work associated with those activities.

Lifecycle Cost

The total cost of ownership over the life of an asset. This may include but is not limited to capital costs, operating costs, maintenance costs, renewal costs, replacement costs, and disposal costs.

Lifecycle Management Strategy

The set of planned actions that will enable the assets to provide the desired levels of service in a sustainable way, while managing risk, at the lowest lifecycle cost.

Maintenance

Activities that allow assets meet their required performance objectives, including regularly scheduled inspection and activities associated with unexpected or unplanned events.

Non-core Municipal Infrastructure Asset (Non-core Asset)

All other municipally owned assets not included in the definition of a core asset (as per O. Reg 588/17). Within this Asset Management Plan, non-core assets include assets related to fire, fleet, equipment, parks, and facilities.

Non-infrastructure Lifecycle Activities

Actions, studies, master plans or policies that are not capital in nature, which result in the lowering of costs and/or extend the useful life of an asset.

Ontario Regulation (O. Reg.) 588/17

Under the Infrastructure for Jobs and Prosperity Act, 2015, principles are set out by the provincial government to regulate asset management planning for municipalities. On January 1, 2018, O. Reg. 588/17 came into force which regulates asset management planning for municipal infrastructure and later amended the timelines with O. Reg. 193/21 in 2021.

Operating (Operational) Cost/Expenditures

Recurring annual expenses required to maintain, operate, and deliver services through existing infrastructure assets. These ongoing costs include routine maintenance, utilities, staff salaries, supplies, and other day-to-day expenses necessary to keep assets functioning and services operational throughout their useful life.

Preventive Maintenance

Regular, routine or regularly scheduled maintenance activities that are intended to keep assets in good working order and prevent or minimize unplanned failures or downtime.

Proposed Levels of Service

The target or desired standard of infrastructure service delivery that the Township aims to achieve through planned investments, policy changes, or operational improvements. The proposed level of service defines specific performance targets and quality standards that guide capital planning and operational decision-making.

Rehabilitation

Significant repairs designed to extend the life of an asset. Rehabilitation is considered a renewal lifecycle activity.

Replacement

The removal and replacement of an existing asset to an equivalent capacity, function and/or performance. Replacements are considered a renewal lifecycle activity.

Replacement Value/Cost

The amount that an organization would have to pay to replace an asset of the same function and capacity at the present time, according to its current worth, including costs related to removal, installation, excavation, design, engineering, contingencies, disposal, material, and labour.

Risk

The effect of uncertainty on an organization's objectives. It considers environmental, socioeconomic, and financial variables and is determined by assigning a numeric rating for the likelihood of an asset failing and the consequence if it does.

Risk Management Strategy

The Township's risk management strategy details the methodology and framework used to assess for the Township's asset portfolio. It details the methodology and results used to assign Likelihood of Failure, Consequence of Failure and Risk Ratings to the Township's assets, which assists the Township in understanding asset criticality, and prioritizing assets for rehabilitation or replacement.

State of the Infrastructure (SOTI)

Refers to the comprehensive documentation and assessment of municipal assets required under Section 5(2)3 of Ontario Regulation 588/17, including summary-level information on asset types, quantities, replacement costs, and current physical condition for each asset category. This foundational data provides municipalities with baseline knowledge of their infrastructure portfolio to support informed asset management planning decisions and meet regulatory compliance requirements.

Technical Levels of Service (LOS)

Technical LOS are technical measures applied against assets and overall systems that define the performance requirements to support Community Levels of Service and are used to determine which criteria will be used to drive business decisions. Technical LOS are often expressed in quantitative or numerical terms.

1. INTRODUCTION

1.1. OBJECTIVES

In January 2018, Ontario Regulation (O. Reg.) 588/17: Asset Management Planning for Municipal Infrastructure came into effect, introducing a phased approach to establishing comprehensive municipal asset management systems. The Township has completed all previous milestones under the regulation and has completed this report in compliance with the July 1, 2025, requirements. This report serves as an extension to the Township's 2024 Asset Management Plan (AMP) and acts as an addendum by outlining a strategic approach to asset interventions that align with the proposed levels of service, emphasizing the importance of implementing the right actions, on the right assets, at the right time. This approach is aimed at maximizing asset performance, managing risk, and ensuring fiscal responsibility.

The Township's 2024 AMP established a comprehensive asset hierarchy that organizes the Township's infrastructure portfolio across four primary service areas: Transportation, Environmental Services/Utilities, Emergency Services, and Recreation and Facilities (see **Figure 1-1**). This hierarchy provides the foundation for systematic asset management across all municipal infrastructure. The strategies and frameworks developed in the creation of the 2024 AMP also forms the foundation for the 2025 AMP Addendum such as the current state of the infrastructure (SOTI), level of service framework, detailed lifecycle management strategies, and risk management strategies.

Figure 1-1: List of In-Scope Asset (Asset Hierarchy) from 2024 AMP

1.2. PURPOSE

The intent of this report is twofold. First, the Township aims to achieve compliance with the July 1, 2025, deadline identified in Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure. This deadline requires the identification of proposed levels of service, and an associated, comprehensive lifecycle management approach to achieving those levels of service, the details of which are outlined in this report.

The second goal is to establish proposed levels of service that reflect the needs of the community and are built on a foundation of responsible asset management strategies. This work solicited input from the community to guide the proposed levels of service and helped to establish an approach that can be enhanced in future refinements to the Township's asset management program.

1.3. SCOPE

The development of this accompanying report involved the following key tasks:

- A review of the current levels of service and proposed levels of service.
- An updated lifecycle management strategy with detailed lifecycle activities identified to support achievement of the proposed levels of service.
- Identification of risks associated with those lifecycle activities, as well as any risks associated with the final recommended lifecycle management strategy.
- Updates to the financial strategy to identify the lowest-cost approach to achieving the proposed levels of service and evaluate funding options and strategies.

2. DESIRED LEVELS OF SERVICE

The Levels of Service (LOS) Framework provides a structured approach to defining the quality, scope, and performance of municipal services across asset categories. It ensures that services are delivered efficiently while meeting regulatory requirements, public expectations, and financial constraints.

The LOS framework included in this report utilizes the Township's 2024 LOS framework as the foundation for the proposed LOS and aligns with the Township's strategic and financial goals. Since the Township's Community Strategic Plan (2024-2034) was updated in 2024, efforts were made to ensure levels of service remained aligned with the updated vision and mission.

2.1. COMMUNITY ENGAGEMENT

A community engagement survey was completed using the Township's EngageWR online platform to assess public satisfaction with current asset and service performance across the Township's seven primary service areas that have the most public interaction. It also provided an opportunity to identify areas where improvements or enhancements were desired and evaluate the community's willingness to pay for adjustments to service levels. The survey questions are included in **Appendix A**. The following sections summarize resident satisfaction, opportunities for enhancement, recommendations for each service area, and willingness to pay.

There were 65 responses to the survey received from residents and stakeholders across the Township between December 4, 2024, and January 6, 2025. See **Appendix B** for a summary of the survey results. Of the total responses, 62 were submitted online, while three were collected through paper surveys made available at key locations such as the Administration Office, Breslau Community Centre, and Woolwich Memorial Centre. Due to the time constraints in meeting the O. Reg. 588/17 July 2025 deadline, the survey window was limited which may have effected response rates. There may have also been some survey fatigue experienced by residents due to several other surveys such as the Budget Parameters Survey in the fall of 2024 and the Recreation Master Plan surveys in 2024.

It is important to recognize that the survey represents a small percentage of the Township's total population; therefore, due to this small sample size, the survey results were considered in the development of proposed levels of service primarily for information and as a means of validating staff assumptions and providing insights of customer expectations. Moving forward, the Township is committed to continue to inform, consult, and engage with the community to drive asset management efforts. Future engagement initiatives will aim to expand participation, refine feedback mechanisms, and ensure that the evolving needs and priorities of the community are effectively integrated into the Township's asset management strategy. It is specifically recommended that levels of service questions are integrated with other surveys where there is an opportunity to provide ongoing insight into customer perspectives. This may include engagements related to budgets, strategic plans, or master plans.

2.1.1 Summary of Survey Results: Satisfaction & Recommendations

2.1.1.1 Drinking Water Distribution

Respondents showed relatively positive satisfaction levels with the availability and reliability of drinking water in the Township. Survey results in **Figure 2-1** show a total of 48% of participants were satisfied, with an additional 26% very satisfied, 13% neutral, 11% dissatisfied, and 2% very dissatisfied. Water services were viewed favorably as 76% of respondents have not had a service disruption within the last 5 years. Some respondents pointed out occasional service interruptions (lack of water pressure) or discoloration in the water.

A common theme from respondents was to better understand investment and fees, as well as improving water supply. There were recommendations to implement more targeted communication and education campaigns related to drinking water, in addition to stormwater, wastewater, and road maintenance. These campaigns could help better inform residents about the importance and costs associated with these services, fostering greater awareness and transparency regarding infrastructure improvements and ongoing maintenance needs.

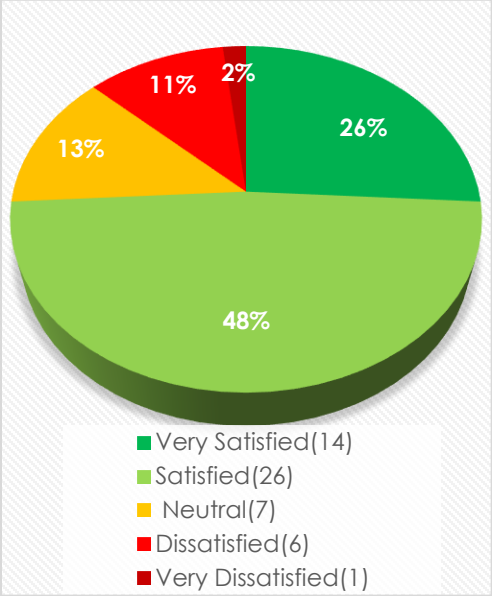

Figure 2-1: Drinking Water Distribution Survey Response

2.1.1.2 Sanitary Wastewater Collection

Overall, wastewater services received positive feedback, with most respondents satisfied with system performance (**Figure 2-2**). A total of 71% of respondents expressed satisfaction, while 25% were neutral. However, dissatisfaction was noted among 4% of respondents (2% dissatisfied and 2% very dissatisfied) with some comments related to occasional backups and odors. When asked specifically, around 91% of the respondents have not experienced a sewer back up in the last 5 years.

Respondents identified irregular maintenance as a key issue, citing the need for more

frequent system flushing and proactive measures such as education to prevent blockages. As the Township grows, regular maintenance schedules, increased public communication and making investments into the wastewater system will be necessary.

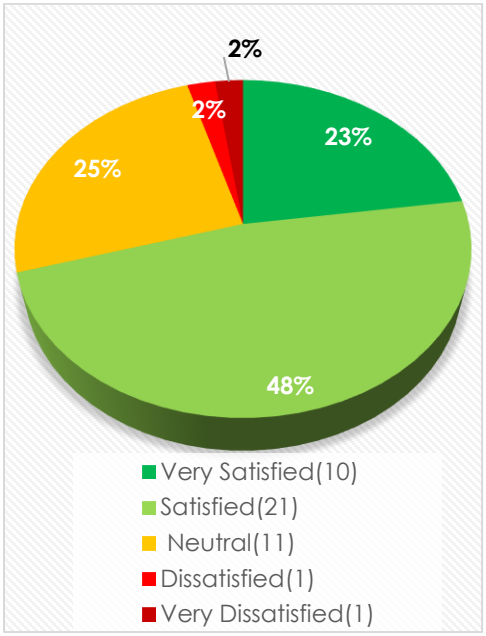

Figure 2-2: Sanitary Wastewater Collection Survey Responses

2.1.1.3 Stormwater Management Community Engagement

Feedback on stormwater management was mixed, with 55% of respondents expressing satisfaction and 38% reporting a neutral stance, seen in **Figure 2-3**. Around 14% of respondents have experienced flooding impacts on their property, with 86% reporting no flooding impacts. Additionally, when asked about impacts for roads being flooded in the last 5 years, 82% of respondents have experience no impacts, 18% have experienced some impact due to roads being flooded in the last 5 years (3% once a year, 3% more than 5 times, and 12% less than 5 times). Concerns were raised about flooding and drainage during heavy rainfall. Specific problem areas included erosion-prone zones and poor drainage emphasizing the need for targeted infrastructure enhancements, such as areas along Weigel Avenue, Sunset Hills Crescent, Woolwich Street S, Elroy Acres and Barnswallow Drive.

Respondents' recommendations included targeted infrastructure upgrades, erosion control measures, and proactive maintenance (e.g. clearing debris, walkways around pond) and runoff education (e.g. cisterns, rain gardens). It is recommended that a stormwater management master plan is planned for in the future to evaluate and plan for long-term capacity requirements and levels of service for stormwater infrastructure.

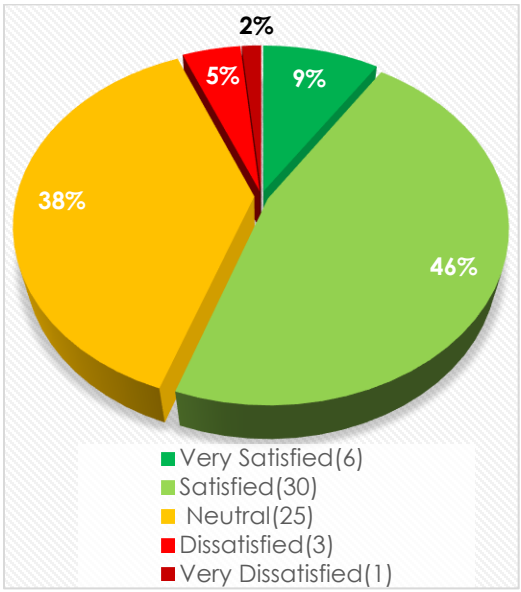

Figure 2-3: Stormwater Management Survey Responses

2.1.1.4 Transportation Services Community Engagement

The transportation services include several asset categories which were separated in the survey to try to obtain an understanding of the satisfaction with each category. In general, satisfaction with the transportation network was varied, with noticeable dissatisfaction regarding road conditions (paved and gravel) and road services (snow clearing and maintenance), further details can be found in the bullet list below and in **Figure 2-4**.

- **Paved Roads:** Satisfaction was mixed, with 22% of respondents expressing positive sentiment (satisfied or very satisfied), while 48% were dissatisfied or very dissatisfied. Key concerns included potholes and road smoothness.
- **Gravel Roads:** Respondents were not positive, with 14% satisfied or very satisfied. However, 41% expressed dissatisfaction, highlighting the need for better grading and maintenance.
- **Snow Removal Services:** Feedback was divided, with 40% satisfied or very satisfied and 36% dissatisfied or very dissatisfied. Improved consistency and efficiency were commonly cited areas for improvement.
- **Road Maintenance:** Neutral responses dominated at 36%, while 38% were dissatisfied and 26% satisfied. Maintenance frequency and road condition repairs were identified as key concerns.
- **Bridges and Culverts:** High satisfaction, with 48% expressing satisfaction and only 12% dissatisfied. Respondents generally appreciated the condition of these assets.
- **Sidewalks:** Strong positive sentiment, with 52% satisfied or very satisfied. Only 24% expressed dissatisfaction, highlighting the need for localized repairs and accessibility improvements.

The survey revealed significant community feedback around sidewalks and winter maintenance. The survey results validate and reinforce the Active Transportation Master Plan's recommendations with safety and accessibility recurring themes, as well as considerations about pedestrian crossings, dedicated cycling spaces, and year-round usability due to weather challenges. Respondents also highlighted the need for better connectivity between key destinations like schools, community centers, parks, and local amenities. By addressing the specific concerns raised in the survey, such as winter maintenance, safety, and accessibility, the Township can effectively align its active transportation initiatives with public expectations while achieving the broader goals outlined in the Active Transportation Master Plan.

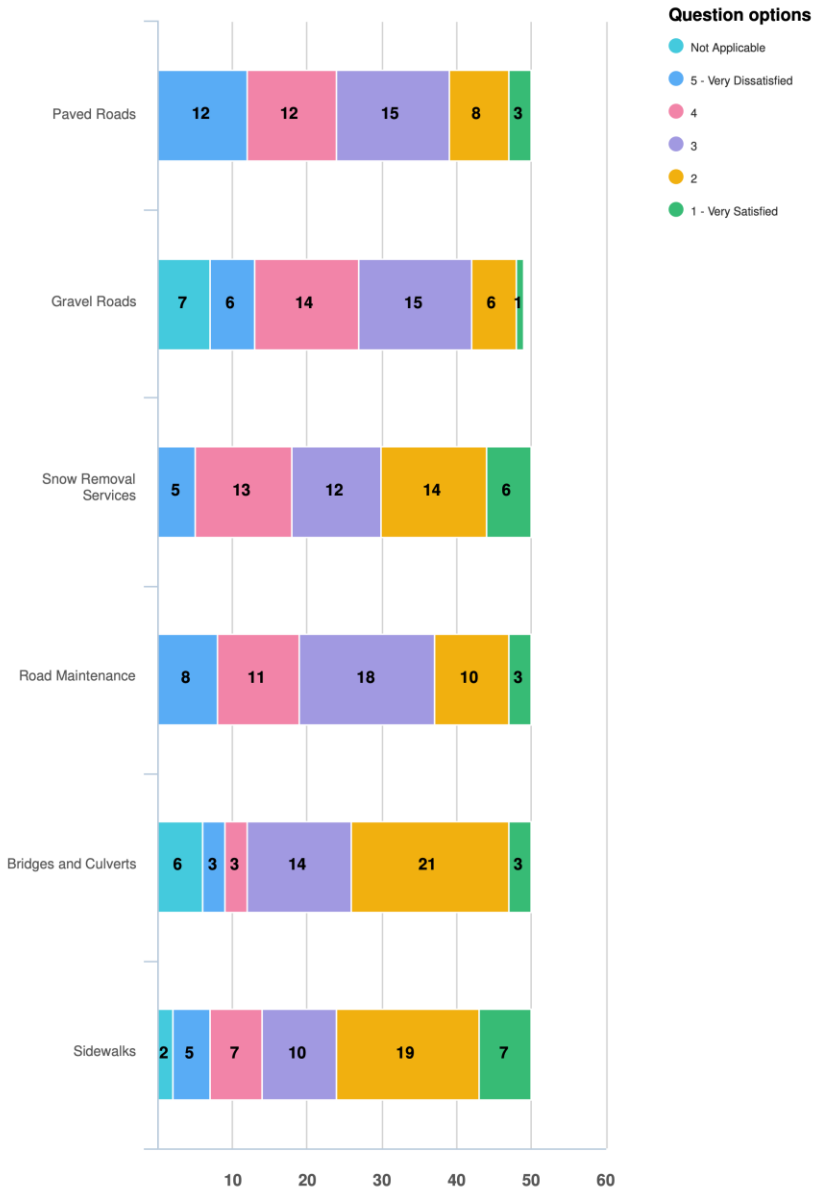

Figure 2-4: Transportation Services Survey Results

2.1.1.5 Emergency Services Community Engagement

Interaction with the Woolwich Fire Department was reported by 45% of respondents. Most respondents were satisfied with their interactions with the Woolwich Fire Department, with 86% rating their experience as "very satisfied" or "satisfied" (**Figure 2-5)**. Community appreciation was evident, with 7 out of 14 comments being complimentary.

The department received high marks for its response times and professionalism. A few respondents raised concerns about outdated equipment and unclear response boundaries, suggesting the need for improved communication regarding service coverage and emergency response areas. Feedback on response times also included suggestions for faster service and a preference for a full-time department. Both sources emphasize that aging facilities and equipment are barriers to maintaining service quality and meeting modern standards.

By addressing these shared priorities, the Township has an opportunity to meet community expectations while also achieving regulatory compliance and industry standards. The Fire Master Plan is anticipated to be updated in 2025/2026, which will provide a more recent analysis and recommendations for service level targets and integration in future AMPs. Implementing the actionable recommendations in the Fire Master Plan, informed by resident feedback, will ensure the fire department continues to provide high-quality service and adapts to the evolving needs of the community. This collaborative approach, integrating technical planning with public input, will strengthen the department's effectiveness and community trust over the long term.

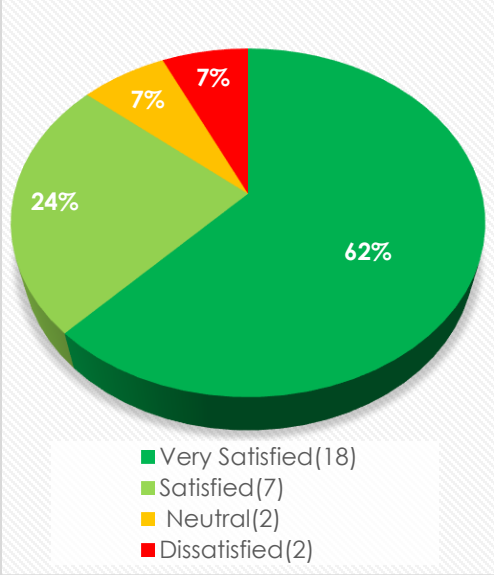

Figure 2-5: Emergency Services Survey Results

2.1.1.6 Indoor Recreational Facilities

Indoor facilities, such as community centers and arenas, were well-utilized, with 69% of respondents indicating they use these amenities and 76% expressing satisfaction with

their condition (**Figure 2-6**). However, 24% indicated concerns, suggesting room for targeted maintenance and upgrades.

Some respondents noted the need for better maintenance, including cleanliness in change rooms and restrooms, and availability of services. Feedback suggested a need to improve facilities in the southern part of the Township. The feedback was similarly reflected in the 2024 Parks and Recreation Master Plan, along with the need for energy-efficient upgrades and accessibility improvements across indoor facilities. A key difference is that the survey's feedback focused on immediate operational maintenance issues, such as cleanliness and routine upkeep, while the Parks and Recreation Master Plan addresses the condition of assets themselves, identifying long-term service gaps. This includes areas like Breslau, where future population growth will warrant a new multi-use recreation facility. The feedback supports the Master Plan's direction, highlighting the necessity of both short-term operational improvements and long-term strategic investments to enhance indoor recreation services.

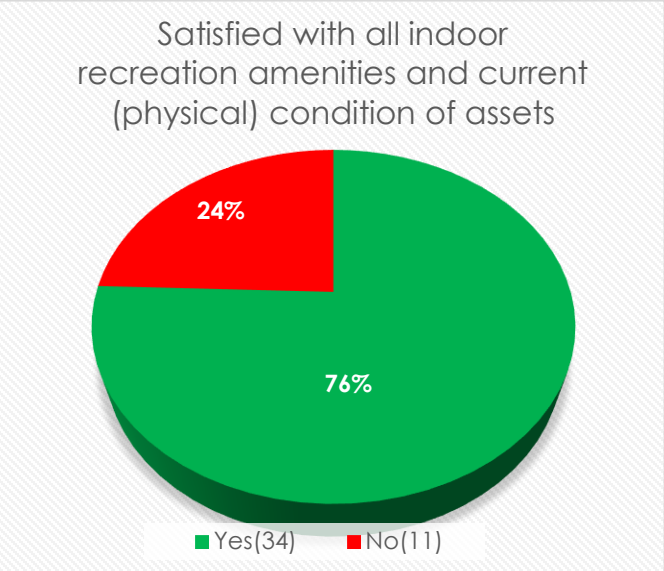

Figure 2-6: Indoor Recreational Facilities Survey Results

2.1.1.7 Outdoor Recreational Facilities

Outdoor spaces like trails, playgrounds, and parks were popular, with 80% of respondents reporting usage. Satisfaction with the condition and amenities of outdoor spaces was also strong, with 75% expressing satisfaction and 25% of respondents identified areas requiring improvement (**Figure 2-7**). Respondents highlighted concerns in playgrounds (e.g. accessibility), cleanliness of washrooms and trails (e.g. dog waste), and landscaping (e.g. weeds and shading).

Feedback from the survey mirrors the 2024 Parks and Recreation Master Plan's priorities for outdoor spaces, particularly regarding the condition and accessibility of trails, playgrounds, and parks. Other similar feedback was reflected in the Parks and Recreation Master Plan which emphasized upgrading aging infrastructure, adding shade structures, and improving trail connectivity. However, while the survey focused on specific maintenance and amenity upgrades, the Parks and Recreation Master Plan

also addresses broader needs, such as future or anticipated gaps in parkland in underserved areas like Breslau and Elmira and integrating green infrastructure to promote sustainability. The community feedback reinforces the Parks and Recreation Master Plan's strategic direction, highlighting the importance of prioritizing safety, connectivity, and inclusivity in future outdoor recreational investments.

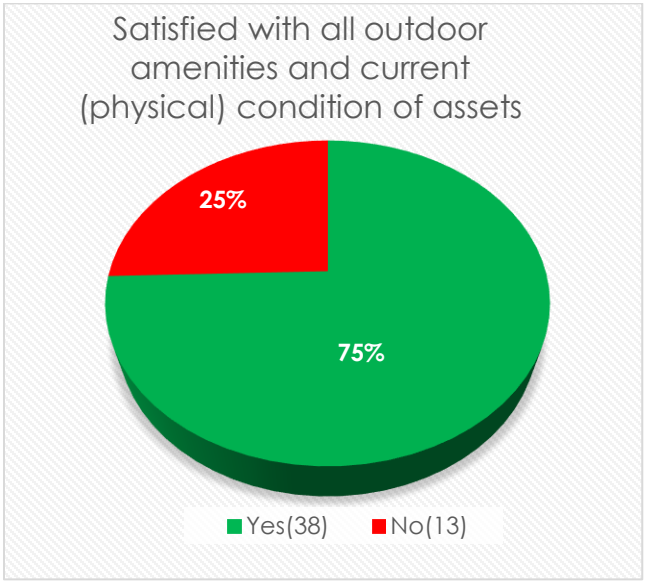

Figure 2-7: Outdoor Recreational Facilities Survey Results

2.1.2 Summary of Survey Results: Funding Priorities & Willingness to Pay

The survey results also provided a picture of the community's funding priorities and willingness to pay for enhanced services. Essential services like fire services, water, and the transportation network emerged as the top funding priorities, with fire services ranked the highest priority (average rank of 2.75). This reflects the community's recognition of the critical importance of emergency response and public safety. Water services followed closely (average rank of 3.26), highlighting the community's desire for reliable and accessible drinking water. Transportation infrastructure, including road maintenance and snow removal, ranked third priority (average rank of 3.61), indicating its significance to daily life and mobility.

Indoor recreational facilities (4.45), stormwater management (4.48), wastewater (4.48), and outdoor recreational spaces (4.50), while still valued, were seen as less immediate priorities for funding compared to fire, water, and transportation services.

Community willingness to pay for improvements showed mixed results, (Figure 2-8). Nearly a third of respondents (32%) expressed openness to contributing financially to enhance their top three priority services. Almost half of respondents (46%) noted that they would not be willing to contribute to increase services in their top three priority areas, and 22% responded that they were not sure. These findings suggest that a

portion of the community is prepared to invest in improving critical services, while the majority remain neutral or opposed.

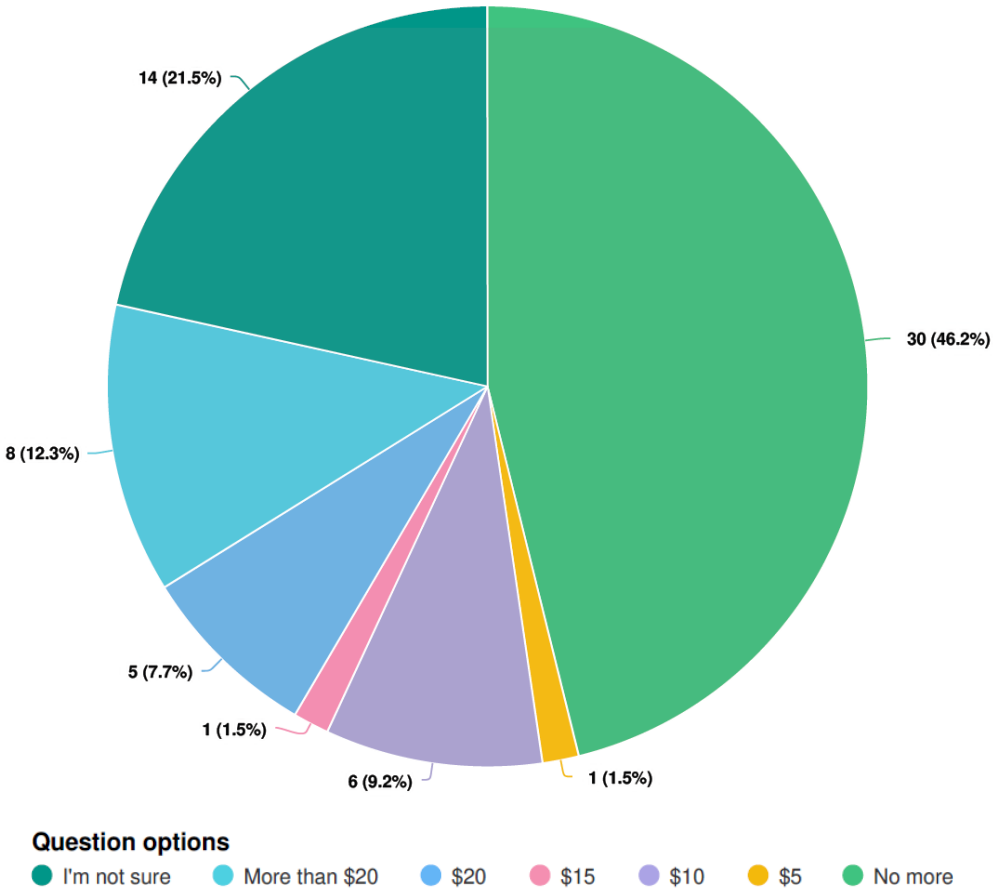

Figure 2-8: Willingness to Pay to Increase Services in Top 3 Priority Areas

When asked about areas where funding could be reduced to prioritize higher-ranked services, respondents frequently pointed to outdoor recreational facilities (26 selections), indoor recreational facilities (24 selections) and stormwater management (15 selections), shown in **Figure 2-9**. Other areas mentioned for potential reductions included transportation (14 selections) and wastewater services (11 selections). Water had the fewest selections for reductions, reinforcing their perceived importance to the community.

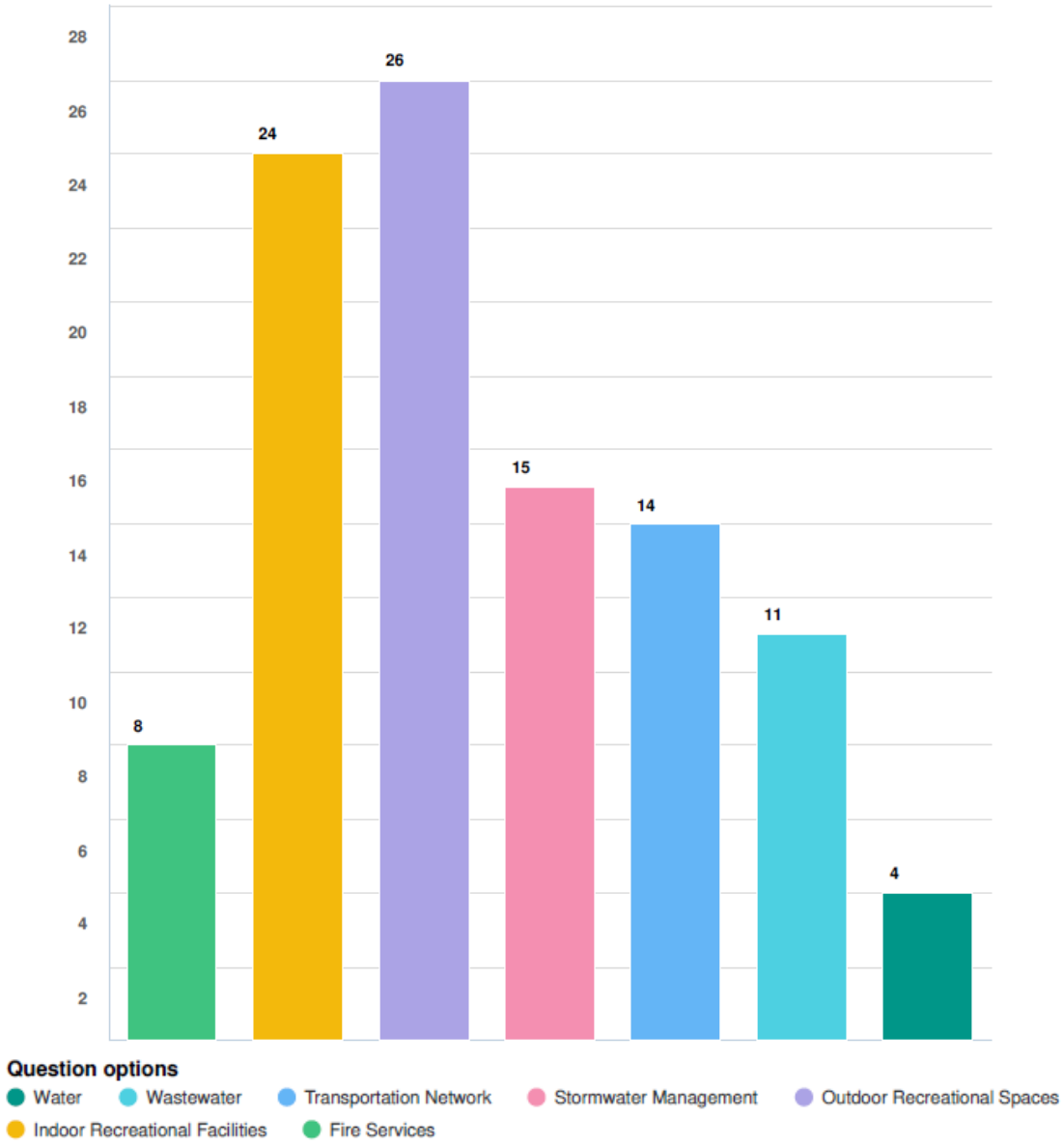

Figure 2-9: Community Preferences for Budget Reduction by Service Area

Overall, the community's priorities strongly align with investments in fire, water, and transportation services. The results also indicate a readiness among some residents to financially support these improvements, provided they align with their expressed needs and priorities. It is important to keep in mind that the feedback, while informative and insightful, is limited in scope due to the small sample size and may not reflect the full picture. Nevertheless, the results provide valuable initial insights, but more comprehensive consultations should occur before any major adjustments in service levels are implemented.

2.2. PROPOSED LEVELS OF SERVICE

Proposed levels of service (PLOS) differ from current levels of service in that they identify a target performance level for each measure. On the other hand, current levels of service identify the performance at a snapshot in time. It reflects the currently experienced quality (or level) of service. These two aspects of the Levels of Service (LOS) framework are used together to understand what the level of service experienced by the end user is, and what they expect (or desire) to be experiencing. By understanding how aligned the current and proposed levels of service are, the Township is better equipped to develop strategies for either maintaining, improving, or decreasing that level of service to meet those goals.

To develop the PLOS component of the LOS framework, the Township combined community engagement with staff knowledge of asset condition performance and needs, legislative requirements, and recommendations from studies, master plans and reports. Levels of service cannot be established without understanding the needs of the community and balancing these with an understanding of the financial demand and whole-life needs of the assets. The previously discussed community engagement process deepened the Townships understanding of the community's service expectations, and this deeper understanding equips the Township with a structured and informed foundation for decision-making. Using the findings of the community engagement process, the Township was able to create targets that are tied to both customer expectations and operational reality, ensuring that these proposed metrics are achievable and repeatable for reporting. This approach also supports continuous improvement, streamlining process for refinement and updates as new information is gathered.

2.2.1 Proposed Level of Service Costing Measures

The Township analyzed several scenarios when determining the appropriate target for the proposed level of service. Increases and decreases to the current service levels of 5% and 10% were analyzed over a 75-year timeframe, which included forecasting the financial commitments required to deliver the necessary lifecycle management strategy to meet those targets. These proposed interventions were simulated within the decisions support system (DSS) for condition-based targets such as LOS based on the percentage of assets in poor or better condition. By normalizing the investment requirements over 75 years to calculate an average annual amount ensures that the whole lifecycle is being considered for long-lived assets. Additionally, this approach helps to identify the annual amount required to sustain a target performance where spending can be balanced by allocating surplus funds to reserves in years with lower-than-average expenditures, ensuring sufficient funding for years with above-average spending needs. The outcomes of this analysis were then balanced with the priorities indicated through the community engagement process and then reviewed through internal stakeholder workshops with staff subject matter experts. These workshops provided valuable insights into operationalizing the PLOS measures, and balancing service level with financial sustainability.

Table 2-2 below outlines the proposed levels of service and their associated costs for those metrics that are based on asset condition only and focused solely on capital renewal lifecycle needs (i.e. replacements and major rehabilitation). These proposed levels of service costs were used in the development of the 10-year financial strategy to estimate what the additional costs are required to deliver the proposed LOS. It also details the current level of service to provide a point of comparison at this present time. In it is a description of the technical measure, the decision to either increase, maintain or decrease the current level of service, the final proposed level of service target, and the anticipated annual cost of the lifecycle strategy for that measure. Some services are reported with a higher level summary LOS statement which is followed by a breakdown of the asset categories that form part of the service. A description of the condition categories used in the 2024 AMP and referenced in this report can be found in **Table 2-1** below.

Table 2-1: Overall Condition Rating Scale

Category	Description	Example Life Consumed
Very Good	• Asset is typically new or recently rehabilitated.	0% to 25%
Good	• Asset condition is acceptable and generally in the mid-stage of its service life. Asset may show preliminary signs of deterioration requiring attention or minor maintenance.	25% to 50%
Fair	• Asset shows general signs of deterioration that requires attention and may require immediate maintenance.	50% to 75%
Poor	• Asset is below the standard condition and is approaching the end of its service life. Ongoing monitoring and significant maintenance may be required.	75% to 100%
Very Poor	• Asset is at or beyond its service life and shows signs of advanced deterioration. Asset may exhibit signs of imminent failure that can affect service or increase risk. Condition may be critical. Extensive monitoring, rehabilitation and/or replacement may be required.	>100%

When considering the estimated cost of the current performance, it is important to keep in mind that the costs may not be equal to what each service is currently being funded at. The current performance cost is directly tied to the current performance or condition of the assets based on the information contained in the asset register. Therefore, the current performance annual cost is the estimated cost that would be required to maintain the current overall performance over the forecasted period. As condition data improves and assets deteriorate, the LOS framework and metrics will help to track trends in performance and comparisons with PLOS targets over time. Additional scenarios can be found in Section 2.3.3 that aim to display what the forecasted performance of each service may be under the current estimated available funding and under the proposed levels of service annual costs identified in this section.

Please note that the asset performance modelling using the decision support system incorporates lifecycle activities, performance curves, risk management strategy and the data contained within the asset register for the 2024 AMP. Therefore, the costs for the PLOS are reported in 2023 dollars; however, they have been adjusted to 2025 dollars for the inclusion into the financial strategy. As the Township updates its asset management plan at least every 5 years, as well as in its annual reporting commitments, regular updates to the asset register and the frameworks and strategies that support the asset management approach will be critical.

Additionally, roadway assets are omitted from the PLOS **Table 2-2** below. Instead, as reported in the 2024 AMP, roadway assets (hard top and loose top roads) are assessed following the Ministry of Transportation's 1991 Inventory Manual for Municipal Roads and modelled using a program separate to the decision support system used for the rest of the asset portfolio. From the 2023 State of the Infrastructure and Asset Management Plan for Roads Summary Report, the Township should be targeting a minimum recommended system condition of 70. To do this, the report identifies a short-term sustainability funding amount of $4.75M which is the minimum required to sustain the system over the short-term (10 years) in theory only and focuses on adequately funding pavement maintenance, preservation and resurfacing programs. To sustain the system over the entire lifecycle, the long-term sustainable funding amount of $7.5M is targeted as the proposed level of service annual cost as replacement of roadways are needed. Further details on the costs and modelling for roadways can be found in Section 2.3.3.

Table 2-2: Proposed Levels of Service for condition-based measures and the overall anticipated cost of providing that PLOS (within the DSS)

Service Area	Technical Measure	Current Performance	Increase, Maintain or Decrease	Proposed LOS	Current Performance Annual Cost[1] (2023 $)	Proposed Performance Annual Cost[1] (2023 $)	PLOS Justification
Drinking Water Distribution	Percentage of watermains in poor or better condition	93%	Maintain	**93%**	$1,732,220	**$1,732,220**	Maintaining 93% ensures reliable drinking water delivery while balancing costs. This level minimizes service disruptions and costly emergency repairs, protecting public health and supporting fire protection requirements.
Sanitary Wastewater Collection	Percentage of total Sanitary Wastewater Collection Assets in poor or better condition	67%	Increase	**76%**	$1,493,226	**$1,700,228**	The 76% target looks to maintain a low network percentage of sewage backups and environmental contamination while ensuring regulatory compliance.
	Percentage of linear sanitary sewers in poor or better condition	63%	Increase	**73%**	$1,141,603	**$1,348,605**	The 73% target establishes an optimal balance between infrastructure reliability and fiscal constraints. This specific level ensures

Service Area	Technical Measure	Current Performance	Increase, Maintain or Decrease	Proposed LOS	Current Performance Annual Cost[1] (2023 $)	Proposed Performance Annual Cost[1] (2023 $)	PLOS Justification
							sanitary sewer assets meet performance standards, providing substantial protection against environmental contamination while being achievable within budget parameters.
	Percentage of sanitary pumping station assets (including forcemains) in poor or better condition	90%	Maintain	**90%**	$351,623	**$351,623**	This specific level ensures that critical pumping components remain operational while allowing scheduled replacements for less essential elements.
Stormwater Management	Percentage of total SWM assets in poor or better condition	79%	Increase	**87%**	$2,951,840	**$3,380,900**	The target protects against storm events. The increase is driven by an increase SWM facility performance target.
	Percentage of storm sewer mains that are in poor or better condition	98%	Maintain	**98%**	$1,534,717	**$1,534,717**	This specific level ensures adequate conveyance during typical rainfall intensities while falling within sustainable funding parameters.

Service Area	Technical Measure	Current Performance	Increase, Maintain or Decrease	Proposed LOS	Current Performance Annual Cost[1] (2023 $)	Proposed Performance Annual Cost[1] (2023 $)	PLOS Justification
							This level keeps replacement cycles within sustainable financial parameters while providing adequate protection against localized flooding events.
	Percentage of culverts that are in poor or better condition	84%	Maintain	**84%**	$94,795	**$94,795**	The 84% target for culverts reflects their relative importance within the stormwater network. This specific level ensures that critical water crossings maintain functionality while allowing some flexibility in replacement scheduling. This percentage effectively balances failure risk with asset management costs.
	Percentage of groundwater management mains that are	98%	Maintain	**98%**	$50,730	**$50,730**	The 98% target reflects the environmental sensitivity of

Service Area	Technical Measure	Current Performance	Increase, Maintain or Decrease	Proposed LOS	Current Performance Annual Cost[1] (2023 $)	Proposed Performance Annual Cost[1] (2023 $)	PLOS Justification
	in poor or better condition						groundwater systems in the Township.
	Percentage of SWM facilities that are in poor or better condition	53%	Increase	**70%**	$1,271,597	**$1,700,658**	This specific level ensures adequate treatment capacity for typical storm events while recognizing the inherent redundancy in facility design.
Cellar Drain Collection System	Percentage of cellar mains that are in poor or better condition	76%	Maintain	**76%**	$84,376.83	**$84,376.83**	The target balances flood protection with available resources.
Transportation Services	Percentage of total Transportation Network assets (excluding roads) in poor or better condition	80%	Increase	**93%**	$2,319,112	**$2,150,278** [2, 3]	The 93% target for transportation network assets represents the threshold where public safety and service quality are optimized. This specific level ensures reliable mobility while avoiding overinvestment in non-critical components and in a way that balances risk.

Service Area	Technical Measure	Current Performance	Increase, Maintain or Decrease	Proposed LOS	Current Performance Annual Cost[1] (2023 $)	Proposed Performance Annual Cost[1] (2023 $)	PLOS Justification
	Percentage of active transportation assets in poor or better condition	100%	Decrease	**91%**	$254,171	**$230,794**	This specific level ensures that sidewalks and footbridges meet user expectations and safety requirements. While footbridge performance is targeted at 100%, the decrease is attributed to decreasing sidewalk performance target by 10% to balance asset replacement with capital requirements.
	Percentage of total municipal structures in poor or better condition	76%	Increase	**94%**	$1,323,981	**$979,424** [2]	This measure includes retaining walls and bridges and culverts with a span greater than 3 metres. Proposed LOS was determined by conducting a scenario where the closed or restricted steel truss bridges were omitted to understand the condition of the system without these structures. This

Service Area	Technical Measure	Current Performance	Increase, Maintain or Decrease	Proposed LOS	Current Performance Annual Cost[1] (2023 $)	Proposed Performance Annual Cost[1] (2023 $)	PLOS Justification
							percentage appropriately balances safety factors with fiscal sustainability.
	Percentage of fleet and equipment assets that are in poor or better condition	67%	Maintain	**67%**	$400,000	**$625,000** [3]	This specific level ensures vehicles and equipment are available when needed while optimizing replacement cycles.
	Percentage of traffic management assets in poor or better	93%	Decrease	**84%**	$340,960	**$315,060**	This metric includes decorative and standard streetlights and municipal parking lots. The decrease is from adjusting streetlights to a level that balances replacement cycles with public safety and MMS inspections. Municipal parking lot performance is maintained to balance user experience and capital requirements.

Service Area	Technical Measure	Current Performance	Increase, Maintain or Decrease	Proposed LOS	Current Performance Annual Cost[1] (2023 $)	Proposed Performance Annual Cost[1] (2023 $)	PLOS Justification
Emergency Services	Percentage of fire services facilities assets in poor or better condition.	86%	Increase	**90%**	$299,504	**$327,631**	The 90% target for fire service facilities balances operational readiness with fiscal efficiency. This specific level ensures that critical building systems function optimally while allowing controlled aging of cosmetic elements.
	Percentage of fire apparatus and emergency response vehicles in poor or better condition.	87%	Maintain	**87%**	$1,229,300	**$1,229,300**	This specific level ensures vehicles operate effectively during critical incidents while optimizing replacement scheduling.
	Percentage of emergency equipment in poor or better condition.	80%	Maintain	**80%**	$262,308	**$262,308**	The 80% target for emergency equipment reflects operational priorities and redundancy requirements. This specific level ensures critical equipment functions during emergency response

Service Area	Technical Measure	Current Performance	Increase, Maintain or Decrease	Proposed LOS	Current Performance Annual Cost[1] (2023 $)	Proposed Performance Annual Cost[1] (2023 $)	PLOS Justification
							while allowing scheduled replacement of backup systems.
Recreation and Facilities	Percentage of administration and operations facility assets in poor or better condition	93%	Maintain	**93%**	$170,188	**$170,188**	This specific level ensures consistent service delivery while optimizing building system performance. This percentage maximizes staff productivity and operational efficiency.
	Percentage of libraries, recreation centres/arenas and multi use/event spaces in poor or better condition	96%	Decrease	**94%**	$982,921	**$926,295**	This specific level ensures that core recreational functions operate optimally while allowing controlled aging of non-critical components.
	Percentage of outdoor recreation assets in poor or better condition	62%	Increase	**90%**	$361,689	**$632,440**	The 90% target for outdoor recreation assets reflects their high public visibility and community importance. This specific level ensures optimal user

Service Area	Technical Measure	Current Performance	Increase, Maintain or Decrease	Proposed LOS	Current Performance Annual Cost[1] (2023 $)	Proposed Performance Annual Cost[1] (2023 $)	PLOS Justification
							experience and safety while supporting tourism and quality of life objectives.
	Percentage of fleet and equipment assets in poor or better condition	70%	Maintain	**70%**	$86,298	**$86,298**	The 70% target for recreational fleet assets balances operational requirements with fiscal optimization.
	Percentage of IT equipment in poor or better condition	85%	Increase	**90%**	$109,500 [3]	**$170,000** [4]	The 90% target for IT equipment reflects technology lifecycle realities and replacement prioritization. This specific level ensures core systems remain functional while acknowledging rapid technological change.

1 *Annual costs have been normalized over a 75 year forecast.*

2 *Although the PLOS target is increasing; the PLOS cost reduces by adjusting for three steel truss bridges that are currently closed or load restricted.*

3 *Added from the 2025 budget; consideration was given for the increased spend believed to be required to meet LOS based on current needs and asset performance.*

4 *10-year average capital projects from the 2025 Capital.*

2.2.2 Additional Customer and Technical Service Measures

In addition to the asset performance service level metrics used in the Township's asset modelling in **Table 2-1**, other level of service performance measures that form part of the LOS Framework, including customer and technical metrics, can be found within **Appendix C**. The tables in **Appendix C** provide a complete listing of all levels of service, grouped by service area and includes the associated service attribute impacts. These help to provide insight and the ability to track trends in overall service performance independently from the DSS modelling, such as those that measure operating efficiency. It is important that any one service level metric is not looked at in isolation as it may lead to misunderstanding asset performance and context of the service as a whole. To obtain a clear and robust picture of service level performance, multiple metrics must be looked at together and analyzed for trends over time.

2.3. EVALUATION OF SERVICE AREA PERFORMANCE

The PLOS framework was developed to facilitate a deeper understanding of the community expectations which, in turn, supports the Township in understanding where there are gaps between the current service performance relative to those expectations. This understanding is then used to prioritize asset improvements in order to ensure that the Township can successfully meet those expectations.

This section provides context on both the current performance trend relative to the proposed performance trend for each service, as well as insight into the overall performance of each service area using maturity assessment criteria. Together, these two elements help paint a fulsome picture of both the level of service performance and broader, context that contributes to that performance level. This section will discuss the outcomes of each assessment for each service area within the Township.

2.3.1 Asset Performance Methodology

Asset modelling is a critical tool that enables the Township to estimate infrastructure performance over time and evaluate how different investment levels and constraints affect service outcomes. It informs decision making by linking asset condition and risk with funding strategies, helping to identify whether current or proposed investment levels are sufficient to sustain desired levels of service over time.

The Township's DSS, developed as part of the 2024 AMP, is used to model the performance of most infrastructure assets. The DSS integrates multiple components, including asset inventories, the levels of service framework, lifecycle strategies, and the risk management framework, to analyze how different funding levels influence long-term asset performance under various forecasting scenarios.

Road assets are modelled using a separate asset management system that incorporates the Ministry of Transportation's Inventory Manual for Municipal Roads (1991). This dedicated program models road deterioration, estimates optimal intervention timing, and stores inspection data. Unlike the Township's DSS, which focuses on capital activities such as replacements and major rehabilitations, the road

modelling system includes both capital and operational needs. As a result, road modelling provides a more comprehensive view of required investments.

For the purposes of this report, asset performance forecasting under different funding scenarios helps predict performance trends and assess whether the Township can achieve its asset management goals over time.

When reviewing the average condition and performance of the Township's infrastructure, it is important to consider the impact of relatively young assets and recent system growth. Much of the Township's infrastructure was installed in the last 20 to 40 years, and new developments continue to add assets to the network. This trend may be contributing to a stabilizing or increasing average performance across the system.

For example, the 2023 State of the Infrastructure and Asset Management Plan for Roads Executive Summary Report noted that overall road Level of Service (LOS) measures remained relatively consistent over a 15-year period, despite a 7% increase in total road length during that time. In theory, this new infrastructure should have improved the Township's overall LOS scores. The fact that it did not suggests that older road segments may be deteriorating, offsetting the improvements introduced by new construction. This highlights the influence of newer infrastructure across all asset classes, particularly when performance is measured using age-based condition estimates, which can obscure funding adequacy concerns across the broader system.

The performance graphs included in this section provide a snapshot of the end condition at a particular point in time using a weighted average performance summarized by service level. The condition rating scale used in the 2024 AMP and identified in **Table 2-1** above are represented in the background of each figure. Although the details by asset class and annual fluctuations in performance are not shown, the graphs are intended to provide a high-level picture of the performance trend at the end of year 10 (2034) and year 75 (2100). This perspective can be used as a tool for how the service is being maintained over the short and the long-term.

The following are the two forecasting scenarios that were analyzed:

- **Scenario 1: Estimated Current Available Funding -** This scenario uses the estimated available funding for each service to predict the effect on performance if this funding amount was continued over the forecasting period. The current available funding for each service was estimated by analyzing the projects within the 2025 10-year Capital and associating it to the asset hierarchy and relevant asset category. This provided an average representation of how funding may be allocated for each type of funding source (e.g. Canada Community Building Fund, Infrastructure Reserve Fund, etc.) which was then applied to the respective 2025 Council approved funding amounts. It is important to note that unless the funding is within an obligatory reserve fund, the estimated funding used per service can vary each year depending on asset needs and according to Council discretion; however, it is assumed for this scenario that the annual funding is consistent each year of the forecast period. This time period aligns with the 10-year Financial Strategy contained in this report.

- **Scenario 2: Proposed LOS Funding** – This scenario uses the average annual costs of achieving the desired proposed level of service, or the asset performance, for each service, outlined in Section 2.2.1 as an annual funding amount. The PLOS cost was averaged over 75 years to ensure that the costs for the asset's full lifecycle was included.

In most cases, asset performance in the modelling is based on condition data. Where condition assessments are missing, age-based deterioration models using estimated useful life are applied. To ensure the continued accuracy and relevance of the model, the Township's asset register, asset management frameworks, and lifecycle strategies should be regularly reviewed and updated.

Enhancing the DSS in the future could involve integrating additional performance measures, such as:

- Capacity and operational performance
- Operations and maintenance needs
- Climate vulnerability and resiliency

Additionally, it is important to note the following performance modelling limitations:

- The DSS assumes that all recommended renewal activities are completed on time.
- The model does not account for inflation over the forecast period.
- The DSS focuses only on capital needs and is based on data and assumptions from the 2024 AMP, including costs reported in 2023 dollars.

2.3.2 Maturity Assessment Methodology

As part of this work, the Township evaluated several components of the service area's asset management characteristics. The intent of the maturity assessment is to provide clarity on how comprehensive and complete the performance modelling is within each service area. This provides additional context around the accuracy and detail of the level of service modelling, both in regard to actual performance levels as well as understanding of costing.

The maturity assessment was solely concentrated on rating the strategies and framework, along with the decision support system tool, developed for the 2024 AMP and the Township's asset management framework. This maturity assessment framework will help guide the Township in working towards improving the maturity in each of the areas identified below. By reviewing the maturity assessment annually, changes in the maturity rating can be represented visually with the radar chart figures and can be included in the Township's annual reporting requirements moving forward. Therefore, this maturity assessment and the corresponding figures will help to provide decision makers with a fulsome understanding of the limitations and constraints of the current data and state of maturity of the asset management system.

To support this assessment, each service area was assessed based on five criteria and then rated from one (low performance) to five (high performance). A radar chart was

used to report on the rating of each variable with its own axis. This chart provides a visualization of the criteria's overall rating and allows for comparison between multiple variables and the current and target state. The criteria were developed using industry best practices and refined to reflect the unique operating context through which the Township provides its services.

The criteria are as follows:

- **Current LOS As a Percentage (%) of Target:** Using the levels of service values, this metric evaluates the percent of the target level of service that has been achieved for each service.
- **Asset Data Completeness:** Using the 2024 AMP data sources and maturity tables, this metric evaluates how complete the key data fields are in the asset register for the creation of the State of the Infrastructure. An average is calculated from the total number of fields required and the proportion of data fields filled in for each asset class and reported as an average for each service. (Key fields vary by asset class and can include: Installation Date, Estimated Service Life (ESL), Replacement Cost, Condition, Dimension Information (e.g., length, diameter), and Material)
- **Asset Condition Data Confidence:** Using the 2024 AMP, this metric evaluates the confidence and reliability of the data informing the condition of each asset class but reported as an average for the service. This metric helps inform the following questions: Can the condition information or data quality be improved (e.g. is there a formal condition assessment program)? How is the performance data being sourced (e.g. records, procedures, investigations, analysis, verbal, cursory inspections, engineered reports, etc.) and what is its reliability? Is condition inspection information being used or is the asset class in the early stages of maturity where the assumed replacement at the end of useful life (ESL) based on age is used instead? If the industry best practice is to use age and ESL to approximate condition, such as with short-lived assets like fleet and equipment, then the asset condition data confidence was rated high.
- **Overall Average Performance**: Using the 2024 AMP asset register and decision support system tool, this metric helps compare the current overall average performance of each service to the target PLOS performance.
- **Lifecycle Management Strategy Maturity:** This metric uses the Lifecycle Management Strategy maturity framework from the 2018 Asset Management Framework developed by the Municipal Finance Officers' Association (MFOA). The framework helps assess the average maturity of the lifecycle frameworks and strategies developed for the 2024 AMP for each service. The nine categories that are being rated include: non-infrastructure solutions, maintenance solutions, rehabilitation solutions, replacement solutions, asset expansion, contributed assets, risk assessments within the lifecycle management strategy, multiple lifecycle management strategy scenarios, and identifying capital priorities.

For each service area, the average rating for each criterion was categorized on a one (1) to five (5) maturity scale, with one being considered aware, but with opportunity to improve, and five being excellent, which reflects an advanced maturity level. The full maturity assessment rating scale can be found in **Appendix E** which the maturity scale was adapted from the Institute of Asset Management's Asset Management Maturity Scale. The outputs of this analysis are included in the following section by service area.

2.3.3 Observations on Performance and Maturity by Service Area

2.3.3.1 Drinking Water Distribution

Service Asset Performance Scenarios

Figure 2-10 illustrates the projected performance of the drinking water distribution system over a 75-year period. The solid line represents performance under the proposed LOS funding, while the dashed line reflects performance under the estimated current available funding levels identified in **Table 2-3**.

Figure 2-10 shows that after year 10, the current funding level is insufficient to maintain the targeted LOS long-term, resulting in the network's average condition declining to Fair. This is likely due to the increase of renewal needs beginning in 2050 as a result of the growth and development in the Township in the 1970s, 2000s and 2010s. In contrast, maintaining the proposed LOS funding would keep the network in Very Good condition, with only a slight performance decline over time. This strong performance aligns with the results of the community engagement survey, which reflected high public satisfaction with the drinking water service provided currently.

Table 2-3: Drinking Water Distribution Scenario Comparison

Scenario	Average Annual Funding
Scenario 1: Estimated Current Available Funding	$1.20M
Scenario 2: Proposed LOS Funding	$1.73M

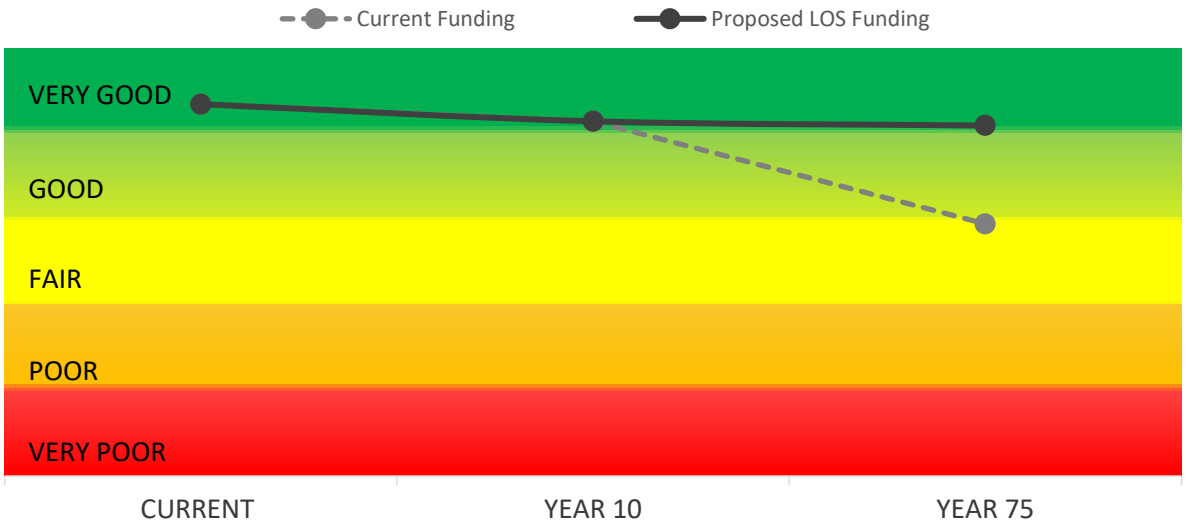

Figure 2-10: Drinking Water Distribution Weighted Average Performance

Service Maturity Assessment

As shown in **Figure 2-11,** the Township's asset management maturity within the water service is, on average, at a level four, or considered to be at a stage where it's optimizing and refining processes, and is reasonably mature. Two areas where there is room to mature further are in the lifecycle management strategies and asset condition data confidence. The first area, concerning lifecycle management, reflects the need to further refine and advanced integrated planning activities over the lifecycle of the assets to better support consistent service delivery and is an approach the Township is already looking to enhance. This work will be supported by identifying opportunities to strengthen understanding of asset condition, the second opportunity for improvement, and a common challenge for municipalities where watermain assets are concerned.

The lower maturity rating is due to limited understanding of the condition of buried pipe infrastructure. Currently the Township uses age-based condition and watermain breaks to understand performance. There are limited technologies to support inspection of potable water delivery systems. Most inspections methods risk contamination, and disrupt service delivery; however, there are emerging technologies that the Township is monitoring to assess for suitability, as well as new statistical methods based on work order data that can enhance and refine planning of infrastructure needs.

Improvements in both these areas will support not only maturity of asset management processes but also help address the long-term asset management needs to maintain the assets to a suitable level to support proposed service delivery

Figure 2-11: Drinking Water Distribution Maturity Assessment

2.3.3.2 Sanitary Wastewater Collection

Service Asset Performance Scenarios

Figure 2-12 illustrates the projected performance of the sanitary wastewater collection network over a 75-year period. The solid line represents performance under the proposed LOS funding, while the dashed line reflects performance under the estimated current available funding levels identified in **Table 2-4**. A noticeable trend emerges shortly after the current year, where a widening gap develops between the performance achieved under current funding levels and the targets set in the PLOS framework. This indicates that the current funding is insufficient to meet the PLOS targets, leading to a steady decline in the network's condition—eventually reaching a Poor rating.

It is important to note that, over the full 75-year period, both the current and proposed funding levels result in some decline in performance. However, the proposed funding significantly slows this deterioration and maintains the network in a much better overall condition.

Worth noting is that currently 63% of the linear sanitary sewer network is in Poor or Better condition, falling short of the 73% PLOS target. Overtime, the increase in renewal needs due to aging infrastructure is likely decreasing the performance of the system. Improvements with integrating sewer CCTV condition inspection information and pumping station condition data will help provide greater clarity of the overall system condition.

Table 2-4: Sanitary Wastewater Collection Scenario Comparison

Scenario	Average Annual Funding
Scenario 1: Estimated Current Available Funding	$1.07M
Scenario 2: Proposed LOS Funding	$1.70M

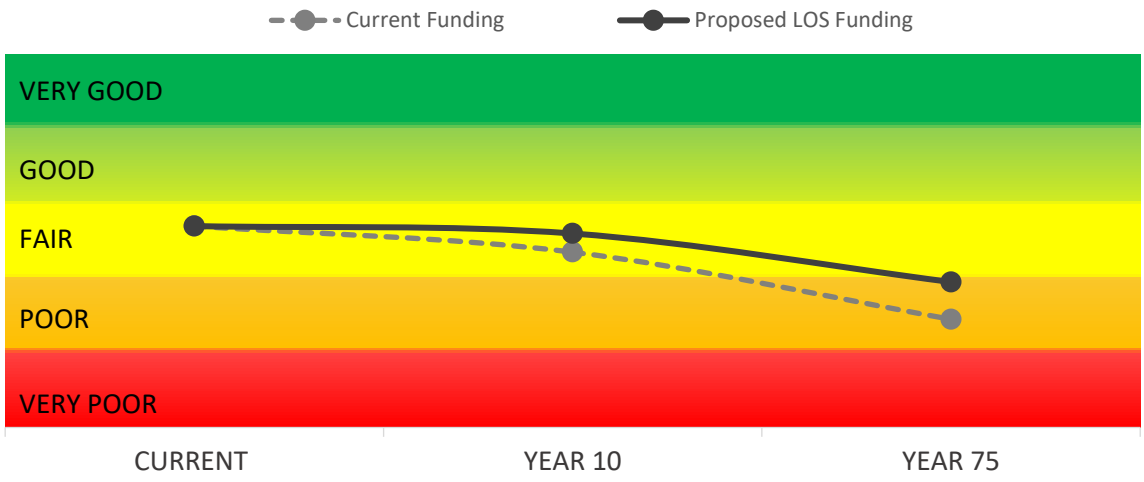

Figure 2-12: Sanitary Wastewater Collection Weighted Average Performance

Service Maturity Assessment

Figure 2-13 presents the maturity assessment results for the Sanitary Wastewater Collection service area. Overall, the service area shows similar trends as the Drinking Water Distribution service area. While asset data completeness and current LOS as a percentage of targets are both at, or very near, their targeted maturity level, the criteria for lifecycle management strategies and condition data confidence both present opportunities to further strengthen the performance forecast modelling.

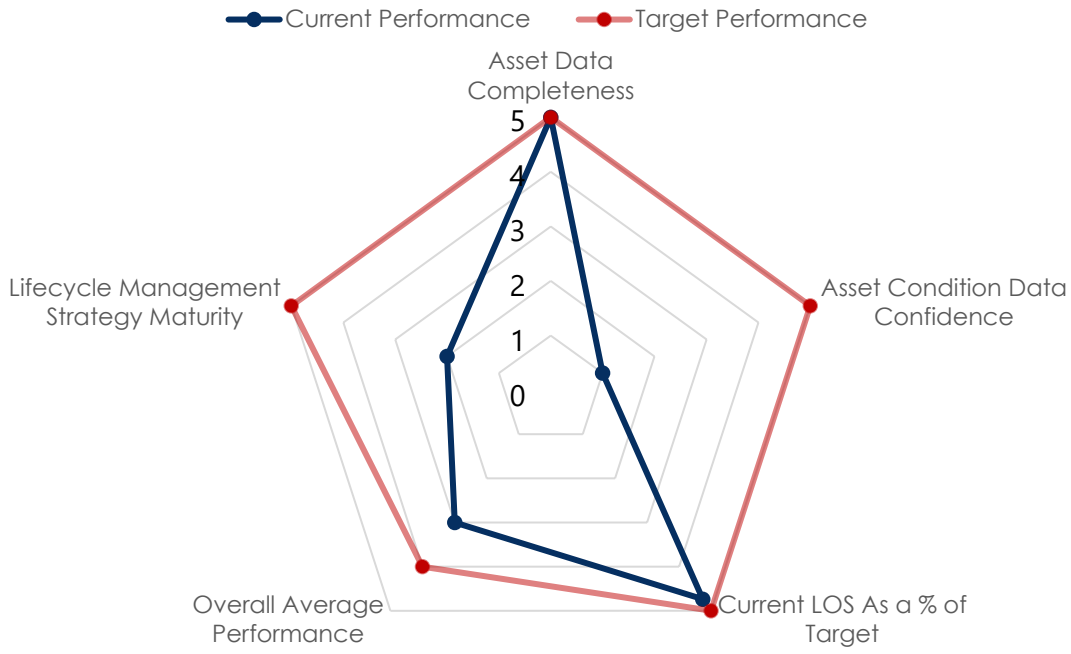

Figure 2-13: Sanitary Wastewater Collection Service Maturity Assessment

2.3.3.3 Stormwater Management

Service Asset Performance Scenarios

Figure 2-14 shows that current funding levels are not sufficient to meet the targets set out in the PLOS framework for the stormwater management network. The solid line represents performance under the proposed LOS funding, while the dashed line reflects performance under the estimated current available funding levels identified in **Table 2-5**. The network is projected to begin underperforming almost immediately, with the performance gap continuing to widen over the 75-year period.

At current funding levels, the average condition of the stormwater network is expected to decline to Very Poor, increasing the risk of asset failures and service disruptions. The figure also highlights that, even with increased funding, the stormwater network will experience some level of decline over time, underscoring the need for proactive investment to slow deterioration and mitigate risk.

Table 2-5: Stormwater Management Scenario Comparison

Scenario	Average Annual Funding
Scenario 1: Estimated Current Available Funding	$111K
Scenario 2: Proposed LOS Funding	$3.38M

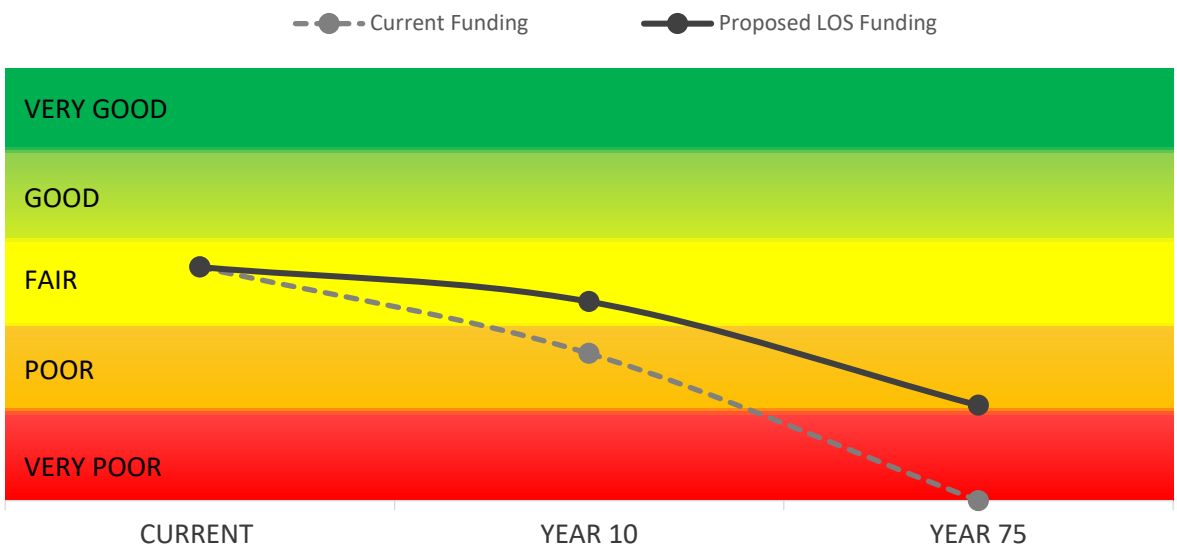

Figure 2-14: Stormwater Management Weighted Average Performance

This gap reflects the need—identified in the PLOS framework—for increased funding to support essential lifecycle activities, particularly for sediment cleanouts of stormwater facilities. The linear stormwater assets are performing better than the stormwater facilities; this is likely due to younger installation age and some condition inspection information for culverts as opposed to relying solely on age-based condition for SWM facilities. However, improving the integration of storm sewer CCTV condition inspection information and expanding bathymetric surveys to better assess sediment removal needs and pond function for all stormwater ponds will help provide greater clarity of the overall system condition. It is important to note that the Ministry of Environment, Conservation and Parks (MECP) is requiring municipalities to complete more comprehensive reporting on its SWM infrastructure which will increase demand for stormwater funding in order to meet these needs.

Service Maturity Assessment

Figure 2-15 offers some insight to better understand what is driving the forecasted decline in performance. It highlights the need to develop a stronger understanding of the asset condition ratings, which suggests that the forecasted performance may change with a better understanding of the condition of the stormwater assets. This gap in data is very common in municipalities as stormwater has, historically, not been funded heavily enough to support regular condition assessment programs, and this is a priority for the Township to address.

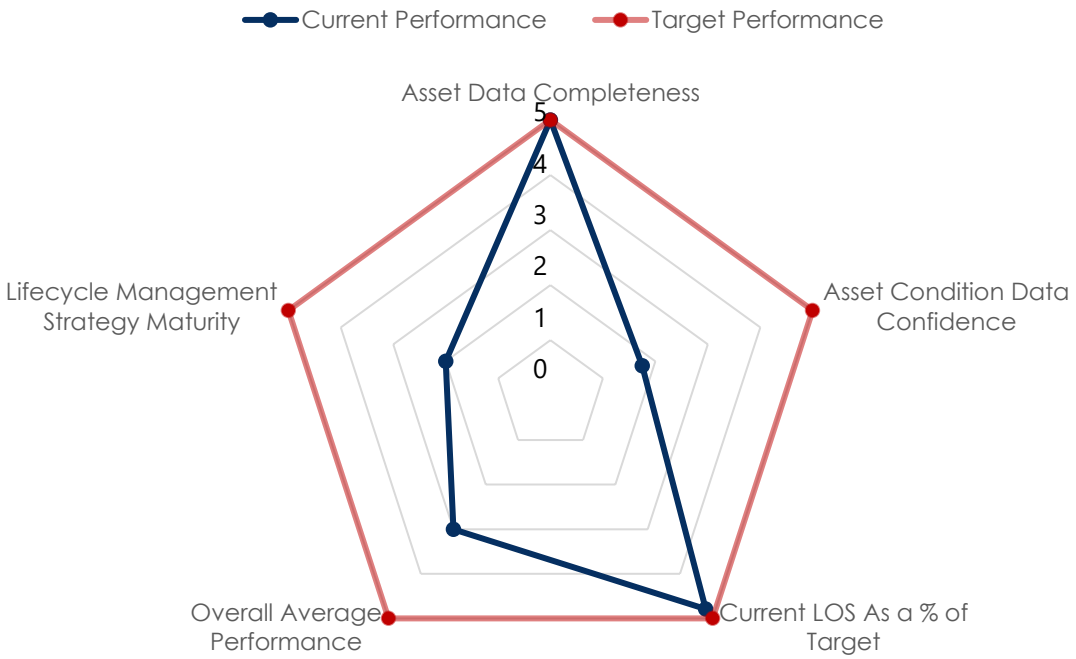

Figure 2-15: Stormwater Management Maturity Assessment

Likewise, there's an opportunity to further refine lifecycle management strategies to build maturity in that area. This report discusses in greater details the lifecycle management and financial strategies that can enhance the maturity rating in these areas. These sections provide actionable steps to enhance the Township's approach to managing stormwater infrastructure and to support the development of robust, evidence-based programs and projects that will strengthen future funding opportunities.

The Township has also identified the need for dedicated stormwater funding, such as with a stormwater utility which will have significant, positive impact on establishing a sustainable funding source for lifecycle activities within the stormwater management service area. This work will be further reinforced by enhanced condition assessment programs, and will significantly improve maturity in these areas, and the reliability of the projected performance.

2.3.3.4 Cellar Drain Collection System

Service Asset Performance Scenarios

Figure 2-16 illustrates the projected average performance of the cellar drain collection system over the next 75 years. The solid line represents performance under the proposed LOS funding, while the dashed line reflects performance under the estimated current available funding levels identified in **Table 2-6**. Please note that the $0 estimated current available funding is not truly reflective of what is spent on the cellar drain collection system. The cellar drain collection systems are only found in older areas of Elmira and are replaced as part of a larger reconstruction projects when they are present, such as the recent College St and Bauman St construction. Therefore, the cellar drains collection system have not been the main driver of renewal activities as an effort to balance available funding with capital requirements of other utilities. With the methodology explained earlier, it is challenging to determine a clearly defined investment amount in the capital plan and to estimate an average annual amount for this service. Although the cellar drains may not see much direct investment in renewal activities, for the purpose of this exercise a $0 amount was used for scenario 1. Improvements can be made in the future to better estimate the funding of this service area, and this service area may benefit from being added into the stormwater management funding considerations as they have similar functions.

From the modelling, the system performance in the near term is close to the targeted level; however, by Year 10, it becomes clear that current funding levels are insufficient to achieve the proposed levels of service (PLOS). Under current funding, the system's condition is expected to decline steadily, reaching a Very Poor rating by Year 75. In contrast, funding at the proposed LOS level would result in a slower decline, with the system ending in a Poor condition rating.

Table 2-6: Cellar Drain Collection System Scenario Comparison

Scenario	Average Annual Funding
Scenario 1: Estimated Current Available Funding	$0
Scenario 2: Proposed LOS Funding	$84k

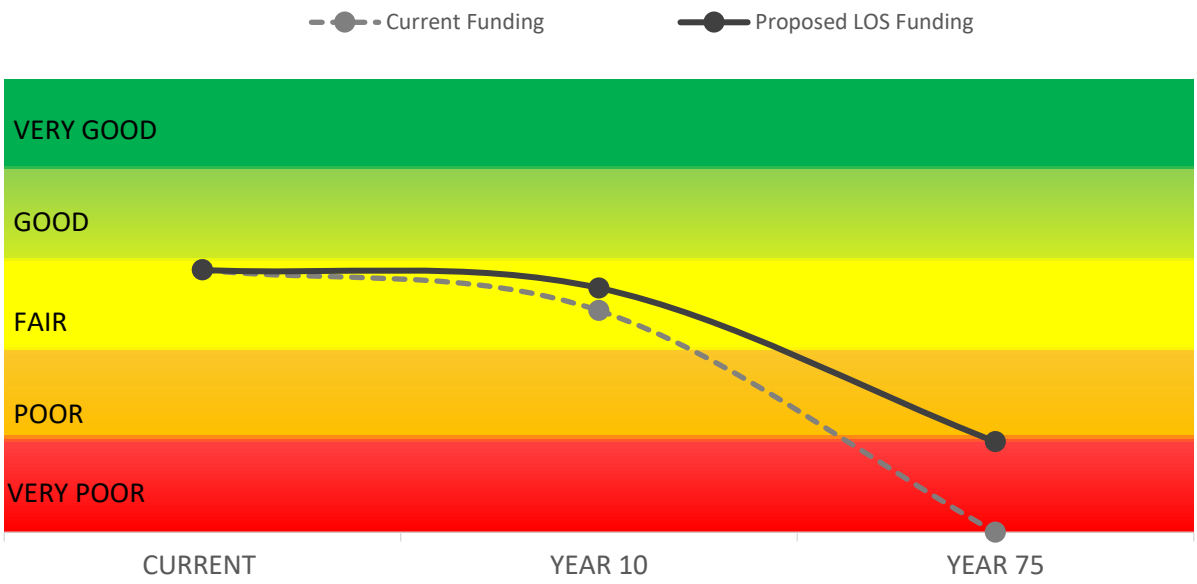

Figure 2-16: Cellar Drain Collection System Weighted Average Performance

Service Maturity Assessment

Figure 2-17 focuses on the evaluation results for the cellar drain collection system. These results suggest that there is a significant opportunity to strengthen lifecycle management strategies and asset condition data to drive a more robust understanding of asset performance over time.

Key opportunities in this service area lie in increasing funding and in enhancing the Township's understanding of available data, refining service priorities, and improving decision-making around lifecycle activities, capital investments, and risk management. Improvements with integrating sewer CCTV condition inspection information will help provide greater clarity of the overall system condition.

These improvements will be supported by the strategies outlined in this report, as well as through the Township's broader commitment to continuous improvement within its asset management program—ensuring ongoing refinement of the processes and tools that inform future planning.

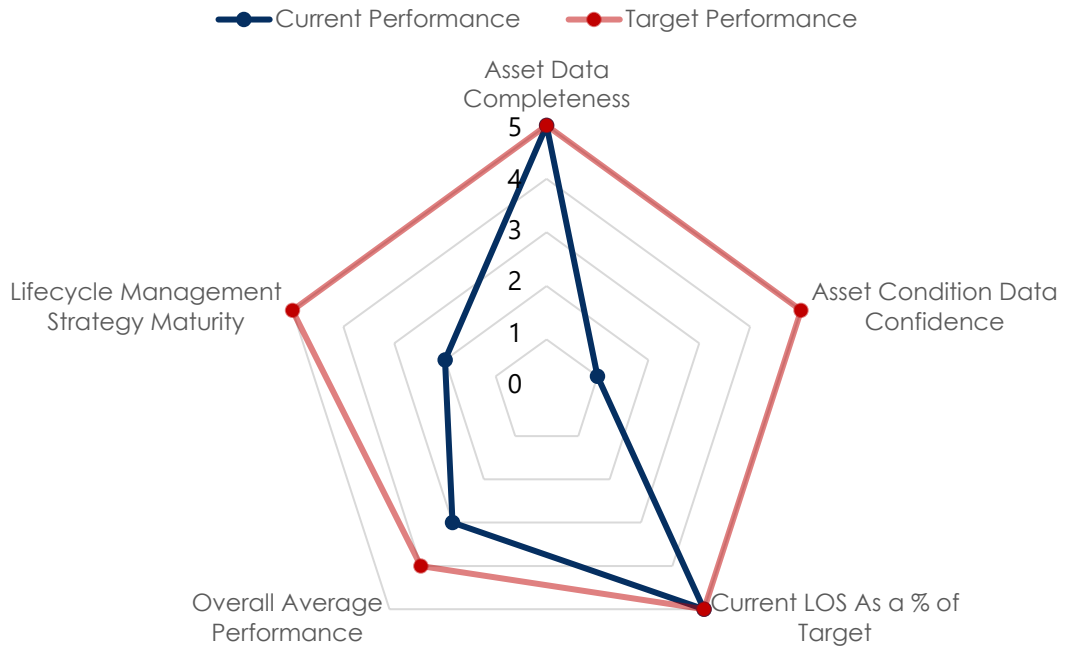

Figure 2-17: Cellar Drain Collection System Maturity Assessment

2.3.3.5 Transportation Services

Service Asset Performance Scenarios

Figure 2-18 and **Figure 2-19** focus on the performance of transportation network assets. **Figure 2-18** illustrates the overall impact of funding levels on the transportation network excluding roadways over a 75-year period. The solid line represents performance under the proposed LOS funding, while the dashed line reflects performance under the estimated current available funding levels identified in **Table 2-7**. While current funding is nearly sufficient to maintain performance during the first 10 years, the network's average condition begins to decline beyond that point—ultimately reaching a Very Poor rating by Year 75. A key influence of this gap is likely due to the high replacement costs of the Township's municipal structures. As well, the effect of aging infrastructure and age-based condition used for some asset classes impacts the predicted performance.

Table 2-7: Transportation (Excluding Roadways) Scenario Comparison

Scenario	Average Annual Funding
Scenario 1: Estimated Current Available Funding	$1.24M
Scenario 2: Proposed LOS Funding	$2.15M

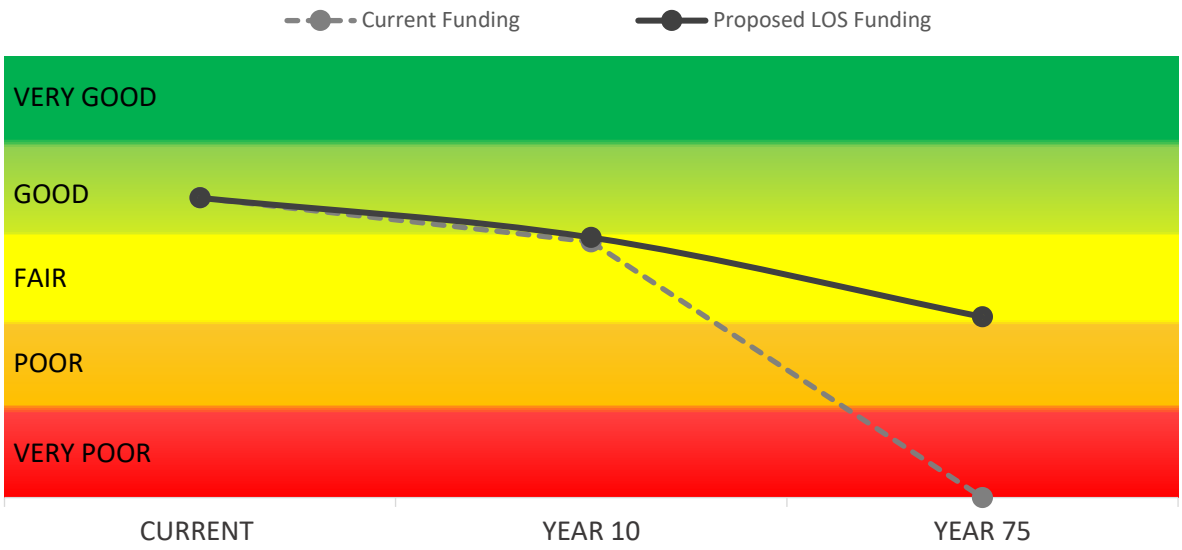

Figure 2-18: Transportation (Excluding Roadways) Weighted Average Performance

Figure 2-19 predicts the performance of different funding levels on hard top and loose top roadways within the transportation network utilizing the Township's separate road modelling program. The solid line represents performance under the proposed LOS funding, while the dashed line reflects performance under the estimated current available funding levels identified in **Table 2-8.**

Please note that due to the use of a different modelling program for roadways, the funding amount for these scenarios considers both operating costs and capital costs. Consideration of these costs align with the approach the Township follows as part of the Ministry of Transportation's Inventory Manual for Municipal Roads (1991). Therefore, the estimated current available funding includes approximately $3.6M identified from the funding allocation for roadways included in the 2025 Capital Plan plus approximately $800k of 2025 operating costs used for crack sealing, surface treatment and gravel resurfacing.

Recommendations from the 2023 State of the Infrastructure and Asset Management Plan for Roads Summary Report provides a short-term and long-term sustainable funding targets calculated over a 50-year lifecycle. The short-term sustainable annual amount of $4.75M would preserve the condition of the road system over the short-term (10 years) in theory only and focuses on adequately funding pavement maintenance, preservation and resurfacing programs. There is a gap between the current estimated available funding compared to this short-term sustainability amount. The 2023 Roads Summary Report also recommended a long-term sustainable funding amount of $7.5M which will sustain the system over the entire lifecycle as it considers replacement of roadways. This is the target amount used for the proposed LOS funding scenario below.

In **Figure 2-19** road performance improves over the first 10 years under both current and proposed funding levels. By Year 10 a growing gap emerges between current and proposed funding scenarios. The rate of improvement is significantly greater under the proposed funding scenario, suggesting that increased investment would yield stronger long-term outcomes, as ultimately roadways will require replacement.

As previously mentioned, the forecasts assume that the current available funding amount remains the same each year. Based on the performance scenarios, the estimated current available funding may be sufficient to meet system performance targets, assuming that the projects are selected that provide the best return on investment and are completed at the recommended timing. With varying Township asset demands, the estimated current available funding is not guaranteed, and any decreases would negatively impact the overall system performance. Continuing with biennial road inspections is critical to maintaining a robust understanding of the road system and accuracy to the performance modelling.

Table 2-8: Transportation (Roadways Only) Scenario Comparison

Scenario	Average Annual Funding
Scenario 1: Estimated Current Available Funding	$4.39M
Scenario 2: Proposed LOS Funding	$7.50M

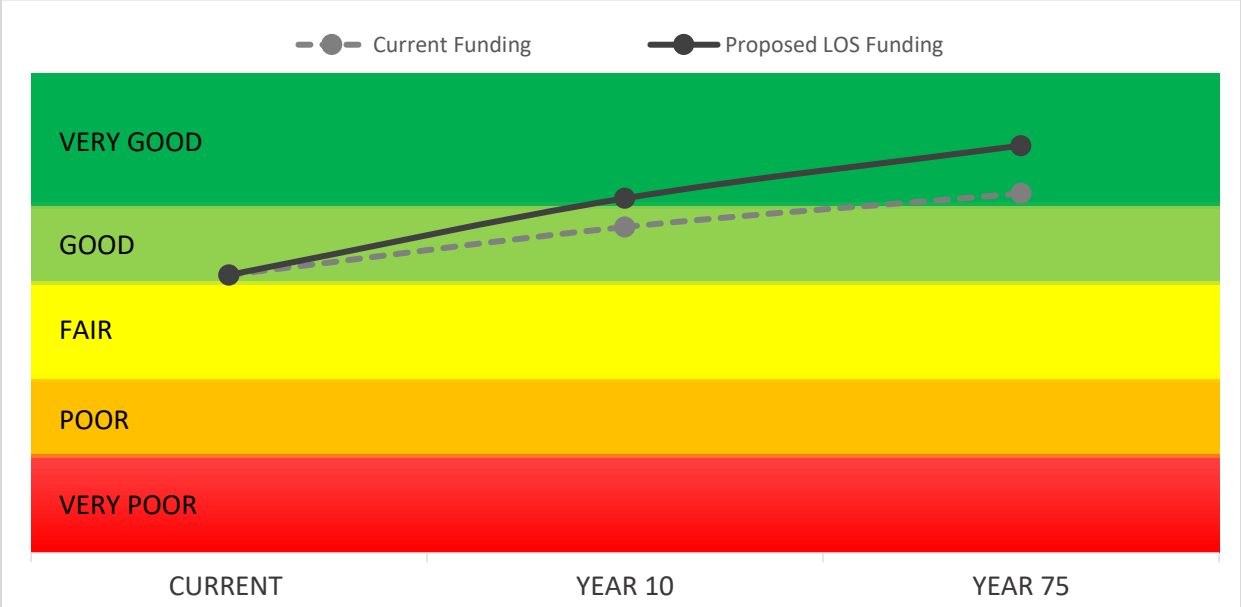

Figure 2-19: Transportation (Roadways Only) Weighted Average Performance (using 2024 AMP Condition Categories)

Service Maturity Assessment

Figure 2-20 captures the results of maturity assessment for all assets within the Transportation service area. This service area is performing quite consistently across all measures, with more maturity found with the roadway asset category. Like previous services, the most significant gap between target and current maturity resides in the asset management processes for lifecycle management and condition data. As previously indicated, strengthening the quality of condition data will strengthen the robustness of lifecycle management planning. This, in turn, will facilitate a stronger understanding of the relationship between funding levels and performance over time.

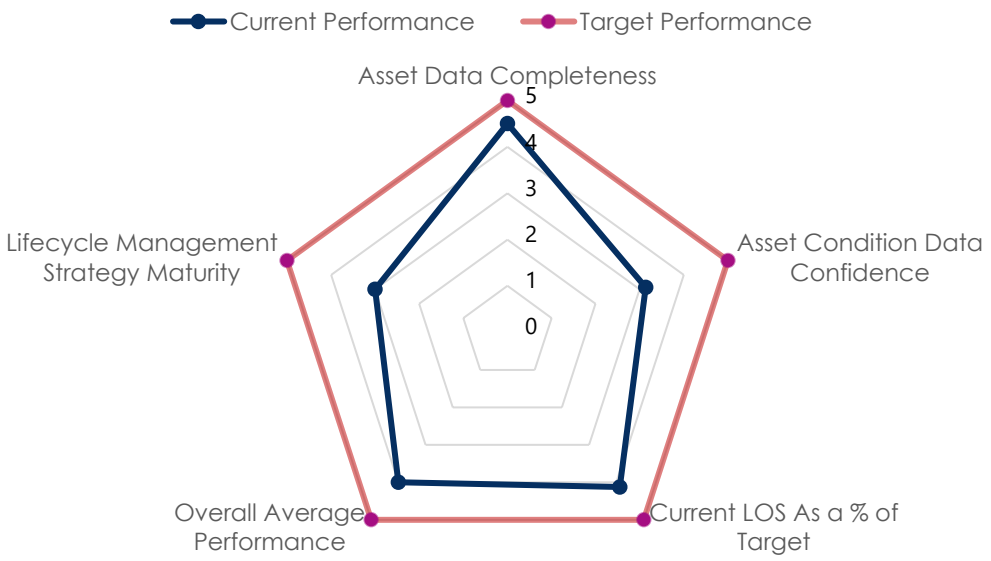

Figure 2-20: Transportation Service Maturity Assessment

2.3.3.6 Emergency Services

Service Asset Performance Scenarios

Figure 2-21 illustrates the projected performance of the of the emergency services over a 75-year period. The solid line represents performance under the proposed LOS funding, while the dashed line reflects performance under the estimated current available funding levels identified in **Table 2-9.** If funding continues at the current level, then emergency services will experience a decline in performance that sees the average network performance shift to poor by year 10 with a growing gap and very poor performance by year 75. This performance is likely due to the increased costs needed to maintain the current reliability of fire apparatus/fire trucks. There has been an upward trend in replacement cost for these goods since the COVID-10 pandemic, in part due to inflation and supply chain issues, which has been challenging to navigate. The proposed LOS funding better reflect the funding level required to maintain the system

performance, although system condition decreases slightly by the end of the forecast period.

Table 2-9: Emergency Services Scenario Comparison

Scenario	Average Annual Funding
Scenario 1: Estimated Current Available Funding	$1.29M
Scenario 2: Proposed LOS Funding	$1.82M

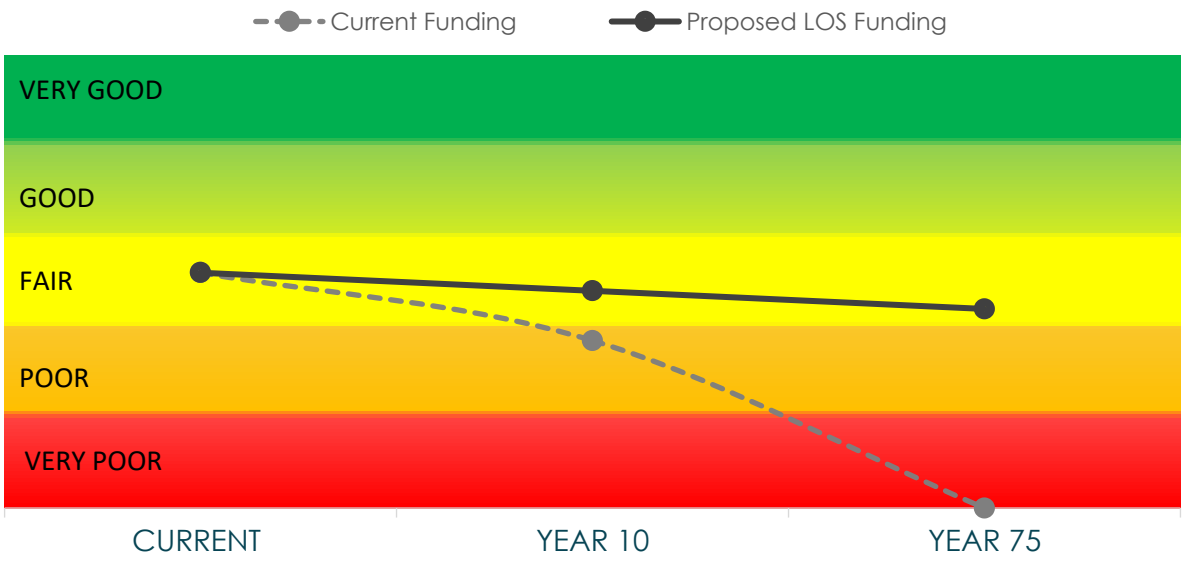

Figure 2-21: Emergency Services Weighted Average Performance

Service Maturity Assessment

Figure 2-22 below demonstrates that there are opportunites to enhance the maturity of a range as asset management processes within the Emergency Services area. It highlights that while the asset data is highly complete, and that, at present, emergency services are meeting expected service levels, there are opportunities to strengthen the quality of the condition data, enhance lifecycle management strategies and reinforce overall performance.

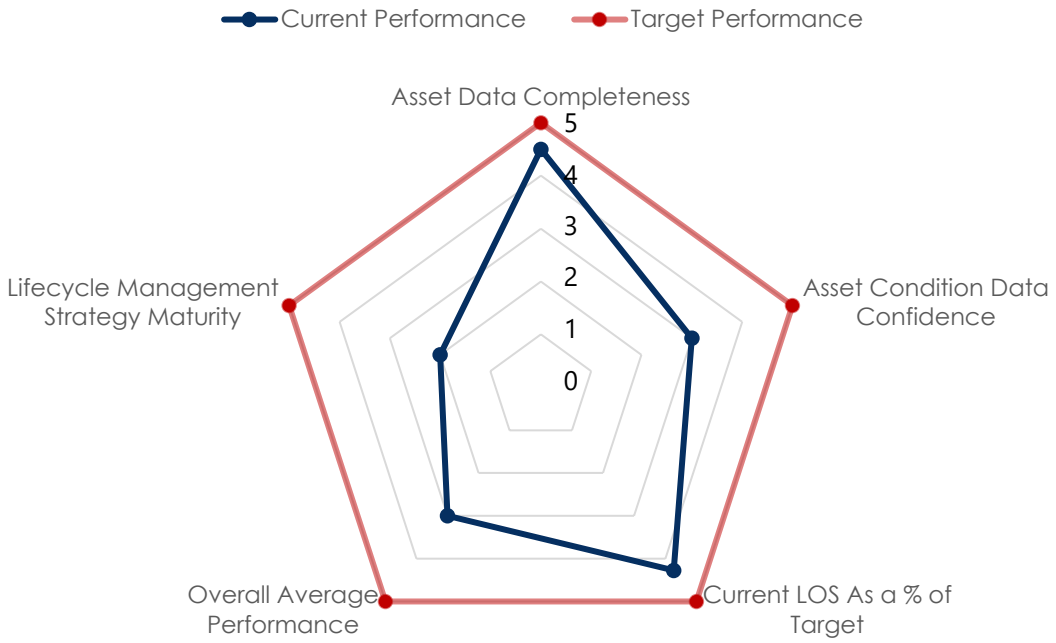

Figure 2-22: Emergency Services Maturity Assessment

2.3.3.7 Recreation and Facilities Services

Service Asset Performance Scenarios

Figure 2-23 looks at the projected performance of the Recreation and Facilities Service over a 75-year period. The solid line represents performance under the proposed LOS funding, while the dashed line reflects performance under the estimated current available funding levels identified in **Table 2-10**. The change in forecasted performance at the current estimated available funding level begins developing a notable gap by year 10, though it remains in fair condition, as it would at the proposed LOS funding level. That said, by year 75, the average network performance is in very poor condition at the current funding level indicating that the current funding level is insufficient to achieve the same performance it would at the proposed funding level. However, regardless of funding levels, the recreation and facilities network will experience an overall decrease in performance over the next 75 years.

Table 2-10: Recreation and Facilities Scenario Comparison

Scenario	Average Annual Funding
Scenario 1: Estimated Current Available Funding	$1.55M
Scenario 2: Proposed LOS Funding	$1.99M

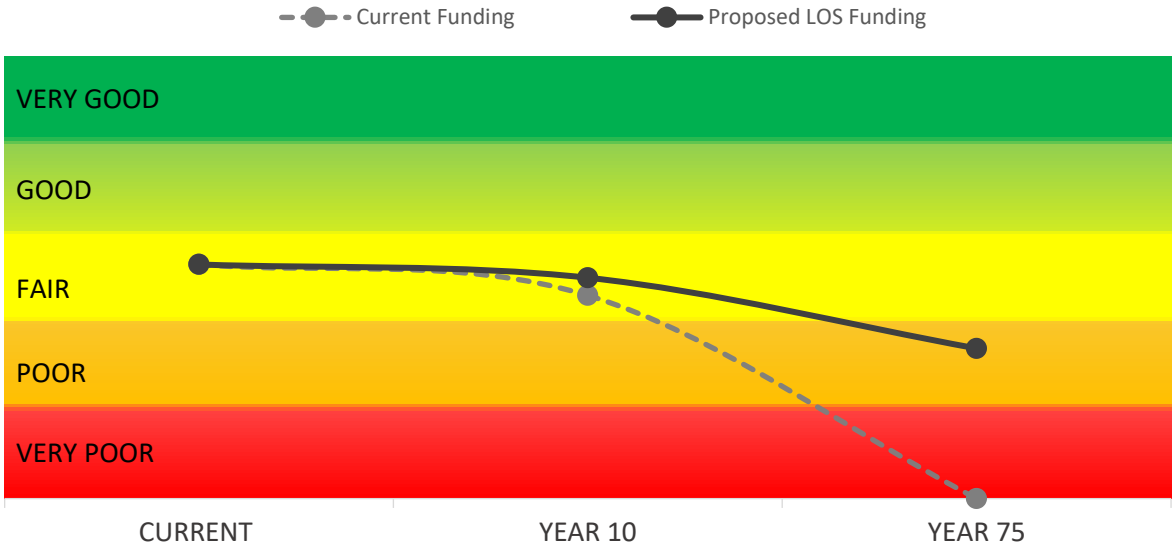

Figure 2-23: Recreation and Facilities Weighted Average Performance

This performance trend is due to the long-term effect of deteriorating condition of aging facilities and outdoor recreation assets, as a large majority of recreation assets were installed since the 2000s. Currently the targets for indoor recreation facility assets are to be maintained in the 90% range which may be influenced by the relatively young installation age and an age-based condition assessment. Therefore, these targets may not be sustainable over the long-term under current or proposed funding levels. Additionally, for outdoor recreation assets 62% of the assets are in poor or better condition versus a target of 90% which may be achievable with proposed level of service funding levels but may not be reflected in the estimated current available funding. Improvements to condition information for all recreation assets, including Building Condition Assessments, will help provide greater clarity of the overall system condition.

Service Maturity Assessment

Much like the other service areas, **Figure 2-24** indicates that the Recreation and Facilities service areas would most benefit from additional effort invested into developing the lifecycle management strategies and refining the asset condition data to enhance confidence in the forecasted performance. While the current LOS as a percentage of the targeted LOS is around level four or considered to be at a stage where it is optimizing and refining processes, further effort into understanding lifecycle strategies would strengthen the reliability of the future years forecasted – from year 10 onwards – and also likely improve performance over time. Further investigation and integration of asset condition information would strengthen the overall performance of this service area.

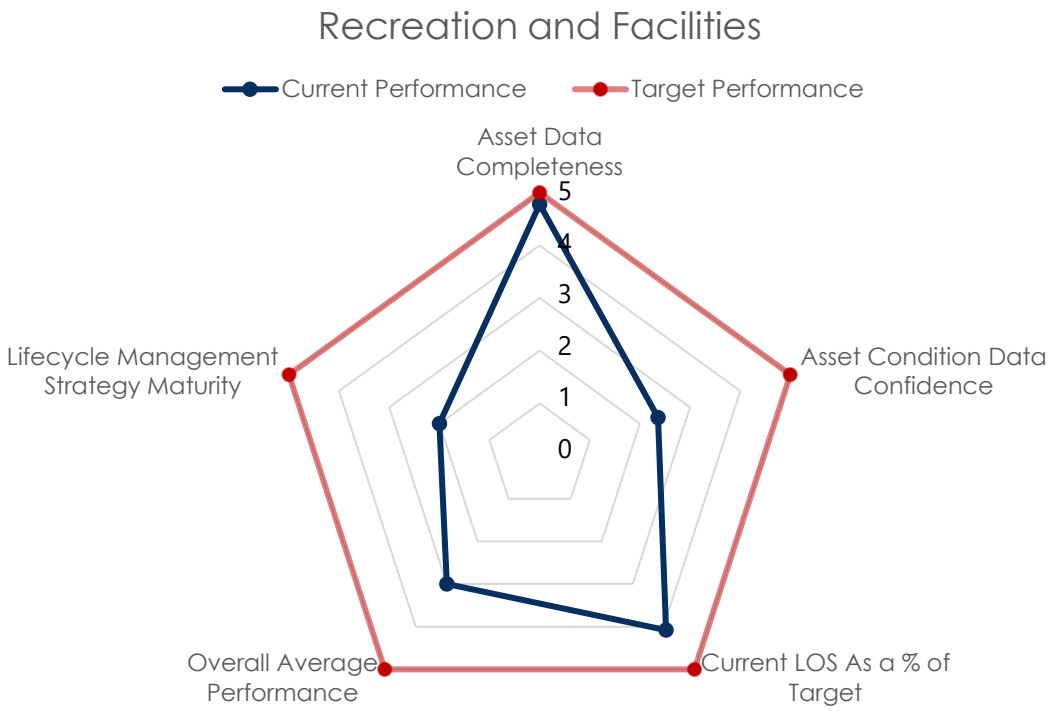

Figure 2-24: Recreation and Facilities Services Maturity Assessment

3. LIFECYCLE MANAGEMENT STRATEGY

For the Township to provide the wide range of community services and achieve the PLOS, various lifecycle activities are performed on the assets. These include non-infrastructure solutions such as developing plans and performing condition assessments; preventative and reactive maintenance activities to repair assets; refurbishing assets; replacing assets; asset and material disposal; and expanding and upgrading assets to support growth.

An outcome of this work includes refining the lifecycle management strategies for the seven core services to account for the PLOS and the necessary activities to achieve and sustain that level of service. This section identifies activities in alignment with achieving the PLOS implementation goals, determines the most cost-effective approach to achieving the PLOS targets, and reviews the risks associated with this combination of activities, and mitigating measures.

3.1. LIFECYCLE ACTIVITIES

Table 3-1 below presents an overview of the lifecycle activities and common risks, observations and mitigating actions across all service areas, building on the content developed within the 2024 AMP.

Detailed lifecycle management activities tables by service area are found in **Appendix D**. The work completed in 2024 has been expanded to include potential risks of not completing the lifecycle activities, observations and mitigating actions to manage the risks of each lifecycle activity for each area, and modified activity descriptions to reflect the PLOS Framework. Notably, the risks of not performing each activity have been revised, while maintaining the assumption that these activities continue to represent the core requirements for achieving the Township's desired level of service.

Table 3-1: Lifecycle Management Activities, Risks and Observations for All Service Areas

Lifecycle Activity	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
Non-Infrastructure	• Diminished understanding of future needs & growth impacts due to incomplete studies/plans/reports/analysis resulting in reduce ability to coordinate project planning between service areas. • Reduced understanding of climate change impacts. • Reduced understanding of current asset condition and performance.	• Alignment of asset management documents and processes to integrate recommendations from all master plans, service studies, and community engagement activities to maximize planning efficiency, reduce duplication, increase alignment, and support proactive planning and analysis. This will streamline forecasting, business plan development, and understanding of asset priorities and needs. • Proactive analysis of climate change impacts to support risk planning. • Integration of climate change risks and other studies with on-going condition assessment programs to support coordinated planning within and across interconnected services.
	• Inaccurate GIS data, and poor data management between systems. • Integration of Condition Assessment data outputs into asset management hierarchy/asset information to streamline data uploads.	• Support staff in receiving software training to keep them up-to-date with software and technology advances, and data management best practices. • Develop an asset information/data management standard to ensure that data sets are maintained in a consistent manner, allowing for ease of access and data transfer.
	• Inequitable stakeholder engagement around service delivery expectations resulting in unbalanced levels of service. • Insufficient engagement to support asset design and selection of desired programming resulting in unsustainable service demand. • Unsustainable funding levels to support service delivery expectations.	• Develop a community engagement strategy to support a consistent outreach and education approach with stakeholders. • Integrate condition assessment data outputs into the asset management hierarchy/asset information to streamline data uploads. • Integrate all asset recommendations from planning and studies into service-specific LOS, risk and lifecycle management strategies to ensure alignment of all project and O&M planning. • Align asset register with financial register to streamline tracking of asset expenditures against funding to compare with levels of service.
	• Failure to comply with regulatory requirement & increased risk of creating safety hazards.	• Ensure continuation of programs to monitor regulatory compliance. • Identify overlap between user safety, levels of service, risk management plans and lifecycle management strategies. Coordinate with other studies, plans and strategies to minimize duplication of effort and maximize resource usage.

Lifecycle Activity	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
Operations and Maintenance (O&M)	• Decline in service level due to unexpected asset failure and resulting service outages and disruptions (e.g. less maintenance means increased risk of pipe blockages, worsening road surface, increased risk of mechanical failure in HVAC and electrical systems, etc.) • Inadequate O&M programs resulting in reduced asset service life and earlier timing of renewal, rehabilitation and replacement activities leading to greater costs. Strategy with the best return on investment is not realised.	• Leverage and align condition programs to support proactive repairs and maintenance programs to maximize service life of assets and quality of asset performance. • Track work orders in computerized maintenance management system or equivalent to support KPI reporting, refinement of asset selection analysis, etc.
	• Increasing operational and capital costs due to decline in asset condition, and increased rate of asset failures.	• Support proactive maintenance planning for all service areas. This can include developing a preventative maintenance plan that identifies maintenance programs for service areas, aligned with non-infrastructure solutions to support prioritized planning and forecasting within and across interconnected services.
	• Increasing public safety issues due to underperforming or failed assets (e.g. worsening impacts from climate-related weather events, such as increased likelihood of localized flooding due to limitations in pipe capacity, increased rates of erosion, etc.)	
	• Increasing risk of regulatory non-compliance, and associated fines. Increased risk of negative reputational impacts (both because of regulatory non-compliance and decreased service performance).	
Renewal (Rehabilitation and Replacement)	• Inefficient project prioritization both within service areas and across interconnected services and asset networks. This can result in duplication of planning efforts, inefficient resource usage and decline in service delivery.	• Use condition assessment outputs to support identification of candidate assets and use data to reinforce professional judgement. • Maintain up-to-date datasets to support prioritization of asset needs and understand the interdependencies between asset networks.

Lifecycle Activity	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
	• Overall decline in service performance level (e.g. service outages, asset failures and blockages, etc.) due to declining asset condition and capacity. • Increasing scope of renewal/rehabilitation/replacement projects because of delays in project initiation leading to decline of asset condition of interconnected asset networks (e.g. delay in resurfacing a road segment resulting in increased likelihood of road base failure; delay in relining pipe segment resulting in washout of road or sidewalk base, or increased erosion rates, etc.). • Increased impacts from climate change related events.	• Ensure renewal, rehabilitation and replacement programs are aligned with non-infrastructure activities, such as master plans, studies and assessments. • Develop a project prioritization strategy reflecting service priorities, and non-infrastructure activity recommendations.
	• Other service area disruptions due to unplanned closures and repairs (e.g. road closures, pedestrian walkways, etc.).	• Adopt an integrated project planning approach to coordinate renewal projects with other near-by assets (e.g. in shared right of way, or close proximity) where feasible between service areas.
Disposal	• Inaccurate asset retirement information.	• Track information in the asset register, use work order management software if available, and/or request contractor to submit editable digital documentation at the end of project to record disposed assets. • Align disposal documentation processes with asset hierarchy data structures to streamline TCA reporting.
	• Increased costs associated with disposing of assets outside of primary project.	• Review assets prior to beginning of project to develop strategy for disposal timing and process (e.g. identify candidates to be kept as spares, assets to be disposed of during project, assets to be renewed). Dispose of appropriate assets during project.
Expansion and Service Improvements	• System unable to support demand/growth needs of neighbourhoods and communities, thus unable to achieve PLOS.	• Align projects with recommendations from non-infrastructure solutions. • Coordinate expansion projects with other near-by assets (e.g. in shared right of way, or close proximity) to maximize efficient use of resources and timing. • Establish process for regular reviews with stakeholders across service areas to proactively identify changes in needs that drive asset design or expansion requirements.
	• Unsustainable funding level resulting in decline in overall level of service. • Inequitable stakeholder engagement around service delivery expectations resulting in unbalanced LOS.	

Lifecycle Activity	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
	• Reduced service delivery due to staff not having sufficient resources (e.g. inadequate/insufficient fleet and equipment assets).	• Adopt integrated planning process to facilitate cross-service planning to ensure coordinate sharing of existing assets, resources and knowledge, and plan for expansion needs or modified design and selection criteria to support changes in needs and prioritization. • Consider developing of design and selection criteria/standards to facilitate reviews.
	• Failure to comply with internal policies and strategies (e.g. climate change, etc.). • Reduced coordination and prioritization of related needs between different services.	• Use PLOS in coordination with other non-infrastructure solutions (e.g. policies around fleet electrification) to monitor for compliance with targets.

4. FINANCIAL STRATEGY

The financing strategies presented in this report offers the Township potential solutions to work towards the proposed levels of service. All financial values are shown in 2025 dollars, with no inflationary adjustments applied to future projections.

The analysis outlines the annual costs of achieving the PLOS over a 10-year period by comparing projected funding availability against anticipated financial needs. In addition, the impacts of growth and economic activity on funding, along with the associated options for closing the funding gap has been included.

The Township primarily funds asset programs and services through property taxes. However, the drinking water distribution system and sanitary wastewater collection system are exceptions, funded instead by user rates.

For clarity, asset classes have been grouped into two funding categories:

- **Tax-Funded Assets**: Includes stormwater collection systems, cellar drain collection systems, transportation services, emergency services, recreation assets, and facility assets.
- **Rate-Funded Assets**: Includes all drinking water distribution and sanitary wastewater collection system assets.

4.1. AVAILABLE FUNDING SOURCES

The Township of Woolwich relies on a diverse mix of funding sources to support infrastructure investments across all municipal assets. **Table 4-1** presents the 2025 Council approved budgets that will be utilized as the starting point to implement the Township's asset management strategies, meet levels of service, and address infrastructure needs as identified in the Township's Financing Strategy Model developed in February 2025.

Table 4-1: Total Capital Funding for Replacement Based on 2025 Council Approved Budgets

Description	2025 Amount
Tax Supported Funding Sources:	
Tax Levy	$1,313,590
Reserve Funding Transfers:	
Equipment Replacement	$1,527,394
Infrastructure Investment	$2,321,351
Property Building	$495,859
Total Tax Supported Funding (Annual)	$5,658,194

Description	2025 Amount
Sustainable Government Funding Sources:	
Ontario Community Infrastructure Fund (OCIF)	$1,363,737
Canada Community-Building Fund (CCBF)	$884,221
Total External Funding (Annual):	$2,247,958
Rate Supported Funding Sources:	
Water	$1,200,000
Wastewater	$1,071,000
Total Rate Supported Funding (Annual):	$2,271,000
Total Township Capital Funding (Annual):	$10,177,152

The 2025 available funding represents the funding sources that are critical to implementing the capital related lifecycle activities across the Township's asset portfolio. Capital activities include all required non-infrastructure (e.g. reports, studies), renewal (e.g. replacement and rehabilitation), disposal, and service improvements and growth activities. The funding allocation reflects careful analysis conducted through the Township's Financing Strategy Model based on a review of the Township's budget, internal finance data and consultation with Township staff. The funding sources presented above are the basis needed to identify the funding gap over the next 10-year period.

The Township's total annual funding of approximately $10.2 million is distributed across three major funding categories:

1. **Tax Supported Funding ($5.7 million)**: Representing 55.6% of available funding, this includes direct tax levy contributions and reserve transfers for equipment replacement, infrastructure investment, and property building. This funding primarily supports transportation, stormwater, emergency services, and recreation and facilities assets.
2. **Sustainable Government Funding ($2.2 million)**: Constituting 22.1% of available funding, these external funding sources from provincial and federal governments (OCIF and CCBF) provide important supplementary funding for infrastructure projects.
3. **Rate Supported Funding ($2.3 million)**: Making up 22.3% of available funding, these dedicated funds from water and wastewater rates support the Township's drinking water distribution and sanitary wastewater collection systems.

4.2. PROJECTED FUNDING

Municipal revenue sources vary based on the type of project. Most growth-related projects are funded through Development Charges (DCs). In contrast, rehabilitation and replacement projects are typically funded through tax-based contributions for tax-supported assets, and through water and wastewater rates for rate-supported services.

When assets require rehabilitation or replacement, the available funding sources are generally limited to reserves or contributions from the operating budget – regardless of how the asset was initially funded. **Table 4-2** below summarizes the revenue sources assumed in this analysis for tax-supported assets over the next 10-year period. The table outlines the total funding available for tax supported assets if current funding levels were maintained.

Table 4-2: Financing Strategy Key Assumptions for Tax Supported Assets

Category	Assumptions	Cumulative 10-Year Revenue at Current Levels
Tax Funded Contributions (net of negative reserve)	This amount has been assumed based on tax funded contributions to reserves from the existing 2.5% dedicated levy and other tax supported transfers to reserve. An existing negative reserve balance has also been net off the total.	$56.0 Million
Canada Community Building Fund (CCBF)	This amount has been assumed based on the AMO allocations. CCBF funding has been historically consistent and there is no indication it is expected to decline over the coming years.	$9.1 Million
Ontario Community Infrastructure Fund (OCIF)	OCIF funding is assumed for 5-years. OCIF funding has undergone changes to how the funding allocations are calculated. For this reason a more conservative approach is used.	$6.8 Million
Other Grants	Other external funding	$0.1 Million
	Total	$72.0 Million

The Township currently also has an infrastructure levy, a dedicated source of funding to address the infrastructure deficit and support ongoing infrastructure projects in the municipality. The levy was introduced several years ago and has been increased to 2.5% of the tax levy as of the 2025 budget. For the purposes of this plan, the calculated investment requirements outlined in the following sections remain consistent with the

current funding plan, therefore, the cumulative infrastructure levy is recalculated so the results are comparable.

Further to the above sources of funding, the Township's water and sewer system is funded independently through water and sewer rates. The Township funds the systems through usage rates on a per cubic meter basis combined with a fixed capital reserve charge differentiated by meter size. The total 10-year combined capital funding for water and sewer is about $22.7 million made up of contributions to water and sewer capital reserves. Recovery for a negative reserve balance of about $143,500 brings the total funding available to about $22.6 million.

4.3. GROWTH RELATED IMPACTS

Infrastructure assets such as roads, sidewalks, watermains, stormwater systems, and parks are often contributed by developers as part of new developments. Although these assets enhance community services, they also create long-term operational and financial obligations for the Township. While initial construction costs are borne by developers, the Township is responsible for ongoing maintenance, rehabilitation, and eventual replacement of these assets.

As outlined in the 2024 AMP, the Township of Woolwich will be experiencing significant population growth and will require additional services and infrastructure to accommodate for this planned growth. According to the 2024 Development Charges Background Study, the Township's population is projected to increase by approximately 7,933 people, reaching around 36,433 by mid-2034. This population projection will be reviewed as part of the current Township Official Plan review that is planning for Woolwich's growth within the 2051 planning horizon. Any adjustment to the projection will inform the next Development Charges By-Law update. This growth is largely concentrated in Elmira and Breslau, which together will account for approximately 95% of the anticipated 3,122 new housing units.

There have been several changes in planning direction and Provincial growth pressures in the last few years that will impact how and where growth will occur in the Township in the future. For example, in 2024, the Provincial Policy Statement and Growth Plan for the Greater Golden Horseshoe were consolidated into the Provincial Planning Statement and there was a shift of planning authority from the Region of Waterloo to the Township of Woolwich. These provincial and regional policy changes will be reflected in the new Township Official Plan which is anticipating to be approved by the province in 2026. This will update population and growth rate projections that will be managed with appropriate staging policies and develop the policy framework for the allocation of growth to the respective urban settlements within the Township.

This population increase directly influences the demand for municipal infrastructure and services as higher population densities necessitate expanded services such as transportation networks, water and wastewater capacities, and recreational facilities. Further, increased usage can lead to faster wear and tear on existing infrastructure, potentially shortening asset lifespans and increasing maintenance requirements.

Anticipating growth trends enables the Township to plan for capacity enhancements, ensuring that infrastructure keeps pace with community needs. While growth can lead to increased revenues through development charges and an expanded tax base, it also requires careful financial planning to address the upfront and ongoing costs associated with infrastructure expansion and intensification.

To sustainably fund infrastructure needs arising from growth the Township will complete periodic reviews and adjust the infrastructure levy to align with the projected costs of maintaining and expanding services. This proactive approach ensures that funding keeps pace with infrastructure demands. Additionally, the Township should continue to integrate growth projections into the Township's financial model to anticipate funding requirements. By adjusting the infrastructure levy in response to growth, the Township ensures that both existing and new residents contribute fairly to the costs of infrastructure development and maintenance. It is currently assumed that assessment growth revenue is directed to the operating budget; however, further analysis and integration can be expanded with the Township's long-term financial planning.

Consideration of Growth-Related Costs in the Financing Strategy

The financing strategy takes into consideration several components related to the lifecycle activities associated to growth-related infrastructure. While the Township has made best efforts to account for these costs given the best available information, data gaps have also been identified. The following outlines the assumptions used to identify growth-related costs into the financing strategy:

- **Growth-Related Infrastructure –** The Township's 2024 Development Charges (DC) Background Study provides the information needed to capture the lifecycle costs associated to growth-related projects. Growth-related portions of projects are assumed to be funded through development charges and do not have an impact to taxation or rates. However, benefit to existing (BTE) shares must be funded from sources other than development charges, therefore these costs have been included in the analysis. Furthermore, while the initial growth-related costs associated to future infrastructure from the DC Study is funded from development charges, the future repair and replacement of this infrastructure is the Township's responsibility. For this reason, provisions for the long-term replacement of this infrastructure is included over the period in the total lifecycle costs.
- **Contributed Assets -** For the purposes of the financial analysis, the long-term lifecycle costs associated to developer contributed assets have been excluded due to limitations on available data on future forecasts for this infrastructure. However, the Township is committed to adding this information as data becomes available through future annual updates and 5-year updates to the asset management plan.
- **Operating Costs Associated to Growth-Related Infrastructure –** Further to future capital related lifecycle cost implications from growth, there are additional operating cost implications as well. New infrastructure needs to be maintained on an ongoing basis. For this reason, as new infrastructure is constructed or acquired the Township will need to account for additional maintenance costs through the budget. However, with future growth, it is also expected that the Township's

assessment base will continue to grow. The Township has historically directed assessment growth revenue to the operating budget and therefore it is assumed that this revenue will be directed towards incremental maintenance costs as well.

4.4. CAPITAL EXPENDITURES AND SIGNIFICANT OPERATING COSTS

To support sustainable asset management practices, the Township must first understand its current infrastructure funding gap – the shortfall that would occur if full lifecycle capital costs were deferred. This gap reflects the difference between the ideal lifecycle costs and the funding currently available for tax and rate supported assets over the 10-year period from 2025 to 2034.

4.4.1 Operating Costs

The Township undertakes operation and maintenance activities to ensure assets fulfill their expected service life and performance objectives. For the purposes of this analysis, a review of the Township's budget was undertaken to identify existing operation and maintenance related costs that could be attributed to asset management activities. In total, about $5.8 million was identified in 2025 dollars. Therefore, based on current spending levels a cumulative operations and maintenance need of $57.5 million has been identified over the 10-year period. **Figure 4-1** below shows the breakdown of this need. For the purposes of this analysis, it has been assumed that there is no funding gap associated to operations and maintenance of the Township's assets. However, a detailed review of operating and maintenance needs is required to better understand any deficiencies present on the operating side.

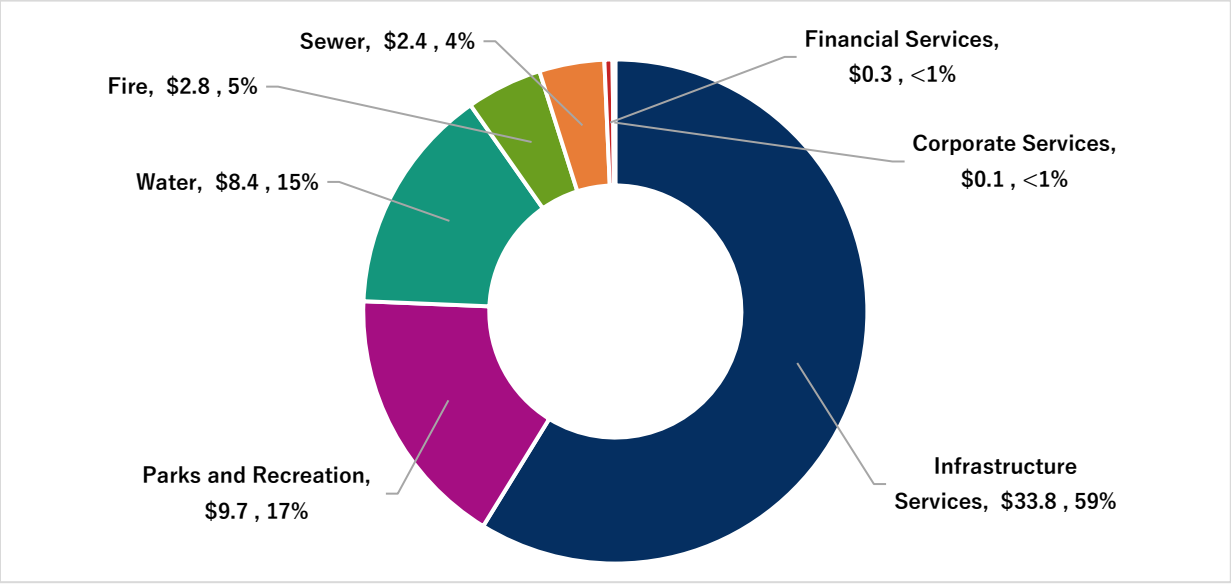

Figure 4-1: 10-Year Cumulative Asset Management Related Operation and Maintenance Needs (in millions)

Note: Values expressed in constant 2025 dollars.

4.4.1 Capital Expenditures and the Funding Gap for Tax Supported Services

The starting point for the analysis is identifying the expenditures needed to meet proposed levels of service. The analysis focuses on the capital related lifecycle needs which have been developed largely based on existing reports and publicly available sources of information provided by the Township. **Figure 4-2** outlines the total capital related lifecycle needs totalling about $158.6 million. This total is made up of:

- Tax Funded Services Capital Program of $81.5 million (51%) – reflects capital projects identified through the Township's 10-year capital plan which are directly related to state of good repair and are largely funded from taxation. This amount excludes any growth-related projects.
- Tax Funded Services Capital BTE of $40.5 million (26%) – The Township's 2024 Development Charges Background Study provides the information needed to capture the lifecycle costs associated to growth-related projects. Growth-related portions of projects are assumed to be funded through development charges and do not have an impact to taxation. However, benefit to existing (BTE) shares must be funded from sources other than development charges.
- Additional from RNS of $17.6 million (11%) – represents the additional lifecycle costs needed to meet the long-term needs identified in the Township's Road Needs Study (RNS), also known as the 2023 State of the Infrastructure and Asset Management Plan for Roads Executive Summary Report. The needs have been net down based on the existing road costs identified in the two points above, and ensure that these costs represent the additional need to meet the RNS objectives.
- Incremental Costs to Meet PLOS $6.0 million (4%) – represents the increase to condition performance costs needed to meet proposed levels of service above and beyond the 10-year capital plan and DC study for assets other than roads.
- Cumulative Provision for Expansion $13.0 million (8%) – While the initial growth-related costs associated to future infrastructure from the DC Study is funded from development charges, the future repair and replacement of this infrastructure is the Township's responsibility. For this reason, provisions for the long-term replacement of this infrastructure is included over the period.

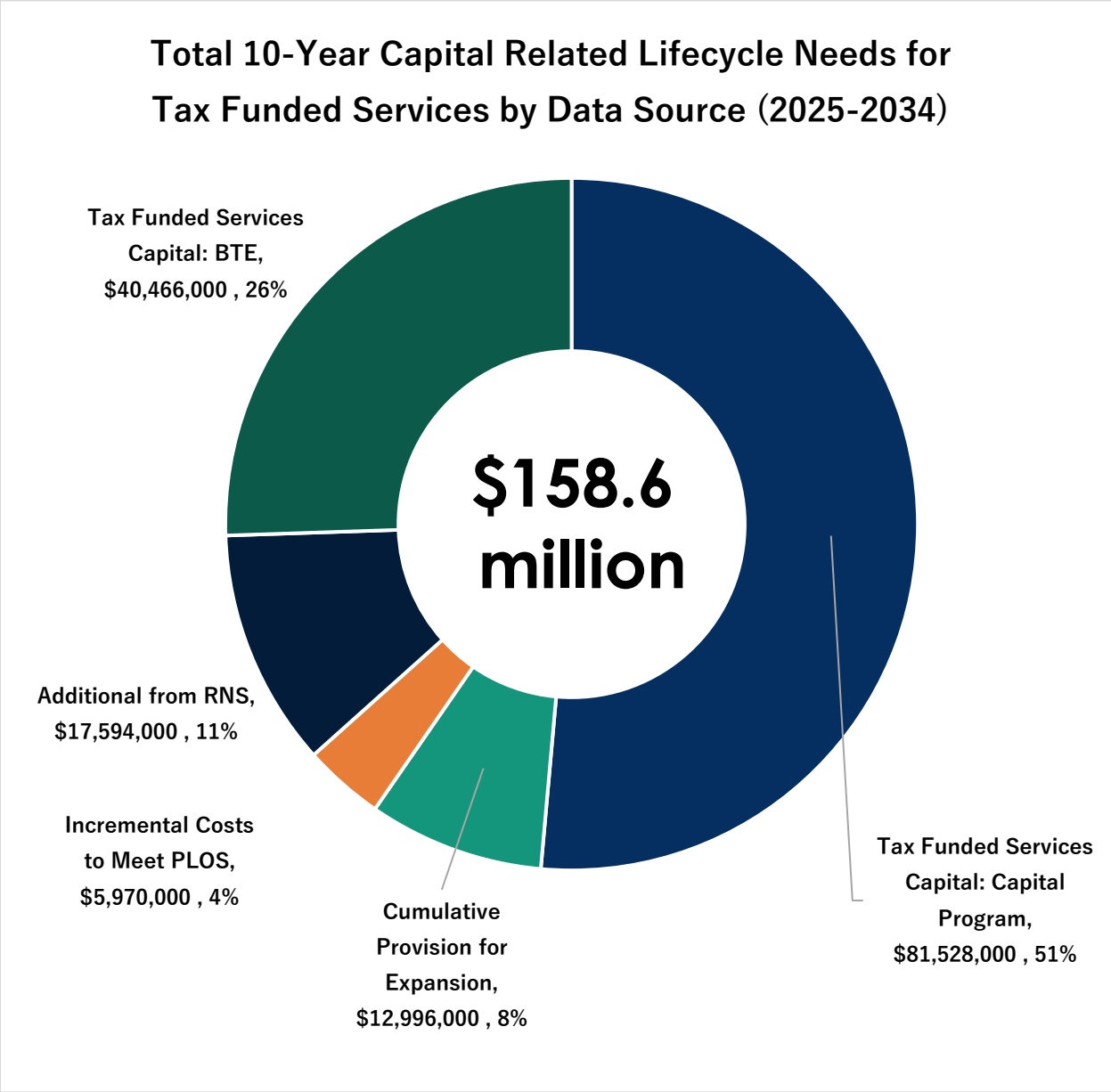

Figure 4-2: Total 10-Year Capital Related Lifecycle Needs (Tax Funded)

The 10-year total need represents the level of investment required if all assets were to be repaired or replaced according to engineering recommendations or their expected design life. This is compared to a scenario in which funding remains at current levels (see **Table 4-2**). As shown in **Figure 4-3**, current funding levels fall short of projected needs, resulting in a funding gap of $86.5 million over the 10-year planning horizon.

The gap outlined below represents the capital funding need only. Any existing operating and maintenance expenditures needed to maintain assets are included for in the operating budget and funded through the tax levy for tax supported assets and utility rates for rate supported assets.

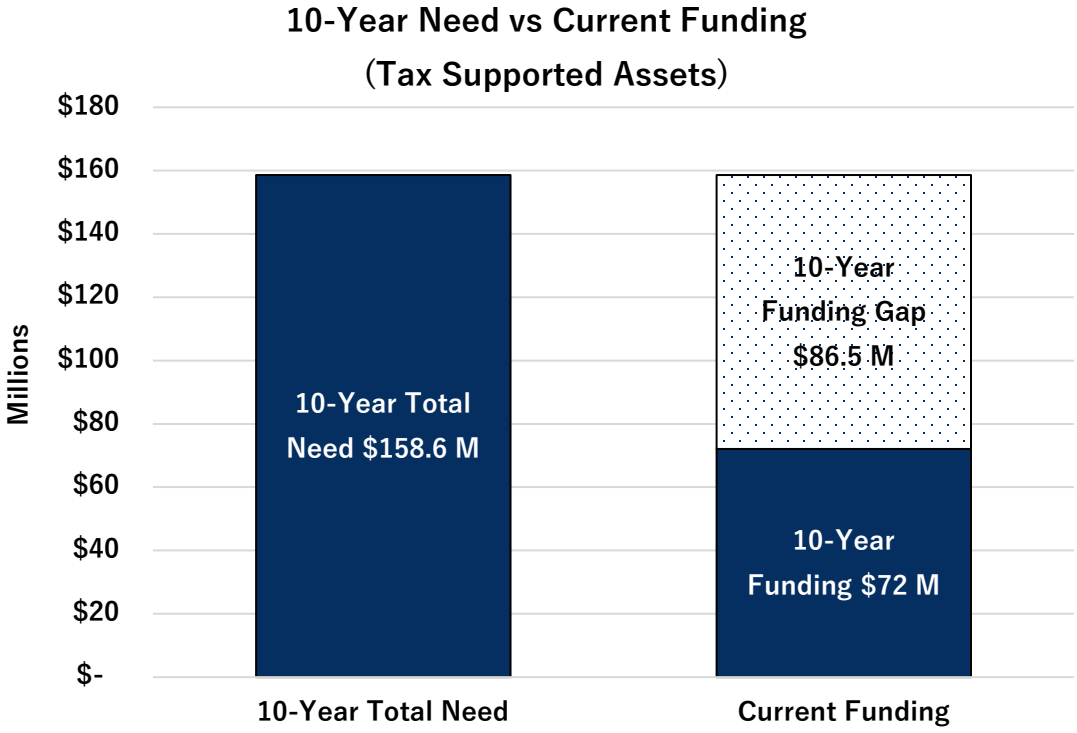

Figure 4-3: 10-Year Capital Need vs Funding (Benchmark Funding Gap for Tax Supported Assets)

If the Township were to adopt a funding strategy aimed at fully eliminating the funding gap, the 2025 infrastructure levy of 2.5% would need to be 8.4% annually over the next 10 years. It is important to note, the infrastructure levy is cumulative as it is calculated on the previous year's tax levy. Therefore, for the gap to be closed, it is predicated on ensuring the 8.4% dedicated levy is imposed for all years throughout the period. **Figure 4-4** below illustrates the impact on the annual capital contributions from imposing the 8.4% dedicated levy – the capital contributions increase from around $5.7 million in 2025 to $25.0 million by 2034. The calculated infrastructure levy requirement of 8.4% would be over and above the funding sources already outlined. Please note that the contribution per annum would also need to be inflated annually and the contribution identified is only capital related (net changes in regular operating cost increase would be additional).

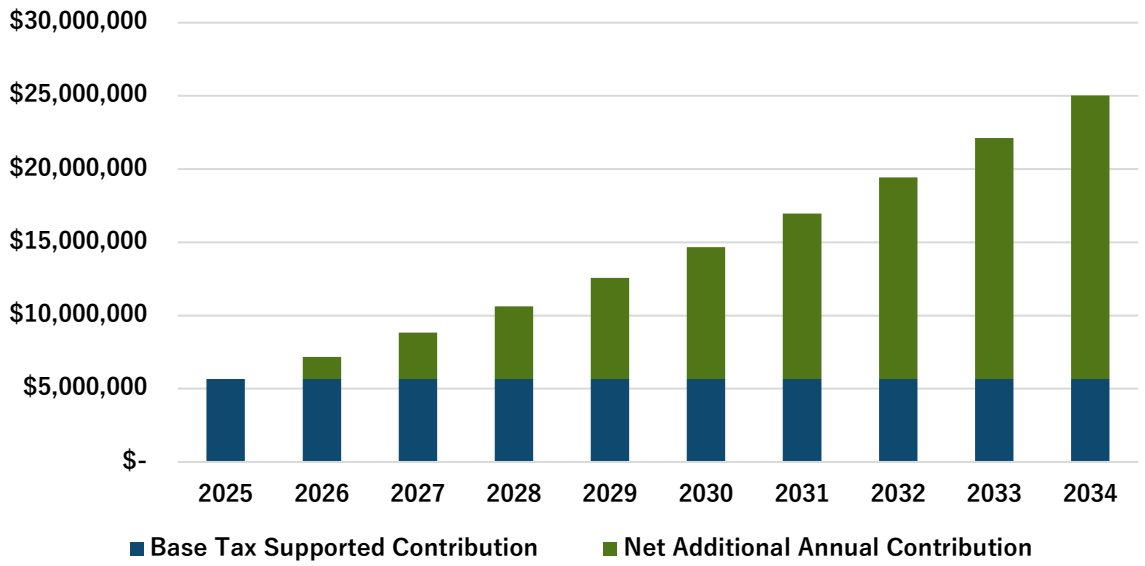

Figure 4-4: Capital Contribution Needed to Close the Funding Gap within an 8.4% Dedicated Levy for Tax Supported Assets

However, it may not be realistic to expect the Township to close the entire benchmark funding gap in the short-term. Achieving full elimination of the gap by 2034 is an ambitious goal, due to several key challenges:

- The required capital contributions (to eliminate the gap) will necessitate an increase to property taxes beyond a reasonable measure;
- The Township would need to decrease or limit funding of other key services or initiatives in lieu of capital repair and replacement activity; and,
- Assets can remain in use past their engineered design life and can perform to meet the Township's level of service under these circumstances. Therefore, in such instances, the asset does not necessarily need to be replaced by virtue of exceeding their design life.

4.4.2 Capital Expenditures and the Funding Gap for Rate Funded Services

For the rate supported assets of water and wastewater a total 10-year capital need of $46.1 million has been identified as noted in **Figure 4-5**. This includes $13.6 million as benefit to existing (BTE) and $3.3 million as provision for expansion.

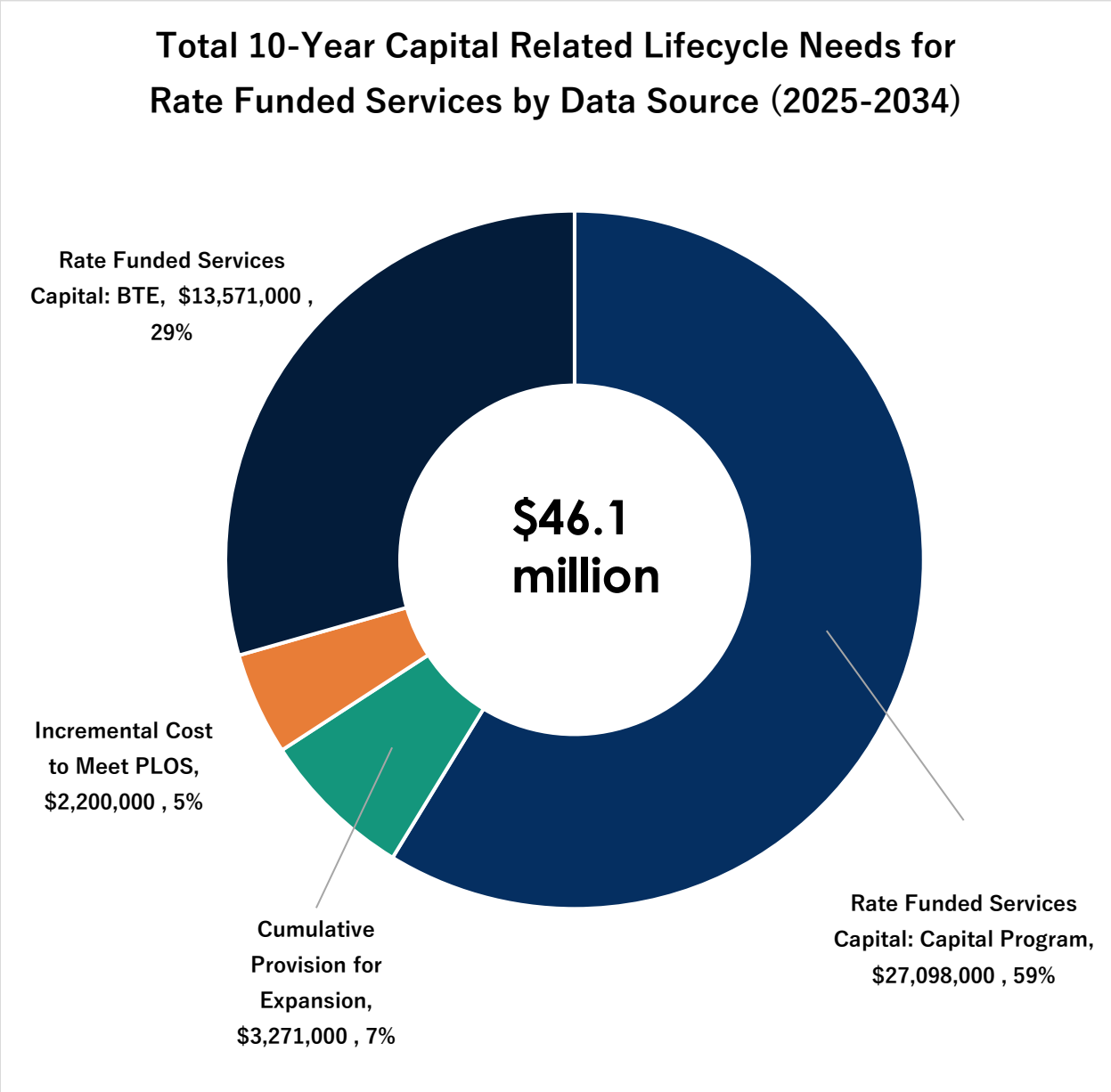

Figure 4-5: Total 10-Year Capital Related Lifecycle Needs (Rate Funded)

This need measured against the available funding at current levels of $22.6 million leaves a funding gap of about $23.6 million.

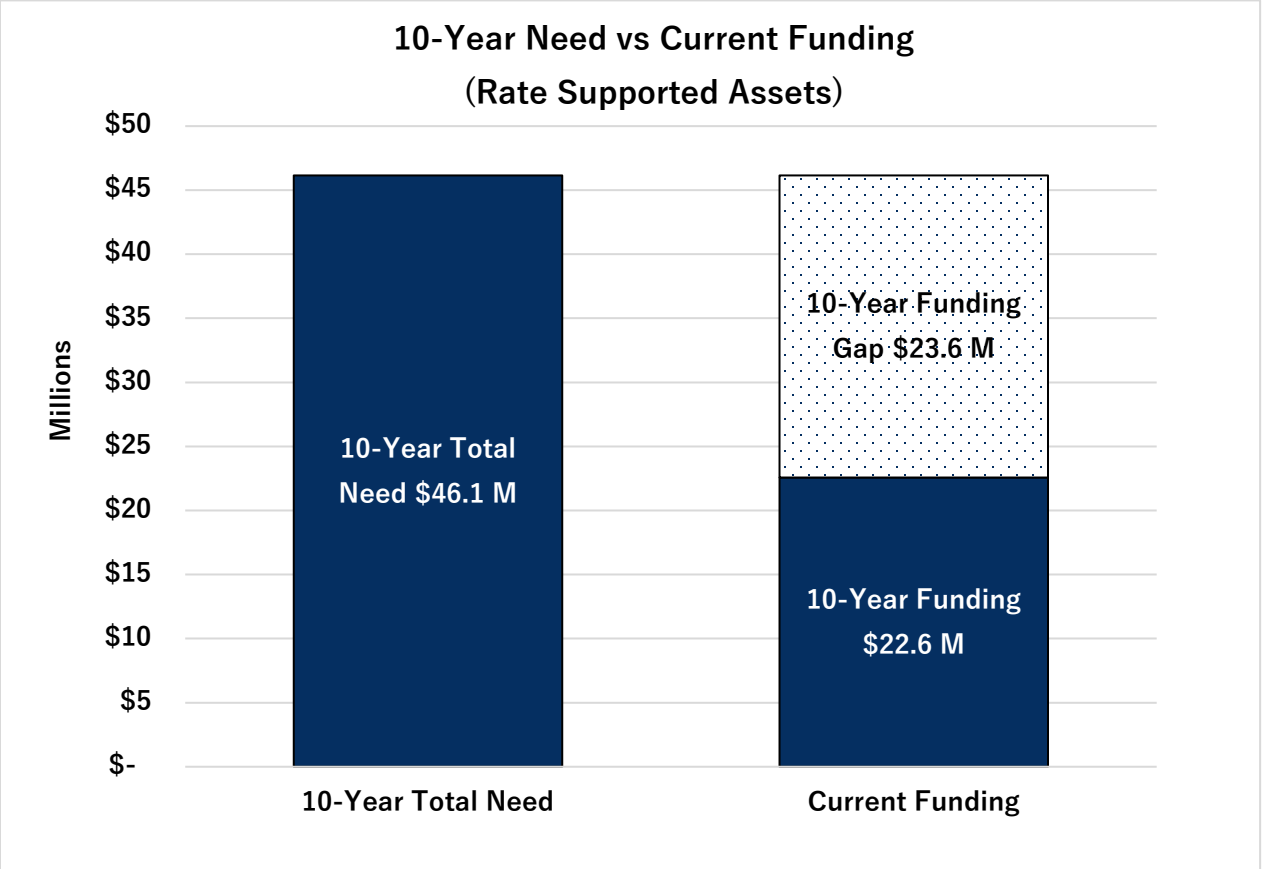

Figure 4-6: 10-Year Capital Need vs Funding (Benchmark Funding Gap for Rate Supported Assets)

In comparison to the tax-supported infrastructure, the financial requirements to close the funding gap for rate-supported services are notably more moderate. As shown in **Figure 4-6,** current funding levels fall short of projected needs, resulting in a 10-year capital shortfall of $23.6 million.

To address this, for rate-supported services, closing the funding gap would require average annual increase of approximately 4.5% to the combined water and wastewater rate requirement per year over the next 10-years; translating to an increase of about $524,000 annually, based on the 2025 combined rate requirement of $11.7M. The contribution per annum would need to be inflated annually and the contribution identified is only capital related (net changes in regular operating cost increase would be in addition).

This analysis is consistent with the findings of the 2024 Water Wastewater Financial Plan and Rate Study (BMA Report), which recommends annual water rate increases of 6.3% over the next six years and wastewater rate increases of 10.2% for the next four

years, followed by 7.3% increases in years five and six. These increases are intended to:

- Return water and wastewater capital reserves to a positive balance;
- Begin establishing rate stabilization reserves (which are currently non-existent);
- Address large operating deficits projected for 2024; and
- Start building towards the recommended reserve target of 2% of asset replacement value.

The BMA report further highlights that the Township has not increased its fixed capital charge since 2006, despite capital costs rising by over 40% in the last five years. This has placed unsustainable pressure on reserves, making the recommended rate increases necessary for long-term financial sustainability.

While both the AMP analysis and the BMA report confirm that rate-supported services are in relatively stronger financial shape than tax-supported services, due to their self-funded structure and historical reserve contributions, the need for strategic reinvestment, annual inflationary adjustments, and improved financial oversight remains critical.

Continued coordination between the AMP and financial planning processes will ensure alignment of technical need, financial capacity, and affordability considerations as the Township works to secure the long-term reliability of its water and wastewater systems.

4.5. FINANCING STRATEGIES TO MEET PROPOSED LEVEL OF SERVICE FOR TAX SUPPORTED ASSETS

Several financing strategies for tax supported assets were developed to evaluate options for target capital contribution levels needed to meet the lifecycle cost requirements associated with the PLOS. These strategies are designed to offer viable options for closing the funding gap over the 10-year period to 2034. **Table 4-3** provides a summary of each financing strategy, while **Figure 4-7** illustrates the resulting funding gap for tax-supported assets under each scenario. Additional adjustments for inflation would be required. As the rate supported funding gap is relatively small compared to the tax supported assets, the financing strategies focus on the largest needs on the tax side.

Table 4-3: Description of Financing Strategies for Tax Supported Assets

Strategy	Description
Base Case: Closing the Funding Gap	Represents the funding strategy to meet proposed levels of service over the 10-year period. It would require an increase in funding of $86.5 Million over 10 years, which requires a dedicated levy of 8.4% per annum.
Strategy 1: 6% Infrastructure Levy	Requires a dedicated levy of 6.0% (from 2.5%) which would equate to additional capital funding of about $1.1 million in 2026.
Strategy 2: 4.3% Infrastructure Levy	Requires a dedicated levy of 4.3% (from 2.5%) which would equate to additional capital funding of about $781,000 in 2026. This increase relates to the recommended increases proposed in the Township's 2014 Asset Management Plan.
Strategy 3: 2.5% Infrastructure Levy	Maintains the existing 2.5% dedicated levy over the period which would equate to additional capital funding of about $451,000 in 2026.
Strategy 4: Do Nothing	This strategy represents no further increases in funding and the existing $5.7 million annual contribution to capital is maintained over the period. The strategy would result in a decline in the overall condition of assets over the 10-year period and result in a lower level of service.

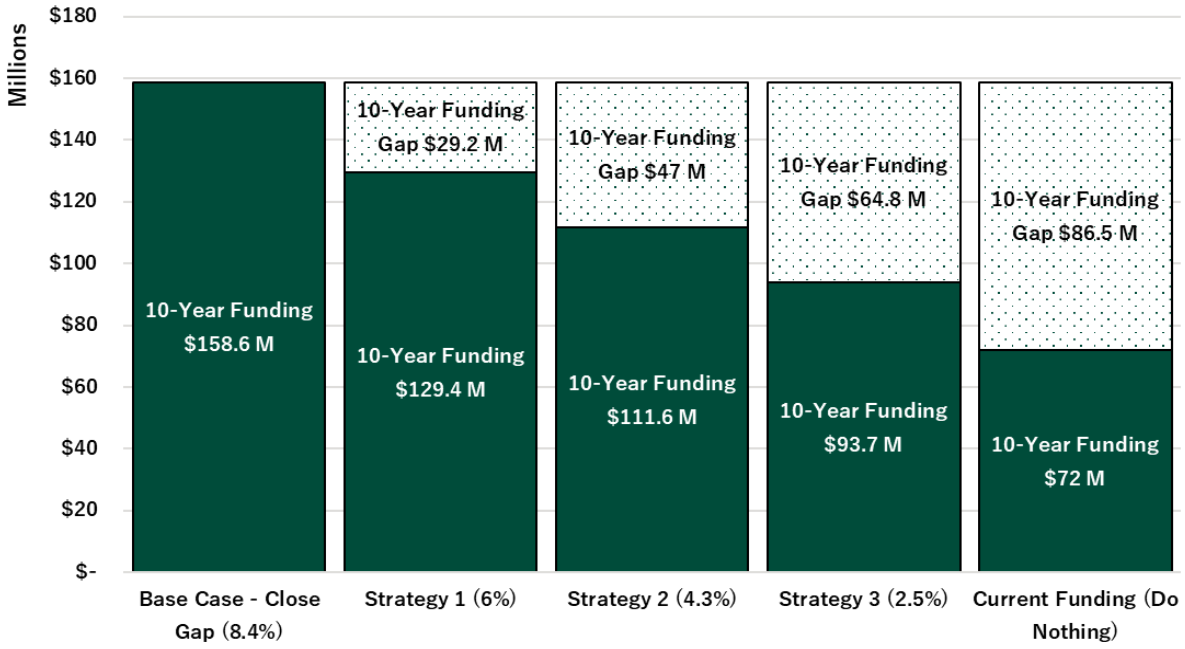

Figure 4-7: Financing Strategies for Tax Supported Assets

4.6. OPTIONS TO ADDRESS THE GAP

The analysis presented highlights the importance of the Township continuing to leverage its current funding programs to support long-term service level goals. As the asset management program progresses, future cost analyses are expected to become more refined, incorporating improved data on asset condition, risk, and levels of service.

However, it is important to note that moving forward with a funding strategy below the identified target of 8.4% may result in reduced service levels over time. The Township may be required to defer renewal activities, which can lead to increased lifecycle costs and greater risk of service disruptions. Balancing the needs of growth and existing infrastructure renewal will be essential to achieving long-term sustainability. Without incremental increases in dedicated capital funding, the Township may face difficult decisions regarding which services to reduce, defer, or reconfigure in order to align with available resources.

If a lower-contribution strategy is chosen, the Township should consider complementary solutions such as service level changes or alternative financial mechanisms to help offset the reduced funding. Several such approaches are outlined in **Table 4-4**.

Table 4-4: Considerations for Closing the Funding Gap

Category	Description
Improved Data Quality	As the Township matures its asset management practices, improving data quality across service areas will help to refine the assessment of the condition of assets. Improved lifecycle cost data will facilitate evidence-based decision making and support achieving lowest lifecycle costing through prioritization of repair and replacement activities.
Levels of Service Measures	As part of the 2025 AMP, levels of services measures by asset category have been established. Tracking LOS measures may identify areas where funding needs could be recalibrated based on performance.
Assessing Risk Tolerance and Long-Term Capital Planning	Further detailed risk analysis including defining risk tolerance level for individual asset classes and integrating risk assessments into the long-term capital planning will help to refine and prioritize investment needs. Although not always desirable, risk mitigation activities can be considered in prolonging asset life and the timing of investments.

Category	Description
Seek Funding Support from Other Levels of Government	The Township continues to demonstrate a significant commitment to asset management and seeking all available funding support will help ensure that services are delivered in the most cost-efficient manner.
Service Specific Levies	The Township can consider targeted levies to provide dedicated funding streams for critical services, such as stormwater, and their specific programs.
Increase User Fees	An increase to user fees to align with the actual cost of service will reduce the dependency on tax rates. Incremental fees can support the ongoing maintenance, renewal and service improvements, but must be balanced with affordability.
Integrated Financial Planning and Building Reserve Funds	An integrated financial plan and the building up of the reserve fund will enable the Township to begin closing the funding gap.

4.6.1 Qualitative Scenario: Impacts of Adjusting Service Levels

Adjusting service levels also represents one potential strategy to address this shortfall. Service levels for some assets may need to temporarily decrease, particularly in years where lifecycle activities (i.e. replacements or major rehabilitations) are high. This decision should be supported by developing options for lifecycle strategies that may still deliver the intended services at a lower cost. Deferring or missing recommended interventions (i.e. right time, right asset) for some assets may result in a cost savings short term but reduced service and higher lifecycle cost in the long-term. For example, if a road resurfacing candidate is missed, the road may deteriorate too far where there is irreparable damage to the base structure and a more expensive reconstruction must occur. Therefore, developing variations in lifecycle management strategies that can support expected service delivery at lower cost will help ensure it can be supported at a capital and operational level and contribute to the understanding of the consequences of any adjustments. This review of lifecycle strategies can help manage the infrastructure gap by delivering services at a reduced level but still maintaining the intended function of the infrastructure. It is important that service level changes and effects on cost, risk and performance are fully understood. Communication of changes with residents and community members must also occur as there may be an expectations gap that develops when expectations are higher than what the funded plan can deliver.

The following section provides qualitative examples of what service level reductions might look like across key service areas, based on the Township's asset condition data and community engagement findings. These examples outlined in the tables below illustrate potential impacts and the practical implications of service level adjustments.

Table 4-5: Service Level Overview for Drinking Water Distribution Services

Service Category:	**Environmental Services/Utilities**
Subservice:	**Drinking Water Distribution**
Assets Providing Services:	Linear watermain and dual-use watermains (included valves, hydrants and appurtenances, services)
Service Statement:	To provide a reliable water distribution system with clean water
Service Attribute Impacts:	Reliable, Safe, Quality
Impacts of Reduced Service Levels:	While water services currently enjoy high satisfaction levels (75.9% reporting no service disruptions), reduced service levels might lead to more frequent watermain breaks or pressure drops.

Table 4-6: Service Level Overview for Sanitary Wastewater Collection Services

Service Category:	**Environmental Services/Utilities**
Subservice:	**Sanitary Wastewater Collection**
Assets Providing Services:	Linear wastewater main (included maintenance hole, service laterals), pumping stations and forcemains
Service Statement:	To provide a functional and reliable wastewater removal system.
Service Attribute Impacts:	Reliable, Operational, Environmental Stewardship
Impacts of Reduced Service Levels:	For wastewater services, reduced maintenance frequencies could result in more sewer backups in low-lying areas. Systems would be maintained to meet regulatory requirements, but the proactive approaches to maintenance and rehabilitation would be scaled back, potentially resulting in more emergency repairs and localized service disruptions.

Table 4-7: Service Level Overview for Stormwater Management Services

Service Category:	**Environmental Services/Utilities**
Subservice:	**Stormwater Management**
Assets Providing Services:	Linear stormwater mains (included maintenance holes, catch basins, laterals), culverts, stormwater management ponds, oil grit separators, retaining walls
Service Statement:	To provide a well maintained and environmentally friendly stormwater network that minimizes incidents of flooding and adequately drains roads during storm events.
Service Attribute Impacts:	Reliable, Operational, Environmental Stewardship
Impacts of Reduced Service Levels:	A reduction in stormwater management service levels could mean less frequent catch basin cleaning and culvert maintenance, potentially resulting in more localized flooding during heavy rainfall events. The condition of stormwater management assets could continue to decline, increasing erosion risks in problem areas that were identified in community feedback. Reduced maintenance of existing infrastructure could lead to more frequent backups and drainage issues.

Table 4-8: Service Level Overview for Cellar Drain Collection System Services

Service Category:	**Environmental Services/Utilities**
Subservice:	**Cellar Drain Collection System**
Assets Providing Services:	Linear cellar mains (included maintenance holes and laterals)
Service Statement:	To provide a well maintained and environmentally friendly stormwater network that minimizes incidents of flooding and adequately drains roads during storm events.
Service Attribute Impacts:	Reliable, Operational, Environmental Stewardship
Impacts of Reduced Service Levels:	Cellar drains are only located within the older sections of Elmira; therefore, reduction in service level would be targeted to these residents. More localized flooding during heavy rainfall events, and particularly for older cellar drains that have not been separated from the sanitary system may increase with large rainfall events.

Table 4-9: Service Level Overview for Transportation Services

Service Category:	**Transportation**
Subservice:	**Road Network**
Assets Providing Services:	Roadway (hard top and loose top); Traffic Management (decorative and standard streetlights, municipal parking lots, street signs); Municipal Structures (OSIM bridges and culverts, retaining walls); Active Transportation (sidewalk, footbridges); Fleet and Equipment
Service Statement:	Providing pedestrians and road users with a transportation network that is safe and reliable
Service Attribute Impacts:	Quality, Safe, Reliable, Available, Accessible
Impacts of Reduced Service Levels:	Reducing service levels in the transportation network could involve extending the replacement cycles for roads, resulting in more deteriorated road surfaces, such as potholes. Bridge infrastructure investments may need to be deferred, leading to potential weight restrictions or closures of lower-priority bridges.

Table 4-10: Service Level Overview for Emergency Services

Service Category:	**Emergency Services**
Subservice:	**Fire Services**
Assets Providing Services:	Equipment, Fleet, Facilities (Fire Stations and Fire Reservoirs)
Service Statement:	To provide fire services that protect the community through prevention, public education and response.
Service Attribute Impacts:	Available, Reliable, Safe, Prevention
Impacts of Reduced Service Levels:	For emergency services, service level reductions might include extending replacement cycles for equipment and apparatus, potentially affecting response capabilities. While maintaining core emergency response functions, some specialized services might see reduced availability. The community engagement feedback highlighted concerns about outdated equipment, which could be exacerbated by further delays in replacements and upgrades.

Table 4-11: Service Level Overview for Recreation and Facilities Services

Service Category:	**Recreation and Facilities**
Subservice:	**Administration and Operations & Parks and Recreation**
Assets Providing Services:	Administration/Operating Facilities (includes fleet, equipment, IT equipment); Indoor Recreation Facilities (includes recreation center/arena, library, multi-use/event space); Outdoor Recreation Facilities (includes park structures, park washrooms, amenities and furnishings, field houses, parks linear, parks utilities, parking and other paving, playgrounds and splash pads, sports pads)
Service Statement:	To provide recreation amenities and facilities that are clean, safe, protect the end user, and are accessible for all.
Service Attribute Impacts:	Accessible, Available, Environmental Stewardship, Reliable, Safe
Impacts of Reduced Service Levels:	Reducing service levels for indoor and outdoor recreation assets could involve extending replacement cycles, such as for playground equipment, sports field lighting and fencing, multi-use paths, washrooms, etc., and implementing reduced operating hours for facilities like washrooms and splash pads. Maintenance of outdoor spaces, which was a concern noted in community engagement, could be further limited to safety-critical issues only. Some lower-usage facilities might see reduced operational hours or seasonal closures to manage costs effecting community programming options. Reducing service levels for administration and operating facilities and equipment could include deferring replacements and upgrades of facilities and fleet, which could have an impact on service delivery of all Township operations, including services offered from the Administration Building and parks, facilities, road, water and wastewater related operations. For example, deferring IT equipment replacements beyond the specified lifecycles can lead to reduced integrity and availability of systems due to lack of support and security updates, making the systems more susceptible to malicious compromise. Performance of IT equipment also degrades over time resulting in lower staff productivity and impacts staff's ability to provide efficient and expedient customer service.

When considering service level reductions, the Township must balance short-term cost savings against long-term impacts. Reducing preventative maintenance often results in higher rehabilitation costs later, while deferring replacements can lead to more frequent failures and emergency repairs. Any service level adjustments should be made strategically, considering both community priorities and risk management requirements.

While service level reductions represent one option for addressing the funding gap, they should be considered alongside other strategies outlined in the financial section of the Asset Management Plan. A balanced approach that combines modest service level adjustments with appropriate financing strategies and targeted investments would likely provide the most sustainable path forward for the Township.

5. CONTINUOUS IMPROVEMENT

To enhance the effectiveness and sustainability of the Township's asset management strategy, several opportunities for continuous improvement have been identified for consideration in 2025 and beyond. These recommendations build upon the improvement areas previously outlined in the Township's 2024 Asset Management Plan.

5.1. ENHANCED CONDITION ASSESSMENT PROGRAM

Objective: Implement a more rigorous and systematic approach to condition assessments to accurately determine asset conditions, optimize capital spending, and proactively manage risk. This includes improving data integration to align with ongoing system updates and consolidate asset information into a single asset register for better lifecycle management.

Actions:

- **Expand Regular Condition Assessments:** Establish routine, structured inspection programs across critical infrastructure, focusing initially on sanitary pumping stations, stormwater systems, and facilities. Integrate findings with the computerized maintenance management system and asset register to ensure up-to-date asset records.
- **Optimize facility lifecycle planning and maintenance:** Develop a strategy based on the condition assessment data, including creating asset tags, preventative maintenance strategies, and lifecycle strategies integrated into asset management planning.
- **Integrate Risk-Based Prioritization:** Use condition data to prioritize assets based on criticality, probability of failure, and potential impact, ensuring timely interventions and efficient resource allocation.
- **Forecast Rehabilitation Needs:** Develop detailed rehabilitation plans informed by accurate condition data, enabling precise budgeting and timely execution to prevent costly emergency repairs and service disruptions.

Rationale: Condition assessments provide essential data that enable targeted infrastructure investments. For example, regular inspections of sanitary pumping stations will identify deteriorating equipment early, allowing proactive rehabilitation and significantly reducing the risk of station failures that could lead to environmental impacts and emergency repair costs.

5.2. ENHANCED COMMUNITY ENGAGEMENT

Objective: Strengthen community involvement in establishing and refining service levels to align infrastructure investments with public expectations. The Township has recently completed its first comprehensive asset management survey, setting a strong foundation for ongoing engagement and data-driven decision-making. Building on this initiative will further align asset management strategies with community priorities.

Actions:

- **Conduct Periodic Public Consultations**: Host regular surveys, workshops, and public meetings to gather community input on infrastructure priorities and desired service levels, building upon the baseline data collected in the recent asset management survey.
- **Implement Continuous Feedback Channels**: Utilize digital platforms (e.g., EngageWR) and feedback mechanisms for ongoing community interaction and transparency regarding how community insights shape asset management strategies.
- **Publish Engagement Outcomes**: Clearly communicate how public input has influenced decision-making, reinforcing accountability and trust. Share outcomes of the asset management survey and provide updates on how the data is being leveraged to inform future planning.

Rationale: Actively involving residents ensures infrastructure investments align with community values, enhancing satisfaction and support for municipal programs. The asset management survey provides a valuable starting point for measuring community expectations and identifying key areas of focus.

5.3. CLIMATE RESILIENCE AND ADAPTATION MEASURES

Objective: Integrate climate risk considerations into asset management to enhance long-term infrastructure resilience and sustainability, aligning with the Township's ongoing updates to maintenance management systems and decision support system tools.

Actions:

- **Complete Climate Risk Assessments:** Assess the vulnerability of critical infrastructure to climate impacts such as extreme weather events and temperature fluctuations, leveraging data available in the work management system.
- **Adopt Resilient Infrastructure Standards:** Incorporate design standards and practices that enhance resilience and minimize future climate-related risks. Update lifecycle management strategies to consider projected climate impacts on asset service lives.

- **Develop Climate Adaptation Plans:** Formulate strategies to adapt existing infrastructure, focusing on high-risk assets such as sanitary pumping stations, stormwater facilities, and other critical infrastructure.
- **Asset Failure Definition:** Define asset failure criteria specific to climate-related impacts to refine forecasting and risk prioritization, using data collected through the condition assessment programs.

Rationale: Climate-informed asset management practices safeguard infrastructure longevity, ensuring continued service delivery amidst evolving environmental conditions.

5.4. OPTIMIZATION OF A MAINTENANCE MANAGEMENT AND DECISION SUPPORT SYSTEM

Objective: Optimize the business process workflow for the Township's Computerized Maintenance Management System (CMMS) (e.g. PSD Citywide) and the Township's decision support system, and develop governance enabling standardized data collection, streamlined maintenance tracking, and data-driven decision-making.

Actions:

- **Refine and Standardize Processes:** Work order management system processes for all asset classes can be refined and developed to ensure asset and maintenance efficiencies and reporting is optimized. This includes standardizing processes for initiating, tracking, and closing work orders to promote data integrity and consistency.
- **Integration:** Integrate work orders with the authoritative asset register to ensure work activities are consistently logged against individual assets, allowing for accurate tracking of maintenance costs and asset conditions.
- **Monitoring:** Leverage data to monitor maintenance activities, identify recurring issues, and refine preventative maintenance strategies.
- **Utilize Data:** Use maintenance management data to inform asset lifecycle planning, incorporating maintenance histories into rehabilitation and replacement schedules.
- **GIS Integration:** Integrate the asset register from the CMMS with the decision support system and GIS to simulate and forecast lifecycle needs based on the single source of truth of data.

Rationale: The CMMS will enable the Township to streamline work management processes across service areas, enhancing data consistency and supporting proactive maintenance planning. By centralizing maintenance data, the Township can more effectively allocate resources, optimize asset performance, and improve lifecycle cost management.

5.5. STAFF TRAINING AND CAPACITY DEVELOPMENT

Objective: Foster staff expertise in asset management principles through consistent professional development initiatives.

Actions:

- **Regular Training Programs:** Offer ongoing educational opportunities and workshops focused on asset management methodologies, tools, and best practices.
- **Encourage Professional Certifications:** Support employees in obtaining industry-recognized certifications to enhance internal expertise and establish uniform knowledge standards.
- **Facilitate Internal Knowledge Exchange:** Create forums or digital platforms for staff to share asset management insights, challenges, and innovative solutions.

Rationale: A highly skilled workforce is critical for effective asset management. Continuous training ensures that staff remain knowledgeable about industry advancements and best practices.

5.6. REGULAR REVIEW AND BENCHMARKING

Objective: Maintain relevance and efficacy of asset management practices through routine evaluation and comparison against industry best practices. This includes aligning budget processes with asset lifecycle management activities to provide more accurate forecasting and better integrate asset management and financial planning.

Actions:

- **Refine Proposed Levels of Service:** Levels of service should be continually reviewed to ensure targets are meeting the needs of the community, regulatory requirements and asset performance trends.
- **Detailed Service Delivery Reviews**: Asset classes should be assessed for efficiencies in its whole lifecycle costing strategy including developing multiple lifecycle cost strategies where relevant to assess impact of different lifecycle activities and their costs This will help improve efficiencies and effectiveness of lifecycle activities and the ability to review and adjust to changing service level goals.
- **Integration of AMP and Capital Planning:** Integrating the two processes together ensures data driven investment decisions where projects are prioritized on asset condition, risk and service levels needs against limited resources.
- **Annual Asset Management System Reviews:** Assess the performance of asset management practices, strategies and frameworks annually to identify improvement areas, specifically evaluating alignment of asset management data with financial reporting and budget planning.

- **Update and Revise Policies:** Regularly update asset management policies to incorporate evolving technologies, regulatory requirements, and lessons learned, focusing on integrating asset management data with budget processes.
- **Enhance the Asset Risk Management Strategy:** Improve upon the formalized asset risk management strategy to prioritize asset needs, integrating data from asset condition assessments and climate risk evaluations.
- **Update Tangible Capital Asset Register:** Reconcile the asset register with the Tangible Capital Asset Reporting register to ensure alignment and consistency of data.
- **Benchmarking with Peer Municipalities:** Regularly compare asset management practices with those of similar municipalities to identify potential enhancements and emerging best practices.

Rationale: Continuous evaluation ensures asset management practices remain robust, adaptive, and aligned with best-in-class standards across the municipal sector.

APPENDIX A: SURVEY QUESTIONS

Asset Management Survey

Every day, the Township of Woolwich manages approximately $1.1 billion in infrastructure assets from roads, bridges and sidewalks to recreational facilities, parks, fire stations, sewers and more. These assets help us serve the community and add to the quality of life in Woolwich.

We want your feedback on how we're doing as we develop our 2025 Asset Management Plan.

How satisfied are you? How could we improve? What should our priorities be?

Your feedback will help us measure how we are meeting your needs and expectations now and where we should focus in the future.

Please take some time to complete the following asset management survey.

- There are seven sections in the survey that represent each type of asset we have. The service areas include fire, indoor recreation facilities, outdoor recreation spaces, stormwater management, transportation, wastewater and water.
- It should take about 10 to 15 minutes to complete. More time may be needed for questions that request your comments.
- Please place completed paper surveys in the box on the table.
- Your answers will be anonymous.
- Your answers will help inform the Township's 2025 Asset Management Plan.

If you prefer to complete the survey online, please visit www.engagewr.ca/asset-management

Thank you for your time and feedback!

1. Which of the following statements describe your connection to the Township of Woolwich? (Please select all options which apply to you)
   - ☐ I play in the Township of Woolwich
   - ☐ I live in the Township of Woolwich
   - ☐ I work in the Township of Woolwich
   - ☐ I own a business in the Township of Woolwich

2. Did you know that the Township has an Asset Management Plan? (Choose any one option)
   - ○ Yes
   - ○ No

Fire Services

The Woolwich Fire Department is a volunteer fire department that strives to protect and enhance the community by focusing on public education, fire prevention, and harm reduction, while providing a rapid and effective response to emergencies, including fires, medical calls, and other hazardous situations.

3. Have you used the services of or interacted with the Woolwich Fire Department? (Choose any one option)
   - ○ Yes
   - ○ No

If you answered 'yes', please continue below. If you answered 'no', please skip to Question 6.

4. Overall, how satisfied were you with your interaction with the Woolwich Fire Department? (Choose any one option)
   - ○ Very Satisfied
   - ○ Satisfied
   - ○ Neutral
   - ○ Dissatisfied
   - ○ Very Dissatisfied

5. Are there any improvements to Fire Services that you would like to see? Please comment below.

Indoor Recreational Facilities

The Township of Woolwich's indoor recreation spaces contribute to a high quality of life. They include arenas, pools, community centres and libraries. The Township is focused on providing indoor spaces that meet the needs of our users.

6. Do you use the Township's indoor recreation facilities? (Choose any one option)
   - ○ Yes
   - ○ No

If you answered 'yes', please continue below. If you answered 'no', please skip to Question 10.

7. Are you satisfied with all indoor recreation amenities and with the current (physical) condition of assets within Township facilities? (Choose any one option)
   - ○ Yes
   - ○ No

8. If you answered 'no', which of the following assets require improvements to their (physical) condition? (Check all that apply)
   - ☐ Arenas
   - ☐ Pools
   - ☐ Community Centres
   - ☐ Libraries
   - ☐ Other (please specify) _____

9. For the assets selected above in Question 8, please tell us what improvements you would like to see.

Outdoor Recreational Spaces

The Township of Woolwich's outdoor recreation spaces contribute to a high quality of life. They include parks, playgrounds, splash pads, sports fields, courts, trails, and more. The Township is focused on providing outdoor spaces that meet the needs of our users.

10. Do you use the Township's outdoor recreation spaces? (Choose any one option)
    - ○ Yes
    - ○ No

If you answered 'yes', please continue below. If you answered 'no', please skip to Question 14.

11. Are you satisfied with all outdoor amenities and with the current (physical) condition of assets within Township parks? (Choose any one option)
    - ○ Yes
    - ○ No

12. If you answered 'no', which of the following assets require improvements to their (physical) condition? (Check all that apply)
    - ☐ Ball diamonds
    - ☐ Playgrounds
    - ☐ Footbridges within parks
    - ☐ Washrooms
    - ☐ Soccer pitches
    - ☐ Multi-use courts
    - ☐ Dog Parks
    - ☐ Trails
    - ☐ Other (please specify) _____

13. For the assets selected above in Question 12, please tell us what improvements you would like to see.

Stormwater Management

The Township of Woolwich provides a well-maintained and environmentally friendly stormwater network that minimizes flooding and ensures roads drain properly during storms. The goal of stormwater management is to protect the community and the environment by controlling the quality and quantity of stormwater runoff caused by rain and melting snow. This includes a range of drainage assets such as catch basins, pipes, and storage ponds which are all designed to manage runoff effectively.

Please note that municipal drains are not considered for this service assessment. Their maintenance and funding are shared by benefiting properties and costs are collected outside of the typical property tax in accordance with the Drainage Act, 1990.

14. How satisfied are you with the Township's stormwater management system in preventing flooding and ensuring proper drainage during heavy rainfall? (Choose any one option)
    - ○ Very Satisfied
    - ○ Satisfied
    - ○ Neutral
    - ○ Dissatisfied
    - ○ Very Dissatisfied

15. Have you experienced flooding impacts on your property? (Choose any one option)
    - ○ Yes
    - ○ No

16. In the last 5 years, how often have you experienced an impact due to roads being flooded? (Choose any one option)
    - ○ Never
    - ○ Once a year
    - ○ Less than 5 times
    - ○ More than 5 times

17. If you have seen road flooding, please tell us what streets or areas of the Township you've noticed it.

18. Are there any improvements to the Township's management of stormwater runoff that you would like to see? If you have improvements for specific roads or areas of the Township, please specify below.

Transportation Network

The Township's paved and gravel roads connect our community. Every day we work to keep a safe, reliable road network to help people get around easily. We do regular road maintenance (such as pothole repair and gravel road grading), winter maintenance (such as snow removal), pavement resurfacing and reconstruction projects. Our roads also promote various types of transportation with bridges, culverts and sidewalks.

19. Do you use or are you affected by the Township's transportation network? (Choose any one option)
    - ○ Yes
    - ○ No

If you answered 'yes', please continue below. If you answered 'no', please skip to Question 22.

20. How satisfied are you with the current condition and maintenance of the Township's transportation network, considering factors like road smoothness (e.g. potholes, cracks) and frequency of repairs (e.g. grading program)? For each category, please check your satisfaction using the scale of 1 meaning you are very satisfied and 5 meaning you are very dissatisfied. If you do not use the service, please check "Not Applicable".

Category	1 – Very Satisfied	2	3	4	5 – Very Dissatisfied	Not Applicable
Paved Roads						
Gravel Roads						
Snow Removal Services						
Road Maintenance						
Bridges and Culverts						
Sidewalks						

21. Are there any improvements to the Township's transportation network that you would like to see? If you have improvements for specific roads or areas of the Township, please specify below.

Wastewater

The Township owns and operates a sanitary collection system consisting of pipes and local pumping stations that collect sewage (wastewater) from homes and businesses. This system takes the Township's wastewater to Region of Waterloo wastewater treatment facilities. The Township is dedicated to providing a functional, efficient, and reliable wastewater system that protects public health and the environment.

22. Is your household or business connected to the municipal wastewater collection system? (Choose any one option)
    - ○ Yes
    - ○ No
    - ○ Unsure

If you answered 'yes', please continue below. If you answered 'no' or 'unsure', please skip to Question 27.

23. How satisfied are you with the condition and performance of the Township's wastewater systems, including the prevention of overflows, backups and odours? (Choose any one option)
    - ○ Very Satisfied
    - ○ Satisfied
    - ○ Neutral
    - ○ Dissatisfied
    - ○ Very Dissatisfied

24. In the last 5 years, has your household or business experienced a sewer backup? (Choose any one option)
    - ○ Yes
    - ○ No
    - ○ Unsure

25. If yes, do you feel the Township responded and resolved the issue in a timely manner?

26. Are there any improvements to the Township's wastewater system that you would like to see? If you have improvements for specific roads or areas of the Township, please specify below.

Water

The Township ensures that all residents and businesses have access to clean drinking water and water for fire services. We are committed to providing a safe, secure, and reliable water distribution system with minimal service interruptions. Drinking water services in the Township are a shared responsibility with the Region of Waterloo. The Region handles the supply, including treatment, pressure, and transmission of drinking water. The Township distributes drinking water to residents, businesses, and other properties through a network of pipes, valves, and fire hydrants.

27. Is your household or business connected to municipal water? (Choose any one option)
    - ○ Yes
    - ○ No
    - ○ Unsure

If you answered 'yes', please continue below. If you answered 'no' or 'unsure', please skip to Question 32.

28. How satisfied are you with the availability and reliability of drinking water provided in the Township? (Choose any one option)
    - ○ Very Satisfied
    - ○ Satisfied
    - ○ Neutral
    - ○ Dissatisfied
    - ○ Very Dissatisfied

29. In the last 5 years, has your household or business experienced a disruption in your water service? (Choose any one option)
    - ○ Yes
    - ○ No
    - ○ Unsure

30. If you answered yes above, do you feel the Township responded and resolved the issue in a timely manner?

31. Are there any improvements to drinking water that you would like to see? Please comment below.

Conclusion

In this section, please provide your feedback on the services that the Township of Woolwich provides as a whole.

32. There may be times when the Township of Woolwich needs to make decisions on where to allocate funding based on limited resources. Looking at the list of services below, please rank in order of highest priority (1) to lowest priority (7), how you think we should prioritize allocating limited funds.

Service Area	**Rank**
Fire Services	
Indoor Recreational Facilities	
Outdoor Recreational Spaces	
Stormwater Management	
Transportation Network	
Wastewater	
Water	

33. How much more **per year** would you be willing to contribute to increase services in your **top three** priority areas? (Choose any one option)
    - ○ No more
    - ○ $5
    - ○ $10
    - ○ $15
    - ○ $20
    - ○ More than $20
    - ○ I'm not sure

34. Alternatively, if the municipality increased investment in your priority areas, for which **other** areas would you be most comfortable with **reducing** funding? (Check all that apply)
    - ☐ Fire Services
    - ☐ Indoor Recreation Facilities
    - ☐ Outdoor Recreation Spaces
    - ☐ Stormwater Management
    - ☐ Transportation Network
    - ☐ Wastewater
    - ☐ Water

35. Do you have any additional comments about the Township's levels of service or changes you would like to see to meet your future needs?

APPENDIX B: SURVEY RESULTS

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Project Report

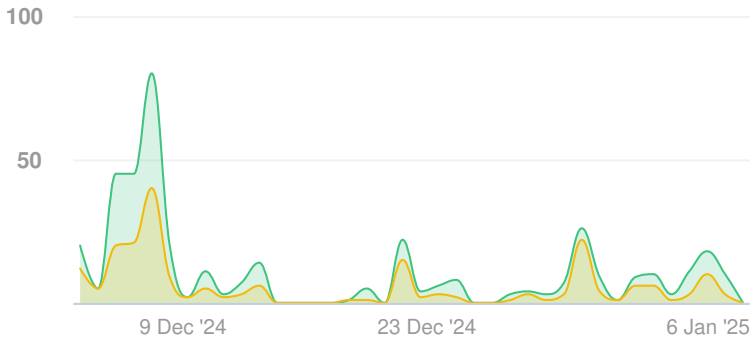
02 December 2024 - 08 January 2025

EngageWR

Asset Management Plan

GRANICUS

Visitors Summary



Highlights

TOTAL VISITS: 228

MAX VISITORS PER DAY: 40

NEW REGISTRATIONS: 0

ENGAGED VISITORS: 63

INFORMED VISITORS: 91

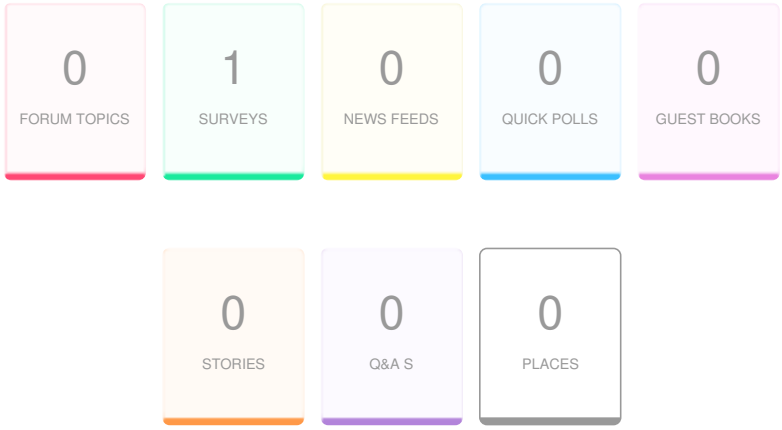
AWARE VISITORS: 189

Aware Participants	189
Aware Actions Performed	**Participants**
Visited a Project or Tool Page	189

Informed Participants	91
Informed Actions Performed	**Participants**
Viewed a video	0
Viewed a photo	3
Downloaded a document	0
Visited the Key Dates page	0
Visited an FAQ list Page	0
Visited Instagram Page	0
Visited Multiple Project Pages	26
Contributed to a tool (engaged)	63

Engaged Participants	63		
Engaged Actions Performed	**Registered**	**Unverified**	**Anonymous**
Contributed on Forums	0	0	0
Participated in Surveys	1	0	62
Contributed to Newsfeeds	0	0	0
Participated in Quick Polls	0	0	0
Posted on Guestbooks	0	0	0
Contributed to Stories	0	0	0
Asked Questions	0	0	0
Placed Pins on Places	0	0	0
Contributed to Ideas	0	0	0

ENGAGEMENT TOOLS SUMMARY



Tool Type	Engagement Tool Name	Tool Status	Visitors	Contributors		
				Registered	Unverified	Anonymous
Survey Tool	2025 Asset Management Survey	Archived	89	1	0	62

INFORMATION WIDGET SUMMARY

0	1	0	0	0
DOCUMENTS	PHOTOS	VIDEOS	FAQS	KEY DATES

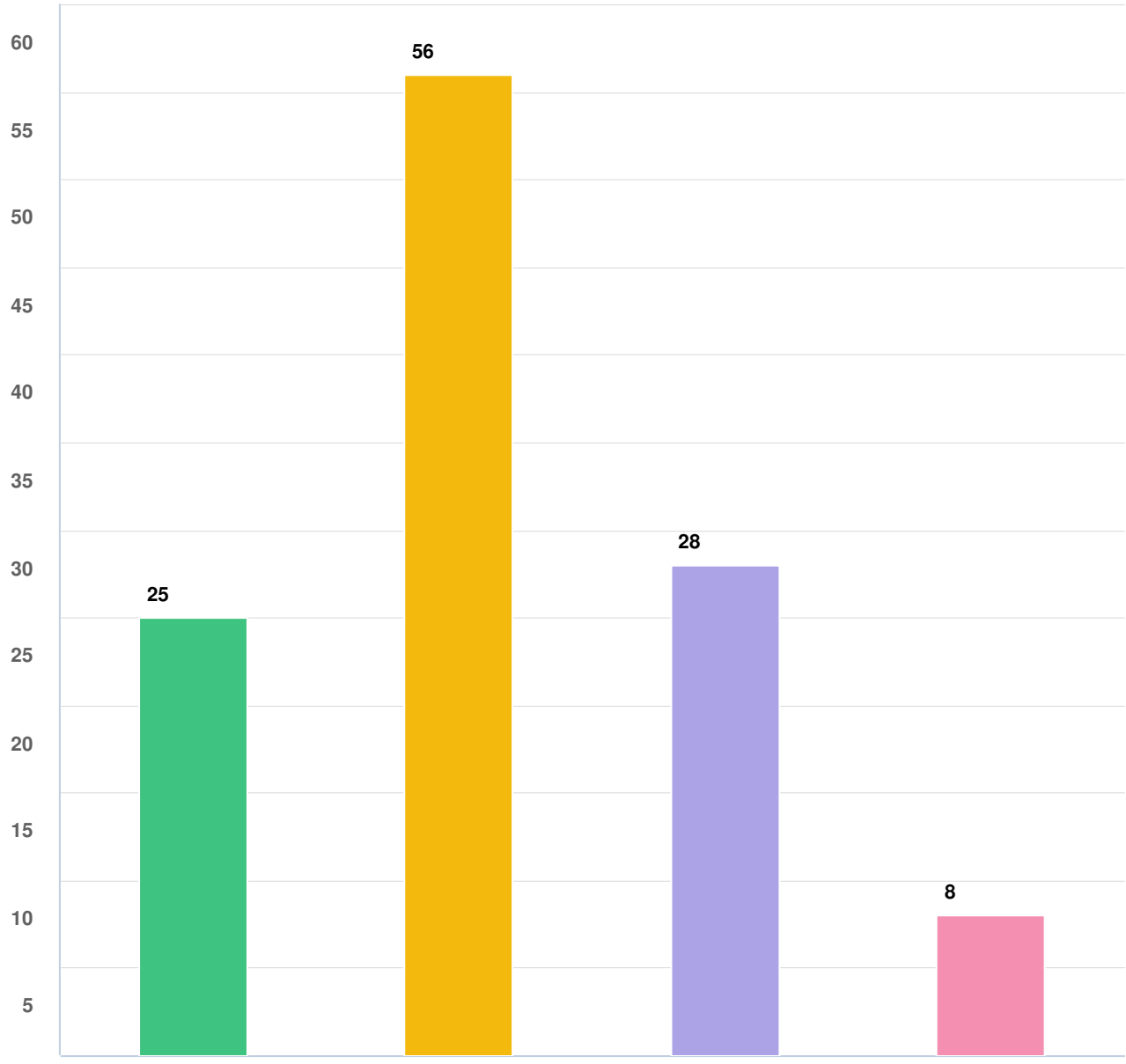
Widget Type	Engagement Tool Name	Visitors	Views/Downloads
Photo	ReplacementValue.jpg	3	3

ENGAGEMENT TOOL: SURVEY TOOL

2025 Asset Management Survey

Visitors 89	Contributors 63	CONTRIBUTIONS 65

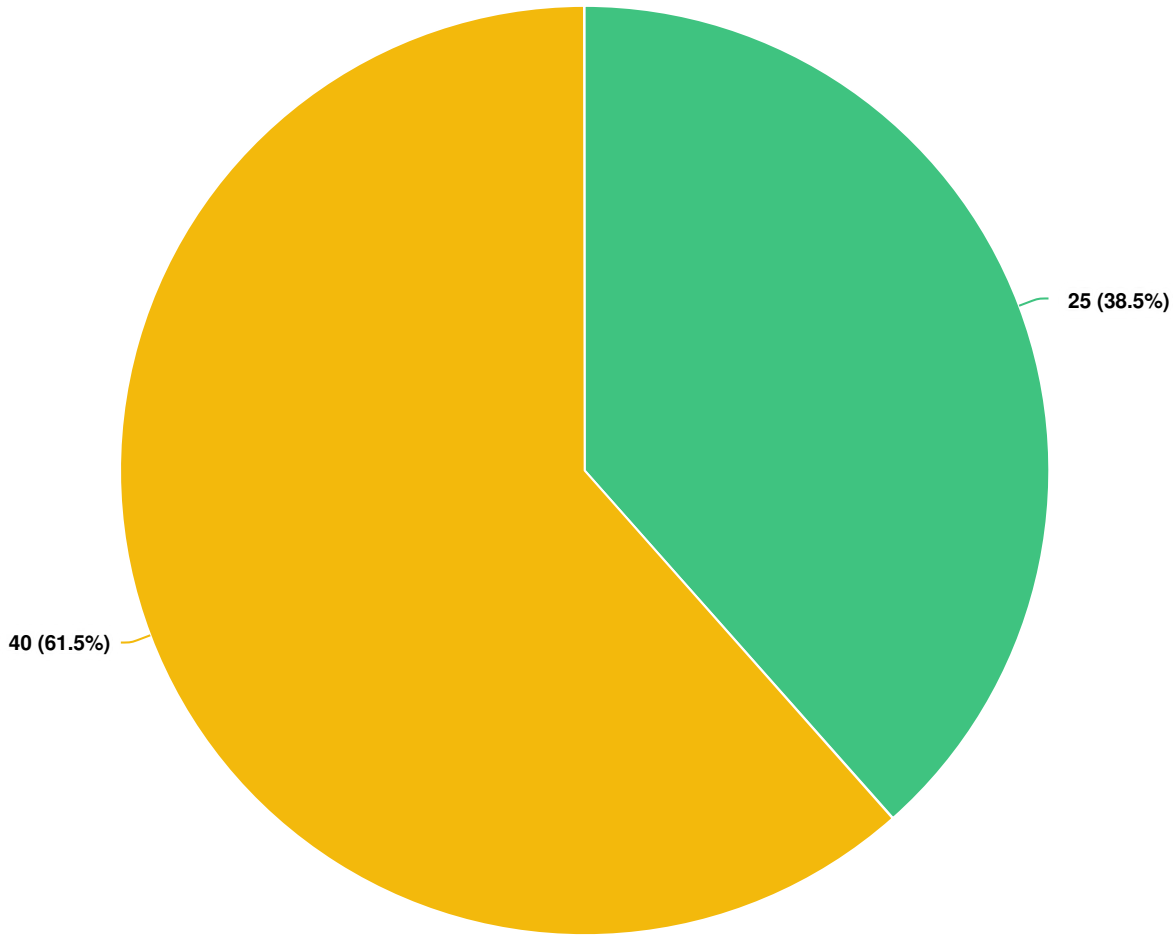
Which of the following statements describe your connection to the Township of Woolwich? Please select all options which apply to you.



Optional question (65 response(s), 0 skipped)

Question type: Checkbox Question

Did you know that the Township has an Asset Management Plan?



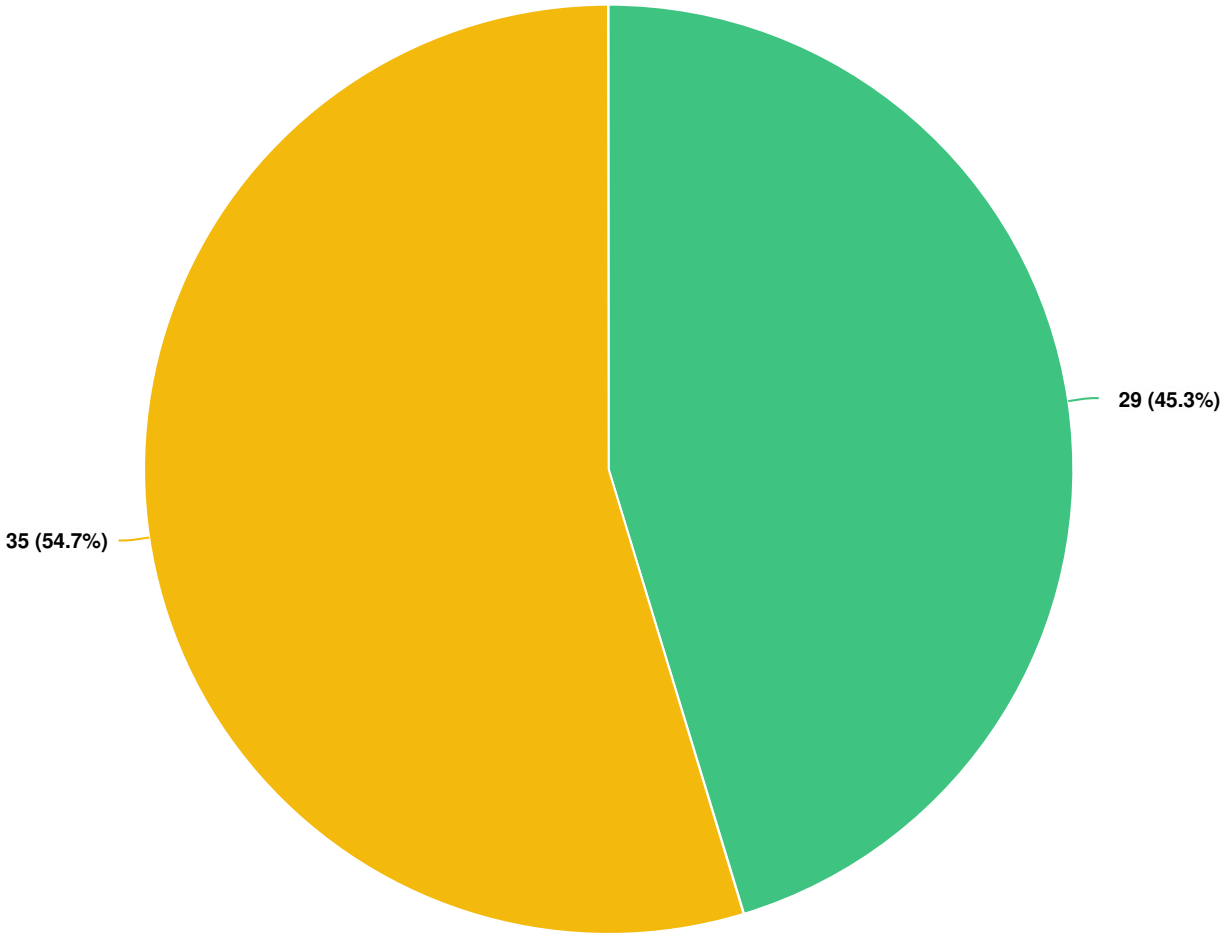
Question options

Yes No

Optional question (65 response(s), 0 skipped)

Question type: Radio Button Question

Have you used the services of or interacted with the Woolwich Fire Department?



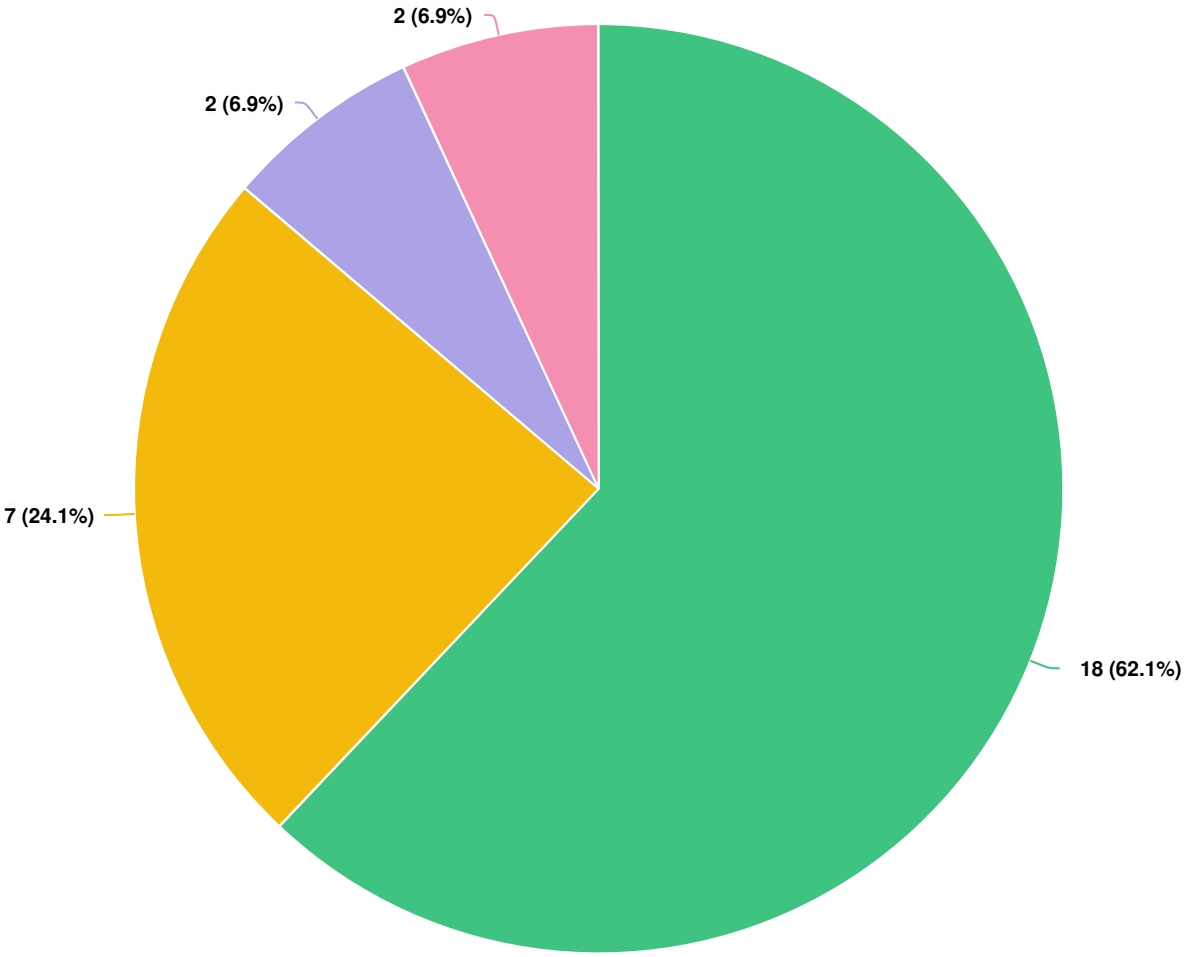
Question options

Yes No

Optional question (64 response(s), 1 skipped)

Question type: Radio Button Question

Overall, how satisfied were you with your interaction with the Woolwich Fire Department?



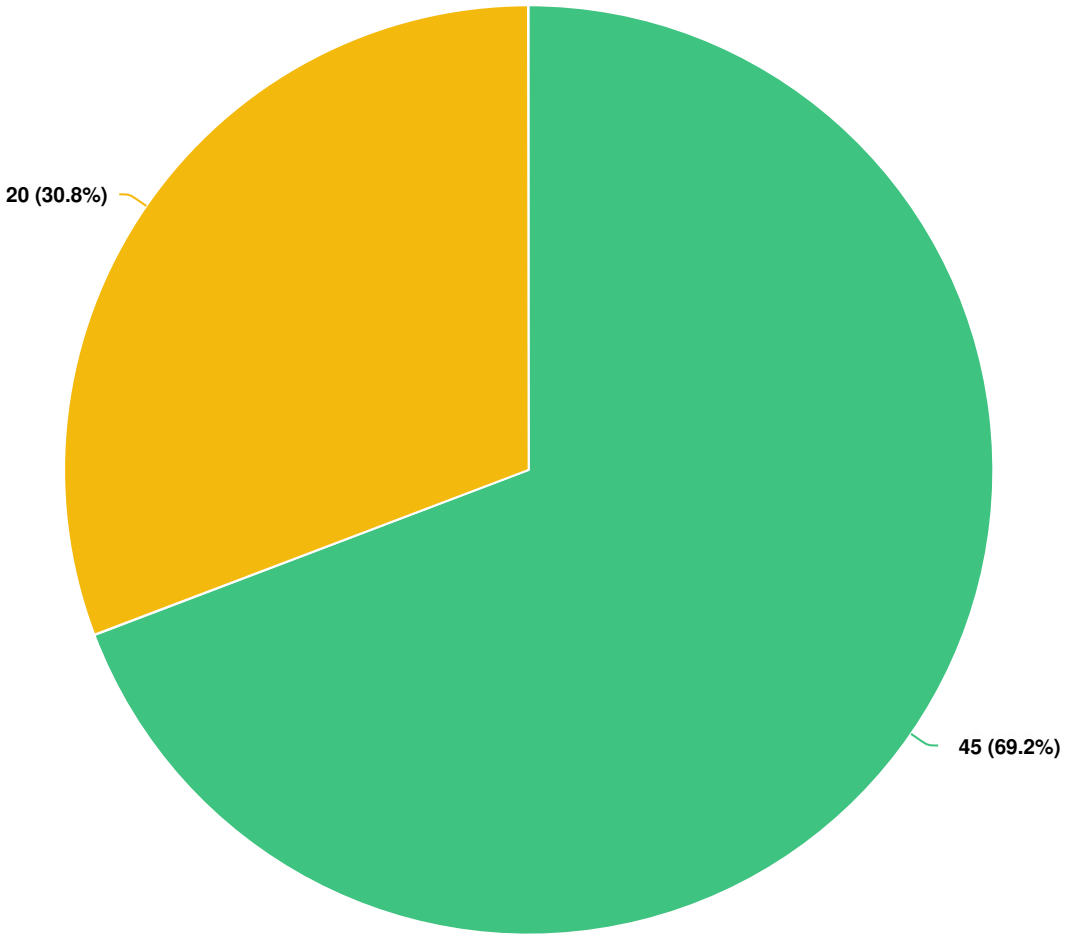
Question options

Very Satisfied Satisfied Neutral Dissatisfied

Optional question (29 response(s), 36 skipped)

Question type: Radio Button Question

Do you use the Township's indoor recreation facilities?



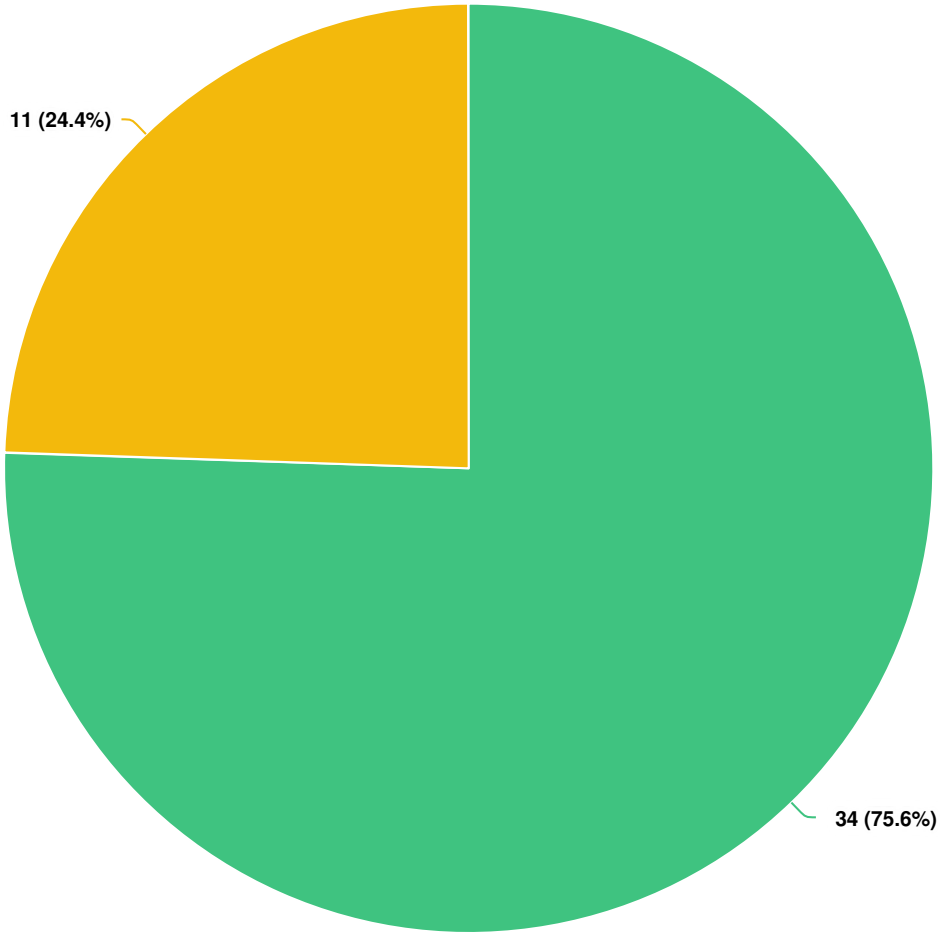
Question options

Yes No

Optional question (65 response(s), 0 skipped)

Question type: Radio Button Question

Are you satisfied with all indoor recreation amenities and with the current (physical) condition of assets within Township facilities?



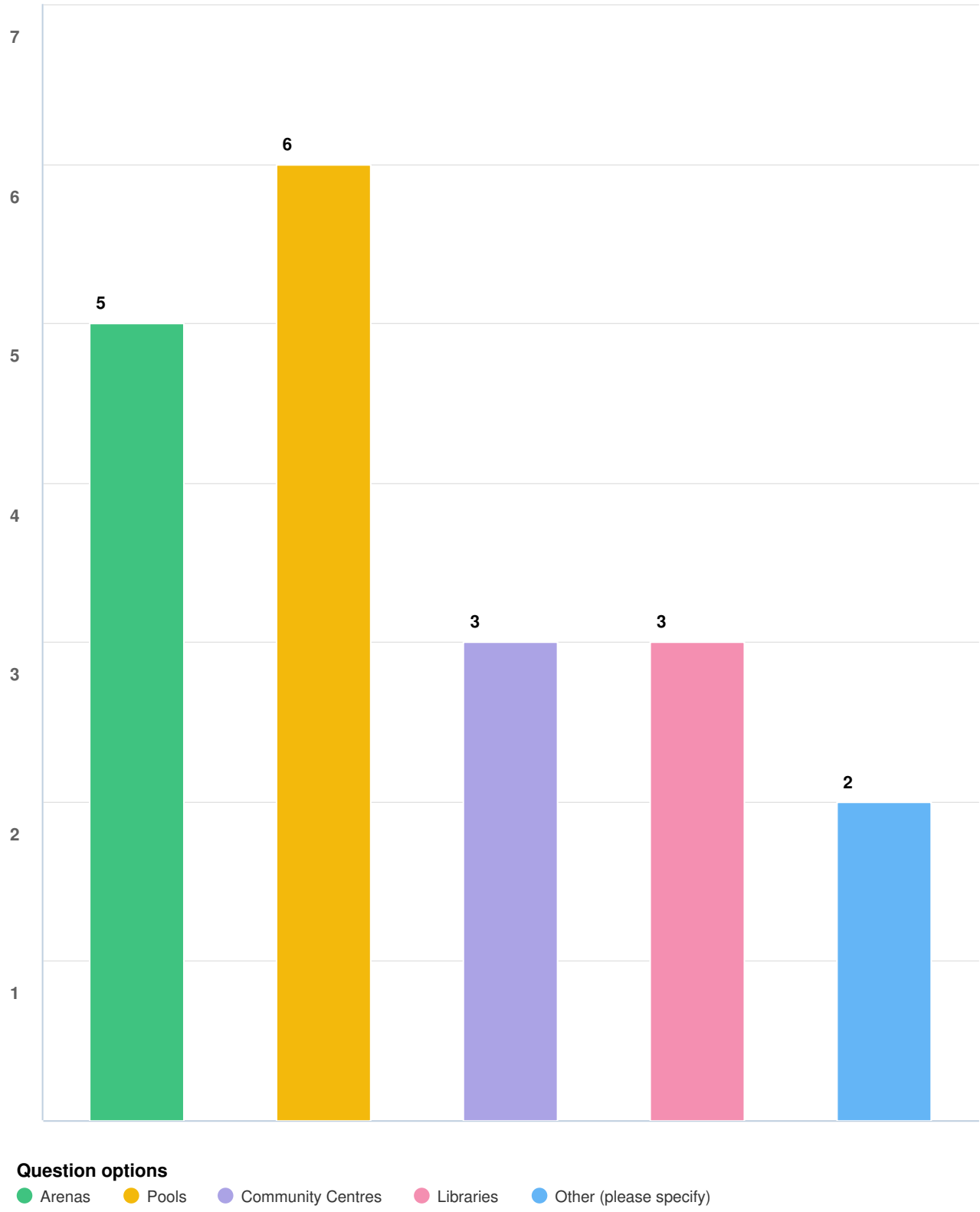
Question options

Yes No

Optional question (45 response(s), 20 skipped)

Question type: Radio Button Question

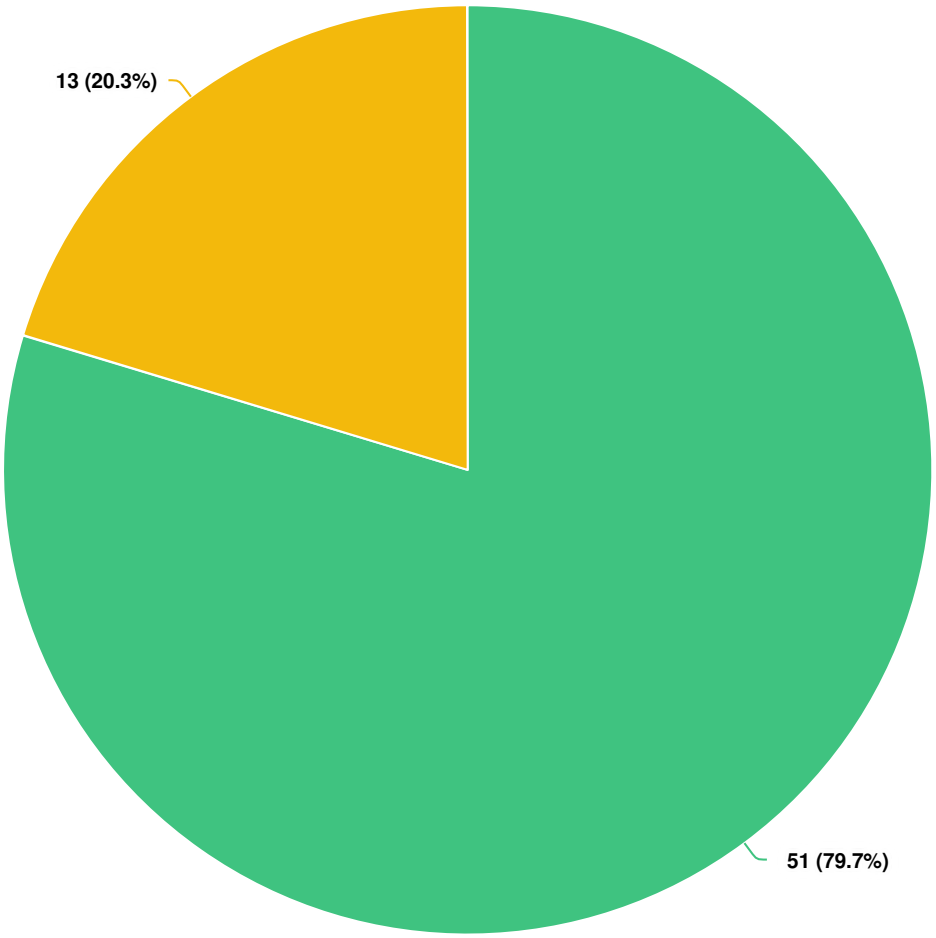
Which of the following assets require improvements to their (physical) condition? (Check all that apply)



Optional question (11 response(s), 54 skipped)

Question type: Checkbox Question

Do you use the Township's outdoor recreation spaces?



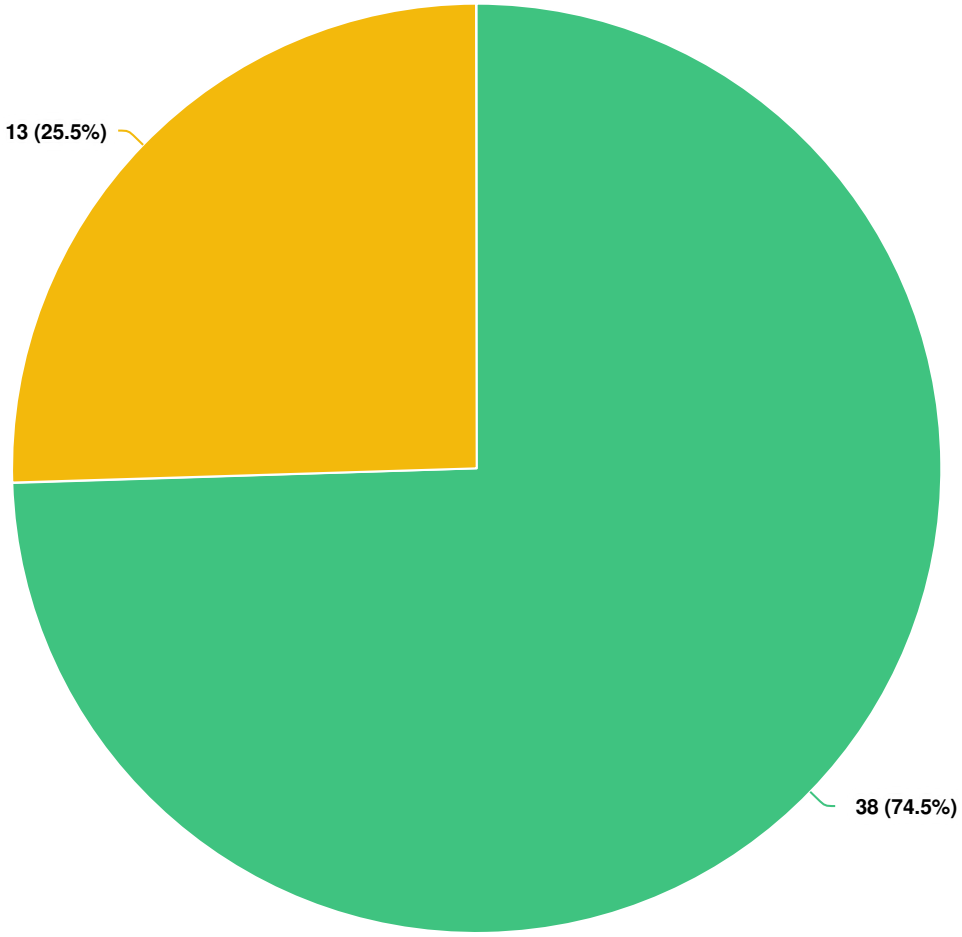
Question options

Yes No

Optional question (64 response(s), 1 skipped)

Question type: Radio Button Question

Are you satisfied with all outdoor amenities and with the current (physical) condition of assets within Township parks?



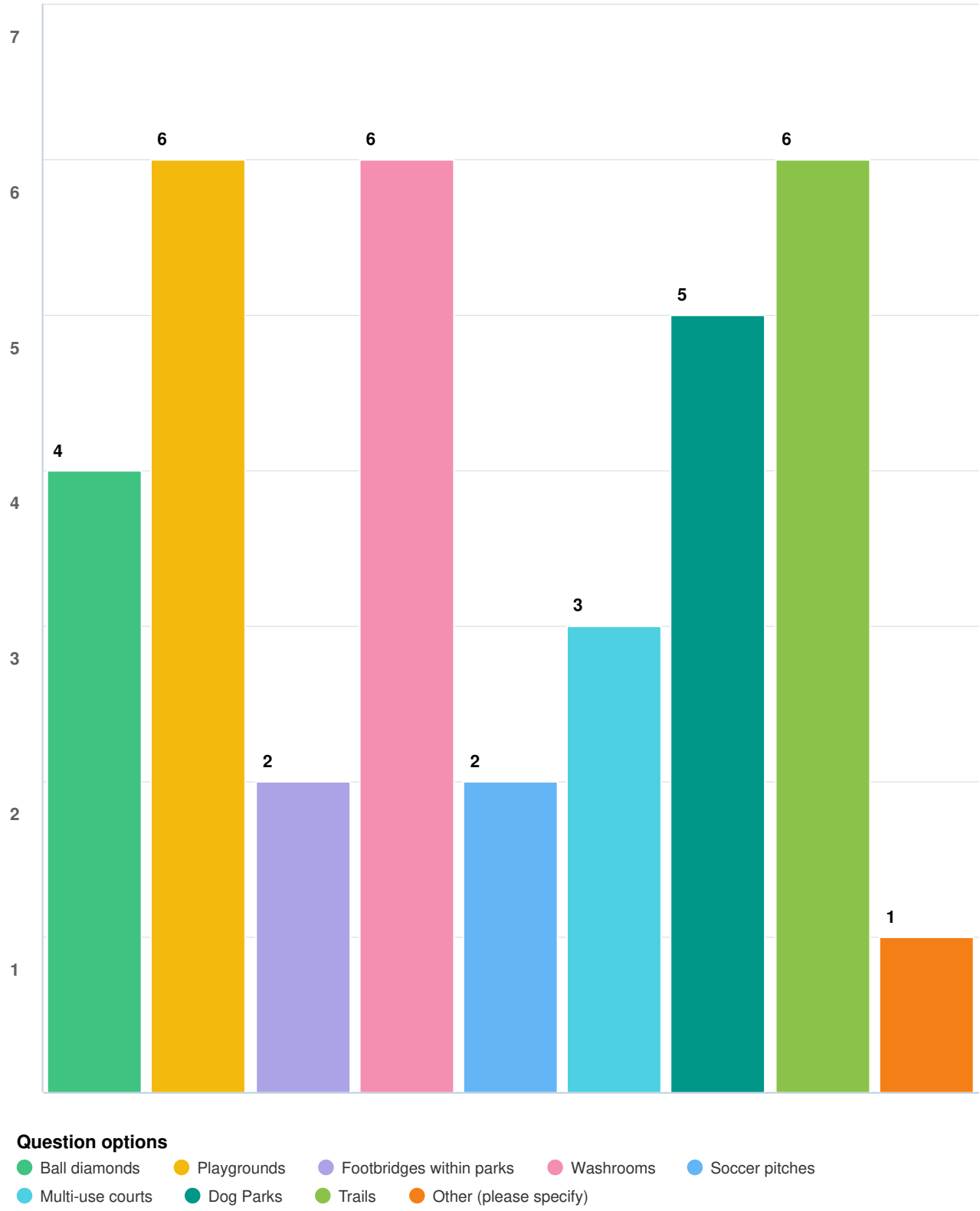
Question options

Yes No

Optional question (51 response(s), 14 skipped)

Question type: Radio Button Question

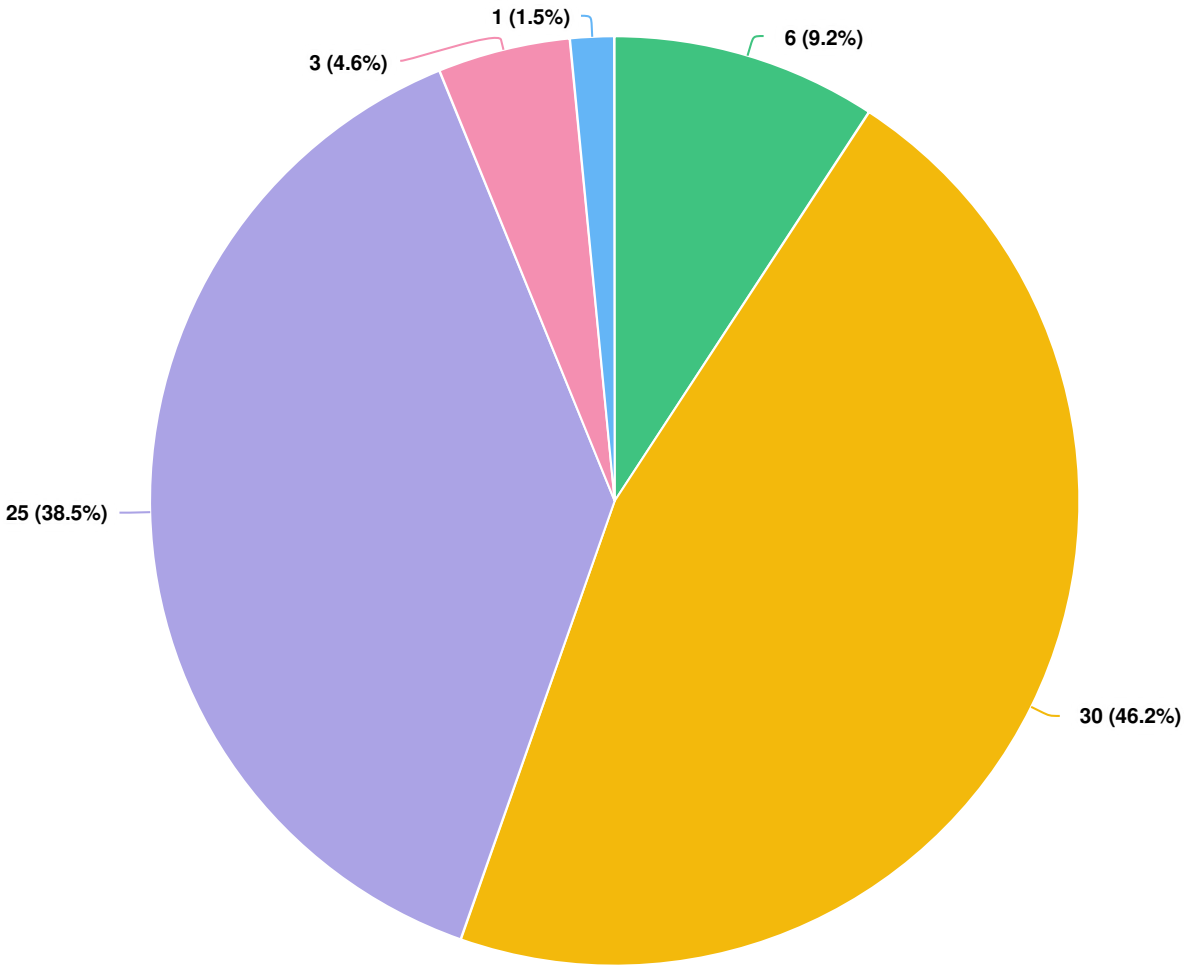
Which of the following assets require improvements to their (physical) condition? Check all that apply



Optional question (13 response(s), 52 skipped)

Question type: Checkbox Question

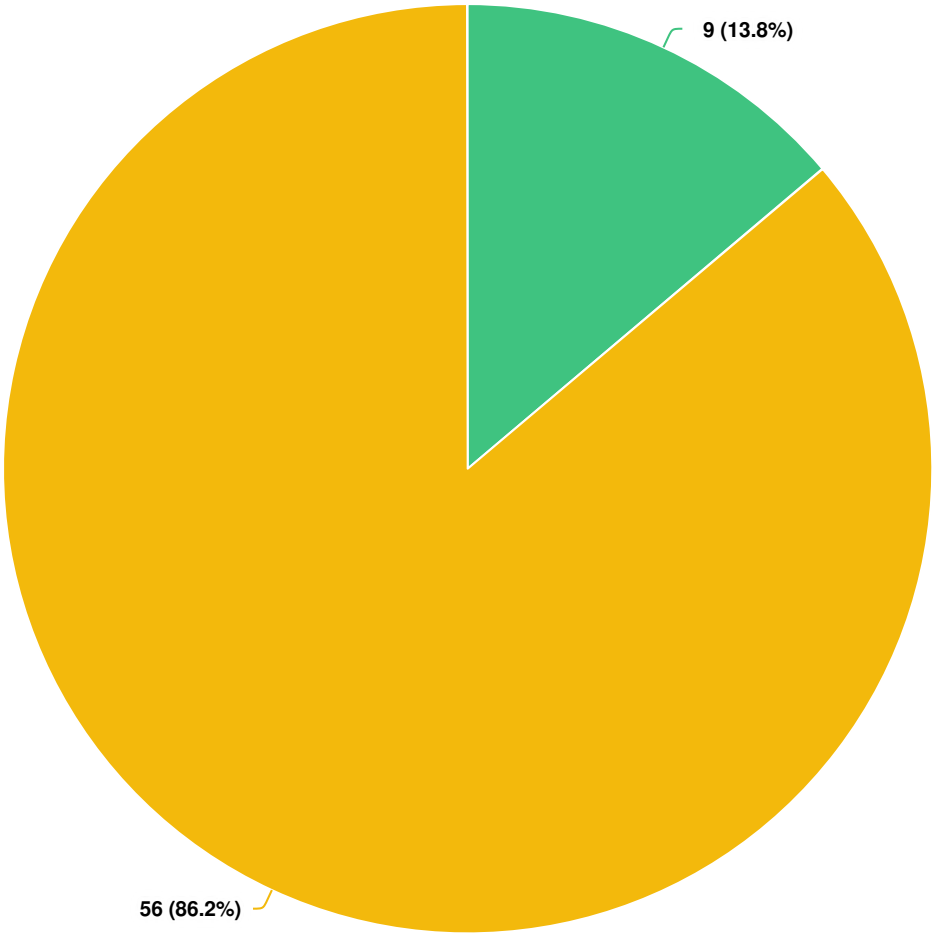
How satisfied are you with the Township's stormwater management system in preventing flooding and ensuring proper drainage during heavy rainfall?



Optional question (65 response(s), 0 skipped)

Question type: Radio Button Question

Have you experienced flooding impacts on your property?



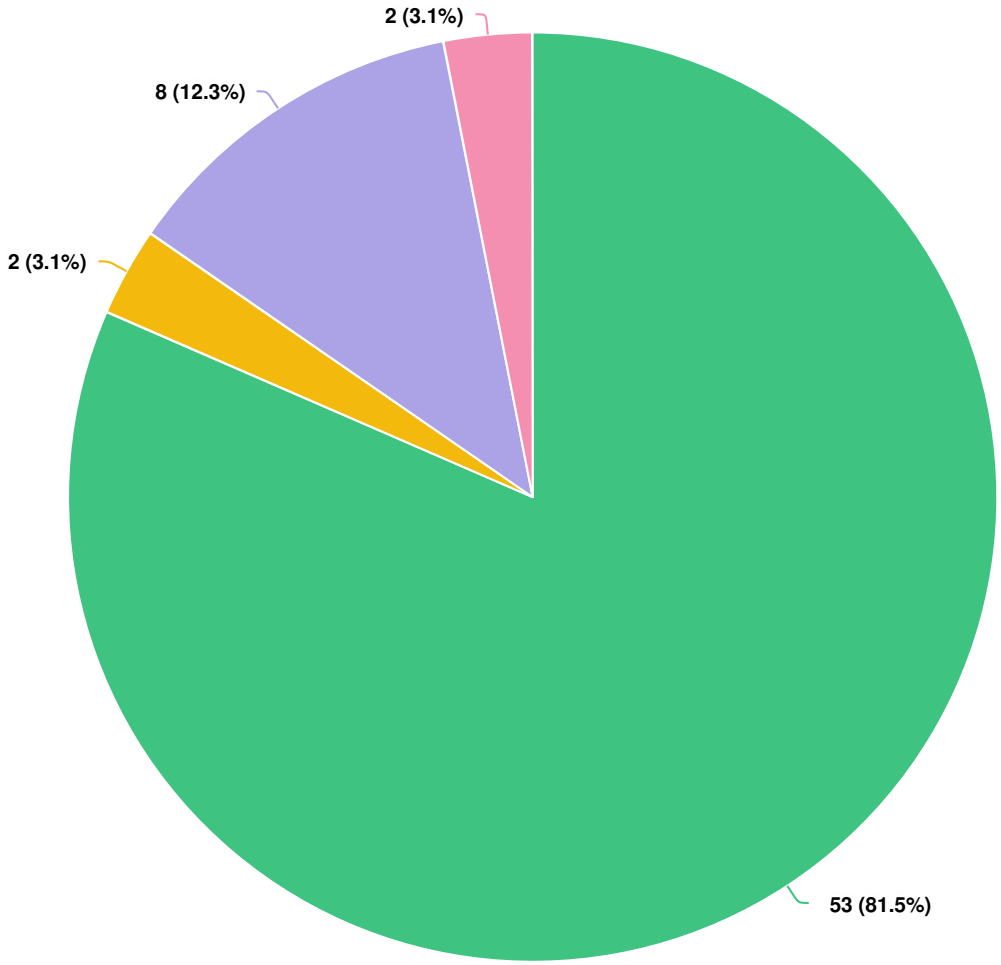
Question options

Yes No

Optional question (65 response(s), 0 skipped)

Question type: Radio Button Question

In the last 5 years how often have you experienced an impact due to roads being flooded?



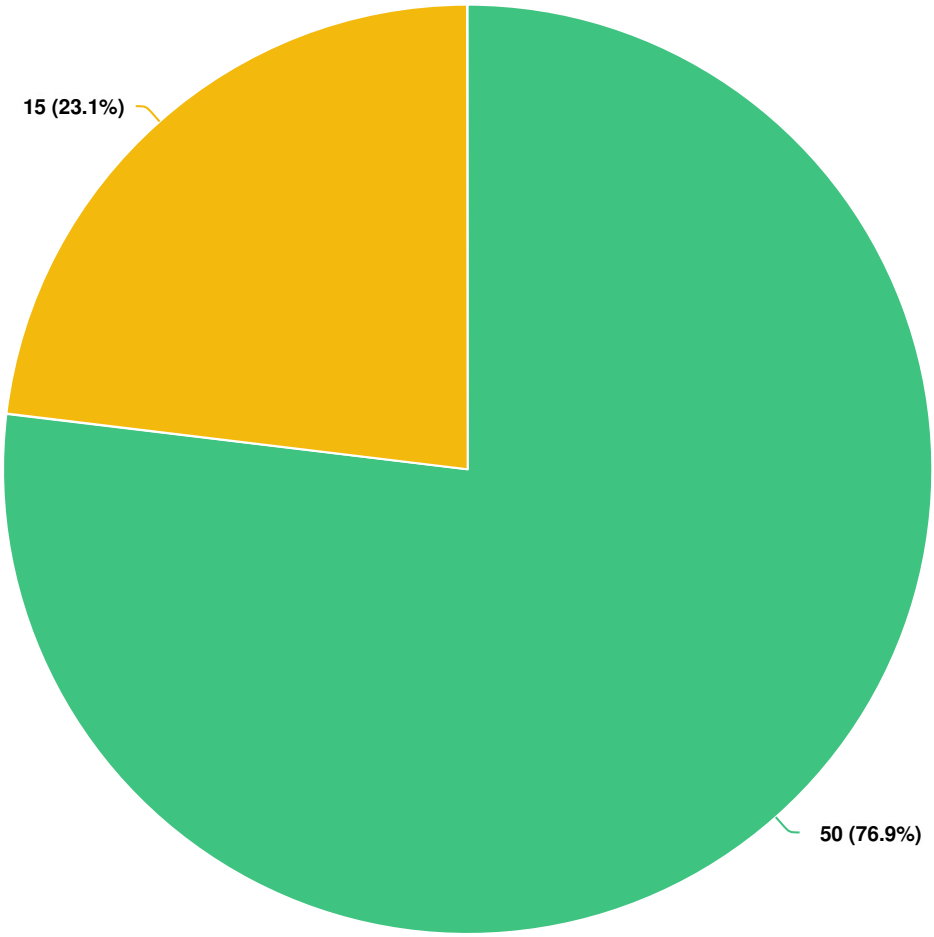
Question options

Never | Once a year | Less than 5 times | More than 5 times

Optional question (65 response(s), 0 skipped)

Question type: Radio Button Question

Do you use or are you affected by the Township's transportation network?



Question options

Yes No

Optional question (65 response(s), 0 skipped)

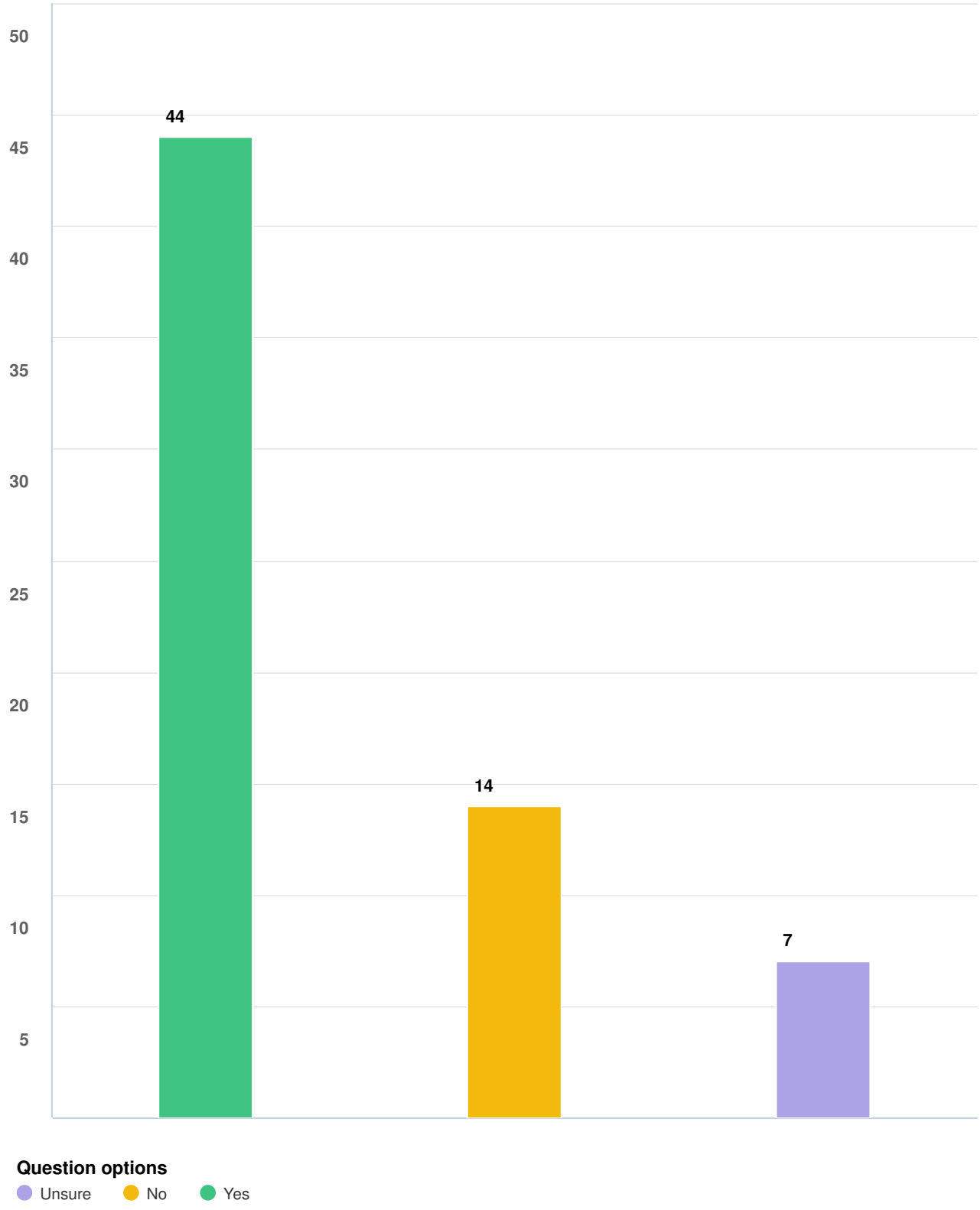
Question type: Radio Button Question

How satisfied are you with the current condition and maintenance of the Township's transportation network, considering factors like road smoothness (e.g. potholes, cracks) and frequency of repairs (e.g. grading program)? Using the scale of 1 meanin...

Optional question (50 response(s), 15 skipped)

Question type: Likert Question

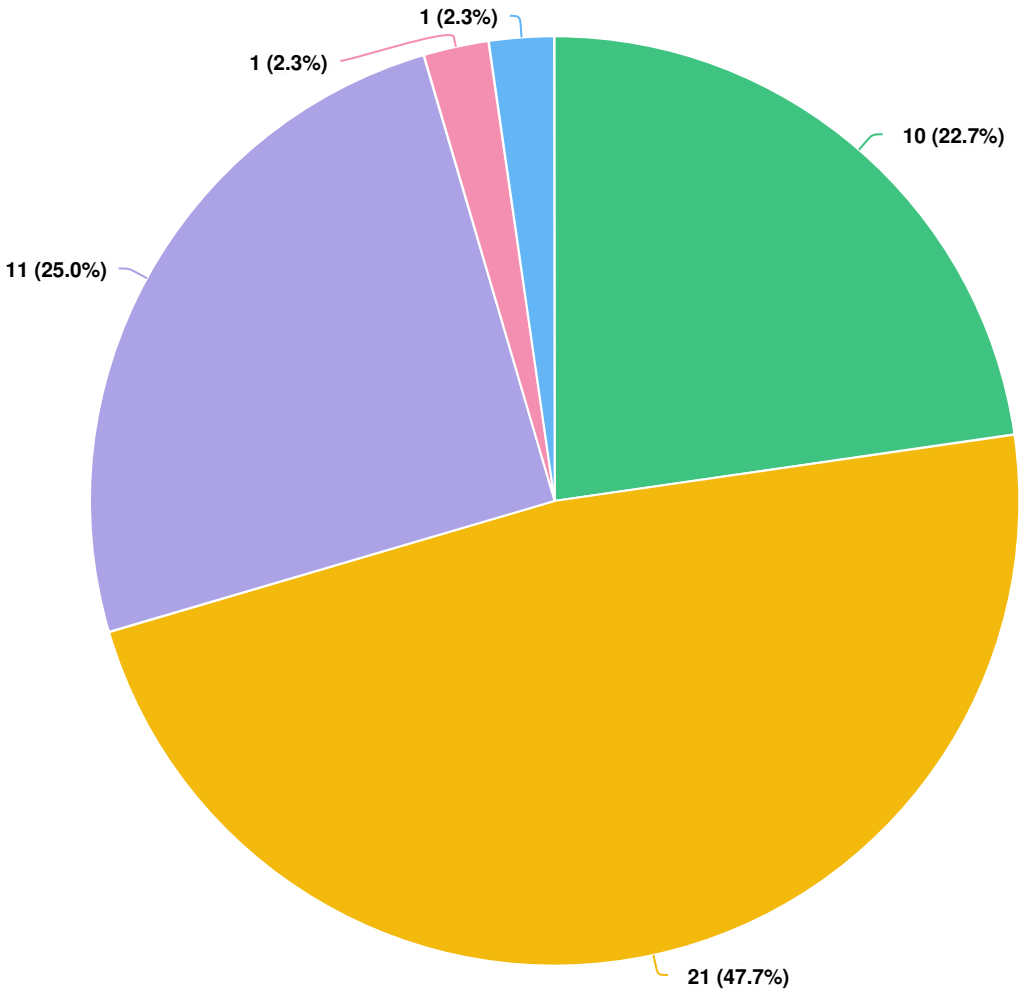
Is your household or business connected to the municipal wastewater collection system?



Optional question (65 response(s), 0 skipped)

Question type: Checkbox Question

How satisfied are you with the condition and performance of the Township's wastewater systems, including the prevention of overflows, backups and odours?



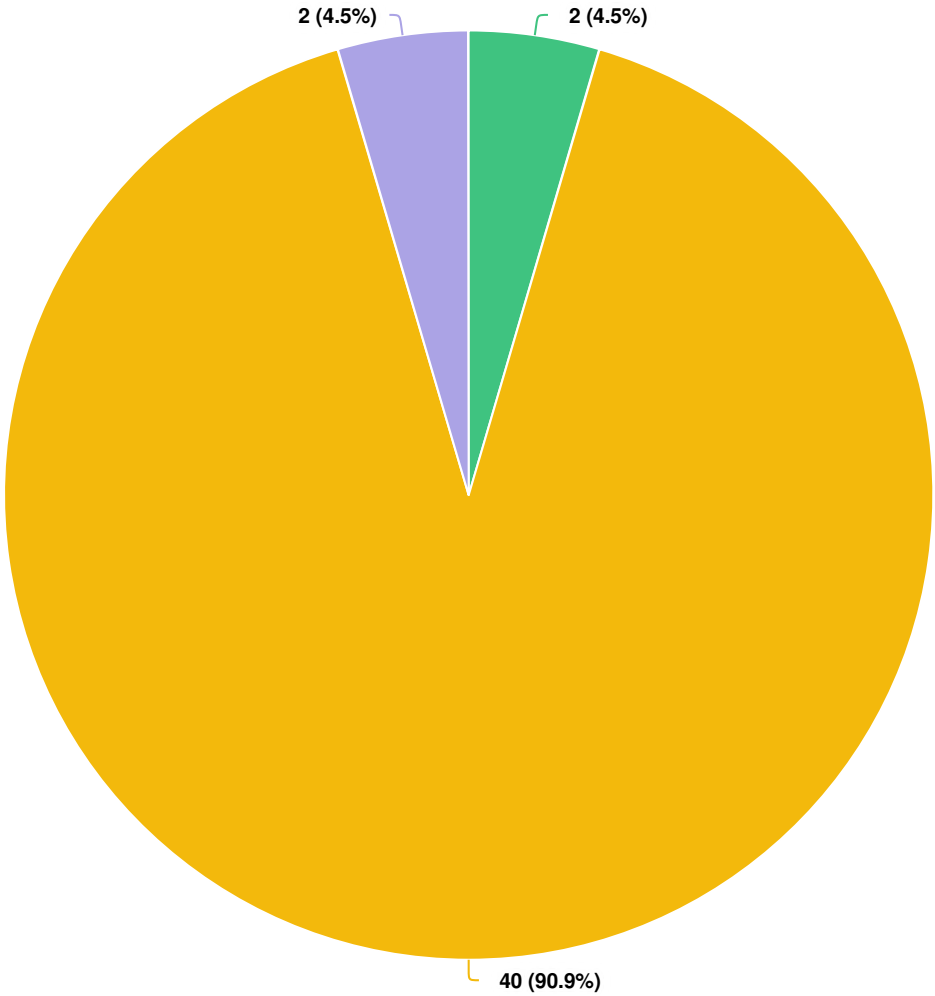
Question options

Very Dissatisfied Dissatisfied Neutral Satisfied Very Satisfied

Optional question (44 response(s), 21 skipped)

Question type: Radio Button Question

In the last 5 years, has your household or business experienced a sewer backup?



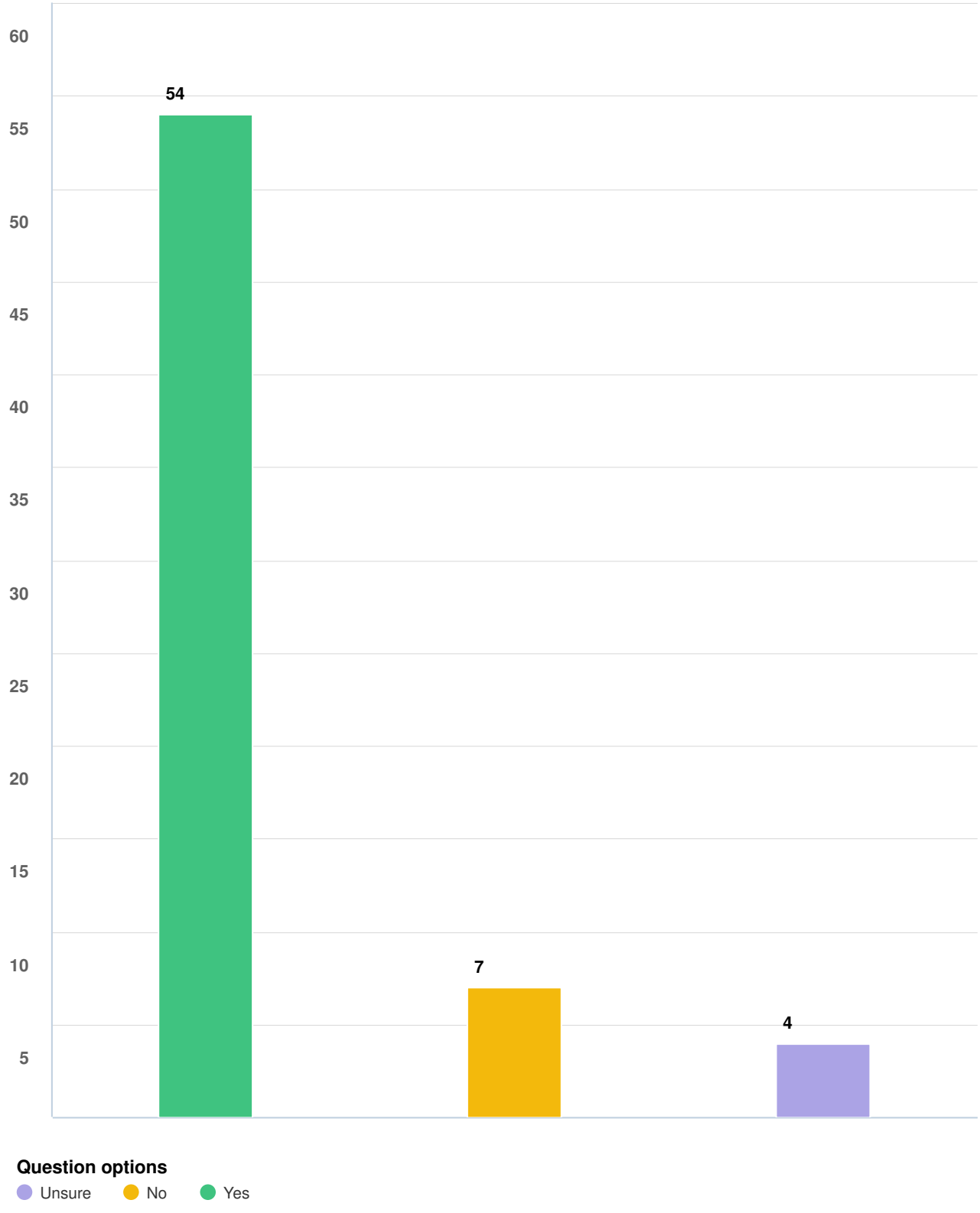
Question options

Unsure No Yes

Optional question (44 response(s), 21 skipped)

Question type: Radio Button Question

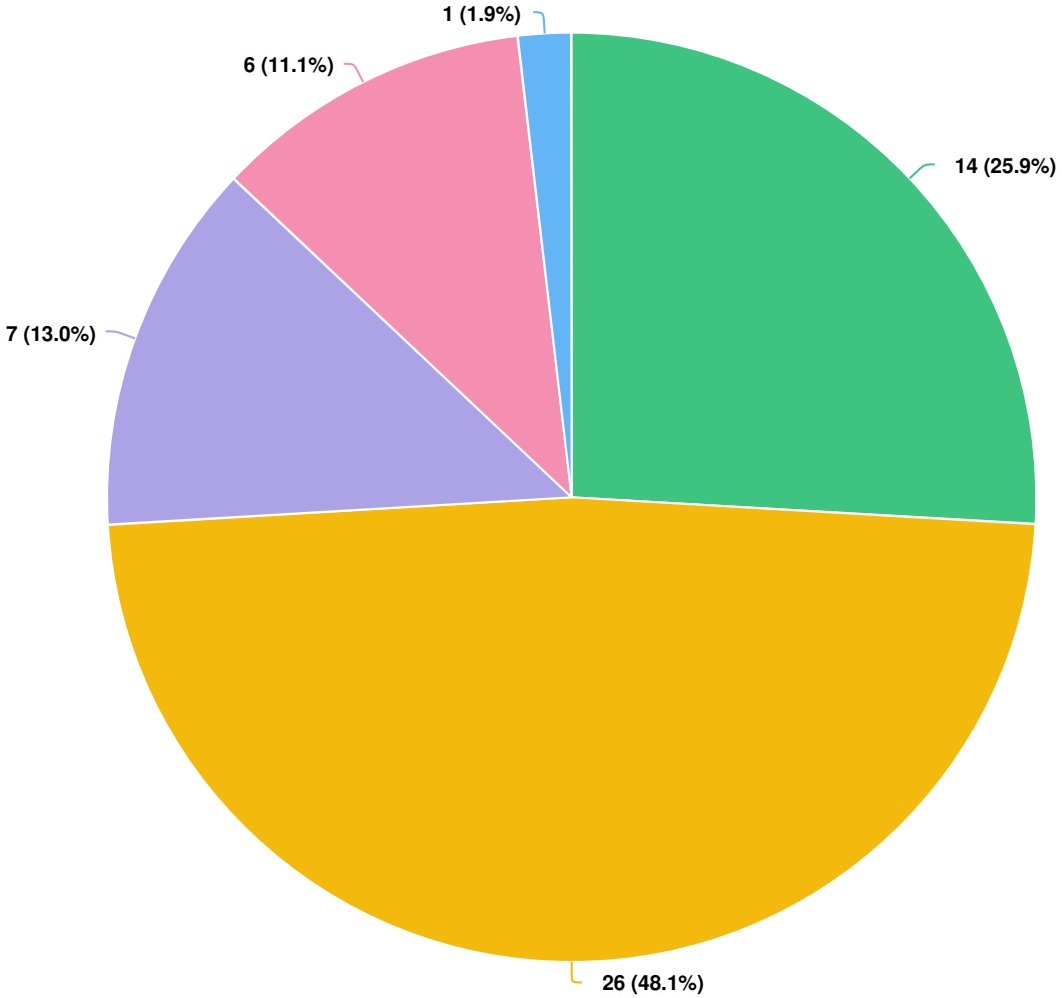
Is your household or business connected to municipal water?



Optional question (65 response(s), 0 skipped)

Question type: Checkbox Question

How satisfied are you with the availability and reliability of drinking water provided in the Township?



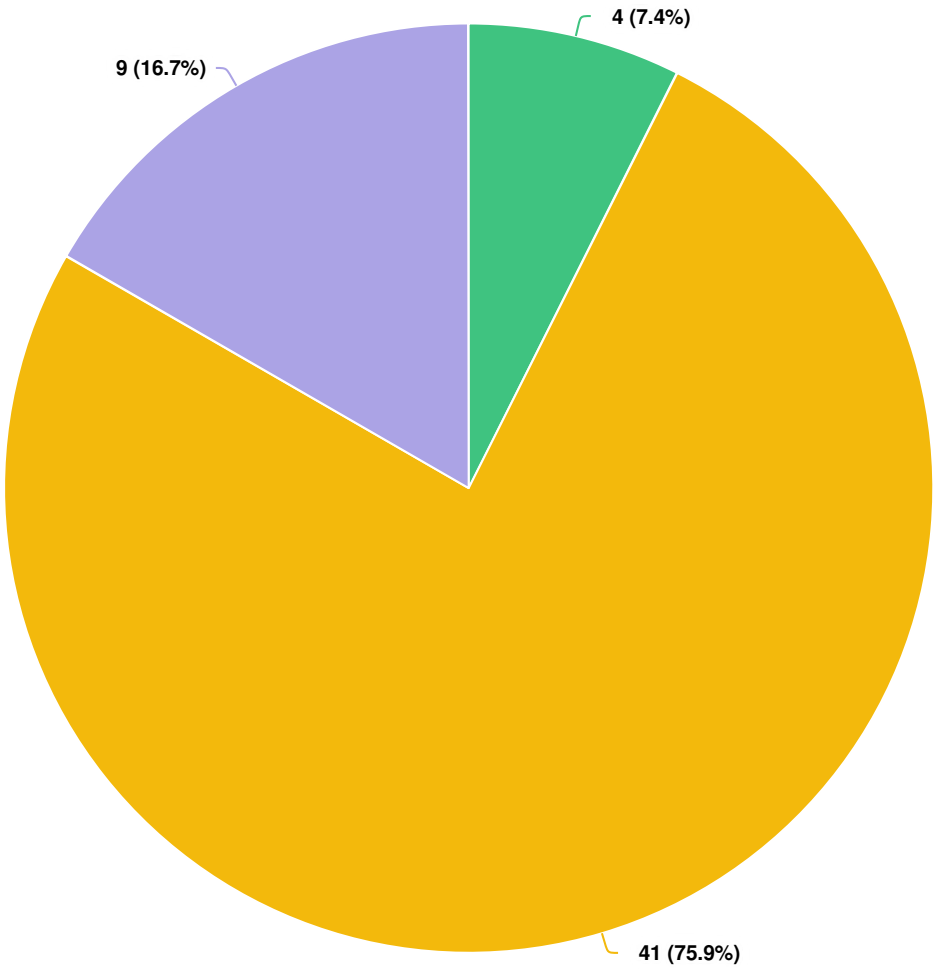
Question options

Very Dissatisfied | Dissatisfied | Neutral | Satisfied | Very Satisfied

Optional question (54 response(s), 11 skipped)

Question type: Radio Button Question

In the last 5 years, has your household or business experienced a disruption in your water service?



Question options

Unsure No Yes

Optional question (54 response(s), 11 skipped)

Question type: Radio Button Question

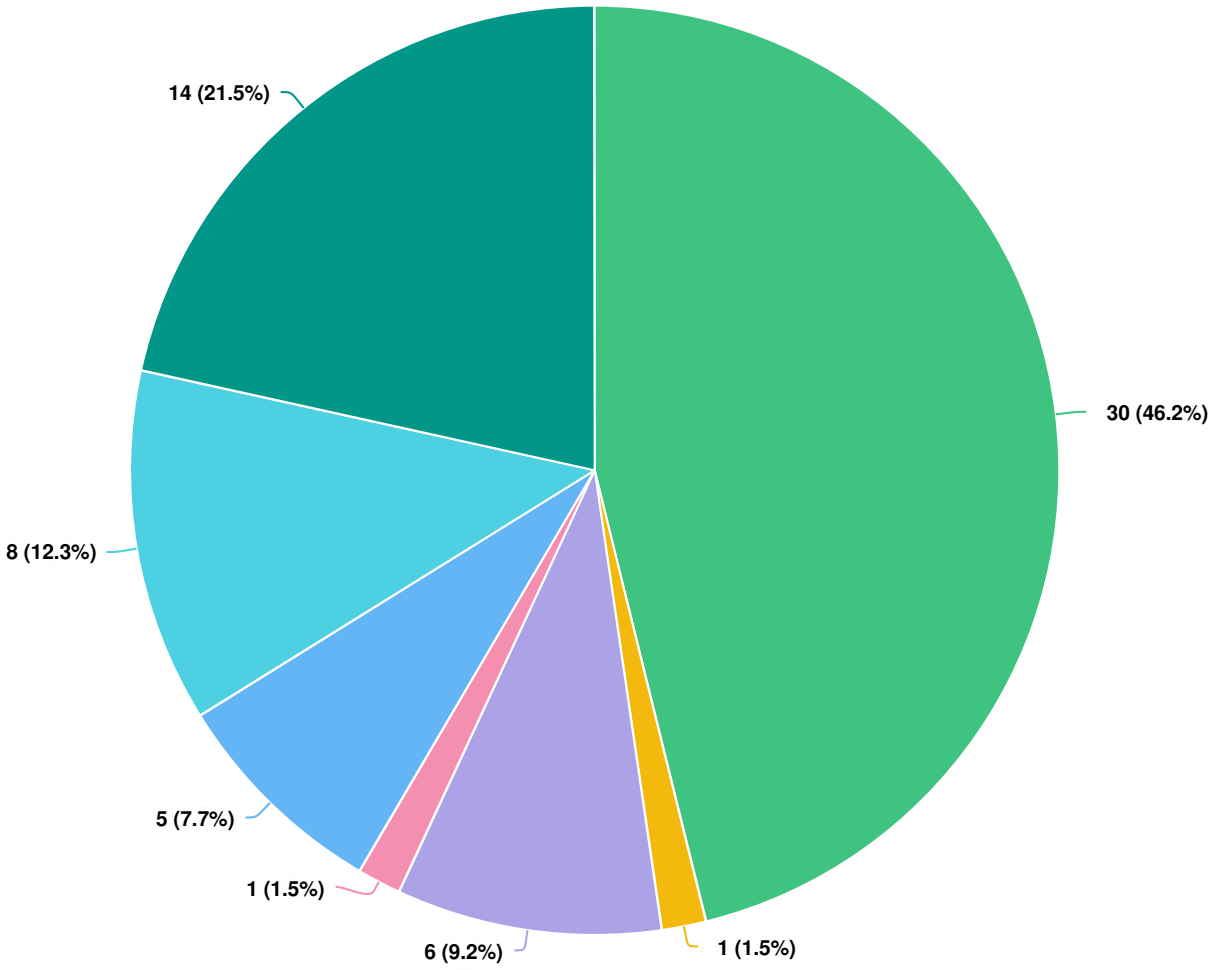
There may be times when the Township of Woolwich needs to make decisions on where to allocate funding based on limited resources. Looking at the list of services below, please rank in order of highest priority (1) to lowest priority (7), how you th...

OPTIONS	AVG. RANK
Fire Services	2.75
Water	3.26
Transportation Network	3.61
Indoor Recreational Facilities	4.45
Stormwater Management	4.48
Wastewater	4.48
Outdoor Recreational Spaces	4.50

Optional question (65 response(s), 0 skipped)

Question type: Ranking Question

How much more per year would you be willing to contribute to increase services in your top 3 priority areas?



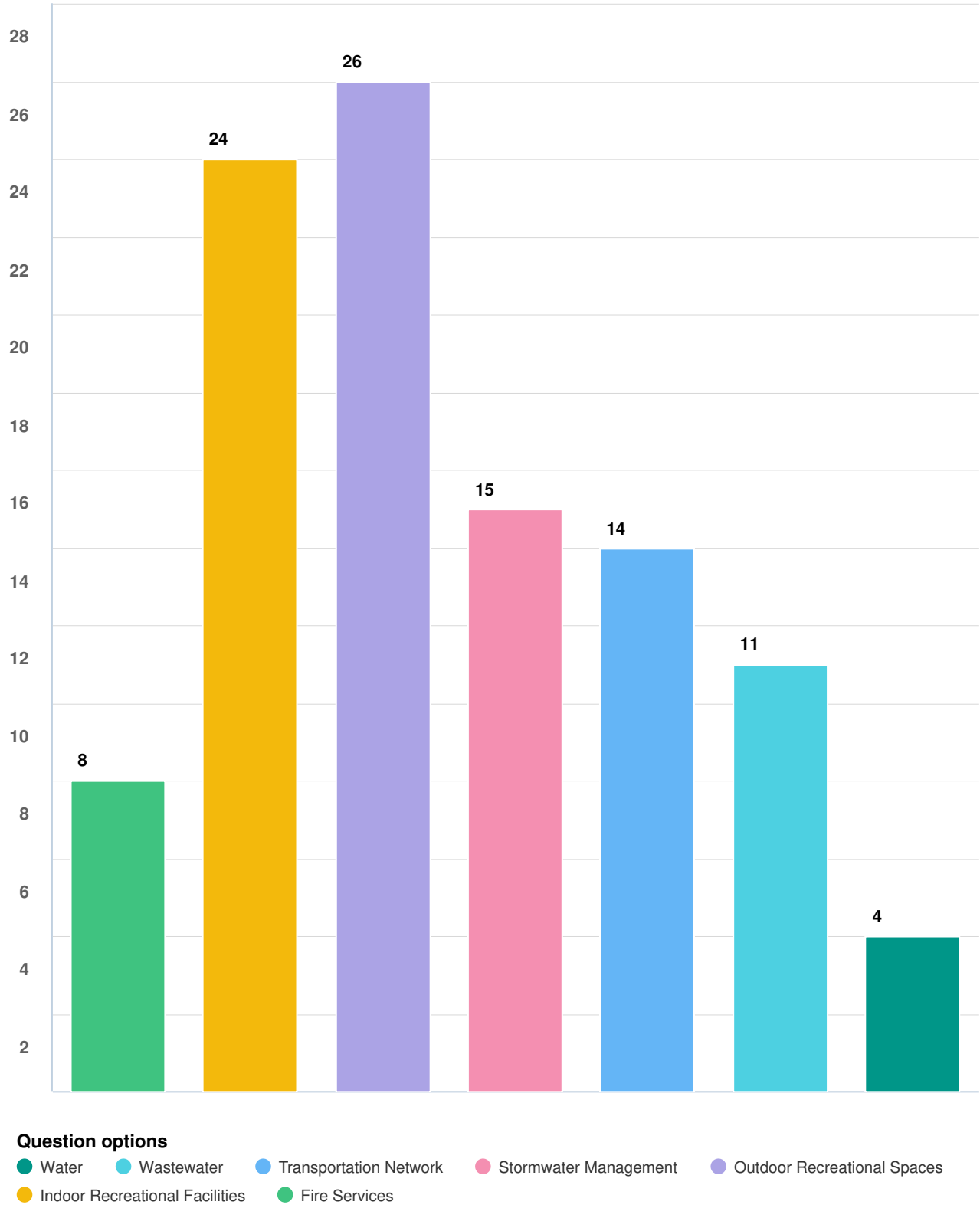
Question options

I'm not sure | More than $20 | $20 | $15 | $10 | $5 | No more

Optional question (65 response(s), 0 skipped)

Question type: Radio Button Question

Alternatively, if the municipality increased investment in your priority areas, for which other areas would you be most comfortable with reducing funding? Check all that apply.



Optional question (52 response(s), 13 skipped)

Question type: Checkbox Question

APPENDIX C: ADDITIONAL CUSTOMER AND TECHNICAL LEVEL OF SERVICE TABLES

1. DRINKING WATER DISTRIBUTION

Table A 1: Drinking Water Distribution Customer Levels of Service

Customer Measures	Service Attributes	Current Performance
Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal water system. *	Scope	The Township has four separate distribution systems: 1) the Breslau Distribution System receives water from Kitchener Well Supply and is part of the Integrated Urban System owned and operated by the Region of Waterloo; 2) the Heidelberg Distribution System receives water from the Heidelberg Well Supply System owned and operated by the Region of Waterloo; 3) the Maryhill Distribution System receives water from the Maryhill Well Supply that is owned and operated by the Region of Waterloo; and 4) the Woolwich North Distribution System receives water from the Waterloo Well Supply, part of the Integrated Urban System owned and operated by the Region of Waterloo, and services parts of Elmira, St. Jacobs, Conestogo and West Montrose. Rural areas and some older areas within the distribution system are serviced by private wells.
Description, which may include maps, of the user groups or areas of the municipality that have fire flow. *	Scope	Approximately 67% of properties within the distribution system have access to fire flow which include the settlements of Elmira, St. Jacobs, Conestogo, and Breslau.
Description of boil water advisories and service interruptions. *	Reliable	There have been no boil water advisories in 2024 and few service interruptions due to Township responsibilities. Boil water advisories exist when an adverse water quality sample is taken and watermain flushing alone is unable to resolve the issue.
Water is available when needed.	Reliable	Technical LOS measures indicate that the system has a high reliability and is kept in a state that provides safe drinking water with limited interruptions.
Water meets provincial safety and quality regulations	Safe, Quality	The Township meets the requirements set under the Drinking Water Quality Management Standard and Safe Drinking Water Act.
Water has acceptable taste, odour and colour.	Quality	The Region of Waterloo is responsible for treatment and water quality. Watermains are flushed as needed.

** indicates customer levels of service required by O. Reg. 588/17*

Table A 2: Drinking Water Distribution Technical Levels of Service

Service Attributes	Technical Measures	2023 Performance	2024 Performance	Proposed Performance	PLOS Justification
Scope	Percentage of properties connected to the municipal water system. *	70.8%	71.0%	Maintain	Maintaining 71% connection rate ensures consistent service delivery to existing customers while balancing infrastructure expansion costs. This level provides adequate coverage for current development patterns while allowing strategic expansion based on growth demand and fiscal capacity.
Scope	Percentage of properties where fire flow is available. *	65.8%	67.40%	Maintain	The target ensures adequate fire protection coverage for developed areas while optimizing infrastructure investment. This specific level provides substantial fire safety protection for residential and commercial properties while maintaining sustainable capital requirements for hydrant and watermain installations.
Reliable	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. *	0	0	Maintain	Maintaining zero boil water advisory days demonstrates the Township's commitment to safe drinking water delivery and regulatory compliance. This target ensures continued public health protection while reflecting the effectiveness of current water treatment and distribution system management practices.
Reliable	The number of connection-days per year due to watermain breaks compared to the total number of properties connected to the municipal water system. *	7.5	7.5	Maintain	The connection-days target balances infrastructure reliability with realistic maintenance expectations. This specific level ensures minimal service disruptions while acknowledging that some breaks are unavoidable in aging infrastructure. This target supports customer satisfaction while maintaining cost-effective repair response protocols.
Reliable	Annual number of watermain breaks per 100 km.	0.023	0.023	Maintain	Maintaining this approximate number of breaks per 100km reflects good infrastructure condition and proactive maintenance practices. This performance level ensures service reliability while demonstrating efficient asset management that minimizes emergency repairs and service disruptions.
Safe	Approximate length of system potentially containing lead joint mains and/or services.	2.3km	2.1km	Decrease	The decrease target aligns with provincial drinking water safety requirements and public health protection goals. Continued reduction of lead infrastructure components ensures compliance with evolving water quality standards while protecting community health.
Safe, Quality	The number of annual major infractions (nonconforming) Drinking Water Quality Management Standard (DWQMS) incidences.	0 Infractions	0 Infractions	Maintain	Maintaining zero major infractions ensures continued regulatory compliance and demonstrates the Township's commitment to drinking water quality management excellence. This target protects public health while avoiding regulatory penalties and maintaining community confidence in water safety.

** indicates technical levels of service required by O. Reg. 588/17*

2. SANITARY WASTEWATER COLLECTION SERVICES

Table A 3: Sanitary Wastewater Collection Customer Levels of Service

Customer Measures	Service Attributes	Current Performance
Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal wastewater system. *	Scope	Properties that are connected to the municipal wastewater system are in Breslau, Elmira, Conestogo, Heidelberg, and St. Jacobs. Rural areas outside the collection network and some older subdivisions in urban areas are serviced by private septic systems.
Description of how combined sewers in the municipal wastewater system are designed with overflow structures in place which allow overflow during storm events to prevent backups into homes. *	Reliable	There are no combined sewers allowed in new construction design. The Township has a sufficient overflow network that collects excess flow to ensure that backups into homes are minimized or prevented.
Description of the frequency and volume of overflows in combined sewers in the municipal wastewater system that occur in habitable areas or beaches. *	Reliable	The Township has not experienced any overflows in habitable areas or beaches.
Description of how stormwater can get into sanitary sewers in the municipal wastewater system, causing sewage to overflow into streets or backup into homes. *	Reliable	Some Inflow and Infiltration (I&I) into the collection system exists. Infiltration occurs when groundwater enters the system through cracks, joints, and deficiencies in the infrastructure. Inflow occurs when stormwater enters the system through direct connections, such as roof drains, floor drains, foundation drains and other connections.
Description of how sanitary sewers in the municipal wastewater system are designed to be resilient to avoid events described above. *	Reliable	Design and construction criteria for sanitary sewers are in place to ensure consistent and industry-accepted performance requirements, materials, and installation methods are used. The Township conducts flow monitoring, I&I reduction program and is expanding its pipe lining program to target known areas of I&I.
Description of the effluent that is discharged from sewage treatment plants in the municipal wastewater system. *	Reliable	The Region of Waterloo is responsible for the treatment of wastewater at sewage treatment facilities.
Adverse odours are minimized.	Operational	Odour complaints are addressed on a case-by-case basis. Sanitary mains are flushed as needed.
Sewer backups and flooding are minimized.	Reliable, Operational, Environmental Stewardship	The Township is meeting related service attributes by maintaining the sanitary network in a state of overall good condition where backups and flooding are minimized. More information is required to report on supporting technical metrics for operational and environmental stewardship measures to truly inform service levels.

** indicates customer levels of service required by O. Reg. 588/17*

Table A 4: Sanitary Wastewater Collection Technical Levels of Service

Service Attributes	Technical Measures	2023 Performance	2024 Performance	Proposed Performance	PLOS Justification
Scope	Percentage of properties connected to the municipal wastewater system. *	67.2%	67.5%	Maintain	Maintaining 67.5% connection rate provides adequate wastewater collection coverage while balancing system expansion costs with environmental protection needs. This level ensures proper sewage collections for developed areas while allowing strategic expansion based on growth patterns and fiscal capacity.
Scope	The number of events per year where combined sewer flow in the municipal wastewater system exceeds system capacity compared to the total number of properties connected to the municipal wastewater system. *	0	0	Maintain	Maintaining zero overflow events ensures environmental protection and regulatory compliance. This target prevents contamination of local water bodies while demonstrating effective system capacity management and infrastructure adequacy for current service demands.
Scope	The number of connection-days per year due to wastewater backups compared to the total number of properties connected to the municipal wastewater system. *	0.38	1.4	Maintain	The connection-days target acknowledges realistic system performance while minimizing property damage and health risks. This specific level balances infrastructure reliability expectations with cost-effective maintenance practices, ensuring customer protection while maintaining sustainable service delivery.
Scope	The number of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal wastewater system. *	N/A (Regional Jurisdiction)	N/A (Regional Jurisdiction)	N/A (Regional Jurisdiction)	Not applicable as wastewater treatment is under regional jurisdiction.
Operational	Annual number of unplanned flushing events for sanitary sewers	2	2	Maintain	Maintaining the number of unplanned flushing events annually reflects proactive system maintenance while acknowledging occasional operational needs. This target ensures optimal system flow characteristics while demonstrating effective preventive maintenance that minimizes emergency interventions and service disruptions.

** indicates technical levels of service required by O. Reg. 588/17*

3. STORMWATER MANAGEMENT

Table A 5: Stormwater Management Customer Levels of Service

Customer Measures	Service Attributes	Current Performance
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. *	Scope	Urban areas are protected from flooding through urban ditch system or underground storm collection, some with designed outlets. Most rural areas protected from flooding through provision of municipal drains or rural ditch systems, some with defined outlets.
Sewer backups and flooding are minimized.	Reliable	The technical metrics for reliability based on condition are in a good state suggesting that the system is generally reliable. Further robust condition information is required.
Transportation impacts from flooding are minimized	Reliable, Operational	
Property impacts from flooding are minimized		

** indicates customer levels of service required by O. Reg. 588/17*

Table A 6: Stormwater Management Technical Levels of Service

Service Attributes	Technical Measures	2023 Performance	2024 Performance	Proposed Performance	PLOS Justification
Scope	Percentage of properties in municipality resilient to a 100-year storm. *	39.4%	41%	Maintain	The target provides reasonable flood protection while balancing infrastructure investment with climate resilience goals. This specific level offers protection for a significant portion of properties during extreme weather events while maintaining sustainable capital requirements for comprehensive flood management systems.
Scope	Percentage of the municipal stormwater management system resilient to a 5-year storm. *	70.7%	71.5%	Maintain	Maintaining resilience to 5-year storms ensures adequate protection against frequent rainfall events while optimizing infrastructure investment. This target provides substantial flood protection for typical storm conditions while supporting property protection and transportation network functionality during regular weather patterns.

** indicates technical levels of service required by O. Reg. 588/17*

4. CELLAR DRAIN COLLECTION SYSTEM

Table A 7: Cellar Drain Collection System Customer Levels of Service

Customer Measures	Service Attributes	Current Performance
Sewer backups and flooding are minimized.	Reliable	The Township separates the existing cellar drain systems from the sanitary wastewater collection system and constructs cellar drains so the network can accommodate for excess flow and mitigate backups and flooding.
Property impacts from flooding are minimized	Reliable, Operational	Historical LOS measures indicate that the system has high reliability, is constructed with additional capacity, and overall, the system is kept in a state that minimizes impacts of flooding. Cellar drain systems are replaced in accordance with Township, Ontario Provincial Standards, and MECP standards. More information is required to report on supporting technical metrics for operational and environmental stewardship measures to truly inform service levels.
The cellar drain collection system consists of appropriate quantity control measures that meet standards and specifications.	Reliable, Operational, Environmental Stewardship	Historical LOS measures indicate that the system has high reliability, is constructed with additional capacity, and overall, the system is kept in a state that minimizes impacts of flooding. Cellar drain systems are replaced in accordance with Township, Ontario Provincial Standards, and MECP standards. More information is required to report on supporting technical metrics for operational and environmental stewardship measures to truly inform service levels.

Technical measures for Cellar Drain Collection System are limited to the performance measure outlined in Table 2-1. Further measures to be identified as information and analysis for the system is expanded.

5. TRANSPORTATION SERVICES

Table A 8: Transportation Services Customer Levels of Service

Customer Measures	Service Attributes	Current Performance
Description, which may include maps, of the road network in the municipality and its level of connectivity. *	Scope	The Township's roadways are comprised of hard-top and loose top roads, which make up 67% and 33% of its road network, respectively. The Township's roadways provide a high degree of connection within and throughout the settlements of the Township. The roads support various types of traffic, including motor vehicles, pedestrians, cyclists, and horse & buggy vehicles. The Township does not have any arterial roadways in its inventory as that class of roadways fall within the Region of Waterloo's jurisdiction.
Description or images that illustrate the different levels of road class pavement condition. *	Quality	Road class pavement condition scores are assessed by the following categories: Loose Top Roads: • Very Good = Physical Condition of 71 to 100, Structural Adequacy of 20, less than 5% of section length of road has 'soft spots', and 'no frost boils' exist • Good = Physical Condition of 56 to 70, Structural Adequacy of 15 to 19, between 5% and 15% of road has 'soft spots', and less than 5% of road has 'frost boils' • Fair = Physical Condition of 36 to 55, Structural Adequacy of 12 to 14, between 16% and 20% of road has 'soft spots', and 6% to 10% of road has 'frost boils' • Poor = Physical Condition of 20 to 35, Structural Adequacy of 8 to 11, between 21% and 25% of road has 'soft spots', and 11% to 15% has 'frost boils' • Very Poor = Physical Condition of 0 to 19, Structural Adequacy of 1 to 7, more than 25% of road has 'soft spots', and more than 15% has 'frost boils' Hard Top Roads • Very Good = Physical Condition of 71 to 100, Structural Adequacy of 20, signs of surface distress represent less than 5% of the length of the section • Good = Physical Condition of 56 to 70, Structural Adequacy of 15 to 19, distress between 5% and 10% of the length; maintenance may be above average • Fair = Physical Condition of 36 to 55, Structural Adequacy of 12 to 14, distress between 11% and 15% of the length; maintenance may be above average • Poor = Physical Condition of 20 to 35, Structural Adequacy of 8 to 11, distress between 16% and 20% of the length; maintenance effort is high • Very Poor = Physical Condition of 0 to 19, Structural Adequacy of 1 to 7, distress is more than 20% of the length; maintenance is excessive
Description of the traffic that is supported by municipal bridges (e.g., heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists). *	Scope	Municipal bridges and culverts support a range of traffic, including all types of vehicles such as passenger vehicles, transport trucks/vehicles, emergency vehicles and horses & buggies. Pedestrians and cyclists are also supported by the Township municipal bridges and culverts.
Description or images of the condition of bridges and how this would affect use of the bridges. *	Quality	The majority of the Township's bridges, including footbridges and OSIM bridges, are in fair or better condition (23 bridges). Three (3) bridges are in Poor condition and six (6) bridges are in Very Poor condition. Bridges that are in Poor/Very Poor condition or that have elements in Poor/Very Poor condition could be subject to load or dimensionality restrictions and even closures, if warranted. Bridges in fair or better condition can remain open and in service to support traffic.
Description or images of the condition of culverts and how this would affect use of the culverts. *	Quality	The majority of the Township's OSIM culverts are in fair or better condition (29 culverts). Two (2) culverts are in Poor condition and none are in Very Poor condition. Culverts that are in Poor condition or that have elements in Poor/Very Poor condition could be subject to load or dimensionality restrictions and even closures if warranted. Culverts in fair or better condition can remain open and in service to support traffic.

Customer Measures	Service Attributes	Current Performance
The road network is safe to travel on, is well maintained and is functional.	Safe, Reliable	The Township's road network generally has a high degree of reliability. The majority of road network assets (65%) are in fair or better condition. These assets are performing well and remain in service. Some municipal structures are in very poor condition; however, the Township ensures the safety of road users by ensuring that these structures are inspected regularly and if required, closed.

** indicates customer levels of service required by O. Reg. 588/17*

Table A 9: Transportation Services Technical Levels of Service

Service Attributes	Technical Measures	2023 Performance	2024 Performance	Proposed Performance	PLOS Justification
Scope	Number of lane-kilometres of each of arterial roads, collector roads and local roads as a proportion of square kilometres of land area of the municipality. *	Arterial – N/A Collector – 128.5% Local – 98.2%	N/A - inspections occur every 2 years	Maintain	Maintaining current road network density ensures adequate transportation connectivity while balancing infrastructure expansion costs. This level provides sufficient road capacity for current development patterns while supporting economic activity and community access needs within sustainable fiscal parameters.
Reliable	For paved roads in the municipality, the average pavement condition index value. *	65.1	N/A - inspections occur every 2 years	Maintain	The pavement condition index represents good road quality that ensures safe vehicle operation while optimizing maintenance and reconstruction costs. This target balances user experience with sustainable asset management practices, providing reliable transportation infrastructure within fiscal constraints.
Reliable	For unpaved roads in the municipality, the average surface condition (e.g. excellent, good, fair or poor). *	44.8	N/A - inspections occur every 2 years	Maintain	Maintaining surface condition for unpaved roads ensures adequate rural road access while acknowledging the inherent limitations of gravel road infrastructure. This target provides reasonable driving conditions while maintaining cost-effective maintenance practices appropriate for rural service levels.
Reliable	Overall weighted average physical condition (structural adequacy)	58.3	N/A - inspections occur every 2 years	Increase	Increasing overall physical condition supports improved transportation network reliability and user safety. This target demonstrates the Township's commitment to infrastructure excellence while ensuring long-term asset sustainability and reduced lifecycle costs through proactive management. From the Road Needs Study, the weighted average condition should be a minimum of 70.
Reliable	Percentage of roads classified as "now need"	35%	N/A - inspections occur every 2 years	Maintain	Maintaining 35% of roads in "now need" category balances immediate infrastructure needs with available capital resources.
Reliable	Percentage of roads Good to Very Good when measured by structural adequacy metric by centreline km (per Roads SOTI AMP)	48.2%	N/A - inspections occur every 2 years	Increase	Increasing the percentage of roads in Good to Very Good condition enhances transportation network reliability and reduces long-term maintenance costs. This target supports improved user experience while demonstrating proactive asset management that optimizes infrastructure lifecycle value. From the Road Needs Study, the percentage of good to very good roads should be a minimum of 60%.
Reliable	Road network system adequacy score by centerline km	65.3%	N/A - inspections occur every 2 years	Maintain	The target network adequacy score ensures overall transportation system functionality while balancing performance optimization with available resources. This target provides adequate connectivity and service delivery while maintaining

Service Attributes	Technical Measures	2023 Performance	2024 Performance	Proposed Performance	PLOS Justification
					sustainable infrastructure management practices. From the Road Needs Study, the system adequacy should be a minimum of 60%.
Reliable	Percentage of bridges in the municipality with loading or dimensional restrictions. *	38% Note: For Road Bridges	N/A - inspections occur every 2 years	Decrease	Decreasing bridge restrictions to below 38% improves transportation network functionality and supports economic activity. This target enhances goods, movement, and emergency service access while demonstrating commitment to infrastructure adequacy and public safety requirements.
Reliable	For bridges in the municipality, the average bridge condition index value. *	63 [a]	N/A - inspections occur every 2 years	Maintain	Maintaining this bridge condition index ensures structural safety while optimizing replacement scheduling. This target provides adequate structural performance for vehicular traffic while balancing safety requirements with sustainable capital investment in bridge infrastructure.
Reliable	For structural culverts in the municipality, the average bridge condition index value. *	77	N/A - inspections occur every 2 years	Maintain	This ensures proper drainage function while maintaining cost-effective replacement cycles.
Reliable	For all municipal structures, the average bridge condition index value.	61 [a]	N/A - inspections occur every 2 years	Maintain	Maintaining 61 average condition for all structures ensures overall infrastructure safety while balancing diverse asset replacement needs. This target provides adequate structural performance across the transportation network while maintaining sustainable asset management practices.
Accessible	Number of municipal parking lots that have accessibility parking spots.	2/5	2/5	Increase	Increasing accessible parking availability demonstrates the Township's commitment to inclusive design and AODA compliance. This target ensures improved access for residents with disabilities while supporting community participation and equal access to municipal facilities and services.
Accessible	Percentage of urban roads that have sidewalks	n/a	82%	Increase	Increasing sidewalk coverage enhances pedestrian safety and supports active transportation goals. This target promotes walkability and accessibility while demonstrating commitment to complete streets design and community connectivity for all transportation modes.
Available	Number of graders by gravel road lane km	2:233.7	N/A - inspections occur every 2 years	Maintain	Maintaining this ratio ensures adequate maintenance capacity for unpaved roads while optimizing equipment investment.
Available	Number of IS service vehicles by population	13:28,310 [c]	17:28,530 [d]	Maintain	Maintaining the current vehicle-to-population ratio ensures adequate service delivery capacity while optimizing fleet management costs. Note: the increase in vehicles is partly attributed to holding on to replaced vehicles to act as spare rolling stock to help meet staff needs.
Available	Number of plow trucks per linear centreline km of hardtop roads	8: 228.6	N/A - inspections occur every 2 years	Maintain	Maintaining this ratio ensures adequate winter maintenance coverage while optimizing equipment investment. This ratio provides sufficient snow clearing capacity to maintain transportation network functionality during winter conditions while balancing operational costs with service expectations.

** indicates technical levels of service required by O. Reg. 588/17*
[a] The average BCI includes footbridges.

[c] *Year-End 2022 Population and Household Estimates, Region of Waterloo*
[d] *Year-End 2023 Population and Household Estimates, Region of Waterloo*

6. EMERGENCY SERVICES

Table A 10: Emergency Services Customer Levels of Service

Customer Measures	Service Attributes	Current Performance
Fire services respond to incidents in a timely manner	Reliable, Prevention, Safe	The technical metrics for reliability, prevention and safety suggest that Woolwich Fire Department responds to incidents in a timely manner.
Fire services surpass the minimum requirement for rural communities	Reliable	The Township is meeting this measure by maintaining response time per the Fire Protection Act for suburban areas and is exceeding requirements based on currently achieving the Accredited Superior Tanker Shuttle Service.

Table A 11: Emergency Services Technical Levels of Service

Service Attributes	Technical Measures	2023 Performance	2024 Performance	Proposed Performance	PLOS Justification
Prevention, Safe	Percentage of incidents 10 firefighters can arrive at within 10 minutes response time (based on the suburban rule with a volunteer fire department).	90%	90%	Maintain	Maintaining 90% response time achievement ensures adequate emergency response coverage while acknowledging rural service delivery challenges. This target balances life safety protection with volunteer fire department operational realities, providing substantial emergency protection within resource constraints.
Reliable	Annual average response time.	9 minutes and 17 seconds	9 minutes and 10 seconds	Maintain	This target provides adequate life safety protection while maintaining realistic performance expectations for volunteer fire services.
Availability (Prevention)	Annual number of fire incidents/1000 people.	2.20%[a]	2.24%[b]	Maintain	Maintaining the target incident rate reflects current community risk profile while supporting appropriate emergency preparedness. This level demonstrates effective fire prevention programs while ensuring adequate response capacity for anticipated service demands within the community.
Reliable	Fire services has the certified tanker shuttle certification (6 tankers - 1 per station).	100%	100%	Maintain	Maintaining 100% tanker shuttle certification ensures adequate water supply for firefighting in areas without hydrant coverage. This target provides essential fire suppression capability for rural areas while meeting insurance and safety requirements for comprehensive fire protection services.
Accessible	Percent of fire stations that are AODA compliant based on the 2024 Facilities Accessibility Audit report.	N/A	100%	Maintain	Maintaining 100% AODA compliance ensures accessible emergency services while demonstrating commitment to inclusive design. This target provides equal access to fire safety services while meeting legislative requirements and community accessibility standards.
Environmental Stewardship	Annual facility water consumption per square foot	0.01 m^3	0.01 m^3	Maintain	Maintaining efficient water consumption demonstrates resource stewardship while ensuring adequate facility operations for fire station functionality and readiness requirements, however no specific target can be set at the moment.

Service Attributes	Technical Measures	2023 Performance	2024 Performance	Proposed Performance	PLOS Justification
Environmental Stewardship	Annual facility natural gas consumption per square foot	1.37 m^3	1.22 m^3	Decrease	In line with the Township's sustainability and greenhouse gas goals, the Township is actively looking to replace natural gas furnaces with heat pump or electrical alternatives, therefore the consumption target is to decrease.
Environmental Stewardship	Annual facility hydro consumption per square foot	3.77 KWH	4.17 KWH	Maintain	It is expected that with more conversion to electrical systems, the Township's electricity consumption will increase, however no specific target can be set at the moment.

[a] Year-End 2022 Population and Household Estimates, Region of Waterloo
[b] Year-End 2023 Population and Household Estimates, Region of Waterloo

7. RECREATION AND FACILITIES

Table A 12: Recreation and Facilities Customer Levels of Service

Customer Measures	Service Attributes	Current Performance
Facilities and parks are accessible.	Accessible	The Township's 2024 Accessibility Audit indicates that based on AODA and OBC accessibility requirements, the Township is meeting the standard for facilities, with continuous improvement required for both facilities and parks through the implementation of Priority Items.
There are sufficient and appropriate amenities available for all residents.	Available	The Township's availability related technical measures indicate that the adopted service standards identified through the Parks and Recreation Master Plan are currently being met, with future population growth and development supporting the need for future improvements.
Impacts on the environment and greenhouse gases are being reduced.	Environmental Stewardship	Greenhouse gas emission targets and sustainability actions for facilities and fleet are incorporated within the Transform Waterloo Region strategy and future Woolwich Climate Action Plans. At end of service life for facility and fleet assets, the Township, where possible, replaces these assets with alternatives that contribute to reducing corporate greenhouse gas emissions.
Vehicles, equipment, and system service disruption is minimized.	Reliable	The Township's current technical metrics indicate that there is a fairly good reliability since the overall assets are kept in fair condition. Further investigation is required to improve accuracy and reportability for this measure.
Facilities are safe.	Reliable, Safe	

Table A 13: Recreation and Facilities Technical Levels of Service

Service Attributes	Technical Measures	2023 Performance	2024 Performance	Proposed Performance	PLOS Justification
Available	Number of indoor ice rinks per 15,000 residents	N/A	1.42:15,000	Maintain	From the 2024 Parks and Recreation Master Plan the availability metrics are currently being met, and the target is to maintain availability as outlined in the report. Regular tracking of these measures will help determine whether capacity and growth needs are being met.
Available	Number of ball diamonds per 3,000 residents	N/A	1.56:3,000	Maintain	
Available	Number of soccer fields per 2,000-4,000 residents	N/A	1.706:4,000	Maintain	
Available	Number of playgrounds per 100-300 children (0-9 yrs)	N/A	1.35:300	Maintain	

Service Attributes	Technical Measures	2023 Performance	2024 Performance	Proposed Performance	PLOS Justification
Available	Number of splash pads per 3,000 children (0-9 yrs)	N/A	1.35:3,000	Maintain	
Available	Number of tennis courts per 5,000 residents	N/A	1.10:5,000	Maintain	
Available	Number of indoor aquatic centres per 50,000 residents	N/A	1.59:50,000	Maintain	
Available	Registration rate for programs: Aquatic Programs (includes drop-in and registration programs)	10,024	11,830	Increase	Increasing aquatic program participation demonstrates growing community engagement while maximizing facility utilization. This target supports healthy lifestyle promotion and facility cost recovery while ensuring adequate programming capacity meets increasing demand for swimming and aquatic fitness services.
Available	Registration rate for programs: Ice rental hour totals (during prime hours)	6,945	6,945	Maintain	Maintaining prime hour ice rentals ensures optimal facility utilization while meeting community demand for ice sports. This target balances user group needs with facility availability while supporting cost recovery through rental revenue and community access to recreational ice programming.
Available	Registration rate for programs: Community Center rental totals	489	482	Increase	Increasing community centre rentals above current promotes facility utilization while supporting community events and programming. This target demonstrates facility accessibility for diverse community uses while contributing to cost recovery and enhancing social connectivity through event hosting capabilities.
Available	Registration rate for programs: Fitness Center memberships	721	722	Increase	Increasing fitness centre memberships above current supports community health objectives while optimizing facility utilization. This target promotes active living while contributing to facility cost recovery and ensuring adequate fitness programming capacity meets growing demand for health and wellness services.
Available	Number of Bookings: "A" Rated Ball Diamonds	586	694	Maintain	Maintaining "A" rated diamond bookings ensures optimal use of premier ball field facilities while meeting competitive league demands. This target balances high-quality field conditions with usage intensity while supporting tournament hosting and elite-level recreational programming.
Available	Number of Bookings: "B" Rated Ball Diamonds	108	55	Maintain	Maintaining current "B" rated diamond usage acknowledges varying field quality requirements while ensuring facility availability for recreational leagues. This level provides adequate field access for community programming while optimizing maintenance resources across the ball diamond network.
Available	Number of Bookings: "A" Rated Soccer Pitches	65	63	Maintain	Maintaining "A" rated soccer pitch bookings ensures premier field availability for competitive soccer while managing turf quality requirements. This target balances high-performance field conditions with sustainable usage levels that support tournament hosting and advanced soccer programming.
Available	Number of Bookings: "B" Rated Soccer Pitches	365	366	Maintain	Maintaining "B" rated soccer pitch bookings provides adequate recreational field access while optimizing field maintenance schedules. This level ensures community soccer program

Service Attributes	Technical Measures	2023 Performance	2024 Performance	Proposed Performance	PLOS Justification
					availability while balancing usage intensity with sustainable turf management and field condition requirements.
Accessible	Percent of facilities that are AODA compliant based on the 2024 Facilities Accessibility Audit report.	N/A	100%	Maintain	Maintaining 100% AODA compliance ensures universal access to recreational facilities while demonstrating commitment to inclusive design. This target provides equal recreational opportunities for all residents while meeting legislative accessibility requirements and supporting community participation for persons with disabilities.
Accessible	Percentage of Priority Items implemented.	N/A	0%	Increase	Priority Items are those accessibility enhancements that would be required if the current legislation was applied to all facilities, including those constructed previous to the AODA and OBC implementation dates.
Environmental Stewardship	Annual facility water consumption per square foot	0.09 m^3	0.16 m^3	Maintain	Maintaining water consumption per square foot acknowledges aquatic facility requirements while promoting efficient water use. This target balances recreational facility operations with environmental stewardship goals, ensuring adequate water supply for pools and recreational programming while monitoring consumption efficiency.
Environmental Stewardship	Annual facility natural gas consumption per square foot	3.01 m^3	3.01 m^3	Decrease	Decreasing natural gas consumption supports the Township's sustainability and greenhouse gas reduction objectives. This target promotes conversion to electric heating systems while maintaining adequate facility climate control for recreational programming and user comfort in community facilities.
Environmental Stewardship	Annual facility hydro consumption per square foot	10.33 KWH	14.45 KWH	Increase	Hydro use is anticipated to increase in the future as Woolwich continues to decarbonize our facilities. Performance measure based on increase in electricity consumption as a result of a decrease in natural gas usage.
Environmental Stewardship	Annual facility propane consumption per square foot	0.01 BTU	0.02 BTU	Decrease	Decreasing propane consumption supports overall facility decarbonization goals while maintaining emergency backup systems. This target promotes alternative energy sources while ensuring operational reliability for essential recreational facility systems and equipment operations.
Environmental Stewardship	Percentage of electric or hybrid light duty fleet vehicles	8.3%	7.1%	Increase	This target aligns with the Township’s sustainability goals for replacing eligible light-duty vehicles with hybrid or electric vehicles.
Available	Number of Recreation and Community Services light duty vehicles per population ([1, 2])	11:28,310[a]	14:28,530[b]	Maintain	Maintaining the current vehicle-to-population ratio ensures adequate service delivery capacity while optimizing fleet management. This level provides sufficient vehicles for recreational programming, facility maintenance, and community services while balancing operational efficiency with service delivery requirements.
Available	Number of by-law service vehicles per population ([1, 2])	1:28,310[a]	1:28,530[b]	Increase	Increasing by-law service vehicle capacity above the current ratio enhances enforcement capability while improving community compliance support. This target ensures adequate by-law enforcement coverage while supporting community standards and regulatory compliance across the Township's geographic area and growing population.

[a] Year-End 2022 Population and Household Estimates, Region of Waterloo
[b] Year-End 2023 Population and Household Estimates, Region of Waterloo

APPENDIX D: LIFECYCLE MANAGEMENT STRATEGY

Table A 14: Lifecycle Management Activities for Drinking Water Distribution Assets

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
Non-Infrastructure	Planning and studies (Master Plans, financial plans, User Rate Study, capacity studies, AMPs, Drinking Water Quality Management Standard (DWQMS) Compliance, Form 1 Authorization) • Policies, procedures/standards and by-laws (e.g. municipal servicing connection policy; Break History Mapping; Back Flow Prevention By-Law) • Geographic Information System (GIS) data analysis and mapping	As required	• Diminished understanding of future needs & growth impacts. • Reduce ability to coordinate project planning between service areas. • Reduced understanding of climate change impacts. • Inaccurate GIS data, and poor data management between systems.	• Alignment of asset management documents and processes to integrate recommendations from all master plans, service studies, and community engagement activities to maximize planning efficiency, reduce duplication, increase alignment, and support proactive planning and analysis. This will streamline forecasting, business plan development, and understanding of asset priorities and needs. In particular: o Integration of all asset recommendations from planning and studies into the lifecycle management strategy to ensure alignment of all project and O&M planning. • Integration of climate change risks and other studies with on-going condition assessment and monitoring programs to support coordinated planning within the water distribution network and across interconnected services (e.g. roads, linear sanitary and stormwater, etc.), and to support proactive analysis of climate change impacts to support risk planning. • Support staff in receiving software training to keep them up-to-date with software and technology advances, and data management best practices. • Develop an asset information/data management standard to ensure that data sets relevant to asset management track information in a consistent manner, allowing for ease of access and data transfer.
	Water usage reduction incentives (Region)	Ongoing	• Unsustainable demand on water system. • Increasing costs to increase system capacity and performance, unrelated to population growth.	• Develop a community engagement strategy to support consistent outreach and education with stakeholders. • Use priorities of water reduction program to guide LOS metrics and use outcomes of LOS framework analysis to support community engagement and education, and assess success of program.
	Condition Assessment Program	Future Initiative	• Uncertainty about asset condition leading to increased likelihood of unexpected asset failure.	• Integration of condition assessment data outputs into asset management hierarchy/asset information to streamline data uploads. • Incorporate condition assessments into other plans and reports.
Operations and Maintenance	Repairs (watermains, services, chambers, valves, curb stops, hydrants, appurtenances)	As required	• Decline in service level due to unexpected asset failure and resulting service outage.	• Leverage condition program to support proactive repairs and maintenance programs to maximize service life of assets and quality of asset performance.

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
	Exercise valves (mainline/curb stops)	Annually/As Required	• Decline in service level due to unexpected asset failure. • Localized flooding due to asset failure. • Increasing costs due to asset failure (e.g. water loss due to leaking, increased maintenance call-outs, etc.)	• Integrate findings of condition assessment work to proactively identify asset candidates for maintenance activities. • Use relevant asset management analysis (e.g. lifecycle forecasting tools, LOS and Risk assessments, and other planning and strategic documents) to support identification of longer term preventative maintenance programs and help build business cases to secure funding for these programs. • Track work orders in computerized maintenance management system or equivalent to support KPI reporting, look for trends in asset failures by pipe material or manufacturer, for example.
	Valve replacements	As required	• Decline in service level due to unexpected asset failure. • Localized flooding due to asset failure. • Increasing costs due to asset failure (e.g. water loss due to leaking, increased maintenance requests, etc.)	
	Watermain flushing (unidirectional)		• Unexpected pipe blockages, leading to pipe failure and service disruptions. • Increasing public safety issues due to underperforming or failed hydrants quality of fire service response. • Increasing costs due to asset failure (e.g. water loss due to leaking, increased maintenance callouts, etc.)	
	Hydrant inspection (pressure, open/close, drain, operation, stem valve (lead valve), check shut down)	Annually		
	Leak Detection Program	Ongoing	• Localized flooding due to asset failure. • Increasing costs due to asset failure (e.g. water loss due to leaking, increased maintenance call-outs, etc.)	
Renewal (Rehabilitation and Replacement)	Lining	Future Initiative	• Reduced asset service life resulting in higher capital costs due to more frequent full line replacement.	• Incorporate findings of condition assessment to reinforce professional judgement when proactively identifying candidates for relining programs. • Use an integrated planning approach to coordinate renewal projects with other near-by assets (e.g. in shared right of way, or physically close proximity) where feasible. • Maintain up-to-date datasets to support prioritization of asset needs and understand the interdependencies between asset
	Replacement of watermains, services, chambers, valves, curb stops, hydrants, appurtenances	When asset reaches poor condition, when relining not undertaken	• Overall decline in water service level due to increased number of outages and service disruptions. • Localized flooding due to asset failure.	

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
			• Other service area disruptions due to unplanned closures and repairs – i.e. road closures, pedestrian walkways, etc.	networks. Where relevant, request updated datasets provided by contractor in an editable format at the end of the project. • Ensure renewal, rehabilitation and replacement programs are aligned with non-infrastructure activities, such as master plans, studies and assessments.
Disposal	Removed as part of the project or abandoned	Coordinated with watermain replacement	• Inaccurate data and information if mapping indicates pipes are removed, but not recorded in other registers.	• Track information in asset register, use work order management software if available, and/or request contractor to submit editable digital documentation at the end of project to record disposed assets. • Align disposal documentation processes with asset hierarchy data structures to streamline TCA reporting.
Expansion and Service Improvements	Pipe upsizing	Based on growth, modelling and studies	• Poor distribution service capacity resulting in a failure to achieve PLOS.	• Align projects with recommendations from non-infrastructure solutions • Adopt an integrated planning approach to coordinate expansion projects with other near-by assets (e.g. in shared right of way, or close proximity) to maximize efficient use of resources and timing. • Maintain current data by requesting project data submission as part of close-out of project to be supplied from the contractor in an editable format (e.g. AutoCAD, excel, CVS, etc.) • Incorporate recommendations from non-infrastructure planning activities into lifecycle and financial strategy to ensure capacity to support expansion. • Align asset register with financial register to streamline tracking asset expenditures against funding to compare with levels of service. • Use PLOS in coordination with other non-infrastructure solutions (e.g. policies around fleet electrification) to monitor for compliance with targets.
	Expansion – new subdivisions	Based on growth, modelling and studies	• Uninhabitable subdivisions without core service provision.	
	Special Service Levy	Ratepayer Request and Council Approval/Provincial Authority Order	• Unsustainable funding level resulting in decline in overall Level of service.	

Table A 15: Lifecycle Management Activities for Sanitary Wastewater Management

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
Non-Infrastructure	Planning and studies (Master Plans, User Rate Study, financial plans, capacity studies, AMPs, models) • Consolidated Linear Infrastructure Environmental Compliance Approval, sewer modelling, I & I reduction initiatives • Policies, standards/procedures and by-laws (Service Lateral Policy) • Geographic Information System (GIS) data analysis and mapping	As required	• Diminished understanding of future needs & growth impacts. • Reduce ability to coordinate project planning between service areas. • Reduced understanding of climate change impacts. • Inaccurate GIS data, and poor data management between systems.	• Alignment of asset management documents and processes to integrate recommendations from all master plans, service studies, and community engagement activities to maximize planning efficiency, reduce duplication, increase alignment, and support proactive planning and analysis. This will streamline forecasting, business plan development, and understanding of asset priorities and needs. In particular, integration of all asset recommendations from planning and studies into the lifecycle management strategy to ensure alignment of all project and O&M planning, LOS frameworks and Risk Management strategies. • Integration of climate change risks and other studies with on-going condition assessment and monitoring programs to support coordinated planning within the water distribution network and across interconnected services (e.g. roads, watermains, stormwater, etc.), and to support proactive analysis of climate change impacts to support risk planning. • Support staff in receiving software training to keep them up-to-date with software and technology advances, and data management best practices. • Develop an asset information/data management standard to ensure that data sets relevant to asset management track information in a consistent manner, allowing for ease of access and data transfer.
Operations and Maintenance	Condition assessments (CCTV inspections)	Annual program	• Diminished understanding of sanitary pipe network condition. • Increasing reactive maintenance costs. • Increasing service disruptions and outages, both within Sanitary service and in neighbour services (e.g. transportation and roads network)	• Use data management standard to ensure data collected during CCTV inspection aligns with existing sanitary network register, streamlining updating and QA/QC work. • Align and integrate condition assessment and monitoring program with preventative maintenance to support business case for on-going and/or expanded CCTV program.
	Reactive and preventive maintenance • Spot repair • Service lateral repairs • Appurtenances repairs • Flushing • Pumping station maintenance	Following preventative maintenance programs, or as needed	• Decreasing overall level of service due to increase rate of service disruptions and outages. • Increasing risk of sewer backups. • Increasing risk of regulatory non-compliance, and associated fines and reputational impacts.	• Integrate findings of condition assessment work to support short term, immediate proactive maintenance activities to minimize reactive maintenance. • Use relevant asset management analysis (e.g. lifecycle forecasting tools, LOS and Risk assessments, and other planning and strategic documents) to support identification of long-term preventative maintenance programs and help build business cases to secure funding for these programs.

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
				Preventative maintenance programs will also extend asset service life and minimize risk of regulatory non-compliance. • Track work orders in computerized maintenance management system or equivalent to support KPI reporting, look for trends in asset failures by pipe material or manufacturer, for example.
Renewal (Rehabilitation and Replacement)	Main and service Lining	Based on inspections and condition assessments	• Reduced asset service life resulting in higher capital costs due to more frequent, larger-scale sewer replacement.	• Incorporate findings of condition assessment to proactively identify candidates for relining programs. • Align projects with recommendations from non-infrastructure solutions to ensure compliance with organizational objectives and efficient use of resources. • Maintain up-to-date datasets to support prioritization of asset needs and understand the interdependencies between asset networks. Where relevant, request updated datasets provided by contractor in an editable format at the end of the project. • Track work orders in computerized maintenance management system or equivalent to support KPI reporting, look for trends in asset failures by pipe material or manufacturer, and so on.
	Pumping station upgrades • Minor Rehabilitation (e.g., programable logic control replacement, pump replacement, valving) • Major Rehabilitation – any time the system needs to be bypassed (e.g., structural repairs, motor control cabinet, valving, header system)	As required	• Decreasing level of service due to unplanned asset failures and outages. • Increasing risk of regulatory non-compliance and associated fines and reputation impacts. • Decreasing service capacity. • Negative impact on surrounding environment in the event of unexpected asset failure leading to leakage or discharge.	
	Major equipment or structural building component replacement. Open cut replacement of mainline pipe and connected assets	When assets reach end of service life	• Decreasing overall level of service due to increase rate of service disruptions and outages. • Increasing risk of sewer blockages and backups. • Increasing risk of regulatory non-compliance, and associated fines and reputational impacts. • Decreasing service capacity.	• Align projects with recommendations from non-infrastructure solutions to ensure compliance with organizational objectives and efficient use of resources. • Incorporate findings of condition assessment to proactively identify candidates for replacement. • Maintain up-to-date datasets to support prioritization of asset needs and understand the interdependencies between asset networks. Where relevant, request updated datasets provided by contractor in an editable format at the end of the project. • Track work orders in computerized maintenance management system or equivalent to support KPI reporting, look for trends in asset failures by pipe material or manufacturer, and so on.
Disposal	Building and equipment disposal	Coordinated with asset replacement	• Risk of non-compliance with regulatory requirements. • Inefficient use of land and building resources due to leaving vacant structure in place, rather than repurposing/renewing the lot.	• Align projects with recommendations from non-infrastructure solutions to ensure compliance with organizational objectives and efficient use of resources. • Align disposal documentation processes with asset hierarchy data structures to streamline TCA reporting.

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
	Equipment re-use	As required where possible	• Increased costs due to purchasing new when re-use is possible. • Increased negative environmental impacts due to purchasing new.	• Leverage asset management committees or similar to engage other service areas in conversation about equipment re-use options and/or equipment needs.
Expansion and Service Improvements	Pump/Equipment Upsizing	As identified in the Master Plan and Capacity Studies/Analysis	• Unable to support increasing demand due to population growth.	• Use relevant asset management analysis (e.g. lifecycle forecasting tools, LOS and Risk assessments, and other planning and strategic documents) to assess ability of existing system to meet growth and demand requirements, and use outcomes of analysis to support integrated planning to drive project identification and prioritization across plans, studies and recommendations, and integrate those recommendations into budgeted, actionable project plans. • Maintain up-to-date datasets to support prioritization of asset needs and understand the interdependencies between asset networks. Where relevant, request updated datasets provided by contractor in an editable format at the end of the project. • Incorporate recommendations from non-infrastructure planning activities into lifecycle and financial strategy to ensure capacity to support expansion. • Support staff in on-going training to keep knowledge and skills up-to-date with relevant software systems and requirements governing those systems. • Align asset register with financial register to streamline tracking asset expenditures against funding to compare with levels of service.
	Expansion and upsizing	Through development	• Unable to support increasing demand due to population growth. • Service outages due to unsustainable demand on existing network of assets.	
	Supervisory Control and Data Acquisition (SCADA) system and software upgrades	As needed	• Unexpected software outages resulting in loss of data and system control. • Unsupported SCADA system due to being out of date.	
	Special Service Levy	Ratepayer Request and Council Approval/Provincial Authority Order	• Unsustainable funding level resulting in decline in overall Level of service.	

Table A 16: Lifecycle Management Activities for Stormwater Management Collection

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
Non-Infrastructure	Planning and studies (Master Plans, financial plans, capacity studies, AMPs, Master Drainage Plan, models) • Municipal drains • Consolidated Linear Infrastructure Environmental Compliance Approvals • Geographic Information System (GIS) data analysis and mapping • Policies, procedures/standards and by-laws	As required	• Diminished understanding of future needs & growth impacts. • Reduce ability to coordinate project planning between service areas. • Reduced understanding of climate change impacts. • Inaccurate GIS data, and poor data management between systems.	• Alignment of asset management documents and processes to integrate recommendations from all master plans, service studies, and community engagement activities to maximize planning efficiency, reduce duplication, increase alignment, and support proactive planning and analysis. This will streamline forecasting, business plan development, and understanding of asset priorities and needs. In particular, integration of all asset recommendations from planning and studies into the lifecycle management strategy to ensure alignment of all

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
	Sump Pump Policy Stormwater Utility Implementation	Future Initiative	• Increased localized flooding during storm events. • Unsustainable funding levels to support service delivery performance expectations.	project and O&M planning, LOS frameworks and Risk Management strategies. • Integration of climate change risks and other studies with on-going condition assessment and monitoring programs to support coordinated planning within the water distribution network and across interconnected services (e.g. roads, watermains, sanitary sewer, etc.), and to support proactive analysis of climate change impacts to support risk planning. • Support staff in receiving software training to keep them up-to-date with software and technology advances, and data management best practices. • Develop an asset information/data management standard to ensure that data sets relevant to asset management track information in a consistent manner, allowing for ease of access and data transfer. • Ensure asset management plan reflects policy, and analysis is updated to reflect implementation of a stormwater utility rate. • Develop a continuous improvement plan for regular community engagement, aligned with corporate community engagement cycle for efficient resource uses. • Review previously completed community engagement activities, if available, to establish a baseline for the current community engagement activity, where applicable.
	Flood Implementation Plan	As required	• Reduced understanding of flooding-related risks. • Inability to proactively plan for flood risk events. • Reduced coordination between service areas with regards to flood risk mitigation, both through O&M programs and renewal/rehabilitation programs.	
	Conduct community engagement to define priorities and standards to establish budgeting and service levels for the future.	Future Initiative	• Inequitable stakeholder engagement around service delivery expectations. • Negative impacts to reputation due to limited engagement.	
Operations and Maintenance	CCTV inspections	As required	• Diminished understanding of pipe network condition. • Increasing reactive maintenance costs. • Increasing service disruptions and outages, both within Sanitary service and in neighbour services (e.g. transportation and roads network)	• Use data management standard to ensure data collected during CCTV inspection aligns with existing sanitary network register, streamlining updating and QA/QC work. • Consider inclusion of Stormwater Collection Network in annual CCTV program to align with industry best practice. • If implemented, use condition program to support development of a proactive flushing and repair programs by using data to identify candidates for lifecycle activities. • Integrate findings of condition assessment work to support short term, immediate proactive maintenance activities to minimize reactive maintenance. • Use relevant asset management analysis (e.g. lifecycle forecasting tools, LOS and Risk assessments, and other planning and strategic documents) to support identification of long-term preventative maintenance programs and help build business cases to secure funding for these programs.
	Culvert inspections	As required	• Diminished understanding of pipe network condition. • Increasing reactive maintenance costs. • Increasing service disruptions and outages, both within sanitary service and in neighbour services (e.g. transportation and roads network)	

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
	Flushing (mains, culverts, cellar) to remove debris	As required	• Decreasing overall level of service due to increase rate of service disruptions and outages. • Increasing risk of localized flooding or backups due to blockages. • Increasing risk of regulatory non-compliance, and associated fines and reputational impacts. • Failure to meet internal standards and policy around stormwater management and flooding.	Preventative maintenance programs will also extend asset service life and minimize risk of regulatory non-compliance. • Track work orders in computerized maintenance management system or equivalent to support KPI reporting, look for trends in asset failures by pipe material or manufacturer, for example.
	Pipe spot repairs (Appurtenances repairs)	As required	• Reduced asset service life resulting in higher capital costs due to more frequent, larger-scale pipe replacement. • Unplanned service disruptions and outages due to unexpected asset failure.	
	Catch basin, lateral and maintenance hole repairs	As per inspections	• Reduced asset service life resulting in higher capital costs due to more frequent, larger-scale pipe replacement. • Unplanned service disruptions and outages due to unexpected asset failure.	
	Groundwater management systems and catch basin cleaning to remove debris and sediment	As per inspections, Catch basing cleaning occurs biennially	• Reduced asset capacity due to sediment and debris buildup. • Downline asset failure due to debris and sediment movement into pipes. • Localized flooding, and associated service disruption.	
Renewal/Rehabilitation	Erosion control	As per inspections	• Increased rate of erosion leading to diminished service delivery in surrounding assets. • Increased costs to address and correct erosion issues.	• Align projects with recommendations from other non-infrastructure solutions to ensure compliance with organizational objectives and efficient use of resources. • Consider implementation of annual erosion control inspection to monitor for changes. • Use relevant asset management analysis (e.g. lifecycle forecasting tools, LOS and Risk assessments, and other planning and strategic documents) to support identification of long-term preventative maintenance
	Inlet/Outlet and outfall	As per inspections	• Diminished overall level of service due to decline in asset condition. • Service disruptions and unplanned outages.	

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
	Sewer Lining	As Required	• Reduced asset service life resulting in higher capital costs due to more frequent, larger-scale sewer replacement.	programs and help build business cases to secure funding for these programs. Preventative maintenance programs will also extend asset service life and minimize risk of regulatory non-compliance. • Maintain up-to-date datasets to support prioritization of asset needs and understand the interdependencies between asset networks. Where relevant, request updated datasets provided by contractor in an editable format at the end of the project. • Track work orders in computerized maintenance management system or equivalent to support KPI reporting, look for trends in asset failures by pipe material or manufacturer, and so on.
Replacement/Disposal	Pipe replacement Service lateral replacement (open cut replacement of mainline pipe and connected assets)	End of life	• Decreasing overall level of service due to increase rate of service disruptions and outages. • Increasing risk of localized flooding or backups due to blockages. • Increasing risk of regulatory non-compliance, and associated fines and reputational impacts. • Failure to meet internal standards and policy around stormwater management and flooding.	• Align projects with recommendations from other non-infrastructure solutions to ensure compliance with organizational objectives and efficient use of resources. • Maintain up-to-date datasets to support prioritization of asset needs and understand the interdependencies between asset networks. Where relevant, request updated datasets provided by contractor in an editable format at the end of the project. • Align disposal documentation processes with asset hierarchy data structures to streamline TCA reporting.
	Maintenance hole replacement	Coordinated with sewer replacement	• Decreasing overall level of service due to increase rate of service disruptions and outages. • Increasing risk of localized flooding or backups due to blockages. • Failure to meet internal standards and policy around stormwater management and flooding.	
	Storm sewer structure replacement • Replace inlet/outlet structure • Stormwater outlet/headwall replace	End of life	• Decreasing overall level of service due to increase rate of service disruptions and outages. • Increasing risk of localized flooding or backups due to blockages. • Increasing risk of regulatory non-compliance, and associated fines and reputational impacts.	

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
			• Failure to meet internal standards and policy around stormwater management and flooding.	
	OGS replacement	End of life	• Diminished asset capacity and service performance. • Increased risk of localized flooding.	
	SWM pond dredging/cleanouts and sediment disposal	As per inspections	• Diminished asset capacity • Increased risk of localized flooding. • Reduction of service level of surrounding services (e.g. trails, parks and recreation, etc.).	
	Asset disposal coordinated with asset replacement	Coordinated with replacement/end of life	• Increased costs of capital projects.	
Expansion and Service Improvements	Conduct community engagement to define priorities and standards to establish sustainable budgets and service levels.	Future Initiative	• Inequitable stakeholder engagement around service delivery expectations resulting in inequitable LOS. • Negative impacts to reputation due to limited engagement.	• Develop a continuous improvement plan for regular community engagement, aligned with corporate community engagement cycle for efficient resource uses. • Review previously completed community engagement activities, if available, to establish a baseline for the current community engagement activity, where applicable. • Incorporate recommendations from non-infrastructure planning activities into lifecycle and financial strategy to ensure capacity (both resources, and system design) to support expansion.
	Growth needs are known based on the Development Charges and Master Servicing and Stormwater Management Report and other Secondary Plans.	Through growth and development	• Unable to support increasing demand due to population growth. • Service outages due to unsustainable demand on existing network of assets.	
	Stormwater network expansion/upgrades to service new areas or expand capacity of existing network (pipe upsizing, new subdivisions, coordination with other services).	Through growth and development	• Reduction in LOS due to insufficient capacity. • Increased asset failure and costs due to over-used assets.	

Table A 17: Lifecycle Management Activities for Stormwater Management Facilities

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
Non-Infrastructure	Planning and studies (Master Plans, financial plans, capacity studies, AMPs, Master Drainage Plan, models) • Consolidated Linear Infrastructure Environmental Compliance Approval	As required	• Diminished understanding of future needs & growth impacts. • Reduce ability to coordinate project planning between service areas. • Reduced understanding of climate change impacts.	• Alignment of asset management documents and processes to integrate recommendations from all master plans, service studies, and community engagement activities to maximize planning efficiency, reduce duplication, increase alignment, and support proactive planning and analysis. This will streamline forecasting, business plan development, and

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
	• Policies, procedures/standards and by-laws		• Inaccurate GIS data, and poor data management between systems.	understanding of asset priorities and needs. Integrate all asset recommendations from planning and studies into the lifecycle management strategy to ensure alignment of all project and O&M planning, LOS frameworks and Risk Management strategies. • Integration of climate change risks and other studies with on-going condition assessment and monitoring programs to support coordinated planning within the water distribution network and across interconnected services (e.g. parks, facilities, etc.), and to support proactive analysis of climate change impacts to support risk planning. • Support staff in receiving software training to keep them up-to-date with software and technology advances, and data management best practices. • Develop an asset information/data management standard to ensure that data sets relevant to asset management track information in a consistent manner, allowing for ease of access and data transfer. • Ensure asset management plan reflects policy, and analysis is updated to reflect implementation of a stormwater utility rate. • Develop a continuous improvement plan for regular community engagement, aligned with corporate community engagement cycle for efficient resource uses. • Review previously completed community engagement activities, if available, to establish a baseline for the current community engagement activity, where applicable.
	Stormwater Utility Implementation	Future Initiative	• Unsustainable funding levels to support service delivery performance expectations.	
	Flood Implementation Plan	As required	• Reduced understanding of flooding-related risks. • Inability to proactively plan for flood risk events. • Reduced coordination between service areas with regards to flood risk mitigation, both through O&M programs and renewal/rehabilitation programs.	
	Conduct community engagement to define priorities and standards to establish budgeting and service levels for the future.	Future Initiative	• Inequitable stakeholder engagement around service delivery expectations resulting in inequitable LOS. • Negative impacts to reputation due to limited engagement.	
Operations and Maintenance	SWM Facilities Inspections (bathymetric surveys, sediment sampling and depth measurement, visual inspections, thermal regime monitoring, inlet/outlet and outfall)	As required/Future Initiative	• Diminished understanding of pipe network condition. • Increasing reactive maintenance costs. • Increasing service disruptions and outages, both within Sanitary service and in neighbour services (e.g. transportation and roads network)	• Integrate findings of condition assessment work to support short term, immediate proactive maintenance activities to minimize reactive maintenance. • Use relevant asset management analysis (e.g. lifecycle forecasting tools, LOS and Risk assessments, and other planning and strategic documents) to support identification of long-term preventative maintenance programs and help build business cases to secure funding for these programs. Preventative maintenance programs will also extend asset service life and minimize risk of regulatory non-compliance. • Track work orders in computerized maintenance management system or equivalent to support KPI reporting, look for trends in asset failures by pipe material or manufacturer, and so on.
	SWM pond blockage and vegetation removal (E.g. Dredging)	As per inspections	• Reduced service delivery due to reduced condition and capacity. • Increased capital costs due to decreased asset service life.	
	SWM facility outlet cleaning			
	OGS (Oil Grit Separators) cleaning to remove debris and sediment	As per inspections	• Reduced service delivery due to reduced condition and capacity.	

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
Renewal/ Rehabilitation	Erosion control	As per inspections	• Increased rate of erosion leading to diminished service delivery in surrounding assets. • Increased costs to address and correct erosion issues.	• Incorporate inspection program into asset data to document whole-life needs of associated assets. This will support long-term planning (monitoring for change over time), minimize erosion risk, manage cost risk, and streamline business planning activities. • Adopt an integrated planning approach to coordinate work between near-by assets to ensure effective use of resources and project timing.
Replacement/ Disposal	SWM pond retaining wall and storm sewer structure replacements. • Replace inlet/outlet structure • Stormwater outlet/headwall replace	End of life	• Decreasing overall level of service due to increase rate of service disruptions and outages. • Increasing risk of localized flooding or backups due to blockages. • Increasing risk of regulatory non-compliance, and associated fines and reputational impacts. • Failure to meet internal standards and policy around stormwater management and flooding.	• Align projects with recommendations from non-infrastructure solutions to ensure compliance with organizational objectives and efficient use of resources. • Incorporate inspection program into asset data to document whole-life needs of associated. This will support long-term planning (monitoring for change over time) and streamline business planning activities • Align disposal documentation processes with asset hierarchy data structures to streamline TCA reporting. • Maintain up-to-date datasets to support prioritization of asset needs and understand the interdependencies between asset networks. Where relevant, request updated datasets provided by contractor in an editable format at the end of the project. • Track work orders in computerized maintenance management system or equivalent to support KPI reporting, look for trends in asset failures by pipe material or manufacturer, for example.
	Oil/Grit Separator replacement	End of life	• Diminished asset capacity and service performance. • Increased risk of localized flooding. • Reduction of service level of surrounding infrastructure.	
	SWM pond dredging/cleanouts and sediment disposal	As per inspections	• Diminished asset capacity and service performance. • Increased risk of localized flooding. • Reduction of service level of surrounding infrastructure.	
	Asset disposal coordinated with asset replacement	Coordinated with replacement/end of life	• Increased costs associated with disposing of assets outside of primary project.	
	Disposal of sediment and debris	As required	• Negative environmental impacts of improperly disposing of sediment and debris. • Risk of regulatory non-compliance and reputational damage.	
Expansion and Service Improvements	Conduct community engagement to define priorities and standards to establish budgeting and service levels.	Future Initiative	• Inequitable stakeholder engagement around service delivery expectations resulting in inequitable LOS.	• Develop a continuous improvement plan for regular community engagement, aligned with corporate community engagement cycle for efficient resource uses.

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
			• Negative impacts to reputation due to limited engagement.	• Review previously completed community engagement activities, if available, to establish a baseline for the current community engagement activity, where applicable. • Incorporate recommendations from other non-infrastructure planning activities into lifecycle and financial strategy to ensure capacity (both resources, and system design) to support expansion.
	Growth needs are known based on the Development Charges and Master Servicing and Stormwater Management Report and other Secondary Plans.	Through growth and development	• Unable to support increasing demand due to population growth. • Service outages due to unsustainable demand on existing network of assets.	
	Stormwater network expansion/upgrades to service new areas or expand capacity of existing network (pipe upsizing, new subdivisions, coordination with other services).	Through growth and development	• Reduction in LOS due to insufficient capacity. • Increased asset failure and costs due to over-used assets.	

Table A 18: Lifecycle Management Activities for Cellar Drain Collection System

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
Non-Infrastructure	Planning and studies (Master Plans, financial plans, capacity studies, AMPs, Master Drainage Plan, models) • Municipal drains • Consolidated Linear Infrastructure Environmental Compliance Approval • Inflow & Infiltration (I&I) Program • Geographic Information System (GIS) data analysis and mapping • Policies, procedures/standards and by-laws	As required	• Diminished understanding of future needs & growth impacts. • Reduce ability to coordinate project planning between service areas. • Reduced understanding of climate change impacts. • Inaccurate GIS data, and poor data management between systems.	• Alignment of asset management documents and processes to integrate recommendations from all master plans, service studies, and community engagement activities to maximize planning efficiency, reduce duplication, increase alignment, and support proactive planning and analysis. This will streamline forecasting, business plan development, and understanding of asset priorities and needs. Integrate all asset recommendations from planning and studies into the lifecycle management strategy to ensure alignment of all project and O&M planning, LOS frameworks and Risk Management strategies. • Integration of climate change risks and other studies with on-going condition assessment and monitoring programs to support coordinated planning within the water distribution network and across interconnected services (e.g. roads, sanitary, stormwater, etc.), and to support proactive analysis of climate change impacts to support risk planning. • Support staff in receiving software training to keep them up-to-date with software and technology advances, and data management best practices. • Develop an asset information/data management standard to ensure that data sets relevant to asset
	Sump Pump Policy Stormwater Utility Implementation	Future Initiative	• Increased localized flooding during storm events. • Unsustainable funding levels to support service delivery performance expectations.	
	Flood Implementation Plan	As required	• Reduced understanding of flooding-related risks. • Inability to proactively plan for flood risk events. • Reduced coordination between service areas with regards to flood risk mitigation, both through O&M programs and renewal/rehabilitation programs.	
	Conduct community engagement to define priorities and standards to establish budgeting and service levels.	Future Initiative	• Inequitable stakeholder engagement around service delivery expectations.	

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
			• Negative impacts to reputation due to limited engagement.	management track information in a consistent manner, allowing for ease of access and data transfer. • Ensure asset management plan reflects policy, and analysis is updated to reflect implementation of a stormwater utility rate. • Develop a continuous improvement plan for regular community engagement, aligned with corporate community engagement cycle for efficient resource uses. • Review previously completed community engagement activities, if available, to establish a baseline for the current community engagement activity, where applicable.
Operations and Maintenance	CCTV inspections Open cut repairs	As required	• Diminished understanding of pipe network condition. • Increasing reactive maintenance costs. • Increasing service disruptions and outages, both within Sanitary service and in neighbour services (e.g. transportation and roads network) • Decreasing overall level of service due to increase rate of service disruptions and outages. • Increasing risk of localized flooding or backups due to blockages. • Increasing risk of regulatory non-compliance, and associated fines and reputational impacts. • Failure to meet internal standards and policy around stormwater management and flooding.	• Ensure asset hierarchy data structure is aligned with core data points from CCTV assessment to streamline data updating. • Integrate assessment recommendations into asset management lifecycle planning analysis to ensure alignment between planning efforts. • Maintain up-to-date datasets to support prioritization of asset needs and understand the interdependencies between asset networks. Where relevant, request updated datasets provided by contractor in an editable format at the end of the project. • Use condition program to support development of a proactive flushing program by using data to identify candidates for lifecycle activities. • Track work orders in computerized maintenance management system or equivalent to support KPI reporting, look for trends in asset failures by pipe material or manufacturer, and so on.
	Flushing to remove debris	As required		
	Pipe spot repairs (appurtenances repairs)	As required	• Reduced asset service life resulting in higher capital costs due to more frequent, larger-scale pipe replacement. • Unplanned service disruptions and outages due to unexpected asset failure.	
	Lateral and maintenance hole repairs	As per inspections	• Reduced asset service life resulting in higher capital costs due to more frequent, larger-scale pipe replacement. • Unplanned service disruptions and outages due to unexpected asset failure.	
Renewal (Rehabilitation and Replacement)	Open cut replacement	As per inspections	• Decreasing overall level of service due to increase rate of service disruptions and outages. • Increasing risk of sewer blockages and backups. • Increasing risk of regulatory non-compliance, and associated fines and reputational impacts. • Decreasing service capacity.	• Align projects with recommendations from other non-infrastructure solutions to ensure compliance with organizational objectives and efficient use of resources. • Maintain up-to-date datasets to support prioritization of asset needs and understand the interdependencies

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
	Sewer Lining	As required	• Reduced asset service life resulting in higher capital costs due to more frequent, larger-scale sewer replacement.	between asset networks. Where relevant, request updated datasets provided by contractor in an editable format at the end of the project. • Track work orders in computerized maintenance management system or equivalent to support KPI reporting, look for trends in asset failures by pipe material or manufacturer, and so on.
Disposal	Pipe replacement Service lateral replacement (open cut replacement of mainline sewer pipe and connected assets)	End of life	• Decreasing overall level of service due to increase rate of service disruptions and outages. • Increasing risk of localized flooding or backups due to blockages. • Increasing risk of regulatory non-compliance, and associated fines and reputational impacts. • Failure to meet internal standards and policy around stormwater management and flooding.	• Align projects with recommendations from non-infrastructure solutions to ensure compliance with organizational objectives and efficient use of resources. • Incorporate inspection program into asset data to document whole-life needs of associated. This will support long-term planning (monitoring for change over time) and streamline business planning activities • Align disposal documentation processes with asset hierarchy data structures to streamline TCA reporting. • Maintain up-to-date datasets to support prioritization of asset needs and understand the interdependencies between asset networks. Where relevant, request updated datasets provided by contractor in an editable format at the end of the project. • Track work orders in computerized maintenance management system or equivalent to support KPI reporting, look for trends in asset failures by pipe material or manufacturer, and so on.
	Maintenance hole replacement	Coordinated with sewer replacement	• Decreasing overall level of service due to increase rate of service disruptions and outages. • Increasing risk of localized flooding or backups due to blockages. • Failure to meet internal standards and policy around stormwater management and flooding.	
	Asset disposal coordinated with asset replacement	Coordinated with replacement/end of life	• Increased costs associated with disposing of assets outside of primary project.	
Expansion and Service Improvements	Growth needs are known based on the Development Charges and Master Servicing and Stormwater Management Report and other Secondary Plans.	Through growth and development	• Unable to support increasing demand due to population growth. • Service outages due to unsustainable demand on existing network of assets.	• Incorporate recommendations from non-infrastructure planning activities into lifecycle and financial strategy to ensure capacity (both resources, and system design) to support expansion. • Ensure that assets added through network expansion are updated into asset registry to support tracking of asset data (and work against assets) and monitor asset performance.
	Cellar drain network expansion/upgrades to service new areas or expand capacity of existing network.	Only in unique situations	• Reduction in LOS due to insufficient capacity. • Increased asset failure and costs due to over-used assets.	

Table A 19: Lifecycle Management Activities for Roadways and Sidewalks

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
Non-Infrastructure	Planning and studies (Master Plans, financial plans, capacity studies, AMPs, Regional Transportation Master Plan, traffic counting program, Active Master Transportation Plan) • Sidewalk warrant study (matrix for implementing new sidewalks based on priority) • Policies, procedures/standards, and by-laws (e.g. Driveway/Access Guidelines, Ditch Alteration Policy) • Boundary Road Agreements • Land evaluation and purchases • Geographic Information System (GIS) data analysis and mapping	As required/Ongoing	• Diminished understanding of future needs & growth impacts. • Reduce ability to coordinate project planning between service areas. • Reduced understanding of climate change impacts. • Reduced understanding and coordination between various planning, studies and performance assessment activities resulting in poor future project planning and coordination, and prioritization. • Reduced understanding of the value and expenditure in service relating to land acquisition, and overall value of portfolio. • Inaccurate GIS data, and poor data management between systems.	• Support staff in receiving software training to keep them up-to-date with software and technology advances, and data management best practices. • Develop an asset information/data management standard to ensure that data sets are maintained in a consistent manner, allowing for ease of access and data transfer. • Integrate all asset recommendations from planning and studies into the lifecycle management strategy to ensure alignment of all project and O&M planning. • Develop a continuous improvement plan for regular community engagement, aligned with corporate community engagement cycle for efficient resource uses. • Consider impacts of recommendations on design standards (e.g. fleet equipment to support changed approach, storage facilities, etc.) • Update recommendations from assessment into lifecycle management strategy at regular intervals.
	Conduct community engagement to define priorities and standards to establish budgeting and service levels.	Future Initiative	• Inequitable identification and coordination of stakeholder service delivery priorities. • Negative impacts on reputation due to low levels of engagement.	
	Smart about salt program to reduce the impacts of de-icing salts	Ongoing	• Over-reliant on traditional winter control management programs resulting in negative environmental impacts. • Inefficient resource usage due to poor understanding of advancing technologies and options for winter control.	

	Condition Assessment Program	Loose Top – annually	• Reduced understanding of asset condition leading to:
			  ○ Decreased understanding of asset priorities and needs.
			  ○ Reduce ability to coordinate projects, programs and activities across road network.	

		Hard top – every 2 years	• Reduced understanding of asset condition leading to:
			  ○ Decreased understanding of asset priorities and needs.
			  ○ Reduce ability to coordinate projects, programs and activities across road network.	

Operations and Maintenance	Maintenance such as street sweeping/cleaning, snow and ice removal, line painting, vegetation removal, ditching, etc. determined through inspections, patrol, and complaints	As required	• Overall reduction of level service due to increased rate of asset failure and resultant service disruptions and outages.	• Align projects and programs with recommendations from other non-infrastructure solutions (e.g. condition assessments, internal policies, master plans, etc) to ensure compliance with organizational objectives and efficient use of resources.
	Minimum maintenance standards (sidewalk inspections and road patrol)	As per O. Reg.239/02	• Creates a safety hazard for users. • Failure to comply with regulatory requirements.	

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions

	Pothole repairs
	Crack sealing
	Reactive maintenance or spot repairs
	Curb repairs
	Guiderail damage repairs
	Maintenance paving
	Ball bank program
	Dust suppressant
	Roadside ditch cleaning/debris removal
		As required	• Reduced asset condition leading to:
			  ○ Increased reactive maintenance needs.
			  ○ Decreased asset service life.
			  ○ Increased overall costs.
			  ○ Higher likelihood of unplanned outages and service disruptions that can impact surrounding infrastructure and services.
				• Use outputs of community engagement to support targets for maintenance programs, in addition to professional judgement.
				• Regularly review PLOS achievement against minimum maintenance standards to evaluate performance and support reporting and communication.
				• Integrate findings of condition assessment work to support short term, immediate proactive maintenance activities to minimize reactive maintenance.
				• Use relevant asset management analysis (e.g. lifecycle forecasting tools, LOS and Risk assessments, and other planning and strategic documents) to support identification of long-term preventative maintenance programs and help build business cases to secure funding for these programs. Preventative maintenance programs will also extend asset service life and minimize risk of regulatory non-compliance.
				• Maintain up-to-date datasets to support prioritization of asset needs and understand the interdependencies between asset networks. Where relevant, request updated datasets provided by contractor in an editable format at the end of the project.
				• Track work orders in computerized maintenance management system or equivalent to support KPI reporting, look for trends in asset failures by road class, traffic volume, and so on.

Renewal (Rehabilitation and Replacement)	Performing renewals/rehabilitations (asphalt resurfacing, surface treatment reapplication, gravel resurfacing) based on condition inspections and lifecycle renewal procedures	As required	• Reduced asset performance due to poor asset condition. • Increased operational costs due to aging infrastructure. • Increased likelihood of unplanned service disruptions and outages due to unexpected asset failure. • Increased likelihood of project costs due to increased deterioration of asset (e.g. more repairs to road base, etc).	• Align projects and programs with recommendations from other non-infrastructure solutions (e.g. condition assessments, internal policies, master plans, etc) to ensure compliance with organizational objectives and efficient use of resources. • Use relevant asset management analysis (e.g. lifecycle forecasting tools, LOS and Risk assessments, and other planning and strategic documents) to support identification of long-term rehabilitation and renewal programs (e.g. resurfacing, etc) and help build business cases to secure funding for these programs.
	Sidewalk repairs (spot replacements, asphalt padding, grinding, slab lifting)	As required	• Reduced asset performance due to poor asset condition.	

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
			• Increased operational costs due to aging infrastructure. • Increased likelihood of unplanned service disruptions and outages due to unexpected asset failure.	• Maintain up-to-date datasets to support prioritization of asset needs and understand the interdependencies between asset networks. Where relevant, request updated datasets provided by contractor in an editable format at the end of the project. • Track work orders in computerized maintenance management system or equivalent to support KPI reporting, look for trends in asset failures by pipe material or manufacturer, and so on.
Disposal	Asset disposal coordinated with asset replacement	Coordinated with replacement/end of life	• Increased costs associated with disposing of assets outside of primary project.	• Align disposal documentation processes with asset hierarchy data structures to streamline TCA reporting. • Were applicable, incorporate recycling requirements into procurement process.
	Material from roads, sidewalks recycled and repurposed for construction	Coordinated with replacement/end of life	• Failure to meet internal standards and policies around environmental and fiscal responsibility.	
Expansion and Service Improvements	Transportation network expansion/upgrades to service new areas or expand capacity of existing network (additional roads and sidewalks, road widening, upgrading loose top roads to hard top, etc.)	Through growth and development	• Inability to meet increasing service demand. • Negative reputational impacts due to declining service delivery.	• Incorporate recommendations from other non-infrastructure planning activities into lifecycle and financial strategy to ensure capacity (both resources, and system design) to support expansion.
	Sidewalk expansions	Through growth and development	• Inability to meet increasing service demand. • Negative reputational impacts due to inadequate and/or unmodernized service delivery.	
	Road conversions/widenings	Through growth and development	• Inability to meet increasing service demand. • Negative reputational impacts due to inadequate and/or unmodernized service delivery.	

Table A 20: Lifecycle Management Activities for Traffic Management Assets

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
Non-Infrastructure	Planning and studies (Master Plans, financial plans, capacity studies, AMPs, Regional Transportation Master Plan, traffic counting program, Active Master Transportation Plan, Boundary Road Agreements)	As required/Ongoing	• Diminished understanding of future needs & growth impacts. • Reduce ability to coordinate project planning between service areas. • Reduced understanding of climate change impacts. • Reduced understanding and coordination between various planning, studies and performance assessment activities resulting in poor future project planning and coordination, and prioritization. • Inaccurate GIS data, and poor data management between systems.	• Support staff in receiving software training to keep them up-to-date with software and technology advances, and data management best practices. • Develop an asset information/data management standard to ensure that data sets are maintained in a consistent manner, allowing for ease of access and data transfer. • Integrate all asset recommendations from planning and studies into the lifecycle management strategy to ensure alignment of all project and O&M planning. • Develop a continuous improvement plan for regular community engagement, aligned with corporate community engagement cycle for efficient resource uses. • Consider development of design standards that includes traffic calming procedures and solutions.
	Conduct community engagement to define priorities and standards to establish budgeting and service levels	Future Initiative	• Inequitable identification and coordination of stakeholder service delivery priorities. • Negative impacts on reputation due to low levels of engagement.	
	Traffic calming procedures and solutions	Ongoing	• Inaccurate data on current traffic needs and levels. • Inadequate or outdated traffic calming procedures and solutions	
Operations and Maintenance	Minimum maintenance standards (road patrol and sign retro-reflectivity)	As per O. Reg.239/02 and SOPs	• Creates a safety hazard for users. • Failure to comply with regulatory requirements.	• Incorporate findings of inspections into asset data, as appropriate. • Update asset data at regular intervals to ensure it reflects all changes. • Where appropriate, coordinate replacements with other work in proximity. • Track work orders in computerized maintenance management system or equivalent to support KPI reporting, look for trends in asset failures by pipe material or manufacturer, and so on.
	Replacement of missing, damaged, and/or deteriorated signs	As required	• Creates a safety hazard for users. • Failure to comply with regulatory requirements.	
	Replacement of streetlight luminaires determined by road patrol	As required	• Creates a safety hazard for users. • Failure to comply with regulatory requirements.	
Renewal (Rehabilitation and Replacement)	Asset replacement (sidewalks, streetlight poles, roads)	At optimal point in lifecycle analysis/end of life	• Decreased asset condition leading to increasing user safety concerns. • Increased operational costs due to aging infrastructure. • Increased likelihood of unplanned service disruptions and outages due to unexpected asset failure. • Increased likelihood of project costs due to increased deterioration of asset (e.g. more repairs to road base, etc).	• Align projects and programs with recommendations from other non-infrastructure solutions (e.g. condition assessments, internal policies, master plans, etc) to ensure compliance with organizational objectives and efficient use of resources. • Maintain up-to-date datasets to support prioritization of asset needs and understand the interdependencies between asset networks. Where relevant, request updated datasets provided by contractor in an editable format at the end of the project. • Where work is internal, ensure that asset data is updated regular to reflect completed work.

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
				• Track work orders in computerized maintenance management system or equivalent to support KPI reporting, look for trends in asset failures by pipe material or manufacturer, and so on.
Disposal	Asset disposal coordinated with asset replacement	Coordinated with replacement/end of life	• Increased costs associated with disposing of assets outside of primary project.	• Align disposal documentation processes with asset hierarchy data structures to streamline TCA reporting.
Expansion and Service Improvements	Traffic management expansion/upgrades to service new areas or expand capacity of existing network (e.g. street signs, streetlights, traffic islands, traffic calming, etc.)	Through growth, warrant studies, and development	• Inability to meet increasing service demand. • Negative reputational impacts due to declining service delivery.	• Incorporate recommendations from non-infrastructure planning activities into lifecycle and financial strategy to ensure capacity (both resources, and system design) to support expansion. • Incorporate recommendations from non-infrastructure planning activities into lifecycle and financial strategy to ensure capacity (both resources, and system design) to support expansion.
	Streetlight improvements (new poles and luminaires, or replacement of old decorative and standard streetlights)	Through growth and development	• Inability to meet increasing service demand. • Negative reputational impacts due to inadequate and/or unmodernized service delivery. • Failure to comply with design standards.	

Table A 21: Lifecycle Management Activities for Municipal Structures and Footbridges

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
Non-Infrastructure	Planning and studies (e.g. Master Plans, financial plans, capacity studies, AMPs, Active Transportation Master Plan, Environmental Assessments) Geographic Information System (GIS) data analysis and mapping	As required	• Diminished understanding of future needs & growth impacts. • Reduce ability to coordinate project planning within and between service areas. • Reduced understanding of climate change impacts. • Reduced understanding and coordination between various planning, studies and performance assessment activities resulting in poor future project planning and coordination, and prioritization. • Inaccurate GIS data, and poor data management between systems.	• Support staff in receiving software training to keep them up-to-date with software and technology advances, and data management best practices. • Develop an asset information/data management standard to ensure that data sets are maintained in a consistent manner, allowing for ease of access and data transfer. • Integrate all asset recommendations from planning and studies into the lifecycle management strategy to ensure alignment of all project and O&M planning. • Develop a continuous improvement plan for regular community engagement, aligned with corporate community engagement cycle for efficient resource uses. • Align program with related environmental policies.
	Conduct community engagement to define priorities and standards to establish budgeting and service levels.	Future Initiative	• Inequitable identification and coordination of stakeholder service delivery priorities. • Negative impacts on reputation due to low levels of engagement.	

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
	Smart about salt program to reduce the impacts of de-icing salts	Ongoing	• Over-reliant on traditional winter control management programs resulting in negative environmental impacts. • Inefficient resource usage due to poor understanding of advancing technologies and options for winter control	• Consider impacts of recommendations on design standards (e.g. fleet equipment to support changed approach, storage facilities, etc.) • Use a data standard to align incoming data sets from condition assessment with existing asset hierarchy to improve ease of upload.
	Bridge and culvert inspection and condition assessment (OSIM) program.	Every 2 years as prescribed through O. Reg. 104/97	• Creates a safety hazard for users. • Failure to comply with regulatory requirements. • Decreased understanding of asset condition leading to increasing reactive work, reduced asset lifespan and higher asset investment.	
Operations and Maintenance	Regular inspections and road patrol	Weekly to Monthly	• Increased reactive maintenance and unplanned closures.	• Align projects and programs with recommendations from other non-infrastructure solutions (e.g. condition assessments, internal policies, master plans, etc) to ensure compliance with organizational objectives and efficient use of resources. • Use a data standard to align incoming data sets from condition assessment with existing asset hierarchy to improve ease of upload. • Regularly review PLOS achievement against minimum maintenance standards to evaluate performance and support reporting and communication. • Integrate findings of condition assessment work (both road scans as well as internal inspections) to support short term, immediate proactive maintenance activities to minimize reactive maintenance. • Use relevant asset management analysis (e.g. lifecycle forecasting tools, LOS and Risk assessments, and other planning and strategic documents) to support identification of long-term preventative maintenance programs and help build business cases to secure funding for these programs. Preventative maintenance programs will also extend asset service life and minimize risk of regulatory non-compliance. • Maintain up-to-date datasets to support prioritization of asset needs and understand the interdependencies between asset networks. Where relevant, request updated datasets provided by contractor in an editable format at the end of the project. • Track work orders in computerized maintenance management system or equivalent to support KPI
	Minimum maintenance standards (road patrol)	As per O. Reg.239/02 and procedures	• Creates a safety hazard for users. • Failure to comply with regulatory requirements.	
	Preventative and reactive maintenance (Structure washing and removing debris, minor repairs, pothole repairs, erosion repairs)	As required	• Increased reactive maintenance, and associated increase in costs. • Reduced asset service life. • Decreased asset performance due to worsening condition. • Increased capital investments due to shortened service life.	
	Perform Ontario Structure Inspection Manual (OSIM) inspections on bridges, significant culverts, and footbridges	Biennially	• Creates a safety hazard for users. • Failure to comply with regulatory requirements. • Decreased understanding of asset condition leading to increasing reactive work, reduced asset lifespan and higher asset investment. • Increased unexpected asset failure, service disruptions and outages. • Negative reputational impacts.	

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
				reporting, look for trends in asset failures by pipe material or manufacturer, and so on.
Renewal (Rehabilitation and Replacement)	Minor rehabilitation (wearing surface repairs, structure repairs as needed)	Determined through Condition Inspections	• Worsening condition of assets due to failure to resolve known defects. • Reduced asset service life. • Creates safety risk for users.	• Align projects and programs with recommendations from other non-infrastructure solutions (e.g. condition assessments, internal policies, master plans, etc) to ensure compliance with organizational objectives and efficient use of resources. • Use relevant asset management analysis (e.g. lifecycle forecasting tools, LOS and Risk assessments, and other planning and strategic documents) to support identification of long-term rehabilitation and renewal programs (e.g. resurfacing, etc) and help build business cases to secure funding for these programs. • Maintain up-to-date datasets to support prioritization of asset needs and understand the interdependencies between asset networks. Where relevant, request updated datasets provided by contractor in an editable format at the end of the project. • Track work orders in computerized maintenance management system or equivalent to support KPI reporting, look for trends in asset failures by pipe material or manufacturer, and so on.
	Major renewals/rehabilitations (wearing surface repairs, substructure repairs, superstructure repairs, conversion of use)	Determined through Condition Inspections	• Worsening condition of assets due to failure to resolve known defects. • Reduced asset service life. • Creates safety risk for users.	
	Full bridge replacement including foundations	At optimal point in lifecycle analysis/end of life, or as determined through Condition Inspections	• Worsening condition of assets due to failure to resolve known defects. • Reduced asset service life. • Creates significant safety risk for users. • Creates significant likelihood of service outages and disruptions. • Negative reputational impacts.	
Disposal	Asset disposal coordinated with asset replacement and material from structures recycled and repurposed for construction	Coordinated with replacement/end of life	• Increased costs associated with disposing of assets outside of primary project.	• Align disposal documentation processes with asset hierarchy data structures to streamline TCA reporting.
Expansion and Service Improvements	Conduct community engagement to define priorities and standards to establish budgeting and service levels for the future.	Future Initiative	• Inequitable identification and coordination of stakeholder service delivery priorities. • Negative impacts on reputation due to low levels of engagement.	• Develop a continuous improvement plan for regular community engagement, aligned with corporate community engagement cycle for efficient resource uses. • Review previously completed community engagement activities, if available, to establish a baseline for the current community engagement activity, where applicable. • Incorporate recommendations from non-infrastructure planning activities into lifecycle and financial strategy to ensure capacity (both resources, and system design) to support expansion.
	Growth needs are determined based on the Development Charges Study, Township Transportation Master Plan, and Official Plan to service new areas or expand capacity.	Through growth and development	• Inability to meet increasing service demand. • Negative reputational impacts due to inadequate and/or unmodernized service delivery.	

Table A 22: Lifecycle Management Activities for Transportation Fleet and Equipment

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
Non-Infrastructure	Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required	• Diminished understanding of future needs & growth impacts. • Reduce ability to coordinate project planning within and between service areas. • Reduced understanding of climate change impacts. • Reduced understanding and coordination between various planning, studies and performance assessment activities resulting in poor future project planning, coordination, and prioritization.	• Support staff in receiving software training to keep them up-to-date with software and technology advances, and data management best practices. • Develop an asset information/data management standard to ensure that data sets are maintained in a consistent manner, allowing for ease of access and data transfer. • Integrate all asset recommendations from planning and studies into the lifecycle management strategy to ensure alignment of all project and O&M planning.
Operations and Maintenance	Performing regular preventive maintenance	As per vehicle/equipment's manufacturer manual	• Increased reactive maintenance due to decrease in condition. • Increasing cost, including vehicle rental costs. • Reduced asset service life. • Reduce staff performance due to lack of access to suitable vehicle and equipment.	• Align projects and programs with recommendations from non-infrastructure solutions (e.g. condition assessments, internal policies, master plans, etc) to ensure compliance with organizational • Regularly assess maintenance costs against value of fleet or equipment to identify optimal time to replace assets • Track work orders in computerized maintenance management system or equivalent to support KPI reporting, look for trends in asset failures by make/model/manufacturer of fleet or equipment, and so on. Use preventative maintenance information to provide understanding of current asset condition. • Retain fleet or equipment that has served its useful life, but is in acceptable condition, as spares for unexpected asset outages.
	Reactive maintenance	As required	• Increasing capital costs to replace vehicles. • Reduced asset service life.	
Renewal (Rehabilitation and Replacement)	Performing renewals/rehabilitations proactively that were predicted/scheduled via regular preventive maintenance and inspections	As required	• Unplanned service disruption due to unexpected asset failure, impacting surrounding/dependent services. • Poor budget coordination and unpredictable service delivery. • Reduce staff performance due to lack of access to suitable vehicle and equipment.	• Align projects and programs with recommendations from other non-infrastructure solutions (e.g. condition assessments during regular maintenance, internal policies, program and service growth, etc) to ensure compliance with organizational objectives and efficient use of resources. • Ensure that asset data is updated regularly to reflect fleet and equipment condition and availability. • Track work orders in computerized maintenance management system or equivalent to support KPI reporting, look for trends in asset failures by manufacturer, and so on. Establish a process for review of assets prior to end of life/disposal to determine candidacy for spares inventory (e.g. a target
	Refurbish fleet and equipment to maintain in inventory as spares	At optimal point in lifecycle analysis	• Unplanned service disruption due to inadequate spares impacting dependent services. • Reduce staff performance due to lack of access to suitable vehicle and equipment.	
	Determine optimal point in asset lifecycle for asset replacement that minimizes maintenance and renewal/rehabilitation costs	At optimal point in lifecycle analysis/end of life	• Inefficient usage of budget resources. • Unplanned asset failure leading to vehicle and equipment shortages, impacting dependent services.	

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
	Purchase/procure electric vehicles when possible to support environmental stewardship and reduce fuel consumption/greenhouse gas emissions	As required	• Failure to comply with internal policies and strategies around greenhouse gas emissions and fuel consumption.	organized by vehicle type relative to expenditures on maintenance and repairs against purchase value relative to current condition) • Establish a process to identify end of life of asset and monitor at regular intervals (e.g. a target organized by vehicle type, for the amount of money spent on maintenance and repairs against purchase value). • Incorporate results into lifecycle strategy. • Use PLOS in coordination with other non-infrastructure solutions (e.g. policies around fleet electrification) to monitor for compliance with targets.
Disposal	Sold as part of vehicle/equipment decommissioning	At optimal point in lifecycle analysis/end of life	• Inefficient usage of available resources (i.e. failure to secure salvage value).	• Establish process for identifying candidates for resale at end of life relative to disposal costs. • Align asset register with TCA or End of Life processes where appropriate to streamline documentation of asset disposal, and associated data updates.
	Vehicle/equipment disposal if cannot be sold due to current state/condition	At end of life	• Failure to comply with internal policies and strategies around best-practices for vehicle disposal.	
Expansion and Service Improvements	Review shared assets amongst services to determine overall capacity/needs	Annually	• Inefficient use and allocation of fleet and equipment assets (e.g. not sized correctly for use, does not have adequate/necessary features, etc.) and corresponding inefficient use of financial resources.	• Establish process for regular reviews with stakeholders across service areas to coordinate fleet and equipment needs. • Align asset procurement with anticipated changes in service demand identified in non-infrastructure solutions, like master plans, DC studies, and internal stakeholder engagement as part of updates to asset lifecycle strategies and budget cycle. • Use PLOS in coordination with other non-infrastructure solutions (e.g. policies around fleet electrification) to monitor for compliance with targets.
	Purchase/procure additional fleet and equipment assets to support population growth or service expansion	Through growth and development	• Reduced service delivery due to staff not having the correct fleet and equipment assets.	
	Purchase/procure electric vehicles and equipment when possible (EV availability and charging infrastructure required) to support environmental stewardship and reduce fuel consumption/greenhouse gas emissions.	Through growth and development	• Failure to comply with internal policies and strategies around fleet electrification.	

Table A 23: Lifecycle Management Activities for Emergency Services Fleet and Equipment

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
Non-Infrastructure	Planning and studies (Master Plans, financial plans, capacity studies, AMPs) Policies and procedures/standards	As required	• Diminished understanding of future needs & growth impacts. • Reduce ability to coordinate project planning within and between service areas. • Reduced understanding of climate change impacts. • Reduced understanding and coordination between various planning, studies and performance assessment activities resulting in poor future project planning, coordination, and prioritization.	• Support staff in receiving software training to keep them up-to-date with software and technology advances, and data management best practices. • Develop an asset information/data management standard to ensure that data sets are maintained in a consistent manner, allowing for ease of access and data transfer. • Integrate all asset recommendations from planning and studies into the lifecycle management strategy to ensure alignment of all project and O&M planning. Integrate all asset recommendations from planning and studies into the lifecycle management strategy to ensure alignment of all project and O&M planning.
Operations and Maintenance	Performing regular preventive maintenance	As per vehicle/equipment's manufacturer manual	• Increased reactive maintenance due to decrease in condition. • Increasing cost, including vehicle rental costs. • Reduced asset service life. • Reduced response time due to lack of access to suitable vehicles and equipment.	• Align projects and programs with recommendations from non-infrastructure solutions (e.g. condition assessments, internal policies, master plans, etc) to ensure compliance with organizational • Regularly assess maintenance costs against value of fleet or equipment to identify optimal time to replace assets • Track work orders in computerized maintenance management system or equivalent to support KPI reporting, look for trends in asset failures by make/model/manufacturer of fleet or equipment, and so on. Use preventative maintenance information to provide understanding of current asset condition. • Retain fleet or equipment that has served its useful life, but is in acceptable condition, as spares for unexpected asset outages.
	Reactive maintenance	As required	• Reduced asset service life. • Increasing capital costs to replace vehicle due to shorter service lives.	
Renewal (Rehabilitation and Replacement)	Performing renewals/rehabilitations proactively that were predicted/scheduled via regular preventive maintenance and inspections	As required	• Unplanned service disruption due to unexpected asset failure, impacting surrounding/dependent services. • Poor budget coordination and unpredictable service delivery. • Reduced response time due to lack of access to suitable vehicles and equipment.	• Align projects and programs with recommendations from other non-infrastructure solutions (e.g. condition assessments during regular maintenance, internal policies, program and service growth, etc) to ensure compliance with organizational objectives and efficient use of resources. • Ensure that asset data is updated regularly to reflect fleet and equipment condition and availability. • Track work orders in computerized maintenance management system or equivalent to support KPI
	Refurbish fleet and equipment to maintain in inventory as spares	At optimal point in lifecycle analysis	• Unplanned service disruption due to inadequate spares impacting dependent services. • Reduced response time due to lack of access to suitable vehicles and equipment.	

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
	Determine optimal point in asset lifecycle for asset replacement that minimizes maintenance and renewal/rehabilitation costs	At optimal point in lifecycle analysis/end of life	• Inefficient usage of budget resources. • Unplanned asset failure leading to vehicle and equipment shortages, impacting dependent services.	reporting, look for trends in asset failures by pipe material or manufacturer, and so on. Establish a process for review of assets prior to end of life/disposal to determine candidacy for spares inventory (e.g. a target organized by vehicle type relative to expenditures on maintenance and repairs against purchase value relative to current condition) • Establish a process to identify end of life of asset and monitor at regular intervals (e.g. a target organized by vehicle type, for the amount of money spent on maintenance and repairs against purchase value). • Incorporate results into lifecycle strategy. • Use PLOS in coordination with other non-infrastructure solutions (e.g. policies around fleet electrification) to monitor for compliance with targets.
	Purchase/procure electric vehicles when possible to support environmental stewardship and reduce fuel consumption/greenhouse gas emissions	As required	• Failure to comply with internal policies and strategies around greenhouse gas emissions and fuel consumption.	
Disposal	Sold as part of vehicle/equipment decommissioning	At optimal point in lifecycle analysis/end of life	• Inefficient usage of available resources (i.e. failure to secure salvage value).	• Establish process for identifying candidates for resale at end of life relative to disposal costs. • Align asset register with TCA or End of Life processes where appropriate to streamline documentation of asset disposal, and associated data updates.
	Vehicle/equipment disposal if cannot be sold due to current state/condition	At end of life	• Failure to comply with internal policies and strategies around best-practices for vehicle disposal.	
Expansion and Service Improvements	Review shared assets amongst services to determine overall capacity/needs	Annually	• Inefficient use and allocation of fleet and equipment assets (e.g. not sized correctly for use, does not have adequate/necessary features, etc.) and corresponding inefficient use of financial resources.	• Establish process for regular reviews with stakeholders across service areas to coordinate fleet and equipment needs. • Align asset procurement with anticipated changes in service demand identified in non-infrastructure solutions, like master plans, DC studies, and internal stakeholder engagement as part of updates to asset lifecycle strategies and budget cycle. • Use PLOS in coordination with other non-infrastructure solutions (e.g. policies around fleet electrification) to monitor for compliance with targets.
	Purchase/procure additional fleet and equipment assets to support population growth or service expansion	Through growth and development	• Reduced service delivery due to staff not having the correct fleet and equipment assets.	
	Purchase/procure electric vehicles and equipment when possible (EV availability and charging infrastructure required), to support environmental stewardship and reduce fuel consumption/greenhouse gas emissions	Through growth and development	• Failure to comply with internal policies and strategies around fleet electrification.	

Table A 24: Lifecycle Management Activities for Emergency Services Facilities

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
Non-Infrastructure	Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required	• Diminished understanding of future needs & growth impacts. • Reduce ability to coordinate project planning within and between service areas. • Reduced understanding of climate change impacts. • Reduced understanding and coordination between various planning, studies and performance assessment activities resulting in poor future project planning, coordination, and prioritization.	• Support staff in receiving software training to keep them up-to-date on data management best practices, and other essential software systems. • Use an asset information/data management standard to ensure that data sets relevant to asset management track information in a consistent manner, allowing for ease of access and data transfer. • Develop a continuous improvement plan for regular community engagement, aligned with corporate community engagement cycle for efficient resource uses. • Review previously completed community engagement activities, if available, to establish a baseline for the current community engagement activity, where applicable. • Use condition to support evaluation of current LOS against proposed LOS achievement to assess asset performance and support reporting and communication. • Use outputs of condition assessments and inspections to help establish business cases for programs and help identify asset candidates for programs
	Conduct community engagement to define priorities and standards to establish budgeting and service levels.	Future Initiative	• Inequitable identification and coordination of stakeholder service delivery priorities. • Negative impacts on reputation due to low levels of engagement.	

	Building condition assessment program	Ongoing	• Limited understanding of the condition of building assets resulting in:
			  ○ Reduced coordination of asset needs and priorities.
			  ○ Reduced ability to coordinate between various programs, studies and other assessments.	

Operations and Maintenance	Performing regular preventive maintenance to extend service lives	As per maintenance programs	• Increased reactive maintenance, and associated increase in costs. • Reduced asset service life. • Decreased asset performance due to worsening condition. • Increased capital investments due to shortened service life.	• Align projects and programs with recommendations from other non-infrastructure solutions (e.g. condition assessments, internal policies, master plans, etc) to ensure compliance with organizational objectives and efficient use of resources. • Integrate findings of building condition assessment work (both road scans as well as internal inspections) to support short term, immediate proactive maintenance activities to minimize reactive maintenance. • Use relevant asset management analysis (e.g. lifecycle forecasting tools, LOS and Risk assessments, and other planning and strategic documents) to support identification of long-term preventative maintenance programs (e.g. coil cleaning, fire safety systems tests, filter replacement, etc.) and help build business cases to secure funding for these programs. Preventative maintenance programs will also extend asset service life and minimize risk of regulatory non-compliance. • Consider establishing an internal building condition assessment program to monitor for changes over time, particularly in older or higher risk/priority facilities.
	Reactive maintenance to address issues found through inspections, preventive maintenance, or complaints	As required	• Reduced asset service life. • Increasing capital costs to replace vehicle due to shorter service lives.	

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
				• Track work orders in computerized maintenance management system or equivalent to support KPI reporting, look for trends in asset failures by make, model, manufacturer, material, and facilitate understanding of maintenance staffing needs.
Renewal (Rehabilitation and Replacement)	Building rehabilitation needs	Based on inspections and condition assessments	• Reduced service life of connected/dependent assets. • Increased operating and maintenance costs. • Potential safety risks to users and/or occupants. • Unplanned service disruptions and facility closures.	• Align renewal, and replacement rehabilitation activities with recommendations from other non-infrastructure activities (e.g. master plans) to ensure efficient use of resources. • Use relevant asset management analysis (e.g. lifecycle forecasting tools, LOS and Risk assessments, and other planning and strategic documents) to support identification of long-term rehabilitation and renewal programs (e.g. larger scale replacement for particular building systems, such as windows, rooftop units, roofs and other exterior finishes etc) and help build business cases to secure funding for these programs. • Use LOS framework to support prioritization of rehabilitation activities. • Track work orders in computerized maintenance management system or equivalent to support KPI reporting, look for trends in asset failures by make, model, manufacturer, material, and support monitoring of project management hours to facilitate understanding of staffing needs. • Maintain up-to-date datasets to support prioritization of asset needs and understand the interdependencies between building asset systems. Where relevant, request updated datasets provided by contractor in an editable format at the end of the project.
	Equipment or building component replacement	As required	• Reduced service life of connected/dependent assets. • Increased operating and maintenance costs. • Potential safety risks to users and/or occupants. • Unplanned service disruptions and facility closures.	
	Major equipment or structural building component replacement	At optimal point in lifecycle analysis/end of life	• Reduced service life of connected/dependent assets. • Increased operating and maintenance costs. • Potential safety risks to users and/or occupants. • Unplanned service disruptions and facility closures.	
Disposal	Asset disposal coordinated with asset replacement	Coordinated with replacement/end of life	• Increased costs associated with disposing of assets outside of primary project.	• Align disposal documentation processes with asset hierarchy data structures to streamline TCA reporting.
Expansion and Service Improvements	Conduct community engagement to define priorities and standards to establish budgeting and service levels.	Future Initiative	• Inequitable stakeholder engagement around service delivery expectations resulting in inequitable LOS. • Negative impacts to reputation due to limited engagement.	• Develop a continuous improvement plan for regular community engagement, aligned with corporate community engagement cycle for efficient resource uses. • Incorporate recommendations from non-infrastructure planning activities into lifecycle and financial strategy to ensure capacity (both resources, and system design) to support expansion.
	Construction of new facilities in new subdivisions to accommodate for population growth or expansion of existing facilities to accommodate for population intensification	Through growth and development	• Unable to support increasing demand due to population growth. • Service outages due to unsustainable demand on existing network of assets.	

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
	Purchase/procure additional equipment and fleet assets to support population growth or service expansion	As required	• Reduced service delivery due to staff not having the correct fleet and equipment assets available.	• Align asset procurement with anticipated changes in service demand identified in non-infrastructure solutions, like master plans, DC studies, and internal stakeholder engagement as part of updates to asset lifecycle strategies and budget cycle. • Use PLOS in coordination with other non-infrastructure solutions (e.g. policies around fleet electrification) to monitor for compliance with targets.
	New fire station construction	Through growth and development	• Inadequate service delivery to regions of the Township.	

Table A 25: Lifecycle Management Activities for Administration & Operations and Indoor Recreation Facilities

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
Non-Infrastructure	Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required	• Diminished understanding of future needs & growth impacts due to incomplete studies/plans/reports/analysis. • Reduce ability to coordinate project planning within and between service areas. • Reduced understanding of climate change impacts. • Reduced coordination between various planning, studies and performance assessment activities resulting in poor future project planning, coordination, and prioritization.	• Support staff in receiving software training to keep them up-to-date on data management best practices, and other essential software systems. • Use an asset information/data management standard to ensure that data sets relevant to asset management track information in a consistent manner, allowing for ease of access and data transfer. • Develop a continuous improvement plan for regular community engagement, aligned with corporate community engagement cycle for efficient resource uses. • Review previously completed community engagement activities, if available, to establish a baseline for the current community engagement activity, where applicable. • Use condition to support evaluation of current LOS against proposed LOS achievement to assess asset performance and support reporting and communication. • Use outputs of condition assessments and inspections to help establish business cases for programs and help identify asset candidates for programs
	Conduct community engagement to define priorities and standards to establish budgeting and service levels	Future Initiative and ongoing	• Inequitable identification and coordination of stakeholder service delivery priorities. • Negative impacts on reputation due to low levels of engagement. • Insufficient engagement to support asset design and selection to best support desired programming.	

	Building condition assessment program	Ongoing	• Limited understanding of the condition of building assets resulting in:
			  ○ Reduced coordination of asset needs and priorities.
			  ○ Reduced ability to coordinate between various programs, studies and other assessments.	

Operations and Maintenance	Performing regular preventive maintenance to extend service lives	As per maintenance programs	• Increased reactive maintenance, and associated increase in costs. • Reduced asset service life. • Decreased asset performance due to worsening condition.	• Align projects and programs with recommendations from other non-infrastructure solutions (e.g. condition assessments, internal policies, master plans, etc) to ensure compliance with organizational objectives and efficient use of resources.

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
			• Increased capital investments due to shortened service life.	• Integrate findings of building condition assessment work (both road scans as well as internal inspections) to support short term, immediate proactive maintenance activities to minimize reactive maintenance. • Use relevant asset management analysis (e.g. lifecycle forecasting tools, LOS and Risk assessments, and other planning and strategic documents) to support identification of long-term preventative maintenance programs (e.g. coil cleaning, fire safety systems tests, filter replacement, etc.) and help build business cases to secure funding for these programs. Preventative maintenance programs will also extend asset service life and minimize risk of regulatory non-compliance. • Consider establishing an internal building condition assessment program to monitor for changes over time, particularly in older or higher risk/priority facilities. • Track work orders in computerized maintenance management system or equivalent to support KPI reporting, look for trends in asset failures by make, model, manufacturer, material, and facilitate understanding of maintenance staffing needs.
	Reactive maintenance to address issues found through inspections, preventive maintenance, or complaints	As required	• Reduced asset service life. • Increasing capital costs due to earlier asset failure.	
Renewal (Rehabilitation and Replacement)	Building rehabilitation needs	Based on inspections and condition assessments	• Reduced service life of connected/dependent assets. • Increased operating and maintenance costs. • Potential safety risks to users and/or occupants. • Unplanned service disruptions and facility closures.	• Align renewal, and replacement rehabilitation activities with recommendations from other non-infrastructure activities (e.g. master plans) to ensure efficient use of resources. • Use relevant asset management analysis (e.g. lifecycle forecasting tools, LOS and Risk assessments, and other planning and strategic documents) to support identification of long-term rehabilitation and renewal programs (e.g. larger scale replacement for particular building systems, such as windows, rooftop units, roofs and other exterior finishes etc) and help build business cases to secure funding for these programs. • Use LOS framework to support prioritization of rehabilitation activities. • Track work orders in computerized maintenance management system or equivalent to support KPI reporting, look for trends in asset failures by make, model, manufacturer, material, and support monitoring of project management hours to facilitate understanding of staffing needs. • Maintain up-to-date datasets to support prioritization of asset needs and understand the interdependencies between building asset systems. Where relevant, request
	Equipment or building component replacement	As required	• Reduced service life of connected/dependent assets. • Increased operating and maintenance costs. • Potential safety risks to users and/or occupants. • Unplanned service disruptions and facility closures.	
	Asset replacement/reconstruction	At optimal point in lifecycle analysis/end of life	• Reduced service life of connected/dependent assets. • Increased operating and maintenance costs. • Potential safety risks to users and/or occupants. • Unplanned service disruptions and facility closures.	

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
				updated datasets provided by contractor in an editable format at the end of the project.
Disposal	Asset disposal coordinated with asset replacement	Coordinated with replacement/end of life	• Increased costs associated with disposing of assets outside of primary project.	• Align disposal documentation processes with asset hierarchy data structures to streamline TCA reporting.
Expansion and Service Improvements	Conduct community engagement to define priorities and standards to establish budgeting and service levels.	Future Initiative and ongoing	• Inequitable stakeholder engagement around service delivery expectations resulting in inequitable LOS. • Negative impacts to reputation due to limited engagement.	• Develop a continuous improvement plan for regular community engagement, aligned with corporate community engagement cycle for efficient resource uses. • Incorporate recommendations from non-infrastructure planning activities into lifecycle and financial strategy to ensure capacity (both resources, and system design) to support expansion. • Align asset procurement with anticipated changes in service demand identified in non-infrastructure solutions, like master plans, DC studies, and internal stakeholder engagement as part of updates to asset lifecycle strategies and budget cycle. • Use PLOS in coordination with other non-infrastructure solutions (e.g. program plans, master plans, etc) to monitor for compliance with targets.
	Construction of new facilities in new subdivisions to accommodate for population growth or expansion of existing facilities to accommodate for population intensification	Through growth and development and based on Master Plan	• Unable to support increasing demand due to population growth. • Service outages due to unsustainable demand on existing network of assets.	
	Purchase/procure additional indoor recreation assets to support population growth or service expansion.	As required and based on Master Plan	• Reduced service delivery due to not having the correct equipment and spaces to support programming.	

Table A 26: Lifecycle Management Activities for Outdoor Recreation Facilities

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
Non-Infrastructure	Planning and studies (Master Plans, financial plans, capacity studies, AMPs, Parks and Recreation Master Plan, Arts and Culture Master Plan)	As required	• Diminished understanding of future needs & growth impacts due to incomplete studies/plans/reports/analysis. • Reduce ability to coordinate project planning within and between service areas. • Reduced understanding of climate change impacts. • Reduced coordination between various planning, studies and performance assessment activities resulting in poor future project planning, coordination, and prioritization.	• Support staff in receiving software training to keep them up-to-date on data management best practices, and other essential software systems. • Use an asset information/data management standard to ensure that data sets relevant to asset management track information in a consistent manner, allowing for ease of access and data transfer. • Develop a continuous improvement plan for regular community engagement, aligned with corporate community engagement cycle for efficient resource uses. • Review previously completed community engagement activities, if available, to establish a baseline for the current community engagement activity, where applicable. • Use condition to support evaluation of current LOS against proposed LOS achievement to assess asset performance and support reporting and communication.
	Conduct community engagement to define priorities and standards to establish budgeting and service levels	Future Initiative and ongoing	• Inequitable identification and coordination of stakeholder service delivery priorities. • Negative impacts on reputation due to low levels of engagement. • Insufficient engagement to support asset design and selection to best support desired programming.	

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
				• Use outputs of condition assessments and inspections to help establish business cases for programs and help identify asset candidates for programs

Operations and Maintenance	Routine (weekly, monthly, and annual) parks inspections for all outdoor recreation assets	Annually as per inspection programs	• Limited understanding of the condition of building assets resulting in:
			  ○ Reduced coordination of asset needs and priorities.
			  ○ Reduced ability to coordinate between various programs, studies and other assessments.
				• Align projects and programs with recommendations from other non-infrastructure solutions (e.g. condition assessments, internal policies, master plans, etc) to ensure compliance with organizational objectives and efficient use of resources.
				• Integrate findings of building condition assessment work (both road scans as well as internal inspections) to support short term, immediate proactive maintenance activities to minimize reactive maintenance.
				• Use relevant asset management analysis (e.g. lifecycle forecasting tools, LOS and Risk assessments, and other planning and strategic documents) to support identification of long-term preventative maintenance programs and help build business cases to secure funding for these programs. Preventative maintenance programs will also extend asset service life and minimize risk of regulatory non-compliance.
				• Consider establishing an internal building and structure condition assessment program to monitor for changes over time, particularly in older or higher risk/priority facilities
				• Retain fleet or equipment that has served its useful life, but is in acceptable condition, as spares for unexpected asset outages.
				• Track work orders in computerized maintenance management system or equivalent. Historical information can be used to guide future decisions on lifecycle activities.

	Performing regular preventive maintenance to extend service lives	As per maintenance programs	• Increased reactive maintenance, and associated increase in costs. • Reduced asset service life. • Decreased asset performance due to worsening condition. • Increased capital investments due to shortened service life.	
	Reactive maintenance to address issues found through inspections, preventive maintenance, or complaints	As required	• Reduced asset service life. • Increasing capital costs to replace vehicle due to shorter service lives.	
Renewal (Rehabilitation and Replacement)	Performing renewals/rehabilitations proactively that were predicted/scheduled via regular preventive maintenance and annual inspections	As required	• Reduced service life of connected/dependent assets. • Increased operating and maintenance costs. • Potential safety risks to users and/or occupants. • Unplanned service disruptions and facility closures.	• Align renewal, and replacement rehabilitation activities with recommendations from other non-infrastructure activities (e.g. master plans) to ensure efficient use of resources. • Use relevant asset management analysis (e.g. lifecycle forecasting tools, LOS and Risk assessments, and other planning and strategic documents) to support identification of long-term rehabilitation and renewal programs and help build business cases to secure funding for these programs. • Use LOS framework to support prioritization of rehabilitation activities.
	Component replacement before asset requires full replacement (e.g., playgrounds)	As required	• Increased operating and maintenance costs. • Potential safety risks to users and/or occupants. • Unplanned service disruptions and asset closures.	
	Asset replacement/reconstruction	At optimal point in lifecycle analysis/end of life	• Reduced service life of assets. • Increased operating and maintenance costs. • Safety risks to users and/or occupants. • Unplanned service disruptions and facility closures.	

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
				• Track work orders in computerized maintenance management system or equivalent to support KPI reporting, look for trends in asset failures by make, model, manufacturer, material, and support monitoring of project management hours to facilitate understanding of staffing needs. • Maintain up-to-date datasets to support prioritization of asset needs and understand the interdependencies between building asset systems. Where relevant, request updated datasets provided by contractor in an editable format at the end of the project.
Disposal	Asset disposal coordinated with asset replacement	Coordinated with replacement/end of life	• Increased costs associated with disposing of assets outside of primary project.	• Align disposal documentation processes with asset hierarchy data structures to streamline TCA reporting.
Expansion and Service Improvements	Conduct community engagement to define priorities and standards to establish budgeting and service levels	Future Initiative and ongoing	• Inequitable stakeholder engagement around service delivery expectations resulting in inequitable LOS. • Negative impacts to reputation due to limited engagement.	• Develop a continuous improvement plan for regular community engagement, aligned with corporate community engagement cycle for efficient resource uses. • Incorporate recommendations from non-infrastructure planning activities into lifecycle and financial strategy to ensure capacity (both resources, and system design) to support expansion. • Align asset procurement with anticipated changes in service demand identified in non-infrastructure solutions, like master plans, DC studies, and internal stakeholder engagement as part of updates to asset lifecycle strategies and budget cycle. • Use PLOS in coordination with other non-infrastructure solutions (e.g. program plans, master plans, etc) to monitor for compliance with targets.
	Growth needs are determined based on the Parks and Recreation Master Plan service standards and target provision levels. There is opportunity for collaboration amongst services for service expansion.	Through growth and development	• Unable to support increasing demand due to population growth. • Service outages due to unsustainable demand on existing network of assets. • Reduced coordination and prioritization of related needs between different services.	
	Purchase/procure additional outdoor recreation assets to support population growth or service expansion.	As required and based on Master Plan	• Reduced service delivery due to outdoor recreation facilities not meeting design and service delivery expectations.	

Table A 27: Lifecycle Management Activities for Administration & Operations Fleet and Equipment

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
Non-Infrastructure	Planning and studies (Master Plans, financial plans, capacity studies, AMPs) Policies and procedures/standards	As required	• Diminished understanding of future needs & growth impacts. • Reduce ability to coordinate project planning within and between service areas. • Reduced understanding of climate change impacts. • Reduced understanding and coordination between various planning, studies and performance assessment activities resulting in poor future project planning, coordination, and prioritization.	• Support staff in receiving software training to keep them up-to-date with software and technology advances, and data management best practices. • Develop an asset information/data management standard to ensure that data sets are maintained in a consistent manner, allowing for ease of access and data transfer.

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
				• Integrate all asset recommendations from planning and studies into the lifecycle management strategy to ensure alignment of all project and O&M planning.
Operations and Maintenance	Performing regular preventive maintenance	As per vehicle / equipment's manufacturer manual	• Increased reactive maintenance due to decrease in condition. • Increasing cost, including vehicle rental costs. • Reduced asset service life. • Reduce staff performance due to lack of access to suitable vehicle and equipment.	• Support staff in receiving software training to keep them up-to-date with software and technology advances, and data management best practices. • Develop an asset information/data management standard to ensure that data sets are maintained in a consistent manner, allowing for ease of access and data transfer. • Integrate all asset recommendations from planning and studies into the lifecycle management strategy to ensure alignment of all project and O&M planning. • Align projects and programs with recommendations from non-infrastructure solutions (e.g. condition assessments, internal policies, master plans, etc) to ensure compliance with organizational • Regularly assess maintenance costs against value of fleet or equipment to identify optimal time to replace assets • Track work orders in computerized maintenance management system or equivalent to support KPI reporting, look for trends in asset failures by make/model/manufacturer of fleet or equipment, and so on. Use preventative maintenance information to provide understanding of current asset condition. • Retain fleet or equipment that has served its useful life, but is in acceptable condition, as spares for unexpected asset outages.
	Reactive maintenance	As required	• Increasing capital costs to replace vehicles. • Reduced asset service life.	
Renewal (Rehabilitation and Replacement)	Performing renewals/rehabilitations proactively that were predicted/scheduled via regular preventive maintenance and inspections	As required	• Unplanned service disruption due to unexpected asset failure, impacting surrounding/dependent services. • Poor budget coordination and unpredictable service delivery. • Reduce staff performance due to lack of access to suitable vehicle and equipment.	• Align projects and programs with recommendations from non-infrastructure solutions (e.g. condition assessments, internal policies, master plans, etc) to ensure compliance with organizational objectives and efficient use of resources. • Ensure that asset data is updated regularly to reflect fleet and equipment condition and availability. • Track work orders in computerized maintenance management system or equivalent to support KPI reporting, look for trends in asset failures by pipe material or manufacturer, and so on. • Establish a process for review of assets prior to end of life/disposal to determine candidacy for spares inventory (e.g. a target organized by vehicle type, for the amount of
	Refurbish fleet and equipment to maintain in inventory as spares	At optimal point in lifecycle analysis	• Unplanned service disruption due to inadequate spares impacting dependent services. • Reduce staff performance due to lack of access to suitable vehicle and equipment.	
	Determine optimal point in asset lifecycle for asset replacement that minimizes maintenance and renewal/rehabilitation costs	At optimal point in lifecycle analysis/end of life	• Inefficient usage of budget resources. • Unplanned asset failure leading to vehicle and equipment shortages, impacting dependent services.	

Lifecycle Activity	Description	Frequency	Risks Associated with Not Completing the Activities	Observations & Mitigating Actions
	Purchase/procure electric vehicles when possible to support environmental stewardship and reduce fuel consumption/greenhouse gas emissions	As required	• Failure to comply with internal policies and strategies around greenhouse gas emissions and fuel consumption.	money spent on maintenance and repairs against purchase value relative to current condition) • Incorporate results into lifecycle strategy. • Establish a process to identify end of life of asset and monitor at regular intervals (e.g. a target organized by vehicle type, for the amount of money spent on maintenance and repairs against purchase value). • Incorporate results into lifecycle strategy. • Use PLOS in coordination with other non-infrastructure solutions (e.g. policies around fleet electrification) to monitor for compliance with targets.
Disposal	Sold as part of vehicle/equipment decommissioning	At optimal point in lifecycle analysis/end of life	• Inefficient usage of available resources (i.e. failure to secure salvage value).	• Establish process for identifying candidates for resale at end of life relative to disposal costs. • Align asset register with TCA or End of Life processes where appropriate to streamline documentation of asset disposal, and associated data updates.
	Vehicle/equipment disposal if cannot be sold due to current state/condition	At end of life	• Failure to comply with internal policies and strategies around best-practices for vehicle disposal.	
Expansion and Service Improvements	Review shared assets amongst services to determine overall capacity/needs	Annually	• Inefficient use and allocation of fleet and equipment assets (e.g. not sized correctly for use, does not have adequate/necessary features, etc.) and corresponding inefficient use of financial resources.	• Establish process for regular reviews with stakeholders across service areas to coordinate fleet and equipment needs. • Align asset procurement with anticipated changes in service demand identified in non-infrastructure solutions, like master plans, DC studies, and internal stakeholder engagement as part of updates to asset lifecycle strategies and budget cycle. • Use PLOS in coordination with other non-infrastructure solutions (e.g. policies around fleet electrification) to monitor for compliance with targets.
	Purchase/procure additional fleet and equipment assets to support population growth or service expansion	Through growth and development	• Reduced service delivery due to staff not having the correct fleet and equipment assets.	
	Purchase/procure electric vehicles and equipment when possible (EV availability and charging infrastructure required) to support environmental stewardship and reduce fuel consumption/greenhouse gas emissions	Through growth and development	• Failure to comply with internal policies and strategies around fleet electrification.	

APPENDIX E: MATURITY ASSESSMENT RATING SCALE

Item	Description	1 – Aware	2 – Developing	3 – Competent	4 – Optimizing	5 - Excellent
Current LOS As a % of Target	Using the levels of service values, this metric evaluates the percent of the target level of service that has been achieved for each service.	1-Aware: Current levels of service are less than 25% of the target levels of service.	2-Developing: Current levels of service are 25%-49% of the target levels of service.	3-Competent: Current levels of service are 50-74% of the target levels of service.	4-Optimizing: Current levels of service are 75%-99% of the target levels of service.	5- Excellent: Current levels of service are 100% of the target levels of service.
Asset Data Completeness	Using the 2024 AMP data sources and maturity tables, this metric evaluates how complete the key data fields are in the asset register for the creation of the State of the Infrastructure. An average is calculated from the total number of fields required and the proportion of data fields filled in for each asset class and reported as an average for each service. (Key fields vary by asset class and can include: Installation Date, Estimated Service Life (ESL), Replacement Cost, Condition, Dimension Information (e.g., length, diameter), and Material)	1-Aware: Fields are less than 25% complete on average with the majority of fields requiring gap filling or assumptions.	2-Developing: Fields are 25-50% complete on average with gap filling or assumptions required.	3-Competent: Fields are50-75% complete on average with some fields requiring gap filling or assumptions.	4-Optimizing: Fields are greater than 75% complete on average with some minor gap filling required.	5- Excellent: All fields are 100% complete with no gap filling or assumptions required.

Asset Condition Data Confidence	Using the 2024 AMP, this metric evaluates the confidence and reliability of the data informing the condition of each asset class but reported as an average for the service. This metric helps inform the following questions: Can the condition information or data quality be improved (e.g. is there a formal condition assessment program)? How is the performance data being sourced (e.g. records, procedures, investigations, analysis, verbal, cursory inspections, engineered reports, etc.) and what is its reliability? Is condition inspection information being used or is the asset class in the early stages of maturity where the assumed replacement at the end of useful life (ESL) based on age is used instead? If the industry best practice is to use age and ESL to approximate condition, such as with short-lived assets like fleet and equipment, then the asset condition data confidence was rated high.	1-Aware: Little condition data available in asset inventory; age-ESL is used.	2-Developing: There are some condition assessment information included in asset inventory; Dataset is not complete and most condition is assumed; age-ESL is used.	3-Competent: Around half condition assessment information available in asset inventory, but may not be up-to-date; age-ESL is used.	4-Optimizing: Around 75% of inventory has recent (<5 years) condition assessment information available based on sound procedures and investigations; Some data is older and/or requires some gap filling.	5- Excellent: Entire asset inventory has recent (<2 years) condition assessment information (based on best engineering practice, procedures, investigations and are documented properly); Gap filling or assumptions are not needed; age-ESL is used only if is the industry best practice for short lived assets (e.g. fleet and equipment).
Overall Average Performance	Using the 2024 AMP asset register and decision support system tool, this metric helps compare the current overall average performance of each service to the target PLOS performance.	1 - Very Poor Condition: On average the majority of assets may be beyond their	2- Poor Condition: On average the majority of assets are near the end of service life;	3- Fair Condition: On average the majority of assets are around half to three quarters	4- Good Condition: On average the majority of assets are in acceptable and mid-stage of its	5- Very Good Condition: On average the majority of assets are in new or recently rehabilitated;

		service life and may be at increased risk of failure; based on modelling of the estimated available funding for 10 years and the proposed LOS targets.	based on modelling of the estimated available funding for 10 years and the proposed LOS targets.	through the estimated service life; based on modelling of the estimated available funding for 10 years and the proposed LOS targets.	service life; based on modelling of the estimated available funding for 10 years and the proposed LOS targets.	based on modelling of the estimated available funding for 10 years and the proposed LOS targets.
Lifecycle Management Strategy Maturity	This metric uses the Lifecycle Management Strategy maturity framework from the 2018 Asset Management Framework developed by the Municipal Finance Officers' Association (MFOA). The framework helps assess the average maturity of the lifecycle frameworks and strategies developed for the 2024 AMP for each service. The nine categories that are being rated include: non-infrastructure solutions, maintenance solutions, rehabilitation solutions, replacement solutions, asset expansion, contributed assets, risk assessments within the lifecycle management strategy, multiple lifecycle management strategy scenarios, and identifying capital priorities.	1-Aware: The need for a lifecycle management strategy is recognized and there is an ongoing basic level of effort to formalize and implement strategies. The focus is at a corporate high-level.	2-Developing: Further research and understanding of some or all activities in the lifecycle management strategy is required to consistently achieve the organization's objectives. The focus is at a corporate high-level with some details at the asset type level.	3-Competent: There are major improvements to document and incorporate most lifecycle activities in the asset management strategy. The primary focus is at the asset type level.	4-Optimizing: There is a systematic process for assessing and incorporating lifecycle analysis within the asset management strategy in line with the organisation's objectives and operating context. The primary focus is at the asset type level with some incorporation at the detailed asset level.	5- Excellent: Industry best practices are being implemented in a systematic and repeatable process to achieve organization's objectives and maximize the value of the assets across all lifecycle activities at the lowest lifecycle cost. The primary focus is at the detailed asset level.

References:

Global Forum on Maintenance and Asset Management (GFMAM). (2015, October). *Asset Management Maturity: A Position Statement, First Edition.* Retrieved from https://gfmam.org/sites/default/files/2019-08/GFMAM_ASSET%20MANAGEMENT%20MATURITY_FIRST%20EDITION_ENGLISH%20VERSION.pdf

Municipal Finance Officers' Association (MFOA). (2018). *Section 5 Lifecycle Management Strategy.* Retrieved from Asset Management Framework: https://www.mfoa-amp.ca/AMF/AMF_05.html

The Institute of Asset Management. (n.d.). *Excellence & Maturity*. Retrieved from http://theiam.org/knowledge/hot-topic-programs/excellence-maturity/