ORILLIA

Asset Management Plan

2025

City of Orillia Land Acknowledgement

I would like to take this moment to respectfully acknowledge that the City of Orillia is situated on the traditional territory of the Anishnaabeg, specifically the Chippewas of Rama First Nation; is a member of the Chippewa Tri-Council and Three Fires Confederacy; and that it continues to be home to many diverse First Nations, Métis and Inuit Peoples.

As a City, we honour and value the significant historical and contemporary contributions of Indigenous Peoples to the area, which is home to one of North America's oldest human developments, the Mnjikaning Fish Weirs.

We acknowledge that this land is covered by the Williams Treaties and Upper Canada Treaties signed by our governments on behalf of the Anishinaabe and Canadian Peoples, and was once part of the Coldwater-Narrows Reserve.

The City of Orillia is committed to building a welcoming, caring, inclusive and accessible community for all citizens, which includes helping the community understand, acknowledge, and take action toward real truth and reconciliation so that we can move forward together with respect, harmony and dignity for all Indigenous Peoples of the past, present, and future.

Thank you. Merci. Miigwech

Mayor Don McIsaac

Asset Management Project Team

Stephen Boon – Asset Management Coordinator
Stephen Gendron – Manager of Environmental Engineering
Francis Gomes – Project Official III Water/Wastewater
Andrew Jones – GIS Specialist
Steven Murphy – Project Engineer – Transportation

Strategic Leadership Team

Amanpreet Singh Sidhu – Chief Administrative Officer/City Solicitor
Jamie Galloway – General Manager of Development Services and Engineering
Roger Young – General Manager of Environment and Infrastructure Services

Note on Accessibility

The alternative text provided may not fully detail the data contained within some figures. For tables of the data within those figures in a more accessible format, please visit the webpage **https://www.orillia.ca/en/city-hall/asset-management.aspx**

Contents

List of Figures

7.0 Wastewater

8.0 Stormwater

9.0 Fire Services

10.0 Fleet and Transit

11.0 Facilities

12.0 Solid Waste

13.0 Parks, Recreation, Culture, and Tourism

14.0 Municipal Law Enforcement and Parking

15.0 Information Technology

16.0 Natural Assets

17.0 Impacts of Growth

18.0 Financial Summary

19.0 Financial Strategy

20.0 Appendices

List of Tables

7.0 Wastewater

8.0 Stormwater

9.0 Fire Services

10.0 Fleet and Transit

11.0 Facilities

12.0 Solid Waste

13.0 Parks, Recreation, Culture, and Tourism

14.0 Municipal Law Enforcement and Parking

15.0 Information Technology

16.0 Natural Assets

17.0 Impacts of Growth

18.0 Financial Summary

19.0 Financial Strategy

20.0 Appendices

1.0
Executive Summary

1.0 Executive Summary

Municipal infrastructure plays a crucial role in fostering the economic, social, and environmental well-being and development of a community by delivering essential services. Asset management aims to provide a defined level of service most cost-effectively while managing risks and accommodating growth. This involves creating and implementing strategies for the entire lifecycle of assets and engaging in long-term planning.

Asset management involves capturing a snapshot of current conditions, utilizing up-to-date information to inform future funding allocations and predict asset conditions. Alterations in the type or frequency of condition assessments can lead to varying asset requirements. Changes in funding levels, service levels, or lifecycle events also impact condition modeling. If assets undergo unwarranted lifecycle management activities or replacements earlier than planned, it can affect asset management forecasts.

For instance, resurfacing a road section before its scheduled date instead of a lower-condition section can disrupt the forecasted required infrastructure investments. Such deviations can decrease the accuracy of reports and potentially shift the City's asset spending from surplus to deficit. Adhering to 10-year capital plans grounded in robust asset management practices is recommended, with deviations only justified in cases like emergency repairs.

As a municipality experiencing growth, it's critical to handle expansion efficiently, sustainably, and with financial responsibility all while maintaining the existing assets of the City. This enables the long-term prosperity of both the City and its residents.

This Asset Management Plan (AMP) has been recently updated from its 2024 version and is designed to align with the City's mission of progressiveness and sustainability. The mission includes the commitment to offering an exceptional quality of life, fostering a vibrant culture, enhancing beautiful waterfronts, and creating a compassionate, welcoming, and inclusive community.

1.1 Scope of Assets

This plan outlines existing practices and strategies for overseeing public infrastructure and suggests improvements for further refinement. By adopting effective asset management strategies, the City can operate a well-managed state of public infrastructure, promoting the sustainable delivery of municipal services. The initial phase of developing an AMP involves comprehending the scope of assets under the City's management.

This plan includes the following asset categories:

Transportation	Facilities
Water	Solid Waste
Wastewater	Parks, Recreation, Culture, and Tourism
Stormwater	Municipal Law Enforcement and Parking
Fire Services	Information Technology
Fleet and Transit	Natural Assets

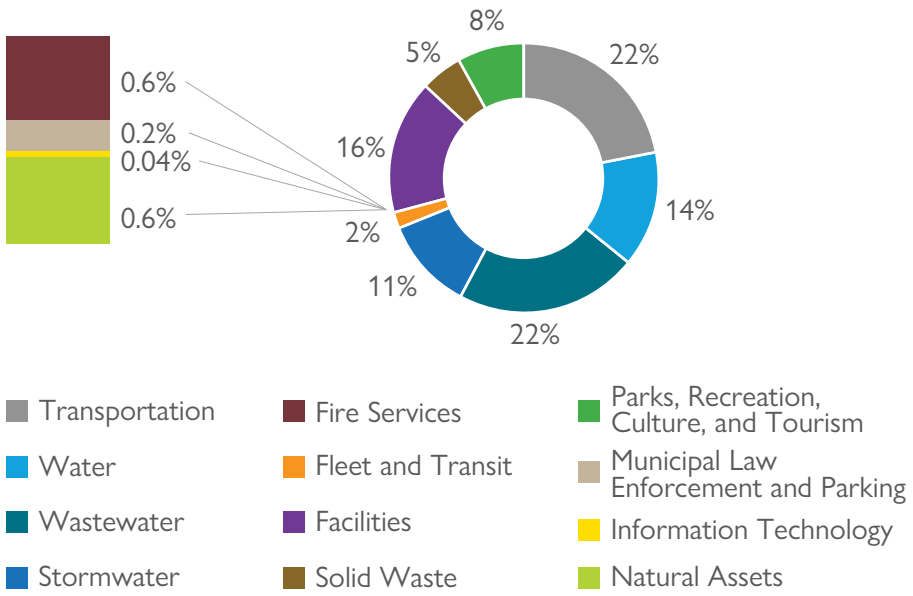
With the development of this plan, the City has achieved compliance with the July 1, 2025 requirements within Ontario Regulation 588/17.

1.2 State of Infrastructure Findings

The State of Infrastructure assesses and categorizes the asset portfolio based on estimated replacement cost, condition, and remaining service life. Asset conditions are usually rated on a five-point scale, ranging from Very Poor to Very Good, following industry-standard best practices. This consistent scale ensures a baseline comparability across various asset categories. The City is consistently enhancing its approach to assessing asset conditions and estimating replacement costs.

As of 2023, the City's asset portfolio holds an estimated replacement cost of approximately $2.38 billion (in 2025 dollars). Figure 1 displays the percentage distribution of the total replacement cost across different asset categories. This equates to an estimated replacement cost per household of around $160,000.

FIGURE 1: **Total Replacement Cost by Category**

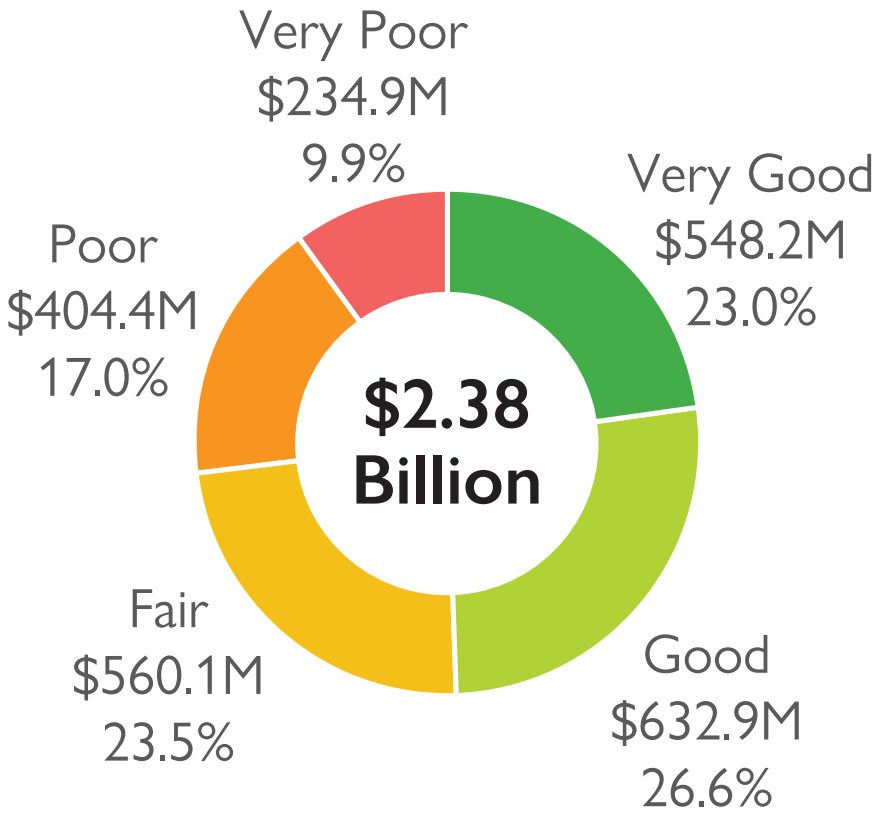


The value of an asset can be assessed either through its replacement cost or by considering its overall benefit to the wider community. However, this plan solely focuses on the replacement cost of assets. Determining the replacement cost involves considering the asset category and utilizing the best available information. When applicable, values from recent projects and procurement activities serve as the foundation for valuation. Alternatively, replacement cost estimates can be calculated using the historical cost, and the Consumer Price Index, the Non-Residential portion of the Building Construction Price Index, or expert knowledge in the relevant field.

Approximately 73.1% of assets fall within the categories of Very Good, Good, or Fair condition. While almost half of assets are in Very Good or Good condition, ongoing investment in both capital and operating lifecycle management strategies is essential. This is necessary to address assets in poorer condition states and to sustain service levels. A comprehensive understanding of the current asset condition is crucial for effective asset management planning and the optimal utilization of lifecycle management strategies.

Strategic investments in lifecycle management, executed at the right time, play a pivotal role in minimizing the overall lifecycle cost of assets. This plan employs a blend of proactive lifecycle management strategies and replacement-only strategies. This approach helps determine the most cost-effective options to uphold the current level of service. Figure 2 displays the distribution of the total replacement cost across the five condition ratings.

FIGURE 2: **Total Replacement Cost by Condition Rating**



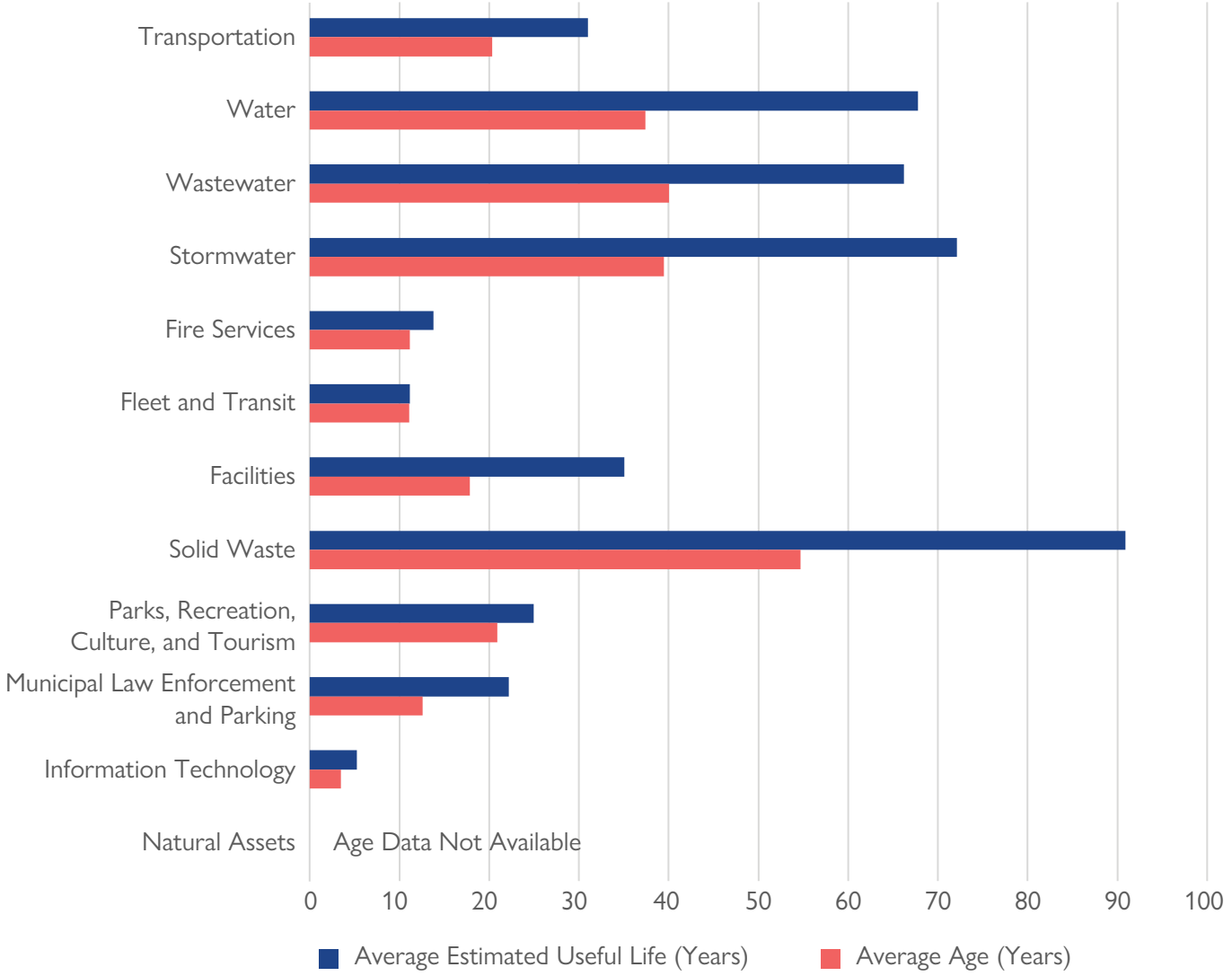
Condition data has been assessed for 64% of the assets covered in this plan. For the remaining 36% of assets, their age is utilized as an approximation for condition. Such data gaps are typical in municipal settings, especially for assets like underground infrastructure that are challenging to inspect due to cost and safety concerns. Relying on asset age might not accurately reflect their true condition, thus emphasizing the importance of assessments in asset management planning—a recurring recommendation in this plan.

It's crucial to acknowledge instances where asset records are limited, or data confidence is low. The effectiveness of this plan is directly tied to the available information. Efforts are underway to address these gaps, with staff actively working to collect more data and records. This ongoing data improvement initiative aims to enhance the confidence level in future iterations of this plan.

This plan serves as a snapshot in time, built upon the best available processes, data, and information accessible to the City at that particular moment. It's imperative to recognize that strategic asset management planning is a continuous and dynamic process, demanding ongoing improvement and dedicated resources. The document acknowledges areas of known deficiencies, and recommendations for addressing these shortcomings in future AMPs are outlined. This underscores the commitment to refining and advancing asset management practices over time.

Each asset has an Estimated Useful Life (EUL), which is the estimated amount of time that an asset is anticipated to be able to provide the target level of service. The EUL ranges from several months for frequently replaced assets such as sensors in the drinking water distribution system to 170 or more years for well-maintained heritage facilities. Figure 3 illustrates the average age and EUL for each category of assets.

FIGURE 3: **Average Asset Age and Estimated Useful Life by Category**



A considerable number of the City's assets are either at or nearing the end of their estimated useful life, reflecting their age with declining condition ratings. As assets age and undergo deterioration, operations and maintenance costs tend to rise until eventual renewal, rehabilitation, or replacement becomes necessary.

While strategic lifecycle management activities can sometimes extend an asset's life beyond its original estimated useful life, failure to undertake proper activities may result in the need for replacement or premature failure before reaching the end of its estimated useful life.

1.3 Lifecycle Management Strategies

Lifecycle management activities encompass a planned set of actions and endeavours aimed at maintaining current service levels and optimizing the economic life of assets. These specific actions are referred to as Lifecycle Events and cover various stages in the typical lifespan of an asset, including:

Acquiring the asset:

- Initiating the asset into the system.

Maintenance and operations activities:

- Ensuring the asset delivers the intended level of service throughout its useful life.

Renewal and rehabilitation activities:

- Undertaking actions to extend the asset's useful life.

Replacement and disposal activities:

- Managing the transition at the end of an asset's useful life.

Non-infrastructure solutions:

- Implementing policies and procedures that mitigate risk, reduce costs, or modify service delivery outcomes, providing alternatives beyond physical infrastructure.

In each asset category, there are optimal times for performing lifecycle activities, assuming a sustainable level of funding is available. Proactive utilization of lifecycle management activities at these strategic points is generally more cost-effective compared to a reactive "worst-first" approach, where assets in the poorest condition are replaced as issues arise. The City employs diverse methods and models to forecast the lifecycle of asset conditions over time. By utilizing these predictive tools, the City can pinpoint when assets necessitate funding to sustain the level of service, enabling a more proactive and cost-efficient approach to asset management.

Continuing to utilize assets without sufficient funding for critical lifecycle management activities puts the City in a less-than-ideal situation. This circumstance may force the City to accept a reduced level of service, leading to increased lifecycle costs and a higher risk of asset failure. Despite financial constraints, the City remains dedicated to maintaining assets to meet regulatory requirements. This commitment extends to upholding standards related to public health, water quality, road safety, and environmental protection. Regulatory compliance remains a top priority, underscoring the City's ongoing commitment to essential public services and safety.

1.4 Levels of Service

"Levels of service are the parameters, or combination of parameters, that reflect the social, political, environmental and economic outcomes that the organization delivers. The parameters can include safety, customer satisfaction, quality, quantity, capacity, reliability, responsiveness, environmental acceptability, cost and availability." (ISO 55000:2014)

The primary purpose of the City's assets is to provide services to its users. Levels of service act as a metric to gauge the actual service delivered, ensuring that decisions are based on the nature and quality of the service rather than solely on the condition of an asset. These measures serve to capture the type of service provided, aligning with the values and preferences of stakeholders in the community.

Monitoring levels of service indicators over time allows staff, Council, and stakeholders to record and assess the City's progress toward its goals. It establishes a correlation between funding levels and the performance of the City's assets. By doing so, the City can obtain a comprehensive understanding of the costs associated with delivering services to the community. Furthermore, it provides a consistent framework to evaluate the long-term impacts of decision-making processes.

This plan incorporates measures mandated by Ontario Regulation 588/17, along with others deemed significant by City staff for measurement and evaluation. The City commits to ongoing development and refinement of levels of service measures and targets through this plan and future revisions, facilitated by public engagement opportunities and subject matter experts opinion.

In compliance with the July 1, 2025, deadline set by Ontario Regulation 588/17, the City established proposed levels of service for a 10-year period that are aligned with the outcomes of the 2025 budget process and related 2025-2034 10 Year Capital and Reserve Forecast.

Within the Levels of Service and Performance Measures section of each service area chapter is a technical levels of service table that contains the performance measures, 2023 and 2024 historical performance where available, and the 2034 target performance where determined. Also contained within each service area chapter is a new Updates for 2025 Compliance section that summarizes updates made to each chapter and a new Proposed Levels of Service Appropriateness Assessment Table that details why the proposed levels of service are appropriate for the City.

1.5 Financial Summary for 2024 Service Levels

To execute the necessary lifecycle management activities, a sustainable level of funding is critical. Sustainable funding represents the annual average amount required to be spent or saved to maintain assets at their existing level of service. When a funding deficit occurs, asset management strategies are underfunded, leading to inadequate maintenance, renewal, or replacement of assets and the accumulation of a backlog of work.

Effective asset management planning, aimed at providing a sustainable level of funding, ensures that assets are well-managed, any backlog of work is addressed, and sufficient reserves are set aside for future asset needs. The ultimate goal is to achieve a state where no long-term backlog exists, allowing the City to deliver the desired level of service at the best value for money to the community in a sustainable manner.

Due to significant changes made in the 2025-2034 10 Year Capital and Reserve Forecast compared to the 2024-2033 forecast, and that the 2024 revision of this plan was in 2023 dollars, the surplus or deficit identified in the Financial Summary chapter and summarized in this section represents an outdated snapshot in time. Any adjustments made to 10-year plans impact the level of surplus or deficit. A future revision of this plan will include an updated financial summary that aligns with the proposed levels of service targets.

The 2024 revision of this plan identified that to maintain the 2024 level of service, clear existing backlogs, prevent further infrastructure backlogs, accommodate growth, and achieve long-term sustainability, the City's average annual capital funding requirement for the period 2024-2033 is $37.8 million.

Based on the 2024-2033 10-Year Capital Plan, the City was allocating an average of $39.0 million towards capital projects related to the assets covered in this plan. Consequently, there was an annual funding surplus of $1.2 million.

Table 1 illustrates the average annual capital funding surplus of $1.9 million for core assets and a funding deficit of $0.7 million for non-core assets respectively per year over the 2024-2033 period.

Asset management requires a long-term perspective to effectively manage assets with extended useful lives. A 10-year forecast period may not fully capture the extended needs of the City's assets. By extending the forecast period and projecting the average annual capital funding requirement over a more extended timeframe, it becomes possible to assess different financial strategies and identify the most cost-effective approach for meeting the long-term needs of the assets.

In this context, a 50-year forecast of sustainable capital requirements has been generated to offer insights into the City's anticipated needs over the next five decades. This extended forecast enables a comprehensive evaluation of financial strategies, supporting the identification of the best-value approaches for addressing the long-term requirements of the City's assets.

TABLE 1: **2024-2033 Average Annual Capital Funding Summary – 10-Year Sustainable Requirement**

Set of Assets	10-Year Sustainable Annual Funding Requirement	2024-2033 10-Year Capital Plan Average Per Year	2024-2033 Average Funding Surplus or (Deficit)
Core Assets	$25.5M	$27.4M	$1.9M
Non-Core Assets	$12.3M	$11.6M	($0.7M)
All Assets	$37.8M	$39.0M	$1.2M

Comparing the differences in the 10-year and 50-year forecasts, the average annual capital funding requirement sees an increase of $3.9 million for core assets and $0.5 million for non-core assets. This results in the average asset needs over the 2024-2073 period being $4.4 million higher than the average asset needs over the 2024-2033 period. Table 2 provides a summary of the 50-year sustainable annual capital funding requirement and the revised 2024-2033 average capital funding surplus or deficit.

TABLE 2: **2024-2033 Average Annual Capital Funding Summary – 50-Year Sustainable Requirement**

Set of Assets	10-Year Sustainable Annual Funding Requirement	2024-2033 10-Year Capital Plan Average Per Year	50-Year Sustainable Annual Funding Requirement	2024-2033 Average Funding Surplus or (Deficit)
Core Assets	$25.5M	$27.4M	$29.4M	($2.0M)
Non-Core Assets	$12.3M	$11.6M	$12.8M	($1.2M)
All Assets	$37.8M	$39.0M	$42.2M	($3.2M)

Considering the higher capital funding requirements projected in the 50-year forecast, the City changes from an overall surplus to an overall deficit over the 2024-2033 period. The annual surplus diminishes to an annual deficit of $3.2 million when accounting for both core and non-core assets collectively. Both core and non-core assets now experience a funding deficit.

Looking beyond 2033, assuming the backlog is cleared by 2034, the subsequent years from 2034-2073 would no longer bear the capital funding requirement associated with the backlog. Table 3 provides a summary of the updated 50-year sustainable annual capital funding requirement, now excluding the backlog, along with the revised funding surpluses or deficits for the 2034-2073 period.

TABLE 3: **2034-2073 Average Annual Capital Funding Summary – 50-Year Sustainable Requirement**

Set of Assets	10-Year Sustainable Annual Funding Requirement	2024-2033 10-Year Capital Plan Average Per Year	50-Year Sustainable Annual Funding Requirement **after Backlog Cleared**	2034-2073 Average Funding Surplus or (Deficit) **after Backlog Cleared**
Core Assets	$25.5M	$27.4M	$22.4M	$5.0M
Non-Core Assets	$12.3M	$11.6M	$12.1M	($0.5M)
All Assets	$37.8M	$39.0M	$34.5M	$4.5M

It is important to consider several unique and high-cost capital projects, such as the Harvie Hill Reservoir project, Laclie Street reconstruction, Jarvis Street, West Street, and Brian Orser Arena reconstruction, all scheduled for the 2024-2028 period. Assuming that the average capital spending from the 2024-2033 capital plan remains constant until 2073 is a reasonable assumption only if the historically high level of average capital spending persists beyond 2033.

If the current level of capital funding is not sustained, the City may face a funding deficit in the long-term for certain asset categories. Such an outcome could potentially lead to the reestablishment of backlogs and necessitate future trade-offs between the level of service, risk, and affordability. This underscores the importance of carefully assessing and sustaining capital funding levels to ensure the continued well-being of the City's assets over the long-term.

As the City of Orillia experiences growth, there is an anticipation of incremental increases in the demand for services and the number of assets. Managing a growing number of assets will necessitate an increase in the total cost of funding operations and maintenance lifecycle management strategies to sustain the current level of service.

Table 4 provides a summary of the 10-year forecast of operations and maintenance costs for all assets covered in this plan over the 2024-2033 period, taking into account the impacts of growth.

TABLE 4: **2024-2033 Annual Operations and Maintenance Summary**

Set of Assets	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
All Assets	$31.6M	$32.2M	$32.8M	$33.5M	$34.1M	$34.7M	$35.4M	$36.1M	$36.8M	$37.5M

1.6 Financial Strategy for Target Service Levels

In addition to setting proposed levels of service targets, Ontario Regulation 588/17 requires municipalities to include a financial strategy that forecasts the annual costs and annual funding projected to be available to fund the lifecycle activities required to provide the proposed levels of service for a 10-year period. This includes:

- The capital and significant operating expenditures required to provide the proposed levels of service at current population and employment levels at the lowest overall cost, and to accommodate future demand from growth;
- An explanation of the options examined by the municipality to maximize the funding projected to be available;
- The funding projected to be available as a result of increased population and economic activity; and
- If a funding shortfall exists over the 10-year period, an explanation of which lifecycle management activities the City cannot afford and how the City will manage the risks of not undertaking those unaffordable activities.

Chapter 19 in this plan provides an Ontario Regulation 588/17 compliant financial strategy by detailing the required information and provides potential options for future changes in the City's approach to managing its assets.

To promote alignment and consistency between City documents and City Council decision making, the proposed levels of service used to create this plan and financial strategy are aligned with the outcomes of the 2025 budget process and related 2025-2034 10 Year Capital and Reserve Forecast.

The capital cost to achieve the proposed levels of service targets is the total capital expenditure identified in the 2025-2034 10 Year Capital and Reserve Forecast.

It is important to note that the information presented in this plan reflects a snapshot in time and should be re-evaluated in future revisions to reflect changes in the sustainability of the City's financial position over time.

Through the annual budget process, City Council reviews the balance of funding sources and the City's expenses. Master plans, development charge background studies, condition studies, rate studies, user fee review reports, and other City documents examine funding options in detail for some service areas. These master plans, studies, and reports typically occur infrequently on cycles of up to 10 years, meaning that the consideration of funding maximization options partially relies on infrequently updated information.

As a result of all these considerations, the process of funding maximization is an ongoing, iterative process as updated information is received over time. Table 137 in the Financial Strategy chapter summarizes recent activities or choices the City has undertaken to maximize the funding projected to be available for each category of assets. The City will continue to examine its funding sources throughout this process to maximize the funding projected to be available to support asset needs.

The City actively pursues opportunities of receiving senior government funds through both application-based and allocation-based programs. The City is also considering adjusting funding through adding new or modifying existing user fees to better match the costs of providing services.

The 2025-2034 10 Year Capital and Reserve Forecast was presented during the 2025 Budget process and resulted in the City utilizing its self-imposed 10% debt limit as well as a negative total reserve and reserve fund shortfall by 2034 in the amount of -$214.4 million in 2025 dollars.

Table 5 summarizes in 2025 dollars the forecasted 2034 balances of the reserve funds used to fund the 2025-2034 10 Year Capital and Reserve Forecast based on the information available in the City's June 1, 2024, revision of the forecast. The negative balances represent a forecasted shortfall.

Following the presentation of the 2025-2034 forecast, during 2025 Budget deliberations a financial strategy was put forward, illustrating the need for a $4.0M incremental asset management contribution with the funding split between the tax levy and rate-funded services to cover the shortfall. This approach was adopted by Council in 2025 and is being layered into 10-year forecast revisions and future budgets for Council consideration along with suggestions on minimizing or deferring capital investments.

Council approved the funding of the first year of the strategy in 2025. However, the funding strategy calls for tax levy increases ranging between 2.69% and 1.68%, water and wastewater rate increases averaging 5.65%, and stormwater rate increases averaging 16% per year for the duration of the forecast. Should Council not pursue the strategy for the entire 10-year forecast period or not adjust the projects within the forecast as a result of a need to balance community affordability, large negative reserve balances will exist resulting in a shortfall, and the forecast will not be sustainable.

The forecasted shortfall may prevent the City from having the financial resources required in the future for asset needs beyond the 10-year and future forecasts. Further, this situation will reduce the City's flexibility to managed unexpected needs.

If the City follows a path of financial unsustainability, eventually some lifecycle activities would become unaffordable. Which activities the City will not undertake due to a shortfall depends on which reserves contain the large negative balances. To provide a comprehensive view of potential impacts a shortfall could have on the City's lifecycle activities, within the chapter of each asset category is a lifecycle management strategy table that summarizes the risks associated with not completing lifecycle activities for each activity type.

TABLE 5: Forecasted Reserve Balances in 2034

Reserve Name	Balance
General Asset Management Reserve Fund	-$84.9M
Capital Levy Reserve	-$0.4M
Roads and Related Obligatory Reserve Fund	-$17.3M
Gas Tax Obligatory Reserve Fund	$0.8M
OCIF Obligatory Reserve Fund	$0.9M
Water Asset Management Reserve Fund	-$23.2M
Water Obligatory Reserve Fund	-$12.7M
Wastewater Asset Management Reserve Fund	-$34.7M
Sanitary Sewer Obligatory Reserve Fund	-$12.8M
Stormwater Asset Management Reserve Fund	-$28.2M
Stormwater Obligatory Reserve Fund	-$3.7M
Debenture Reserve Fund	$0.1M
Fire Obligatory Reserve Fund	-$1.8M
Fleet and Equipment Asset Management Reserve Fund	-$14.1M
Land Reserve Fund	$1.0M
Opera House Asset Management Reserve Fund	-$2.9M
Environmental Obligatory Reserve Fund	$0.3M
Landfill Site Asset Management Reserve Fund	$2.8M
Solid Waste Obligatory Reserve Fund	$1.8M
Tourism Municipal Accommodation Tax Reserve Fund	-$0.2M
Indoor Recreation Obligatory Reserve Fund	-$4.2M
Youth Opportunities Reserve Fund	$0.1M
Cash In Lieu Recreation Land/Community Benefit Charge Obligatory Reserve Fund	$5.8M
Parks Obligatory Reserve Fund	$8.0M
Parking Asset Management Reserve Fund	$0.3M
Transit Asset Management Reserve Fund	$0.8M
Transit Services Obligatory Reserve Fund	$4.6M
IT and Innovation Reserve Fund	-$0.6M
Total	-$214.4M

Bringing reserves in large negative positions to a zero balance over the forecast would move the City into a significantly more financially sustainable position. In the long-term, allocating enough revenues to match the annual sustainable lifecycle funding target would allow the City to afford the proposed levels of service indefinitely.

Balancing revenue and spending beyond a single year is needed because the level of spending required and amount of funding received fluctuates year-to-year. The use of debt or reserves may provide short to medium-term flexibility to accommodate an imbalance between spending requirements and funding received. In the long term, by achieving a sustainable level of funding, lower than average periods of spending would allow the City to build up reserves or pay off debt that could be drawn upon during years of higher-than-average spending requirements.

Table 6 summarizes in 2025 dollars the combined balances of the reserves with forecasted negative balances in 2034 based on what the primary funding source is and identifies existing and growth-related total balances separately. It is important to note that growth-related funding sources can only be used to fund the growth-related portion of a project. A balance value of zero indicates that none of the reserves aligned with that primary reserve funding source have a forecasted negative balance in 2034.

TABLE 6: Forecasted 2034 Negative Reserve Balance Summary by Funding Source

Tax Levy	-$103.1M
Water Rates	-$23.2M
Wastewater Rates	-$34.7M
Stormwater Rates	-$28.2M
Grants	$0.0M
Total (Existing)	-$189.2M
Development Charges	-$52.6M
Development Related Programs	$0.0M
Total (Growth)	-$52.6M

Avoiding a future shortfall in these combined balances will require increases in the funding allocated to the reserves through increases in the tax levy, user fees, service charges, development charges revenue received, or the rates for each of the water, wastewater, and stormwater asset categories.

In addition to the large negative reserve balances presented, there is a significant increase in funding forecasted to be required over the 10-year forecast to fund operations and maintenance activities. Table 7 summarizes the change in the forecasted operations and maintenance spending from 2025 to 2034.

TABLE 7: Forecasted Change in Operations and Maintenance Spending

Category	Existing or Growth	2025	2034
Total	Existing	$56.1M	$57.3M
Total	Growth	$0.1M	$17.3M
Total	Existing and Growth	$56.2M	$74.6M

One source of this increase is an increase in the number of City staff required to manage the larger quantity of assets owned in 2034 and to sustain the new target levels of service with those assets. As the City grows, new assets are added that require funding lifecycle management activities. To fund these requirements, a combination of significant increases in the tax levy, rates, user fees, or service charges will be required. A future revision of this plan will include more detailed forecasts of operating and maintenance spending needs required to support the target levels of service.

Despite the potential financial constraints, the City remains dedicated to maintaining assets to meet regulatory requirements. This commitment extends to upholding standards related to public health, water quality, road safety, and environmental protection. Regulatory compliance remains a top priority, underscoring the City's ongoing commitment to essential public services and safety. As a result, the City would focus on funding the lifecycle activities directly related to meeting regulatory requirements. Activities not directly related to regulatory requirements may be deferred or not completed. The City would utilize a risk-based approach to adjust service levels at the direction of City Council to bring service levels within the financial limit of what the City can afford and would consider potential options for increasing the amount of funding available.

There is also a further funding requirement to manage the existing backlog of assets not replaced during the 2025-2034 forecast, any additional assets falling into the backlog over 2025-2034, and future impacts of climate change.

Although the funding requirement to manage a backlog was not identified separately in the cost of achieving the proposed levels of service in this plan revision, the size of any backlog is an important consideration when analyzing the long-term sustainability of the City's levels of service. If not rehabilitated or replaced, eventually backlogged assets will fail leading to a forced reduction in the level of service and higher lifecycle costs. For backlogged assets with a high consequence of failure such as transmission watermains, the negative financial impact on the City and the community could far exceed the replacement cost of the asset. Ignoring a growing backlog of assets is not a financially sustainable long-term asset management strategy.

The City's forecasted progress towards its Climate Change Action Plan goals is captured within the 2025-2034 10 Year Capital and Reserve Forecast and some of the proposed levels of service targets identified in this plan. As part of this transition, the City is replacing older and less efficient assets with modern assets that have lower energy usage that will result in lower energy costs over the lifecycle of the assets.

A future revision of this plan will:

- Include an additional detailed analysis confirming the size of the existing backlog and better quantify the impacts the backlog may have on the proposed levels of service targets; and
- Consider in more detail the forecasted impacts of various Climate Change Action Plan options to more directly connect Climate Change Action Plan activities to levels of service measures.

It is important to note that there is not an easy single solution or best single strategy to solve the long-term funding challenge. Finding a balance between asset needs, managing a backlog, affordability of tax levy and rate increases, risk, and levels of service targets is a complex and ongoing process. Adjustments to lifecycle management strategies, risk tolerance, levels of service, and funding sources must be a forward looking and iterative process. In this context, several options are included for consideration.

The following options for mitigating tax levy and rate increases are not all-encompassing. During the annual budget process, hundreds of project-specific decisions are made regarding project scope, timing, cost, risk, and other factors that are beyond the scope of this plan. The goal of the options presented is to provide broad options that can act as a guide for future decisions. Each category of assets has unique needs, wants, and challenges that require unique attention and consideration.

Option 1: Continue increased reserve contributions.

Option 2: Consider delaying or changing scope of future level of service increases.

Option 3: Incorporate potential funding from Federal and Provincial governments.

Option 4: Prioritize renewal and rehabilitation projects that extend the life of existing assets at an appropriate state of repair and current service levels.

Option 5: Consider increasing preventative maintenance activities to maintain assets at an appropriate state of repair and reduce the frequency of early asset failure.

Option 6: Allow the backlog of assets to grow with an increased frequency of inspections or condition assessments to manage the higher risk.

Option 7: Consider level of service adjustments through the disposal of assets at the end of their useful life without replacement where possible or consider a change of use.

Section 19.10 in the Financial Strategy chapter provides further details on each option. These options may be considered in the future budget processes and development of 10-year capital and reserve forecasts as options to address the long-term funding challenge.

A future revision of this plan will include more detailed analysis of the potential impacts of implementing some of or all options and expanding the analysis of potential funding shortfalls beyond the 10-year forecast period required by Ontario Regulation 588/17.

1.7 Climate Change Considerations

The City's asset management system and this plan actively contribute to the City's environmental sustainability and climate change goals. In the face of ongoing climate change, the necessity for resilient and sustainable assets becomes critical. The City must assess climate risks, identify adaptation and mitigation opportunities, and integrate this information into the asset management process. This ensures the delivery of the desired level of service at the best value for money, fostering informed decision-making and strategic, long-term investments to manage the risks associated with the anticipated impacts of climate change.

Anticipated challenges in managing the impacts of climate change include:

Potential service disruptions:

- More frequent and prolonged disruptions due to increased frequency and severity of weather events.

Increased damage to infrastructure:

- Higher maintenance costs attributed to the damage and impact of severe weather events.

Water quality challenges:

- Potential deterioration in the quality of water, especially during hot weather, leading to increased demand. Water treatment facilities may struggle to meet all standards and objectives for drinking water quality.

Addressing these challenges requires a comprehensive approach that aligns with environmental sustainability goals and incorporates climate resilience into the City's asset management strategies.

The City is actively considering a range of adaptation and mitigation measures in response to the challenges posed by climate change. These measures aim to enhance resiliency while managing affordability.

Current measures include:

Incorporating new best practices and technology:

- Implementing advancements in the design, construction, and maintenance of assets to increase their resilience.

Altering inspection frequency:

- Adjusting the frequency of inspections to better support overall resiliency.

Traffic reduction for environmental benefits:

- Implementing measures to reduce vehicle traffic, promoting a variety of transportation options to minimize road wear and lower community greenhouse gas emissions.

Potential future measures include:

Utilization of lower embodied carbon materials:

- Adopting materials with lower embodied carbon to potentially reduce the carbon footprint of infrastructure.

Coordinated infrastructure planning with stormwater data:

- Coordinating infrastructure design, construction, and maintenance with updated stormwater data and flood mapping to enhance resilience during stormwater events.

Increasing resiliency to power outages:

- Implementing lessons learned during the Spring 2025 ice storm event to enhance resiliency in the event of prolonged power outages due to extreme weather event impacts.

These measures reflect a proactive approach, demonstrating the City's commitment to sustainability, resilience, and adapting to the challenges posed by climate change. They align with global efforts to foster environmental responsibility and address the impacts of a changing climate.

1.8 Next Steps and Recommendations

The City's commitment to continuous improvement in its asset management program is evident through the following recommendations:

Adjust project scheduling in 10-year capital forecasts:

- Review existing 10-year capital plans and propose changes in project scheduling to align project priorities with levels of service targets effectively.

Continue to review, update, and enhance the asset inventory:

- Regularly update and improve the asset inventory with new and relevant information to ensure accuracy and completeness.

Review and implement improved lifestyle management strategies:

- Continuously review, develop, and implement lifecycle management strategies that offer the best value for money across all asset categories.

Update estimated useful lives of assets:

- Continually adjust estimated useful lives of assets to better reflect observed longevity in service, ensuring accuracy in planning and budgeting.

Update strategic asset management policy:

- The City's asset management program is governed by the Strategic Asset Management Policy 1.10.5.1 (SAMP) and an update to the policy is required by September 2026.

Improve integration with GIS mapping:

- Enhance integration of asset information with Geographic Information System (GIS) mapping to streamline capital planning processes and facilitate coordination between different asset categories.

Expand on condition assessment to capture assets:

- Ensure that condition assessment projects adhere to industry standard methodologies, promoting improved benchmarking and consistent condition ratings over time.

Increase community engagement in asset management:

- Foster community engagement in the asset management program through various opportunities for public involvement. Seek community input on proposed levels of service, considering community values, priorities, technical feasibility, risk, and affordability.

Track levels of service performance and progress towards proposed levels of service targets.

- Continually track and adjust community levels of service and technical levels of service to establish current performance in each year and to track progress towards the City's future target performance.

Conduct an annual review of asset management progress:

- Annually report to Council on the City's progress in implementing its asset management plan, any factors impeding the municipality's ability to implement its asset management plan, and a strategy to address the impeding factors.

These recommendations underscore a proactive approach to enhance asset management practices, promoting transparency, efficiency, and alignment with community values and expectations.

1.9 Continuous Improvement

The City is committed to continuous improvement in asset management, including improvements in data collection, decision-making processes, transparency, and strategic planning. The goal is to strengthen the City's asset management procedures, surpassing legislated requirements, and aligning with industry best practices. Notably, the City is dedicated to increasing the resiliency of its infrastructure in anticipation of climate change impacts, while aiming to minimize the climate impact associated with delivering the desired levels of service to the community.

This commitment reflects a forward-thinking approach, acknowledging the changing nature of infrastructure management and the need to proactively address challenges posed by climate change. By exceeding regulatory mandates and aligning with industry best practices, the City is poised to enhance the overall effectiveness and sustainability of its asset management practices.

2.0
Introduction and Context

2.0 Introduction and Context

2.1 Overview of Asset Management

"Asset management involves the balancing of costs, opportunities and risks against the desired performance of assets to achieve an organization's objectives." (ISO 55000)

As defined in the City's Strategic Asset Management Policy (SAMP), asset management means a combination of management, financial, economic, engineering, and other practices applied to physical assets with the objective of providing the required level of service in the most cost-effective manner at an acceptable level of risk. It involves data-driven decision-making and actions throughout the lifecycle of assets.

Asset management is a changing and iterative process that allows an organization to formulate, implement, and consistently enhance a comprehensive, long-term strategy for managing and investing in its assets. This happens in every stage in the lifecycle of an asset, starting from recognizing a community need, through design, acquisition, maintenance and operations, renewal and rehabilitation, and replacement, to the eventual disposal of the asset and addressing any associated liabilities. This structured approach serves as a decision-making framework, enabling the comparison of opportunities, prioritization of investments, and ensuring optimal value for money.

This plan focuses on the capital costs associated with managing assets over their lifecycle. These costs extend over many decades, demanding careful planning and foresight to distribute the financial responsibility fairly among generations and various users.

The goal is to maximize benefits, manage risk, and deliver satisfactory levels of service to the community in a way that is both sustainable and clear. Good asset management practices are fundamental to achieving sustainable and resilient communities.

2.1.1 What is an Asset?

Formally, an asset is *"any item, thing, or entity that has potential or actual value to an organization" (ISO 55000).* In practice, municipal assets, including infrastructure, exist to deliver services to the community to support growth, and the economic, social, and environmental health of the community.

Assets are vital components of the municipality, playing a crucial role in fostering a high quality of life in the City. They are instrumental in attracting new residents, visitors, and businesses to our community.

2.1.2 Purpose of an Asset Management Plan

The core goals of an AMP are to:

- Record the current value and condition of assets;
- Outline the existing level of service delivered by the assets;
- Recognize the strategies in use for managing these assets; and
- Propose enhancements for better management.

Using the best available information, the City developed this plan for the long-term management of capital assets to ensure that they are well-managed to support the sustainable delivery of municipal services.

2.1.3 Development of an Asset Management Plan

This plan was crafted by leveraging the City's asset management database, incorporating insights from various background studies, reports, and input from both staff and stakeholders.

The typical steps involved in developing an AMP are as follows:

1. **Collect and Organize Information:**
   - Gather and organize data on the assets to be covered, including details such as age, estimated useful life, location, and current replacement cost. Update replacement costs when necessary, using historical data, industry benchmarks, or applicable inflation indices.

2. **Define and Assess Asset Condition:**
   - Utilize standardized methodologies to define and assess the condition of assets. Where industry-standard methodologies are available, the City aims to adopt them. In cases with limited information, a simplified age-based condition methodology is applied.

3. **Establish Current Levels of Service and Review Target Levels of Service:**
   - Develop, define, document, and measure the current levels of service provided by the assets and the proposed levels of service targets the City aims to achieve.

4. **Document Lifecycle Management Strategies:**
   - Develop, define, and document the current lifecycle management strategies required to uphold the existing level of service.

5. **Forecast Capital Requirements:**
   - Forecast the capital spending necessary to maintain the current level of service.

6. **Create Asset Management Plan Report:**
   - Compile the AMP report to communicate the current state of assets and levels of service to decision-makers and stakeholders. Provide recommendations for improvements in strategies and present options that balance cost, opportunities, and risks.

2.1.4 The Plan's Relationship to Other Municipal Plans and Strategies

The asset management program at the City, as outlined in this plan, aligns with the priorities set in other City plans and policy documents. The asset management process plays a crucial role in incorporating asset-related information into all facets of municipal long-term planning. It contributes to realizing the City's strategic objectives and vision. By adopting a comprehensive approach, these documents mutually reinforce and advance each other's goals.

At a minimum, this plan supports the following City plans and studies:

- Official Plan
- Strategic Asset Management Policy
- Development Charges Background Study
- 10-Year Capital Plans and Annual Capital Budgets
- Multi-Modal Transportation Master Plan
- Water and Wastewater Master Plans
- City of Orillia Drinking Water System Long Range Financial Plan
- Stormwater Master Plan
- Fire Master Plan
- Parks, Recreation and Culture Master Plan and Trails Master Plan
- Waste Minimization Plan
- Orillia's Climate Future (Climate Change Action Plan)

2.1.5 What This Asset Management Plan is Not

The intent of this plan is not to function as a substitute for a long-term financial plan or a capital prioritization plan, nor to act in place of master plans, comprehensive service reviews, background studies, or rate studies. This plan is intended to provide stakeholders with a summary of the state of assets at a particular point in time and the long-term trends of what is needed to maintain the current level of service.

This plan documents trends and generalized infrastructure requirements with the focus on the capital needs of assets. This plan does not focus on operating revenues and needs beyond what is required for compliance with Ontario Regulation 588/17. This plan does not provide a capital project schedule detailing the timing of lifecycle management strategies for individual assets.

2.2 Key Concepts in Asset Management

An effective asset management system is comprised of several key components, including lifecycle management strategies, levels of service, and risk management.

2.2.1 Lifecycle Management Strategies

The condition or performance of most assets will deteriorate over time. A wide range of factors affect this process, including material choice, location, usage, maintenance history, and environment. As assets deteriorate, there is a negative impact on the ability of the asset to continue to fulfill its intended function. This may come in the form of increased cost, increased risk, a lower level of service, or service disruption.

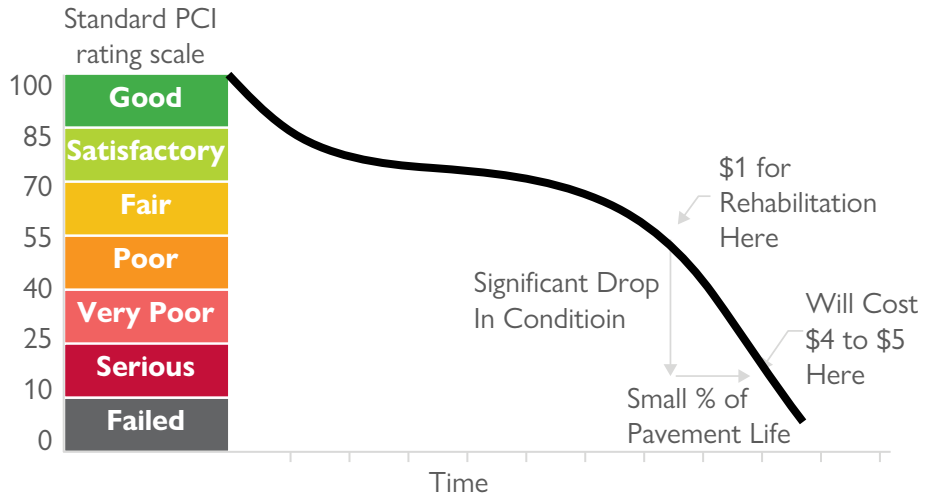
Lifecycle management activities encompass a series of planned actions designed to uphold current service levels and ensure optimal value for money from assets. These planned actions are referred to as Lifecycle Events and cover the standard lifecycle of an asset, including:

- Acquiring the asset;
- Maintenance and operations;
- Renewal and rehabilitation activities to extend the useful life;
- Replacement and disposal activities at the end of an asset's useful life; and
- Non-infrastructure solutions such as policies and procedures that mitigate risk, reduce costs, or modify service delivery outcomes.

The condition of assets typically does not degrade at a consistent rate over time. Some assets, such as roads, tend to degrade slowly for an initial portion of their estimated useful life, and then deteriorate rapidly once the condition reaches a tipping point.

For example, if small cracks in an asphalt road surface are left untreated over multiple winters and many freeze-thaw cycles, the cracks tend to progress first into more extensive cracking and small potholes, then into deeper and wider potholes, and finally into a deteriorated road base that can only be fixed through expensive full-depth resurfacing or reconstruction. The cost to remedy the deficiency increases significantly as the deterioration progresses. Spending a smaller amount earlier can lead to a cost avoidance of spending a much larger amount later at the trade-off of only a small portion of asset life compared to the large drop in asset condition. This choice of treatment timing versus treatment cost is illustrated as an example in figure 4.

FIGURE 4: **Colorado State University PAVER Software PCI Rating Scale**



Beyond the mentioned lifecycle events, the City must also factor in network expansion and service enhancement activities. This is essential to effectively handle growth and fulfil elevated levels of service when the need arises.

Ontario Regulation 588/17 requires that the City assesses all potential lifecycle activity options. A requirement is to identify the set of lifecycle activities that may be undertaken to maintain the current levels of service at the best value for money. Understanding the impact that these activities have on the lifecycle of assets enables staff to make improved recommendations on how to maintain the desired level of service.

AMPs must identify the lifecycle activities resulting from the lifecycle management strategy and include a 10-year capital forecast. Asset performance can typically be sustained through a combination of maintenance, operation, and renewal activities in the short term; however, eventually replacement is required.

2.2.2 Levels of Service

"Levels of service are the parameters, or combination of parameters, that reflect the social, political, environmental and economic outcomes that the organization delivers. The parameters can include safety, customer satisfaction, quality, quantity, capacity, reliability, responsiveness, environmental acceptability, cost and availability." (ISO 55000:2014)

The City's assets are here to deliver services to its users. Levels of service serve as a gauge, measuring the actual quality of service provided. This ensures decisions are based on the nature and excellence of the service rather than just the condition of an asset. These levels of service give a snapshot of the type of service offered, representing the values and preferences of the community stakeholders.

Tracking levels of service measures over time allows for staff, Council, and stakeholders to document and review the City's progress towards our goals. It also provides a connection between funding levels and the performance of the City's assets.

The measures included in this plan include a combination of those required by Ontario Regulation 588/17 and others determined by City staff to be worth measuring and evaluating. The City measures the level of service provided at two levels: Community Levels of Service and Technical Levels of Service.

2.2.2.1 Community Levels of Service

Community levels of service are a simple, plain language description or measure of the service that the community receives. This may also include maps illustrating the geographic extent of the City's assets.

2.2.2.2 Technical Levels of Service

Technical levels of service are a measure of key technical attributes of the service being provided to the community. These include primarily calculated values and tend to reflect the impact of the municipality's asset management strategies on the physical condition of assets, or the quality or capacity of the services they provide.

As this plan is first and foremost a communication tool, the City has chosen to include technical levels of service metrics that serve as inputs into the lifecycle management strategies rather than only reporting on outputs of the strategies. This includes activities such as inspection frequency, where an inspection alone is not a service that the community experiences, but it is an important part of the process that determines levels of service outcomes.

2.2.2.3 Current and Proposed Levels of Service

In compliance with the July 1, 2025, deadline set by Ontario Regulation 588/17, the City established proposed levels of service for a 10-year period that are aligned with the outcomes of the 2025 budget process and related 2025-2034 10 Year Capital and Reserve Forecast. The City will track and adjust community levels of service and technical levels of service to establish current performance in each year and to track progress towards the City's future target performance.

2.2.3 Risk Management Strategies

The City prioritizes asset renewals, rehabilitations, and replacements using a risk-based approach. The risk assessment methodology varies across different categories of assets. However, it is generally based on the importance of each asset in terms of the likelihood of an asset failing and the consequence of that asset failing.

Historically, municipalities, including Orillia, would generally follow a "worst-first" approach to prioritizing which assets to allocate funding to. Rather than prioritizing assets in the context of their importance to delivering services, assets in the worst condition were allocated funding first. This led to an underfunding of critical infrastructure, which municipalities are aiming to correct.

Not all assets are equal in their consequence of failure. Some hold more importance than others due to their higher impact on the community in the event of a failure. For instance, the closure of a low-traffic local road typically has a much lower impact compared to the closure of a high-traffic arterial road.

By identifying the potential impacts of asset failure and estimating the likelihood that an asset could fail, the City can identify the higher risk assets and determine where spending should be focused. It is important to proactively manage asset deterioration through a lifecycle management strategy that balances cost, risk, and the level of service.

While recognizing the varying levels of importance, it remains crucial to responsibly maintain all assets, irrespective of their relative risk. A high quality of life in a community requires more than just focusing on critical infrastructure. Risk management is an ongoing, iterative process, not just an outcome. What is considered a priority may evolve over time as the community undergoes changes and development.

This plan includes a high-level evaluation of asset risk. All core infrastructure assets have been assigned a risk score based on a score for consequence of failure and a score for probability of failure. In the future, the City will determine a methodology for calculating risk for the non-core assets that ensures reasonable comparability across the wide variety of different categories of assets. These risk scores can be used to prioritize funding towards assets of higher risk.

2.3 Ontario Regulation 588/17

As part of the Infrastructure for Jobs and Prosperity Act, 2015, the Ontario government introduced Regulation 588/17: Asset Management Planning for Municipal Infrastructure (O. Reg. 588/17). Along with creating better performing organizations and more liveable and sustainable communities, the regulation is a key, mandated driver of asset management planning and reporting. It places substantial emphasis on current and proposed levels of service and the lifecycle costs incurred in delivering them.

Figure 5 outlines the key reporting requirements under O. Reg. 588/17 and the associated deadlines for compliance.

FIGURE 5: **Summary of O. Reg. 588/17 Deadlines**

2019	2022	2024	2025
Strategic Asset Management Policy, and a review or update of the Policy within five years.	Asset Management Plan for Core Assets with the following components: ▪ Current levels of service; ▪ Inventory analysis; ▪ Lifecycle activities to sustain current levels of service; ▪ Cost of lifecycle activities; ▪ Population and employment forecasts; and ▪ Discussion of growth impacts.	Asset Management Plan for Core and Non-Core Assets (same components as 2022)	Asset Management Plan for all assets with the following additional components: ▪ Proposed levels of service for next 10 years; ▪ Updated inventory analysis; ▪ Lifecycle management strategy; ▪ Financial strategy and addressing shortfalls; and ▪ Discussion of how growth assumptions impacted lifecycle activities and financial forecasts.

2.3.1 O. Reg. 588/17 Compliance Review

Table 8 identifies the requirements outlined in O. Reg. 588/17 for municipalities. This table is adapted from the Ontario Ministry of Infrastructure Asset Management Planning Regulation (O. Reg. 588/17) Completeness Questionnaire. This plan is compliant with the July 1, 2025 regulatory requirements.

TABLE 8: **O. Reg. 588/17 Compliance Review Checklist**

Regulatory Requirements	O. Reg. 588/17 Section ("S")	Not Started	Partially Complete	Mostly Complete	Complete
Strategic Asset Management Policy (due by July 1, 2019)	S.3-4				✓
Asset Management Plan Covering Core Assets (Due by July 1, 2022)					
Summary of core assets in each category.	S.5(2), 3(i)				✓
Replacement cost of core assets in each category.	S.5(2), 3(ii)				✓
Average age of core assets in each category.	S.5(2), 3(iii)				✓
Condition of core assets in each category.	S.5(2), 3(iv)				✓
Description of municipality's approach to assessing condition of core assets in each category.	S.5(2), 3(v)				✓
Current levels of service (qualitative descriptions and technical metrics as per Tables 1-5 in regulation) for core assets in each category.	S.5(2), 1(i)				✓
Current performance measures of core assets in each category based on metrics established by the municipality (e.g. measures for energy usage, operating efficiency, etc.).	S.5(2), 2				✓
Lifecycle activities needed to maintain current levels of service for core assets in each category for 10 years.	S.5(2), 4				✓
Costs of providing lifecycle activities needed to maintain current levels of service for core assets in each category for 10 years.	S.5(2), 4				✓
Population and employment forecasts, and the estimated capital expenditures and significant operating costs related to the lifecycle activities required to maintain the current levels of service in order to accommodate projected increases in demand caused by growth.	S.5(2), 5(i-ii), 6(i-vi)				✓

Regulatory Requirements	O. Reg. 588/17 Section ("S")	Not Started	Partially Complete	Mostly Complete	Complete
Asset Management Plan Covering All Assets (Due by July 1, 2024)					
Summary of non-core assets in each category.	S.5(2), 3(i)				✓
Replacement cost of non-core assets in each category.	S.5(2), 3(ii)				✓
Average age of non-core assets in each category.	S.5(2), 3(iii)				✓
Condition of non-core assets in each category.	S.5(2), 3(iv)				✓
Description of municipality's approach to assessing condition of non-core assets in each category.	S.5(2), 3(v)				✓
Current levels of service (qualitative descriptions and technical metrics established by the municipality) for non-core assets, and updated information for core assets, as per Tables 1-5 in regulation, as applicable.	S.5(2), 1(i-ii)				✓
Current performance measures of non-core assets in each category based on metrics established by the municipality (e.g. measures for energy usage, operating efficiency, etc.) and updated measures for core assets, as applicable.	S.5(2), 2				✓
Lifecycle activities needed to maintain current levels of service for non-core assets in each category for 10 years.	S. 5(2), 4				✓
Costs of providing lifecycle activities needed to maintain current levels of service for non-core assets in each category for 10 years.	S. 5(2), 4				✓
Population and employment forecasts, and the estimated capital expenditures and significant operating costs related to the lifecycle activities required to maintain the current levels of service in order to accommodate projected increases in demand caused by growth.	S.5(2), 5(i-ii), 6(i-vi)				✓

Regulatory Requirements	O. Reg. 588/17 Section ("S")	Not Started	Partially Complete	Mostly Complete	Complete
Asset Management Plan Covering All Assets, Including Proposed Levels of Service, Lifecycle Management Strategy, and Financial Strategy (Due by July 1, 2025)					
Proposed levels of service for a 10-year period for non-core assets based on qualitative descriptions and technical metrics established by the municipality, and qualitative descriptions and technical metrics based on Tables 1-5 in regulation for core assets.	S.6(1), 1 (i-ii)				✓
Identification of lifecycle activities needed to provide proposed levels of service for a 10-year period.	S.6(1), 4(i)				✓
An estimate of annual costs for undertaking identified lifecycle activities over a 10-year period.	S.6(1), 4(ii)				✓
Projections for annual funding to be available to undertake identified lifecycle activities over a 10-year period.	S.6(1), 4(iii)				✓
Identification of funding shortfalls for lifecycle activities over a 10-year period and an explanation of how risks associated with not undertaking any of the lifecycle activities will be managed.	S.6(1), 4(iv)				✓
Explanation of why proposed levels of service are appropriate over a 10-year period.	S.6(1), 2(i-iv)				✓
Proposed performance of assets in each category over a 10-year period determined in accordance with performance measures established by the municipality.	S.6(1), 3				✓
Population and employment forecasts, and the estimated capital expenditures and significant operating costs related to the lifecycle activities required to maintain the current levels of service in order to accommodate projected increases in demand caused by growth. The funding projected to be available, by source, as a result of increased population and economic activity, and an overview of the risks associated with implementation of the asset management plan and any actions that would be proposed in response to those risks.	S.6(1), 5, 6(i-iii)				✓

2.3.2 Brief History of Asset Management in Ontario

Municipal asset management planning in Ontario has developed and evolved substantially over the past decades. Prior to the 2009 fiscal year, municipalities recorded their capital asset expenditures in the year that construction or acquisition occurred. This approach resulted in the lack of a consistent inventory of capital assets in both the municipality's financial statement and accounting systems.

Effective for the 2009 fiscal year, section 3150 of the Public Sector Account Board (PSAB) handbook was revised to require municipalities to capitalize their tangible capital assets that had a value above a specific threshold. As a result, a basic inventory of assets was created and could be built upon as time progressed.

In June 2011, the Province of Ontario released Building Together, a long-term infrastructure plan that set out a strategic framework to guide future investments in assets. The province committed through Building Together to work with municipalities and the federal government to establish a Municipal Infrastructure Strategy.

In 2012, the province launched the Municipal Infrastructure Strategy. As part of the new strategy, local service boards and municipalities that sought provincial funding were now required to demonstrate how proposed projects fit within AMPs. To assist in defining what a municipal AMP should include, the province produced Building Together: Guide for Municipal Asset Management Plans. This guide provided direction to municipalities and documented the information and analysis required to be included in all municipal AMPs. As well, a new requirement was added to the eligibility for the Federal Gas Tax Fund (GTF) that required municipalities to have a completed AMP prepared by the end of 2016. As of June 2021, the Gas Tax Fund has been renamed to the Canada Community-Building Fund (CCBF) and remains a key source of infrastructure funds for the City of Orillia.

In May 2016, the Province's *Infrastructure for Jobs and Prosperity Act* was proclaimed. In addition to giving the province the authority to guide municipal asset management through regulation, the act detailed sustainable and evidence-based long-term infrastructure planning principles for municipalities to follow.

In December 2017, the province filed Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure under the 2015 *Infrastructure for Jobs and Prosperity Act*.

3.0
Scope and Methodology

3.0 Scope and Methodology

This plan was developed to be compliant with the July 1, 2024 Ontario Regulation 588/17 requirements. This plan summarizes the current state of the City's portfolio of assets, establishes the current levels of service including the associated community and technical measures, outlines the current lifecycle management strategies, and provides a 10-year capital requirement forecast for all asset categories.

3.1 Asset Categories

The categories of assets included in the scope of this plan are:

- Transportation Network;
- Water Network;
- Wastewater Network;
- Stormwater Network;
- Fire Services;
- Fleet and Transit;
- Facilities;
- Solid Waste;
- Parks, Recreation, Culture, and Tourism;
- Municipal Law Enforcement and Parking;
- Information Technology; and
- Natural Assets.

3.2 Replacement Cost

The cost to replace an asset at the end of its useful life can be determined through a variety of methods. The preferred method depends on the category of asset, availability of data, how unique an asset is, the effort required in the analysis compared to the estimated value of the asset, and how often the asset is replaced. Some methods are more accurate than others; however, improved accuracy often comes at the expense of increased complexity.

This plan relies primarily on the User-Defined Cost and Cost Per Unit methods. However, for some assets this plan also utilized the Cost Inflation and Index Tables method. These methodologies are outlined as follows:

1. User-Defined Cost and Cost Per Unit: Using the most recent, best available information, which may include data from recent contracts, engineering reports and assessments, master plans, industry standard pricing sources, and staff estimates based on knowledge and experience to determine an average cost per asset or per-unit quantity of an asset.

2. Cost Inflation and Index Tables: The historical cost of an asset is inflated based on an associated and relevant inflation index, such as the Consumer Price Index, the Construction Price Index, or only specific portions of the Building Construction Price Index.

User-defined costs based on recent and reliable sources are an accurate way to determine the replacement cost of assets. Where an asset is measured on a per-unit basis, such as metre of sidewalk, the City assigns a fixed replacement cost per unit across the network for the similar assets.

When the City does not have recent or reliable cost data, inflation indices with historical replacement costs are typically used. As assets age, and new materials, products, and technologies become available, inflating historical costs tends to become less accurate. However, for recently acquired assets, it can be a reliable method where a recent historical cost inflated over a small number of years will remain reflective of the actual costs of replacing a similar asset today. These indices also provide a consistent methodology that allows for comparability between different assets.

For some assets, an important distinction must be made between two replacement cost values:

1. The replacement cost of the asset itself.

2. The replacement cost of the service provided.

This distinction is important for assets such as natural assets since a natural asset may contribute to multiple different levels of service through the provision of co-benefits. If the natural asset was removed, the cost to replace all the various co-benefits may differ from the cost to replace the asset itself.

For example, a typical street tree provides shading, carbon sequestration, water retention, and soil stabilization services as four co-benefits from the single tree. To replicate these services with engineered infrastructure assets, a separate shade structure, carbon sequestration equipment, stormwater management assets, and geoengineered materials may all be required as four separate assets to match the level of service provided by the one tree asset. The replacement cost of the four co-benefits provided using the engineered infrastructure assets may differ from the value of the replacement cost of the original natural asset.

For many engineered infrastructure assets, the replacement cost of the asset itself is the same as the replacement cost of the service provided since only that engineered asset can provide that service. There are many services provided by the City that could not be provided with natural assets instead of engineered infrastructure.

3.3 Estimated Useful Life

The Estimated Useful Life (EUL) of an asset is the amount of time over which the City expects the asset to be available to provide the target level of service before requiring replacement or disposal. The EUL for each asset in this plan was assigned according to the knowledge and expertise of subject matter expert knowledge, historical data, and industry standards.

By using an asset's in-service date and its EUL, the City can estimate the Service Life Remaining (SLR) of each asset. The SLR is calculated as follows:

$$\textit{Service Life Remaining} = \textit{In-Service Date} + \textit{Estimated Useful Life} - \textit{Current Year}$$

Renewal and rehabilitation activities are undertaken to extend the useful life of the asset by improving the asset condition. A specific activity taking place is called a Lifecycle Event. When an asset has been assigned an assessed condition rating, the rating may increase or decrease the average service life remaining depending on if the rating is above or below the condition of a typical asset at that age. Using asset condition data and the asset's SLR, the City can more accurately forecast when an asset will require replacement. The SLR with lifecycle events included is calculated as follows:

$$\textit{Service Life Remaining (With Events)} = \textit{In-Service Date} + \textit{Lifecycle Estimated Useful Life} - \textit{Current Year}$$

Where the Lifecycle Estimated Useful Life (LEUL) is the original EUL plus the additional years of useful life added because of the lifecycle events. The improved condition rating occurs because of the lifecycle events.

3.4 Annual Requirement

Using the replacement cost and the estimated useful life, the City can calculate the average annual replacement cost of an asset over its lifespan. This value is called the Annual Requirement and is calculated as follows:

$$\textit{Annual Requirement} = \frac{\textit{Replacement Cost}}{\textit{Estimated Useful Life}}$$

For assets with significant lifecycle management renewal activities that extend the EUL through lifecycle events, the cost of the events is added to the replacement cost and the EUL is replaced with the LEUL:

$$\textit{Annual Requirement (With Events)} = \frac{\textit{Replacement Cost} + \textit{Events Cost}}{\textit{Lifecycle Estimated Useful Life}}$$

The annual requirement with events provides a more accurate measure of the long-term financial needs of an asset when significant renewal lifecycle management events are involved.

To simplify the language and ensure conciseness, this plan does not always explicitly distinguish between the basic annual requirement and the annual requirement with events. For assets with lifecycle management strategies that include significant events, the cost of the events is built into the overall annual requirement values.

3.5 Reinvestment Rate

As described in the lifecycle management strategies previously, as assets age and deteriorate they typically require ongoing spending to maintain the target condition state. The use of capital funds through asset renewals or replacements is necessary to maintain the current level of service. The reinvestment rate is a measurement of the required or budgeted funding relative to the total asset replacement cost. The reinvestment rate measures are calculated as follows:

$$\textit{Target Reinvestment Rate} = \frac{\textit{Annual Requirement}}{\textit{Total Replacement Cost}}$$

$$\textit{Actual Reinvestment Rate} = \frac{\textit{Annual Funding}}{\textit{Total Replacement Cost}}$$

By comparing the actual to the target reinvestment rate, the City can determine the extent of any funding deficits or surpluses.

To perform the documented lifecycle activities, the proper level of funding is required. The sustainable funding level is the amount of annual funds required to be spent or saved to meet the anticipated costs to maintain the assets at the current level of service. When assets are underfunded through funding deficits, the asset does not receive the proper lifecycle management strategies and a backlog of work will accumulate. Sustainable funding strategies developed through the asset management planning process assist in preventing a funding deficit, reducing any backlog of work, and proactively allocating funding to reserves for future spending requirements.

A key goal of asset management is to achieve a state of balance where once any backlog has been cleared, consistently funding the lifecycle management strategies will ensure the best value for money over an asset's lifespan and prevent the reestablishment of backlogs. This allows for the City to maintain the current level of service at a lower long-term cost. Chronic underfunding of lifecycle management strategies leads to higher total lifecycle costs, puts further pressure on the limited funding available, and can lead to an increase in risk and decrease in the level of service provided.

3.6 Asset Condition

An incomplete or limited understanding of asset condition can mislead long-term planning and decision-making. Accurate and reliable condition data helps to prevent premature rehabilitation or replacement and ensures that lifecycle activities occur at the right time to maximize asset value and useful life. Confidence in asset condition data allows staff to shift away from unexpected reactive projects required to manage an asset after it has failed. Reactive projects may cause unplanned service disruptions and unexpected demands of staff resources and budgets. A better approach is through proactively planned projects that are scheduled to match a set budget and minimize disruptions to the public and staff resources.

A condition assessment rating system provides a standardized way to assess asset condition that allows for comparisons between different categories in the City's asset portfolio. Table 9 outlines the condition rating system used in this plan to determine asset condition. This rating system is aligned with the Canadian Core Public Infrastructure Survey, which is used to develop the Canadian Infrastructure Report Card. The table details the five condition ratings from Very Good to Very Poor and the associated description, criteria, and service life remaining.

The analysis in this plan is based on the assessed condition data where available. In the absence of assessed condition data, asset age is used as an alternative to approximate asset condition following the Service Life Remaining (%) ranges provided in table 9.

TABLE 9: **Overall Asset Condition Scale**

Condition	Colour	Description	Criteria	Service Life Remaining (%)
Very Good		Fit for the future	Well maintained, good condition, new or recently rehabilitated.	100-81
Good		Adequate for now	Acceptable, generally approaching mid-stage of expected service life.	80-61
Fair		Requires attention	Signs of deterioration, some elements exhibit significant deficiencies.	60-41
Poor		Increasing potential of affecting service	Approaching end of service life, condition below standard, large portion of system exhibits significant deterioration.	40-21
Very Poor		Unfit for sustained service	Near or beyond expected service life, widespread signs of advanced deterioration; some assets may be unusable.	20-0

4.0

State of Local Infrastructure Summary

4.0 State of Local Infrastructure Summary

The State of Local Infrastructure Summary provides a high-level overview of the key information within the scope of this plan such as quantities, replacement cost, age, condition, backlogs, and capital requirements. Individual asset categories are examined in more detail in the category-specific chapters of this plan following this State of Local Infrastructure Summary.

Due to significant changes made in the 2025-2034 10 Year Capital and Reserve Forecast compared to the 2024-2033 forecast, the surplus or deficit and the reinvestment rates identified in this chapter represents an outdated snapshot in time. Any adjustments made to 10-year plans impact the level of surplus or deficit. A future revision of this plan will include an updated financial summary that aligns with the proposed levels of service targets.

4.1 Replacement Cost Summary

The asset categories captured in this plan have a total estimated replacement cost of approximately $2.38 billion in 2025 dollars. This estimate reflects replacement of existing assets with similar, but not necessarily identical, assets available to buy today to maintain the current level of service. Where significant changes in the level of service are expected or planned for, they are noted separately in the category-specific sections of this plan, including the actions contained within the City's Climate Change Action Plan.

Table 10 summarizes the approximate quantities, replacement cost in 2025 dollars, average age, and average condition of each category of assets in the City's asset inventory.

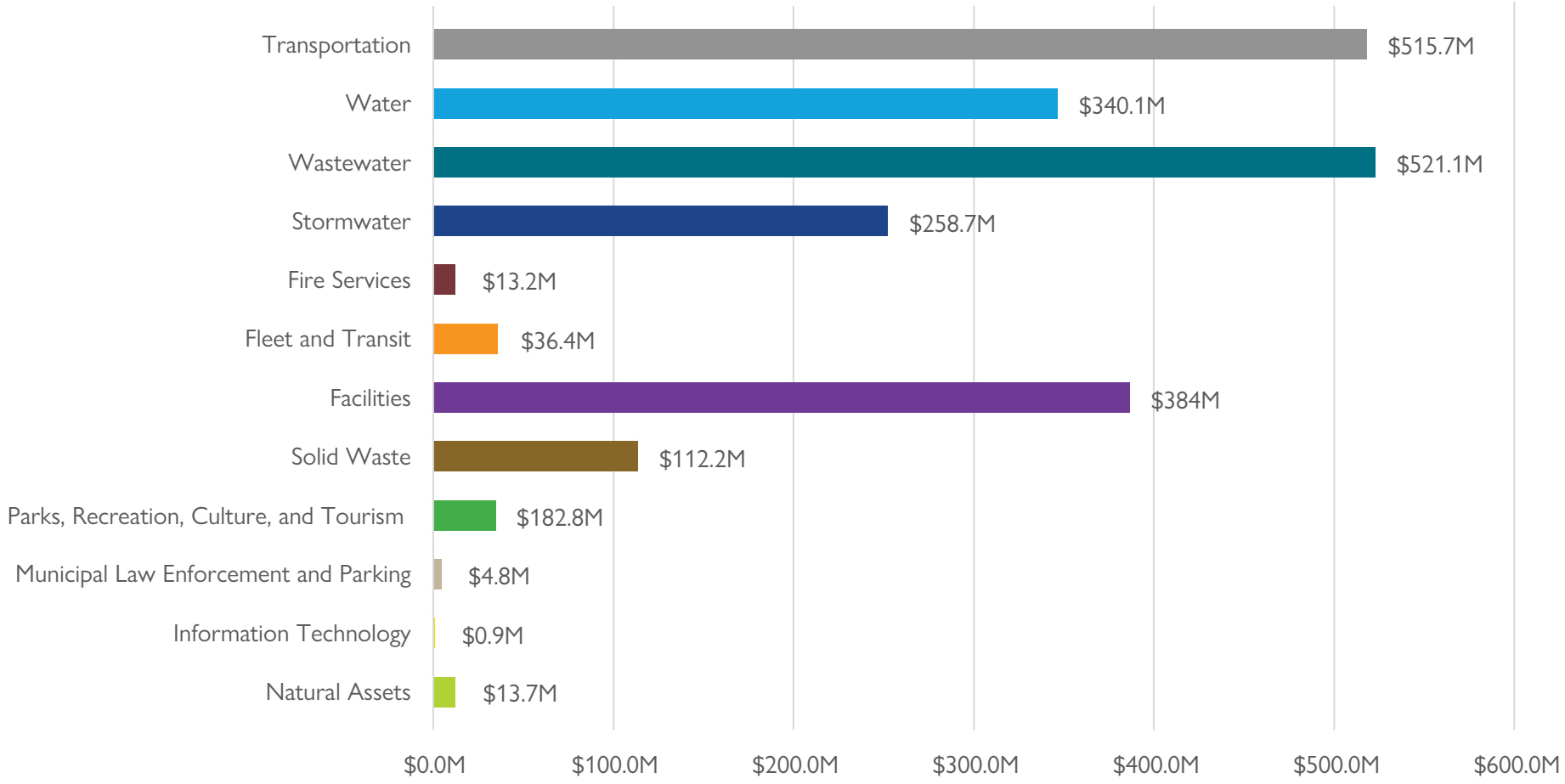
TABLE 10: Asset Quantities, Replacement Cost, Average Age, and Average Condition by Category

Asset Category	Quantities	Replacement Cost	Average Age	Average Condition	Average Condition Colour
Transportation	5 bridges 1 structural culvert 414.7 lane km of road 132.1 km of sidewalks 2 retaining walls	$515.7M	20.4	Good	
Water	183.7 km of watermain 951 fire hydrants 1 booster station 2 reservoir sites 3 wells 1 water filtration plant	$340.1M	37.5	Fair	
Wastewater	158.5 km of gravity sewermains 9.7 km of forcemains 1 wastewater treatment centre 20 pump stations	$521.1M	40.1	Fair	
Stormwater	85,401 m of sewers 1,780 maintenance holes 2 pump stations 6 stormwater management ponds 13 oil and grit separators 163,743 m of ditches 2,953 catch basins 23,688 m of catch basin leads 36,500 m of road and driveway culverts	$258.7M	39.6	Fair	
Fire Services	317 equipment assets in stations 7 apparatus vehicles with equipment Fire prevention kit and trailer 4 passenger vehicles with equipment	$13.2M	11.2	Good	
Fleet and Transit	Roads: 51 vehicles Solid Waste: 4 vehicles Parks: 53 vehicles Recreation Facilities: 7 vehicles Water, Wastewater, and Stormwater: 19 vehicles Transit: 12 buses All Other Service Areas: 8 vehicles	$36.4M	11.1	Fair	

Asset Category	Quantities	Replacement Cost	Average Age	Average Condition	Average Condition Colour
Facilities	26 corporate facilities 7 recreation facilities 9 parks washrooms facilities 9 parks auxiliary facilities	$384.0M	17.9	Fair	
Solid Waste	8 active cells 2 alternate cover plates 4 capped cells 1 compost pad with swale, pumps, and forcemain 11,578 m^2 of internal roadway 0.720 lane km of perimeter roadway 1,500 m of perimeter fence 2 structures 1 weighscale 3 roll-off steel bins 72 wells 12 gas probes 1 gas barrier and venting system	$112.2M	54.8	Good	
Parks, Recreation, Culture, and Tourism	44 parks or parkettes with amenities 34 km of trails 14 permanent outdoor art installations 90 pieces of fitness equipment 206 boat slips 72 m of dock 2 boat launches 800 m of boardwalk 80 m of fishing pier	$182.8M	20.9	Fair	
Municipal Law Enforcement and Parking	8 parking lots 319 mech units 226 yokes 103 housings 130 posts and foundations 15 active and 5 inactive pay-and-display terminals	$4.8M	12.6	Fair	
Information Technology	123 networking 35 server 21 printers 30 TEAMS phones 252 workstations	$0.9M	3.5	Poor	
Natural Assets	3,194 trees 124.45 ha of forests	$13.7M	Not Available	Fair	

Figure 6 illustrates the replacement cost for each category of assets.

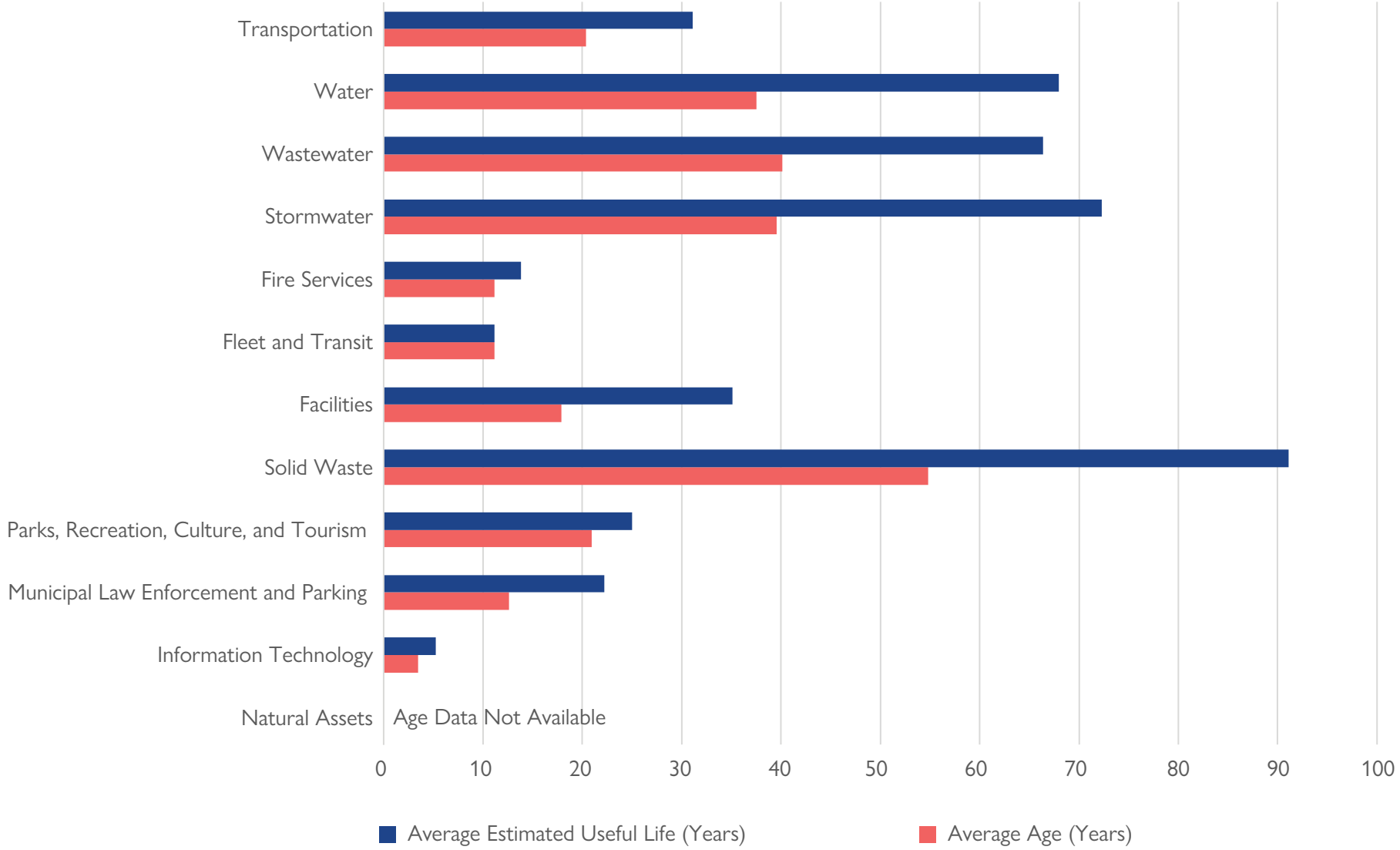
FIGURE 6: **Replacement Cost by Category**



4.2 Service Life Remaining

Figure 7 illustrates the average age and estimated useful life for each category of assets. The difference between the average age and estimated useful life is the estimated average service life remaining.

FIGURE 7: **Average Asset Age and Estimated Useful Life by Category**



4.3 Condition Summary

Many of the City's assets are at or approaching the end of their estimated useful life and are showing their age through worse condition ratings. As assets age and deteriorate, there are typically higher operations and maintenance costs until the renewal, rehabilitation, or replacement of the asset. Understanding the current condition of assets is fundamental to proper asset management planning and effective use of lifecycle management strategies. By investing in the lifecycle management strategies at the right time, asset management reduces the total lifecycle cost of assets ensuring the best value for money.

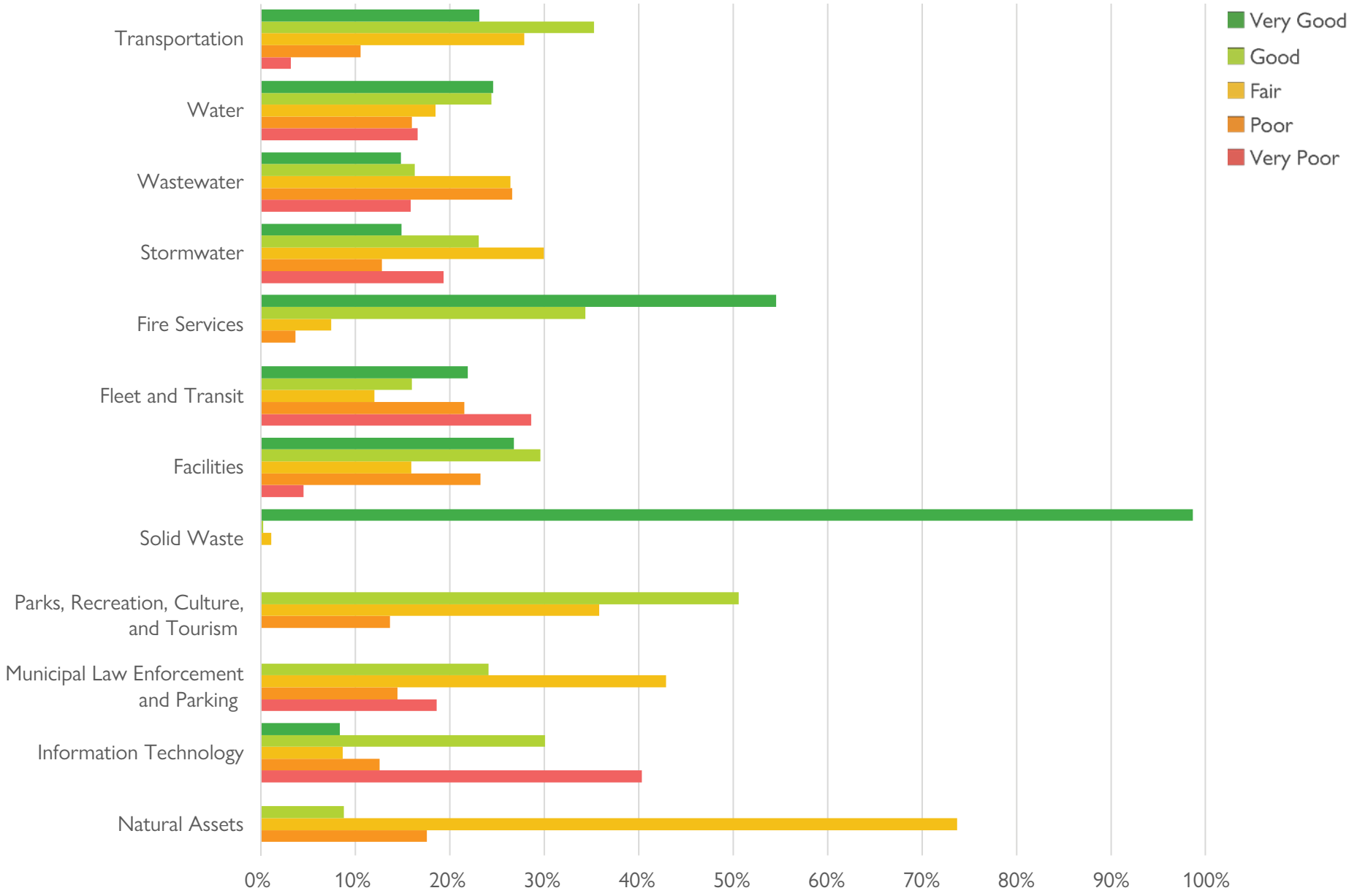
Collectively, approximately 73.1% of assets are in Fair or better condition. This estimate relies on both age-based estimates and on condition assessment data.

This plan relies on assessed condition data for approximately 64% of assets. For the remaining assets, age is used as an approximation of condition. It has been identified that there are records that are missing or incomplete, particularly in the stormwater category. Assessed condition data is invaluable in asset management planning as it reflects the true condition of the asset and its ability to perform its intended function.

Figure 8 illustrates the condition ratings for each category of assets in terms of the percentage of total replacement cost of that category.

A key point is that due to the differences in the method used for calculating condition between categories, direct comparisons between categories may not be consistent depending on which categories are compared.

FIGURE 8: **Breakdown of Condition Rating - Percentage of Cost by Category**



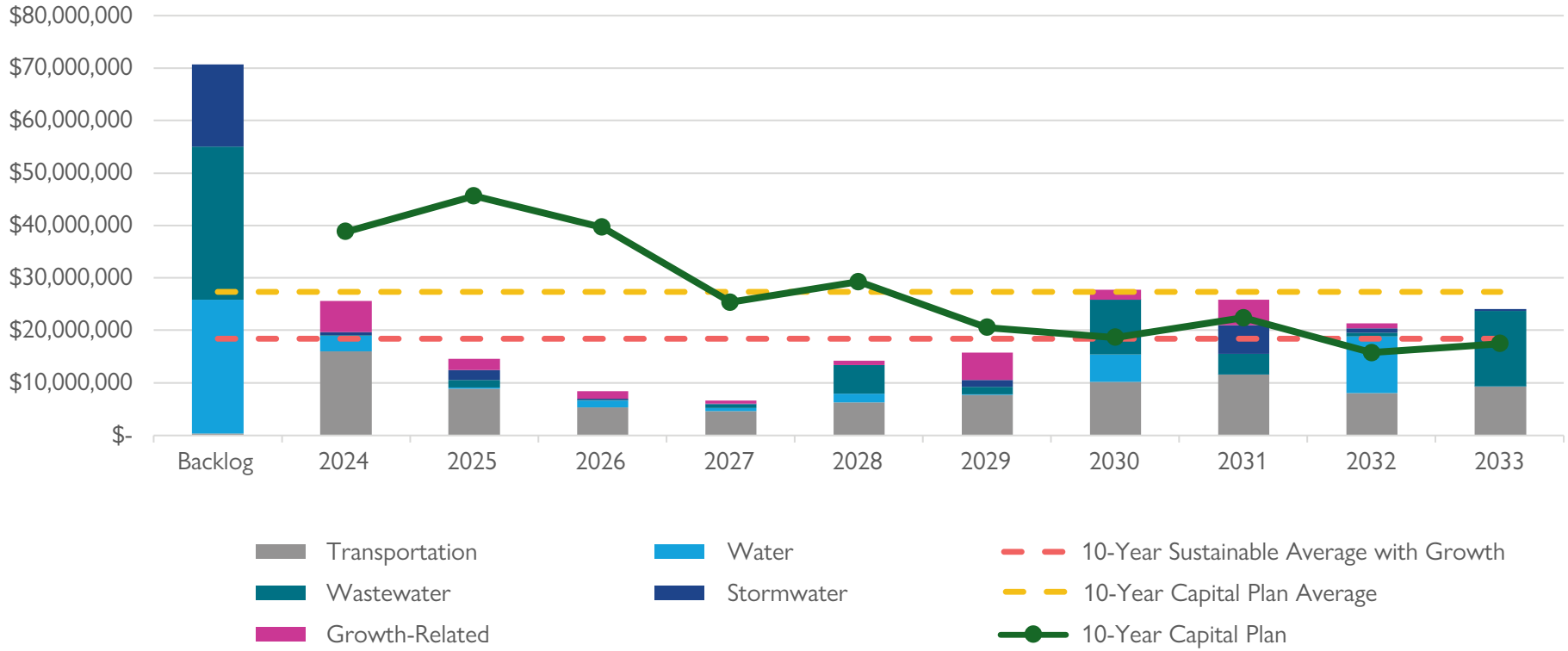
4.4 Capital Requirements Forecast for 2024-2033 for 2024 Service Levels

The development of a 10-year capital forecast should include asset renewal and rehabilitation requirements in addition to asset replacements. With the development of asset-specific lifecycle strategies that include the timing and anticipated cost of future capital events, the City can produce a capital forecast that considers the entire estimated useful life of assets.

4.4.1 Core Assets

Figure 9 identifies the forecasted capital requirements, 10-year sustainable annual requirement trend, and 10-year capital plan average over the 2024-2033 period for core assets.

FIGURE 9: **Core Annual and Average Capital Requirement – 10-Year Forecast Including Growth**



Excluding the backlog, the forecasted 10-year average sustainable capital requirement for core assets over the 2024-2033 period is approximately $18.4 million per year in 2023 dollars.

Forecasting the capital requirements assists the City in proactively spreading the required spending over a longer time span while managing shorter-term fluctuations in requirements. Investments can be prioritized based on Council priorities, risk, and levels of service considerations.

The backlog is approximately $70.7 million and is primarily composed of watermains and wastewater and stormwater sewers beyond their estimated useful life. This represents the assets that are past due for renewal or replacement based on the best available information. Calculating the backlog is useful to understand the short-term needs of assets. Many assets can remain in service beyond their estimated useful life or preferred condition; however, it may increase the risk of failure.

In general, a backlog of infrastructure replacements typically results in a combination of:

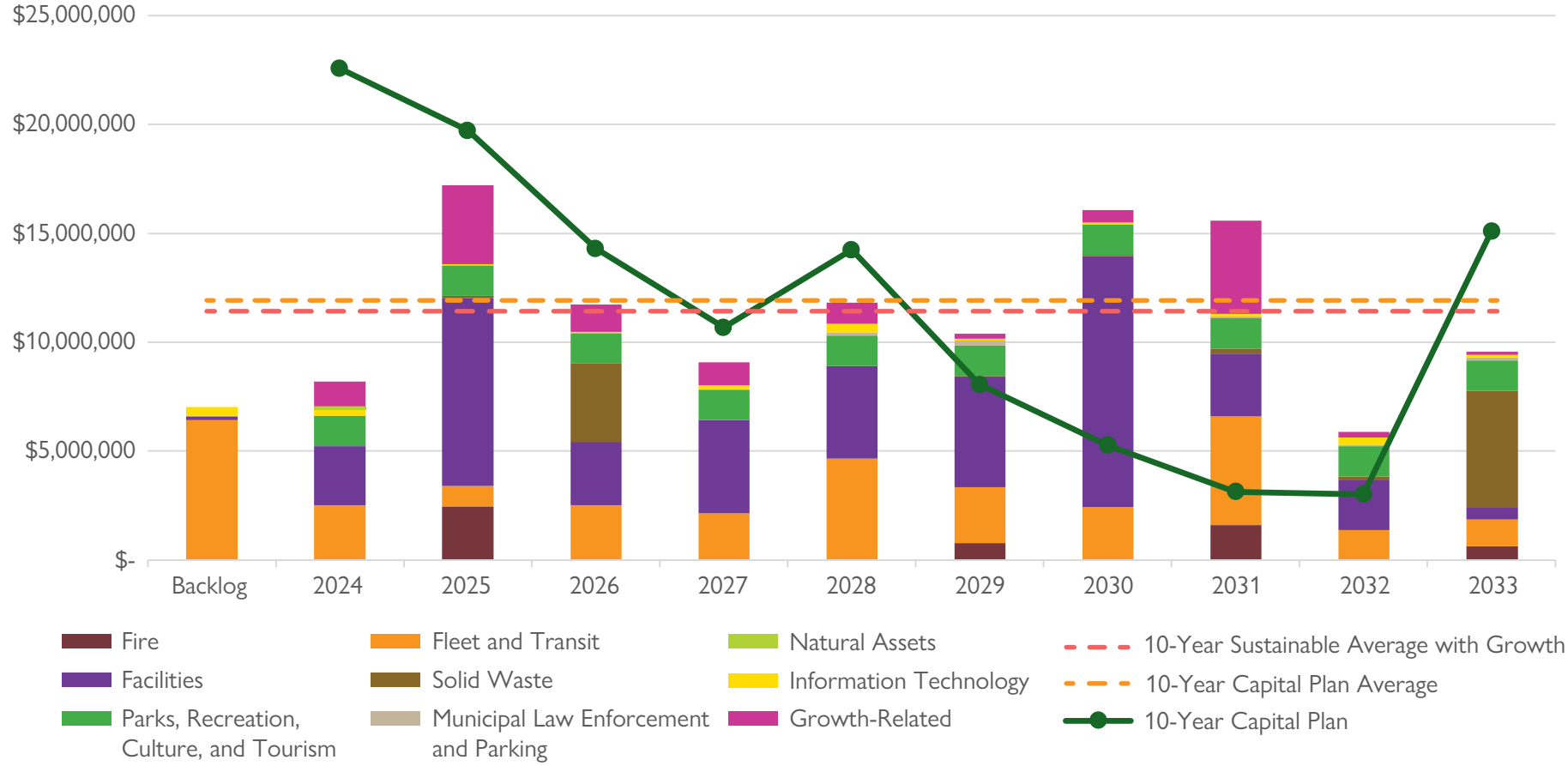
- Increased operations and maintenance costs to keep the asset functioning beyond its estimated useful life.
- Lower asset performance.
- Higher risk.
- A reduction in the level of service.

The Financial Summary portion of this plan includes discussion of the impact of clearing the backlog evenly over 10 years.

4.4.2 Non-Core Assets

Figure 10 identifies the forecasted capital requirements, 10-year sustainable annual requirement trend, and 10-year capital plan average over the 2024-2033 period for non-core assets.

FIGURE 10: Non-Core Annual and Average Capital Requirement – 10-Year Forecast Including Growth



Excluding the backlog, the forecasted 10-year average sustainable capital requirement for non-core assets over the 2024-2033 period is approximately $11.6 million per year in 2023 dollars.

Forecasting the capital requirements assists the City in proactively spreading the required spending over a longer time span while managing shorter-term fluctuations in requirements. Investments can be prioritized based on Council priorities, risk, and levels of service considerations.

The backlog is approximately $7.0 million and is primarily composed of transit assets beyond their estimated useful life. This represents the assets that are past due for renewal or replacement based on the best available information. Calculating the backlog is useful to understand the short-term needs of assets. Many assets can remain in service beyond their estimated useful life or preferred condition; however, it may increase the risk of failure.

In general, a backlog of infrastructure replacements typically results in a combination of:

- Increased operations and maintenance costs to keep the asset functioning beyond its estimated useful life.
- Lower asset performance.
- Higher risk.
- A reduction in the level of service.

The Financial Summary portion of this plan includes discussion of the impact of clearing the backlog evenly over 10 years.

4.5 Target Versus Actual Reinvestment Rate for 2024 Service Levels

By comparing the actual to the target reinvestment rate, the City can determine the extent of any funding deficits or surpluses.

4.5.1 Core Assets

To fully meet the sustainable 10-year capital needs of core assets at the current level of service, the City would need to allocate approximately $18.4 million annually, for a target reinvestment rate of 1.22%. The 10-year capital plan average funding is approximately $27.4 million annually, for an actual reinvestment rate of 1.81%. Therefore, over the 2024-2033 period, there is an estimated funding surplus of approximately $9.0 million annually. However, if the backlog is cleared over the 10-year period, the 10-year sustainable funding required increases to approximately $25.5 million annually, for a new target investment rate of 1.69% and an estimated funding surplus of $1.9 million annually. Table 11 summarizes the reinvestment rate outcomes for the core assets.

TABLE 11: **Core Assets Reinvestment Rates**

Forecast – Core Assets	Target Reinvestment Rate	Actual Reinvestment Rate	Reinvestment Rate Surplus or (Deficit)
10-Year Replacement Needs with Growth	1.22%	1.81%	0.59%
10-Year Replacement Needs with Growth and Backlog	1.69%	1.81%	0.12%

It is important to consider that the capital funding allocated during the 2024-2033 period is higher partially due to one-time, high-cost projects, including the Harvie Hill Reservoir project; the reconstruction of Laclie Street, Jarvis Street, and West Street; and the Downtown Streetscape project, all scheduled during 2024-2028. The Financial Summary section of this plan provides a more detailed analysis of the sustainable capital requirements and funding levels, including consideration of a 50-year annual capital requirement forecast.

The low-to-medium level of data maturity, especially for the stormwater assets, is also expected to cause an underestimation of the sustainable annual capital requirements during this period. The City is working on improving the data to increase the level of accuracy of such estimates, including a comprehensive look at the stormwater network through the ongoing Stormwater Management Infrastructure Inventory and Condition Assessment project.

4.5.2 Non-Core Assets

To fully meet the sustainable 10-year capital needs of non-core assets at the current level of service, the City would need to allocate approximately $11.6 million annually, for a target reinvestment rate of 2.08%. The 10-year capital plan average funding is approximately $11.6 million annually, for an actual reinvestment rate of 2.08%. Therefore, over the 2024-2033 period, the estimated funding meets the sustainable capital needs. However, if the backlog is cleared over the 10-year period, the 10-year sustainable funding required increases to approximately $12.3 million annually, for a new target investment rate of 2.20% and an estimated funding deficit of $0.7 million annually. Table 12 summarizes the reinvestment rate outcomes for the non-core assets.

TABLE 12: **Non-Core Assets Reinvestment Rates**

Forecast – Non-Core Assets	Target Reinvestment Rate	Actual Reinvestment Rate	Reinvestment Rate Surplus or (Deficit)
10-Year Replacement Needs with Growth	2.08%	2.08%	0%
10-Year Replacement Needs with Growth and Backlog	2.20%	2.08%	(0.12%)

It is important to consider that the capital funding allocated during the 2024-2033 period is higher partially due to one-time, high-cost projects, including the Brian Orser Arena reconstruction, Municipal Operations Centre expansion or addition, and the construction of Fire Station 3. The Financial Summary section of this plan provides a more detailed analysis of the sustainable capital requirements and funding levels, including consideration of a 50-year annual capital requirement forecast.

The low-to-medium level of data maturity, especially for the parks, recreation, culture, and tourism assets, is also expected to cause an underestimation of the sustainable annual capital requirements during this period. The City is working on improving the data to increase the level of accuracy of such estimates.

5.0
Transportation

5.0 Transportation

The City maintains a multi-modal transportation network to ensure reliable, safe, and efficient transportation options for the community. A well-functioning transportation network plays an integral part in the everyday life of the community, supporting employment, providing social and recreational opportunities, facilitating growth, and enabling a wide range of transportation options regardless of user age, means, or ability. Transportation infrastructure is the second-largest category of assets at a total replacement cost of $475,490,283 in 2023 dollars.

5.1 Asset Inventory and Replacement Cost

The City manages approximately 415 lane-kilometres of roads and 132 kilometres of sidewalks. The transportation network is comprised primarily of paved asphalt surfaces and concrete sidewalks. The City also manages one gravel roadway, five bridges, one structural culvert, and two retaining walls. To ensure a safe and efficient network, the City manages a network of traffic control and safety assets, and lighting assets that operate across the network. The two Brough's Creek bridges are subject to a cost-sharing agreement between the City of Orillia and the Township of Oro-Medonte.

The replacement cost is estimated using primarily historic construction costs with consideration of standardized costing indices. Included in the cost of replacing each asset is a set of components that when put together make up a typical asset. The full set of components for each sub-segment is identified in Appendix 20.2.1.

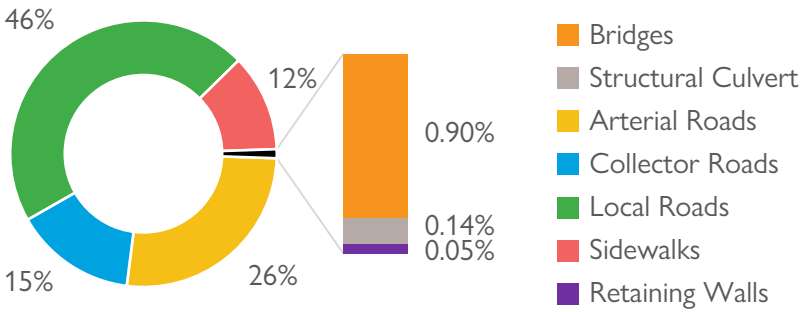
Table 13 includes the quantity, replacement cost method, and total replacement cost in 2023 dollars of each sub-segment of assets in the City's transportation network.

TABLE 13: **Transportation – Inventory and Replacement Cost**

Asset Sub-Segment	Quantity	Replacement Cost Method	Replacement Cost	Percentage of Total Replacement Cost
Bridges	5 structures	Asset-Specific Cost Estimation	$4,259,869	0.90%
Structural Culvert	1 structure	Asset-Specific Cost Estimation	$660,714	0.14%
Arterial Roads	104.9 lane km	Cost/Unit	$125,846,400	26.5%
Collector Roads	66.8 lane km	Cost/Unit	$70,159,950	14.8%
Local Roads	243.0 lane km	Cost/Unit	$218,184,200	45.9%
Sidewalks	132.1 km	Cost/Unit	$56,127,625	11.8%
Retaining Walls	2 structures	Asset-Specific Cost Estimation	$251,525	0.05%

Figure 11 provides the data in table 13 visually with each sub-segment as a percentage of the total replacement cost. Most of the City's transportation assets are roadways where almost half of the assets are local roads. Due to the small relative total value of bridges, the structural culvert, and retaining walls, an additional diagram is provided for clarity.

FIGURE 11: **Transportation – Total Replacement Cost**



5.2 Asset Age and Estimated Useful Life

The Estimated Useful Life (EUL) of transportation assets is determined using a combination of staff knowledge, historical data, and industry standards. The average service life remaining is determined by the difference between the average estimated useful life and the average age, except when an asset has been assigned an assessed condition rating that may increase or decrease the average service life remaining.

Table 14 summarizes the average age of each sub-segment based on the number of years that the assets have been in service.

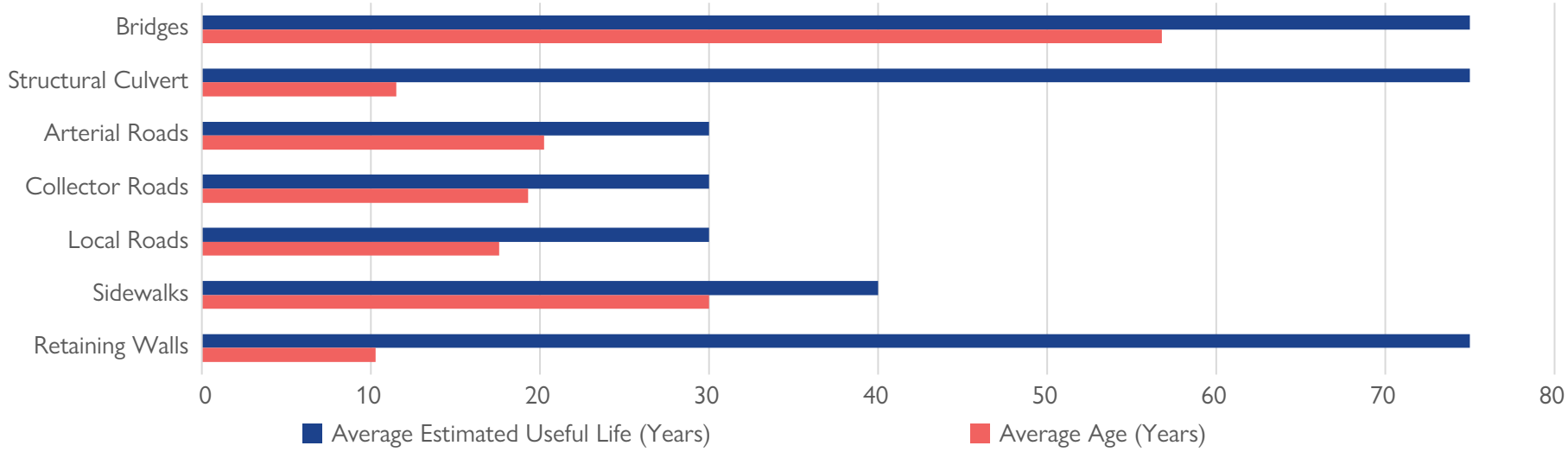
TABLE 14: **Transportation – Average Age and Estimated Useful Life**

Asset Sub-Segment	Average Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)	Percentage of Average Service Life Remaining
Bridges	75	56.8	18.2	24%
Structural Culvert	75	11.5	63.5	85%
Arterial Roads	30	20.3	9.7	32%
Collector Roads	30	19.3	10.7	36%
Local Roads	30	17.6	12.4	41%
Sidewalks	40	30.0	10.0	25%
Retaining Walls	75	10.3	64.7	86%

Due to poor historical data on sidewalk in-service dates, the average age and service life remaining are low-confidence estimations.

The age of an asset gives an indication of how close it is to the end of its estimated useful life and what lifecycle management strategies may be required. Figure 12 displays average asset age alongside the estimated useful life for each asset sub-segment.

FIGURE 12: **Transportation – Average Age and Estimated Useful Life**



Average asset ages have not exceeded the average estimated useful life for any asset sub-segment.

Lifecycle management activities are required at regular intervals to, on average, reach or exceed the full estimated useful life of the asset. For example, roads receive mid-life resurfacing at regular targeted intervals of 15 to 20 years to reach a longer combined lifecycle estimated useful life (LEUL) of up to 80 years. However, without these activities the estimated useful life of an average road is 30 years as displayed above. Similarly, bridges can have a LEUL of up to 150 or more years in some rare cases; however, the City's bridges have a more typical LEUL of 90 years. Without these activities, the estimated useful life of a bridge is 75 years as displayed above.

5.3 Condition

The following sections and tables outline the condition breakdown for each group of assets and the City's methods for assessing asset condition. Where available and feasible, the City follows industry standard best practices and generally accepted good engineering practices in the approach to assessing asset condition. When condition assessments are unavailable, an age-based condition rating is used based on the age of the asset compared to its estimated useful life.

Table 15 summarizes the variety of techniques used to assess the condition of the transportation assets on a regular basis.

TABLE 15: Transportation – Approach to Assessing Condition

Asset Sub-Segment	Condition Data Collection Techniques	Frequency of Data Collection	Year of Last Assessment
Bridges and Structural Culverts	Visual inspection in compliance with the Ontario Structure Inspection Manual (OSIM) requirements.	Every two years.	2022
Arterial Roads	Automatic road analysis or visual inspection.	Every two years.	2022
Collector Roads	Automatic road analysis or visual inspection.	Every two years.	2022
Local Roads	Automatic road analysis or visual inspection.	Every two years.	2022
Sidewalks	Automatic road analysis or visual inspection.	Every two years.	2022
Retaining Walls	Age-based and visual inspections in compliance with the Ontario Structure Inspection Manual (OSIM) requirements.	Varies (typically reactive).	2022

Table 16 provides a summary of the condition rating systems for each sub-segment of assets. Based on the condition data and information provided by subject matter experts, the condition of assets is rated on a scale from Very Good to Very Poor.

TABLE 16: Transportation – Condition Rating Scales

Rating	Rating Description	Bridges and Structural Culverts (Five-Point Scale)	Roads (Pavement Condition Index)	Sidewalks (Sidewalk Condition Index)	Retaining Walls (Five-Point Scale)
Very Good	Fit for Future	1.8 ≥ and ≥ 0	100 ≥ PCI > 85	100 ≥ SCI > 85	1
Good	Adequate for Now	2.6 ≥ and > 1.8	85 ≥ PCI > 70	85 ≥ SCI > 70	2
Fair	Requires Attention	3.4 ≥ and > 2.6	70 ≥ PCI > 55	70 ≥ SCI > 55	3
Poor	Increasing Potential of Affecting Service	4.2 ≥ and > 3.4	55 ≥ PCI > 40	55 ≥ SCI > 40	4
Very Poor	Unfit for Sustained Service	5.0 ≥ and > 4.2	40 ≥ PCI	40 ≥ SCI	5

Figure 13 illustrates the breakdown of condition ratings in terms of dollars of the City's transportation assets. 58.4% of these assets are in Very Good to Good condition with only a small proportion, 3.2%, rated as Very Poor.

FIGURE 13: Transportation – Condition Rating Summary

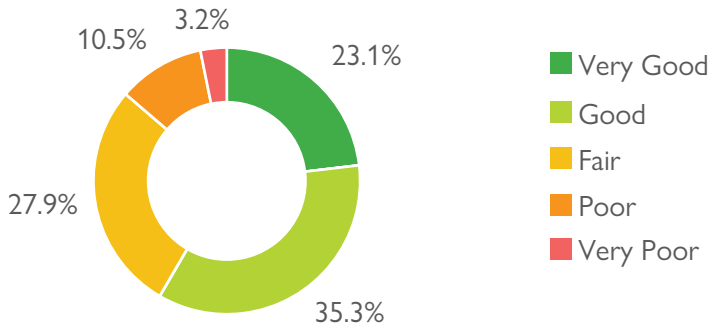
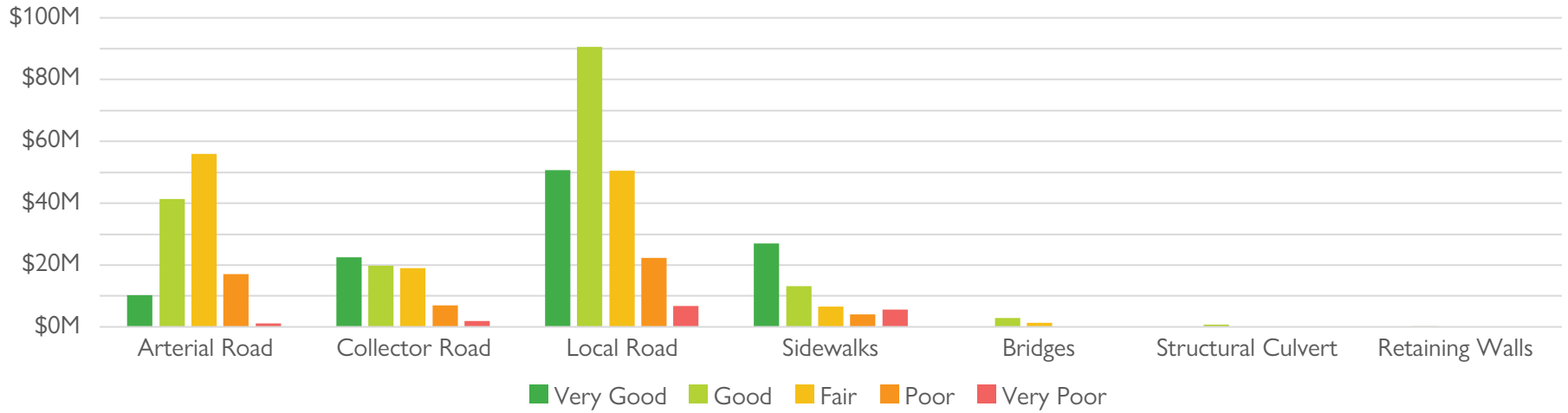


FIGURE 14: Transportation – Breakdown of Condition Rating – Percentage of Cost

Figure 14 illustrates the breakdown of asset condition ratings for all transportation assets in terms of the percentage of total replacement cost. A key point is that due to the differences in methodology for calculating condition between sub-segments, direct comparisons between sub-segments may not be consistent depending on which sub-segments are compared.

Figure 15 illustrates the same breakdown but in terms of the total replacement cost rather than the percentage of total replacement cost for each sub-segment. This illustrates the large cost implications of the quantity of roads and sidewalks compared to the much smaller value of the other assets.

FIGURE 15: Transportation – Breakdown of Condition Rating – Cost



The average condition of transportation assets is Good. Assets are maintained by using the best treatment option to manage the current condition and anticipated future deterioration of the asset. More information is found in the lifecycle management strategy details in Section 5.5. The following sections will present the condition information for each group of assets in more detail.

5.3.1 Bridges and Structural Culverts

Figures 16 and 17 provide a breakdown of asset condition by asset sub-segment for bridges and the structural culvert.

FIGURE 16: **Transportation – Breakdown of Condition Rating – Bridges**

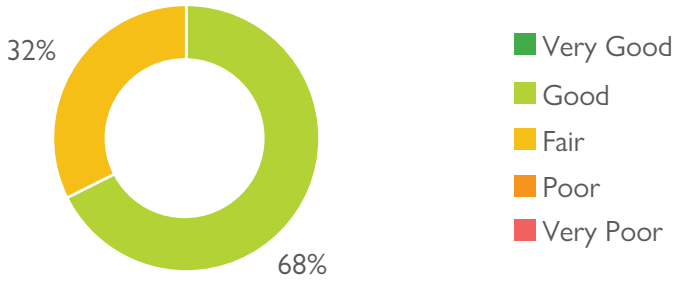
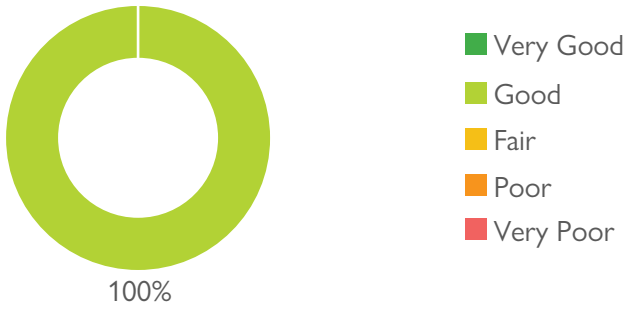


FIGURE 17: **Transportation – Breakdown of Condition Rating – Structural Culvert**



All municipally owned bridges and structural culverts with a span equal to or greater than 3m are required to be inspected every two years in accordance with Ontario Regulation 104/97 and must follow the Ontario Structure Inspection Manual (OSIM). The results are analyzed to assign a rating score from 100 to 0 for each structure that corresponds to a rating between Very Good to Very Poor. The most recent inspections were completed in 2022.

Although on average the bridges are close to their original estimated useful life of 75 years, historical renewal and rehabilitation activities have resulted in these assets having a lifecycle estimated useful life of 90 years and maintaining their condition rating at Fair or Good. It is anticipated that these structures will continue to provide a sufficient level of service until they reach their lifecycle estimated useful life. Frequent inspections ensure risk is managed as any significant changes in condition will be documented every other year.

Table 17 illustrates the condition ratings defined with respect to the bridge condition index values. Since the City does not have any structures that are overall in the Very Good, Poor, or Very Poor condition states, the example photo is of a component of a structure that is in that state where available. A photo for the Very Poor state is omitted due to no component within this rating currently.

TABLE 17: **Transportation – Condition Rating Descriptions and Photos – Bridges and Structural Culvert**

Condition State: **Very Good**	Condition State: **Good**	Condition State: **Fair**
Scale: 1.8 ≥ and ≥ 0 **Description:** Fit for Future 	**Scale:** 2.6 ≥ and > 1.8 **Description:** Adequate for Now 	**Scale:** 3.4 ≥ and > 2.6 **Description:** Requires Attention 

Condition State: **Poor**	Condition State: **Very Poor**
Scale: 4.2 ≥ and > 3.4 **Description:** Increasing Potential of Affecting Service 	**Scale:** 5.0 ≥ and > 4.2 **Description:** Unfit for Sustained Service Omitted due to no assets within this rating currently.

Currently, the City does not have sufficiently detailed replacement cost information at the OSIM element level of detail that is required to calculate a Bridge Condition Index (BCI) value from 100 to 0. Instead, the City assigned a condition rating from Very Good to Very Poor using subject matter expert knowledge of the structure inspector.

5.3.2 Roads

Figures 18, 19, 20, and 21 provide a breakdown of asset condition for all roads and each major sub-segment of road.

FIGURE 18: **Transportation – Breakdown of Condition Rating – All Roads**

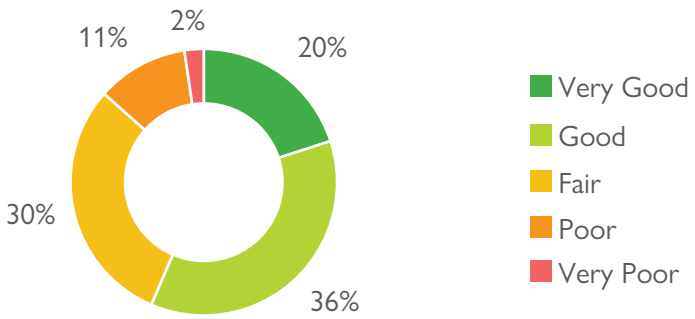


FIGURE 19: **Transportation – Breakdown of Condition Rating – Arterial Roads**

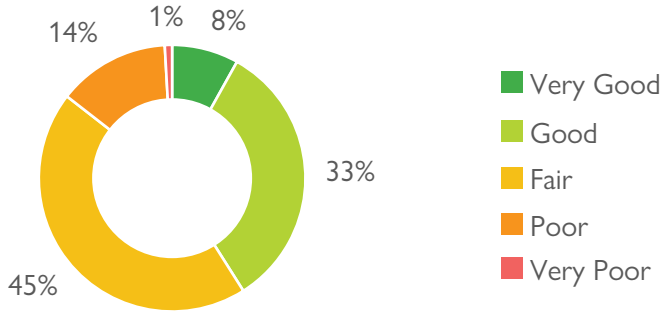


FIGURE 20: **Transportation – Breakdown of Condition Rating – Collector Roads**

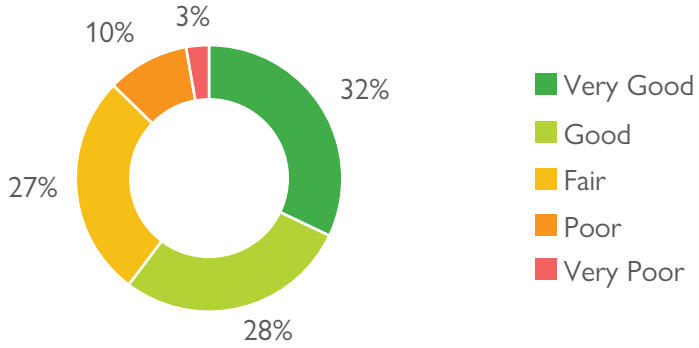
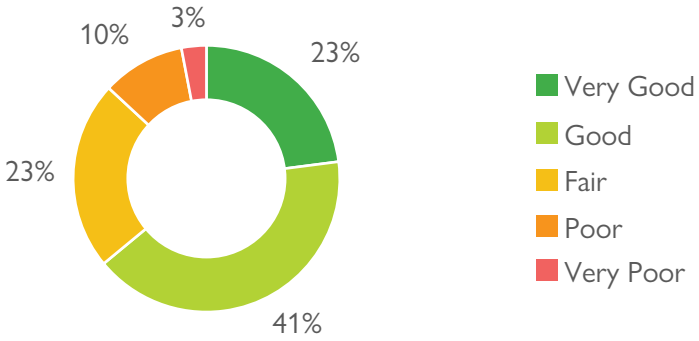


FIGURE 21: **Transportation – Breakdown of Condition Rating – Local Roads**



Every two years, the condition of the road network asphalt surface is evaluated by a consultant using a variety of condition assessment techniques. The results are analyzed to assign an industry-standard Pavement Condition Index (PCI) score from 100 to 0 for each segment of roadway that corresponds to a rating between Very Good to Very Poor. The most recent inspections were completed in 2022.

Considering all types of roads, 56% of the City's pavement surfaces are in Very Good or Good condition with only a small portion, 2%, rated as Very Poor. This indicates that roads are not typically reaching a state of failure. However, with 13% of roads in Poor or Very Poor condition, the data indicates that there is a need for both immediate-term and long-term investments to continue the management of deficiencies and meet the City's desired minimum condition rating. As well, since PCI only captures the type and severity of deficiencies on the pavement surface, additional non-surface data should be considered before making renewal, rehabilitation, or replacement decisions.

Table 18 illustrates the road condition ratings defined with respect to the pavement condition index values.

TABLE 18: Transportation – Condition Rating Descriptions and Photos – All Roads

Condition State: **Very Good**	Condition State: **Good**	Condition State: **Fair**
Scale: 100 ≥ PCI > 85 **Description:** Very smooth ride. Pavement is in excellent condition with few cracks.	**Scale:** 85 ≥ PCI > 70 **Description:** Smooth ride with just a few bumps or depressions. Frequent very slight or slight cracking.	**Scale:** 70 ≥ PCI > 55 **Description:** Comfortable ride with infrequent bumps or depressions. Infrequent moderate and frequent slight cracking, infrequent slight or moderate alligatoring and distortion.
		

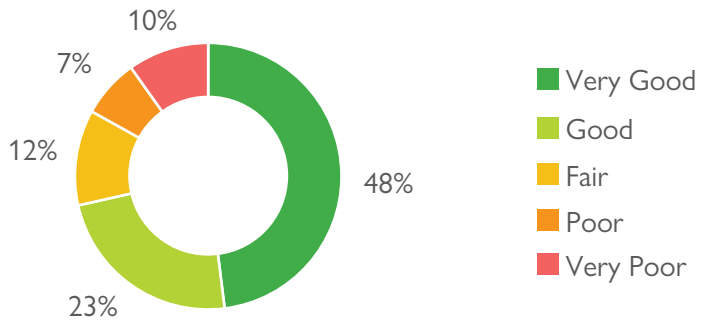
Condition State: **Poor**	Condition State: **Very Poor**
Scale: 55 ≥ PCI > 40 **Description:** Uncomfortable ride with frequent to extensive bumps or depressions. Cannot maintain the posted speed at lower end of the scale. Frequent moderate cracking and distortion, infrequent moderate alligatoring.	**Scale:** 40 ≥ PCI **Description:** Very uncomfortable ride with constant bumps and depressions. Cannot maintain posted speed. Must steer to avoid bumps and depressions. Extensive severe cracking, distortion, or alligatoring,
	

Descriptions are adapted from the SP-024 Manual for Condition Rating of Flexible Pavements (Ontario Ministry of Transportation, 2016).

5.3.3 Sidewalks

Figure 22 provides a breakdown of asset condition for sidewalks.

FIGURE 22: Transportation – Breakdown of Condition Rating – Sidewalks

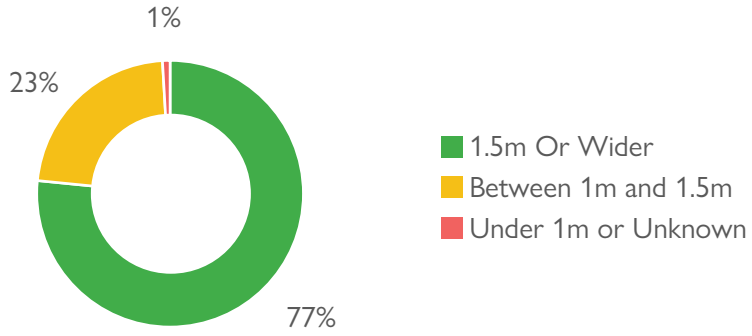


Every two years, the condition of the sidewalk network is evaluated by a consultant using a variety of condition assessment techniques. The results are analyzed to assign a Sidewalk Condition Index (SCI) score from 100 to 0 for each length of sidewalk that corresponds to a rating between Very Good to Very Poor. The most recent inspections were completed in 2022.

71% of the City's sidewalks are in Very Good or Good condition with a moderate portion, 10%, rated as Very Poor. This indicates that many sidewalks are reaching or exceeding the end of their service life. With 17% of sidewalks in Poor or Very Poor condition, the data indicates that there is a need for both immediate-term and long-term investments to continue the management of deficiencies.

In addition to the condition, sidewalk width was also captured during the condition assessment process to inform the City of the extent of undersized sidewalks. 77% of sidewalks meet or exceed the *Accessibility for Ontarians with Disabilities Act* (AODA) standard width of 1.5m. The remaining sidewalks are of substandard width. Figure 23 provides a breakdown of groupings of sidewalk width.

FIGURE 23: Transportation – Breakdown of Sidewalk Width



There exist areas in the City where the municipal right-of-way is insufficient to install a 1.5m wide sidewalk. It is the City's aim to ensure at least one side of the street has a sidewalk of AODA-compliant width, where feasible. Insufficient sidewalk width is considered along with condition in determining prioritization of lifecycle management strategies.

Table 19 illustrates the sidewalk condition ratings defined with respect to the sidewalk condition index values.

TABLE 19: Transportation – Condition Rating Descriptions and Photos – Sidewalks

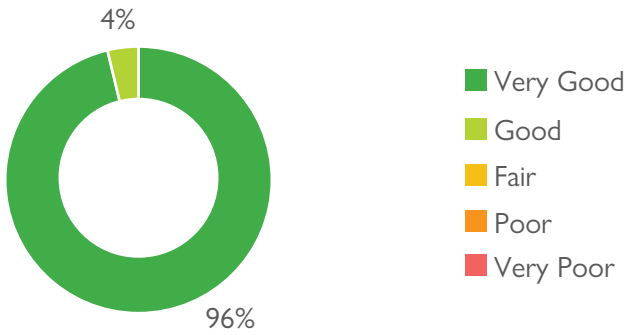
Condition State: **Very Good**	Condition State: **Good**	Condition State: **Fair**
Scale: 100 ≥ SCI > 85 **Description:** A very smooth and level surface with minimal cracking. 	**Scale:** 85 ≥ SCI > 70 **Description:** A smooth and level surface with just a few cracks, distortions, or depressions. 	**Scale:** 70 ≥ SCI > 55 **Description:** A semi-smooth surface with intermittent cracking, distortions, or depressions. 

Condition State: **Poor**	Condition State: **Very Poor**
Scale: 55 ≥ SCI > 40 **Description:** A non-smooth surface with frequent to extensive cracking, distortions, or depressions. 	**Scale:** 40 ≥ SCI **Description:** A very non-smooth surface with constant cracking, distortions, and depressions. May be impassable due to obstructions or overgrown vegetation. 

5.3.4 Retaining Walls

Figure 24 provides a breakdown of asset condition for retaining walls.

FIGURE 24: **Transportation – Breakdown of Condition Rating – Retaining Walls**



The City manages two retaining walls. An additional retaining wall on Borland Street is in process of being redesigned as a gravity wall and is omitted from this plan. Condition assessments are conducted on an as-needed basis. All assessments are completed in compliance with the Ontario Structure Inspection Manual (OSIM) requirements. The results are analyzed to assign a rating score from 1 to 5 for each structure that corresponds to a rating between Very Good to Very Poor. No recent inspection following the OSIM manual is available. Instead, an age-based approach is used to determine the condition of the retaining walls.

Due to the limited number of retaining walls in the inventory, a table of condition ratings with photos and descriptions is omitted.

5.4 Levels of Service and Performance Measures

The City's assets exist to deliver services to its users. Levels of service are a measurement of the actual service provided so that decisions are made based on the nature and quality of that service, rather than only the condition of an asset. These are used to summarize the type of service being provided that reflects the values and desires of stakeholders in the community.

Tables 20 and 21 identify the City's historical and proposed levels of service for the transportation assets. These metrics include any technical and community level of service metrics that are required to comply with Ontario Regulation 588/17, as well as any additional metrics provided by the City.

5.4.1 Community Levels of Service

Table 20 identifies the qualitative descriptions that determine the community levels of service provided by the transportation assets.

TABLE 20: **Transportation – Community Levels of Service**

Service Attribute	Community Levels of Service	Related Assets
Scope	The City's bridges and structural culvert enable the movement of people and goods throughout the City and to provincial highways using a variety of transportation options. In addition to passenger vehicles, these assets support the movement of commercial vehicles, pedestrians, cyclists, trailered water vehicles, and provide reliable emergency vehicle response access. One of the bridges has a loading or dimension restriction. The extent of the City's transportation network, including the locations of the bridges and the structural culvert, is illustrated by Map 1. The extent of the sidewalk network is illustrated separately by Map 2.	Bridges, Structural Culvert
Quality	If the condition of a bridge or structural culvert were to progress to a state of disrepair, width or load restrictions may be implemented. If the condition degradation is severe, the structure may become unusable or fail. Regular inspections inform the City of when potential restrictions or closure may need to be put in place. The City inspects and maintains the transportation network at a condition level to operate as designed. Descriptions and images that illustrate the different condition ratings of bridges and structural culverts are provided in Table 17.	Bridges, Structural Culvert
Scope	The City's roads enable the movement of people and goods throughout the City and to provincial highways using a variety of transportation options. In addition to passenger vehicles, these assets support the movement of commercial vehicles, pedestrians, cyclists, and trailered water vehicles, and provide reliable emergency vehicle response access. The extent of the City's transportation network is illustrated by Map 1.	Roads
Quality	The City inspects and maintains the transportation network at a condition level to operate as designed. Descriptions and images that illustrate the different condition ratings of roads and sidewalks are provided in Table 18 and Table 19 respectively.	Roads, Sidewalks
Accessibility	The City strives to make its pedestrian pathways accessible to everyone.	Sidewalks

5.4.2 Technical Levels of Service

Table 21 identifies the quantitative metrics that determine the technical level of service provided by transportation assets.

TABLE 21: **Transportation – Technical Levels of Service**

Service Attribute	Description of What Performance Measure Captures	Performance Measure	2023	2024	2034 Target	Related Assets
Scope	Density of the arterial class road network.	Number of lane-kilometres of arterial roads as a proportion of square kilometres of land area of the municipality.	3.7	3.7	3.8	Roads
Scope	Density of the collector class road network.	Number of lane-kilometres of collector roads as a proportion of square kilometres of land area of the municipality.	2.3	2.3	2.4	Roads
Scope	Density of the local class road network.	Number of lane-kilometres of local roads as a proportion of square kilometres of land area of the municipality.	8.5	8.5	8.6	Roads
Scope	Adequacy of bridges to support typical traffic without restrictions.	Percentage of the bridges in the municipality with loading or dimensional restrictions.	20%	N/A	17%	Bridges
Quality	Adequacy of paved road surfaces to provide a smooth and comfortable ride at the posted speed.	Average pavement condition index value for paved roads.	77.1	N/A	56.4	Roads
Quality	Adequacy of road surfaces for users to maintain the posted speed.	Target minimum pavement condition index value for paved roads.	50	50	50	Roads
Quality	Adequacy of unpaved road surfaces to provide a smooth and comfortable ride at the posted speed.	Average surface condition for unpaved roads.	Good	Good	Good	Roads
Quality	Adequacy of sidewalk surfaces to provide a smooth and level pedestrian pathway.	Average sidewalk condition index value.	79.7	N/A	72.1	Sidewalks
Quality	Adequacy of bridges to provide a smooth and comfortable ride at the posted speed.	Average bridge condition index value for bridges.	Good	N/A	Good	Bridges
Quality	Adequacy of structural culverts to provide a smooth and comfortable ride at the posted speed.	Average bridge condition index value for structural culverts.	Good	N/A	Good	Structural Culverts
Quality	Condition of transportation network.	Percentage of assets in Poor or Very Poor condition.	13.7%	N/A	36.0%	All
Accessibility	Availability of accessible sidewalks.	Percentage of sidewalks that comply with the AODA minimum clearance width of 1.5m.	76.6%	N/A	88.3%	Sidewalks

5.5 Lifecycle Management Strategy

It is important to proactively manage asset deterioration through a lifecycle management strategy that balances cost, risk, and the level of service. Table 22 describes the current lifecycle management activities completed and includes the risks associated with not completing these activities through using a do-nothing approach.

TABLE 22: **Transportation – Lifecycle Management Strategy**

Activity Type	Description of Current Strategy	Risks Associated with Not Completing Activities
Operations and Maintenance	Bridges and Structural Culvert ▪ Inspections for structures more than 3m in span. ▪ Expansion joint and drain cleaning. Roads ▪ Inspections per the Minimum Maintenance Standards (MMS) under Ontario Regulation 239/02. ▪ Small spot repairs, pothole patching, ditching, sweeping, and debris removal. Snow and Ice Removal ▪ Line marking application and road signage maintenance. ▪ Maintenance of vegetation within the road right-of-way. ▪ Current crack sealing is completed only by City staff. More comprehensive crack sealing services were previously completed by external suppliers in addition to the City staff activities. Sidewalks ▪ Inspections per MMS. ▪ Small spot repairs (less than one panel). ▪ Snow and ice removal. ▪ Grass replacement. Retaining Walls ▪ Inspections and drain cleaning. Maintenance and operations activities are completed by City staff with external contractors brought in as needed.	▪ Deficiencies are not identified through patrols and inspections. ▪ Higher lifecycle costs if maintenance is delayed or completed incorrectly. ▪ Premature asset failure, health and safety risks, service disruptions. ▪ Financial liabilities if MMS are not met. ▪ Congestion, closures, and other disruptions leading to user dissatisfaction.

Activity Type	Description of Current Strategy	Risks Associated with Not Completing Activities
Renewal and Rehabilitation	Bridges and Structural Culvert ▪ Minor capital activities: deck resurfacing, crack sealing, waterproofing, painting. ▪ Major capital activities: structural repairs, deck replacements. Roads ▪ Minor capital activities: localized resurfacing, lane section repairs. ▪ Major capital activities: base repair, full-depth reclamation and resurfacing of the asphalt wear surface at a target cycle of every 20 years. ▪ The decision-making process that determines whether rehabilitation or replacement is the better option is partially dependent on the requirements of the underground infrastructure (e.g. water, sanitary sewer, storm). Sidewalks ▪ Grinding and panel raising to address uplifts and misalignment between panels. ▪ Spot repairs and single panel replacements. ▪ Partial segment replacement. Retaining Walls ▪ Spot repairs and structural repairs.	▪ Renewal and rehabilitation activities may increase asset life less than anticipated resulting in a need for repeated activities or premature asset failure. ▪ Higher lifecycle costs if work is delayed or completed incorrectly.

Activity Type	Description of Current Strategy	Risks Associated with Not Completing Activities
Replacement and Disposal	Bridges and Structural Culvert ▪ Bridges and structural culverts are considered end of life when renewal and rehabilitation activities are no longer cost-effective compared to replacement of the structure. ▪ May also be replaced in coordination with the lifecycle of other infrastructure or due to vehicle impacts. Roads ▪ Roads are considered end of life when vehicles are no longer able to drive along them effectively at the posted speed limit. This is at a Pavement Condition Index of 50 or below, which is a condition rating of Poor. ▪ Major reconstruction including replacement of the driving surface asphalt, road base repair, drainage improvements, curb and gutter replacement or installation, traffic control and safety replacement and upgrades, and overall streetscape and accessibility improvements. ▪ The City aims to align road reconstruction timing with underground infrastructure needs to reduce total cost and disruption to the community. ▪ Reuse of reclaimed asphalt material during reconstruction. ▪ Disposal of contaminated materials and soils. Sidewalks ▪ Sidewalks are considered end of life when the extent of widespread distresses in the full segment length is beyond repair using replacement of individual panels or short sections. ▪ Full segment length replacement including replacements for accessibility improvements. ▪ Disposal of contaminated materials and soils. Retaining Walls ▪ Retaining walls are considered end of life when renewal and rehabilitation activities are no longer cost-effective compared to replacement of the structure. ▪ May also be replaced in coordination with the lifecycle of other infrastructure.	▪ Risk to public safety if structures are permitted to collapse due to lack of timely replacement or disposal. ▪ Delay in replacement and disposal projects may result in significantly higher costs, longer service disruptions, liability concerns, delays to emergency response times, and user dissatisfaction. ▪ Poor coordination with sub-surface infrastructure may result in significantly higher costs and repeated disruptions to the community. ▪ Improper disposal could lead to negative environmental impacts with associated cleanup expenses.

Activity Type	Description of Current Strategy	Risks Associated with Not Completing Activities
Growth-Related and Service Enhancements Lifecycle Needs	Bridges and Structural Culvert ▪ Adjustments due to capacity requirements. ▪ Addition of lighting, signalization. Roads ▪ Official Plan and Multi-Modal Transportation Master Plan targets. ▪ Adjustments due to capacity requirements. ▪ Updated streetscape design and materials. ▪ Changes to Ministry of Transportation infrastructure requirements. Sidewalks ▪ Official Plan and Multi-Modal Transportation Master Plan targets. ▪ Adjustments due to capacity requirements. ▪ Updated streetscape design and materials. ▪ Accessibility improvements including widening, tactile plate installation, and grade modifications. Retaining Walls ▪ New roads, road reconstructions, and infill developments requiring grade modification.	▪ Delay or cancellation of growth-related activities causing the network to be unable to sufficiently accommodate growth. ▪ Master plans may over or underestimate the required expansions to accommodate the impacts of growth. ▪ Increased lifecycle costs. ▪ Network congestion and disruption due to undercapacity. ▪ Non-compliance with Ministry of Transportation requirements.
Non-Infrastructure	Bridges and Structural Culvert ▪ Inspections and environmental assessments. Roads ▪ Inspections. ▪ Multi-Modal Transportation Master Plan. ▪ Traffic counts and signalization optimization. Sidewalks ▪ Inspections. Retaining Walls ▪ Inspections.	▪ Rate of asset deterioration is over or underestimated. ▪ Inaccurate growth impact analysis resulting in an incorrect funding allocation.

5.6 Forecasted Capital Requirements

The City continuously invests in maintaining its assets and has been increasing budget amounts to more closely align with asset needs.

The annual capital requirement represents the average cost per year that the City is estimated to require to allocate towards funding infrastructure needs. Based on the available data at the time of this plan, more information is required for this calculation. A more complete asset inventory would result in capturing more assets and more accurate lifecycle costs. When more assets are added to the portfolio, the average annual funding need would also increase and be better representative of the actual spending required to manage the City's assets.

Based on the best available current information, to maintain the current level of service and lifecycle management strategy, the annual sustainable capital funding requirement for existing transportation assets is estimated to be $7,804,763.

The 2024 capital budget funding allocation was $14,552,499. This means that there exists a funding surplus of $6,747,736 in 2024. Figure 25 illustrates a 50-year forecast of the annual capital asset needs for transportation network assets, including the cost and asset lifecycle impacts of completing renewal and rehabilitation activities.

FIGURE 25: **Transportation – Annual Capital Requirement – 50-Year Forecast**

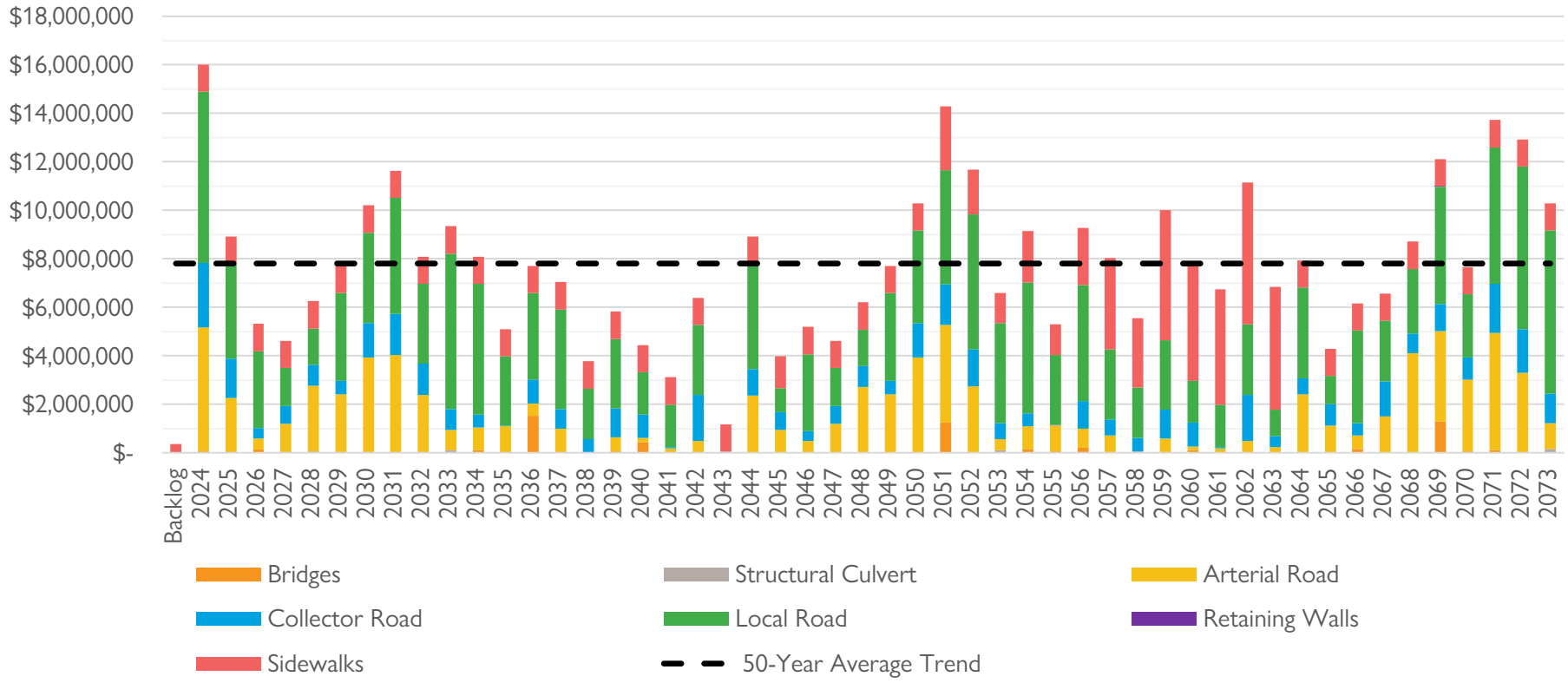
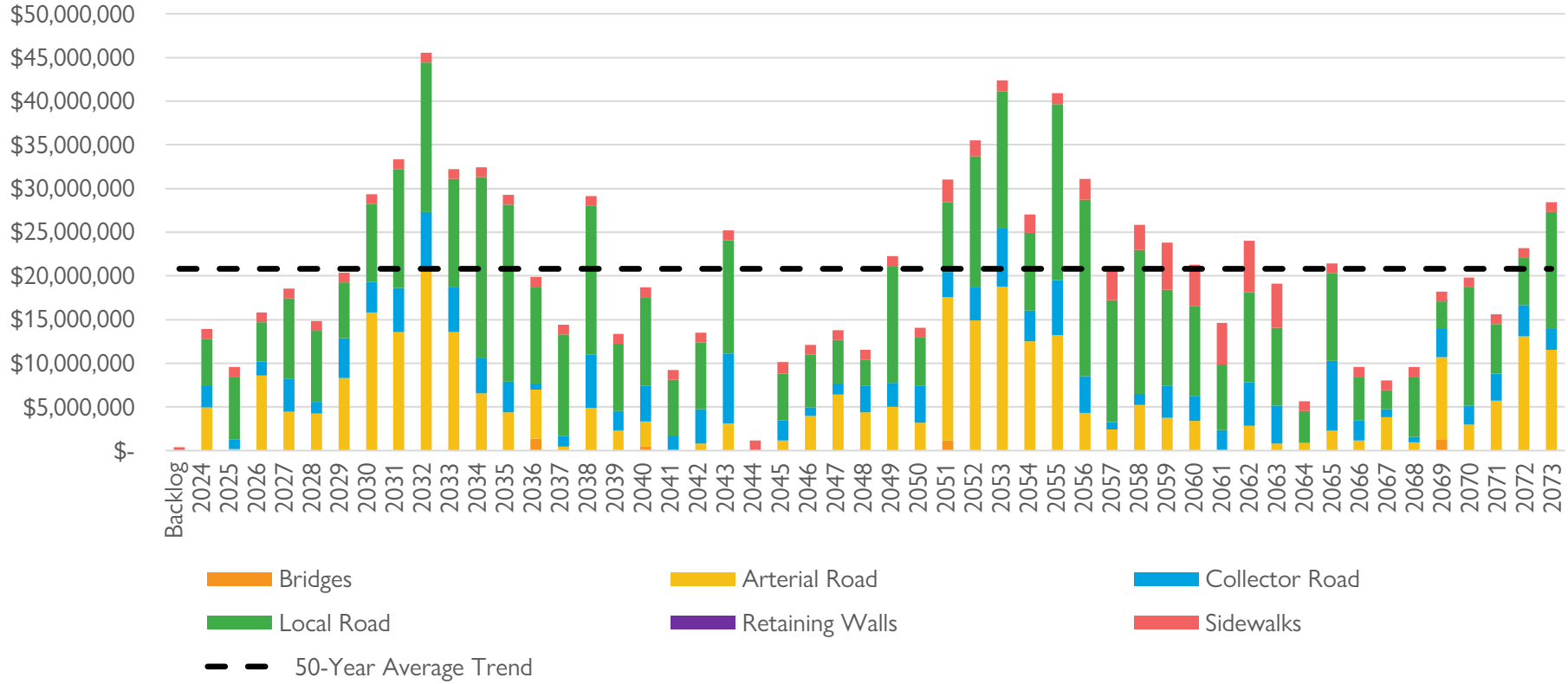


Figure 26 illustrates the same 50-year forecast; however, it does not include the cost and asset lifecycle impacts of completing renewal and rehabilitation activities. The replacement date for the structural culvert is outside of this forecast range resulting in its exclusion from the figure.

FIGURE 26: **Transportation – Annual Capital Requirement – 50-Year Forecast – Replacement-Only Strategy**



Comparing figures 25 and 26, it is critical that long-term decisions regarding levels of service and funding needs must include the cost and impacts of lifecycle management strategies due to the significant difference in funding needs identified. The annual requirement for the replacement-only strategy is $20,806,094, which is $13,001,331 higher than the renewal and rehabilitation strategy. A replacement-only strategy is typically less cost effective than utilization of renewal and rehabilitation lifecycle management strategies for these types of assets.

A $365,075 backlog exists and is composed of sidewalks beyond their estimated useful life. These assets will be prioritized appropriately in the 10-year capital planning process for the sidewalk replacement capital program.

For further details on capital requirements, please see the Financial Summary portion of this plan that details the funding needs for all categories of assets over the next 10 years, including discussion of impacts from growth.

5.7 Climate Change and Other Risks

Table 23 summarizes key trends, challenges, and risks that the City is currently facing in delivering the desired level of service.

TABLE 23: **Transportation – Climate Change and Other Risks**

Trend, Challenge, or Risk	Summary
Climate Change and Extreme Weather Events	It is anticipated that there will be many challenges in managing the impacts of climate change, including: ▪ Potential increased damage to infrastructure through flooding and erosion due to more frequent extreme wet weather events. ▪ Potential increased maintenance and decreased estimated useful life of roads and sidewalks due to more frequent freeze-thaw events in the winter causing surfaces to heave and settle. ▪ Potential increased likelihood of damage to streetlights, decorative lighting, traffic control, and safety assets during extreme wind events. ▪ Potential increased deterioration of bridge components due to higher variability in summer and winter temperatures. ▪ Increased uncertainty in impacts of extreme weather events and what is the most cost-effective resiliency strategy or group of strategies. The City is considering the following adaptation and mitigation measures in response to the challenges: ▪ Incorporate new best practices and technology in the design, construction, and maintenance of assets to increase resiliency while managing affordability. ▪ Reduce vehicle traffic through improved multi-modal transportation options leading to less wear on roads and lower community greenhouse gas emissions. Potential future adaptation and mitigation measures include: ▪ Use of lower embodied carbon materials to potentially reduce the carbon footprint of infrastructure projects. ▪ Coordinate infrastructure design, construction, and maintenance with updated stormwater data and flood mapping to determine what options exist to improve resiliency during stormwater events.
Lifecycle Management Strategies	The adoption of a work order management system tied to the asset management inventory system will provide an improved connection between maintenance programs and service delivery outcomes.
Infrastructure Design and Installation	The City is getting better at standardizing engineering designs and ensuring that these are coordinated across departments and divisions through its 2015 Engineering Design Criteria Manual (DCM), which is due to be updated. Further efforts and refinements are continuously required to enhance and improve the process.
Infrastructure Reinvestment	Due to recent cost escalations, it may be difficult for the City to match the annual lifecycle requirement with the existing 10-year capital plan budgeted amounts for projects. Out-of-date cost estimations may lead to delays or cancellations of projects when actual construction cost bids are received and are beyond the allocated budget.

5.8 Recommendations and Improvement Plan

Asset Inventory

- Continue to review and refine the asset inventory to improve scope and accuracy.
- Continue to add asset information to GIS layers for improved staff efficiency.

Condition

- Ensure that the condition ratings from bridge and culvert inspections are entered into the asset inventory to support planning for deterioration modeling.
- Acquire bridge and structural culvert replacement cost data at the OSIM Element level of detail in required to calculate the industry standard Bridge Condition Index (BCI) condition rating value.
- Implement a recurring inspection schedule for retaining walls.
- Road and sidewalk network-wide condition assessments are completed every two years.
  - Ensure consistency in methodology and data processes between assessments so that results can be easily compared over time.
  - Align assessments with industry standard methodologies.
  - Consider assessing more than only the surface material condition.
- Continue to develop and conduct condition assessment methodology for all other transportation assets in preparation of including those assets in a future asset management plan.

Lifecycle Management Strategies

- Identify capital rehabilitation and renewal costs for bridges and the structural culvert and integrate these costs into long-term planning. Due to the 0% dedicated budget allocation for bridges and the structural culvert, separate tracking on spending on bridges and culverts currently through the roads reserve.
- Evaluate the efficacy of the City's lifecycle management strategies at regular intervals to determine the impact on cost, condition, and risk.
- Consider additional lifecycle management strategies and treatment options to lower lifecycle costs and improve levels of service. This may include items such as crack sealing services for roads and an edge grinding program for sidewalks. Adoption of new technology may be another source of new, more cost-effective strategies.
- Develop lifecycle management strategies for all other transportation assets.
- Integrate maintenance and operations work order data into the tracking of individual assets.

Levels of Service

- Continue to measure current levels of service in accordance with the metrics identified in Ontario Regulation 588/17 and the additional metrics included by the City.
- Track annual progress towards the City's proposed levels of service targets.

5.9 Updates For 2025 Compliance

To achieve compliance with the July 1, 2025, requirements under O. Reg. 588/17, updates were made to the following items in this chapter:

- Table 20: Transportation – Community Levels of Service and Table 21: Transportation – Technical Levels of Service were updated to contain the levels of service and performance measures for 2024, and to contain the levels and measures that the City proposes to achieve over the 10-year period of 2025-2034.
- Table 22: Transportation – Lifecycle Management Strategy was updated to identify the lifecycle activities needed to provide the proposed levels of service for the 10-year period at the best value for money over the lifecycle of the assets, and to identify the risks associated with not completing lifecycle activities for each activity type.

In addition to the updates listed, various minor wording, layout, or graphical updates were made to the chapter to provide additional information or to improve clarity, visual appeal, or accessibility.

O. Reg. 588/17 further requires an explanation of why the proposed levels of service are appropriate for the City based on an assessment of four criteria. Table 24 contains the explanation available for the criteria.

TABLE 24: **Transportation – Proposed Levels of Service Appropriateness Assessment**

O. Reg. 588/17 S.6(1) 2(i-iv) Criteria	Explanation of Appropriateness
i. The options for the proposed levels of service and the risks associated with those options to the long-term sustainability of the municipality.	The network density of the three classes of roads is primarily driven by new development within the existing City boundary. To support the growth-related needs, new roads built by the City or assumed by the City increase the density. The impacts of the alternative option of not supporting growth-related needs are identified under the Growth-Related and Service Enhancements Lifecycle Needs activity type in Table 22: Transportation – Lifecycle Management Strategy. The City's existing approach of maintaining its bridges and structural culvert at an average condition of Good is unchanged. This approach supports the City's aim to prevent loading or dimensional restrictions being implemented on other bridges because of decreases in bridge condition. There are minimal impacts on the transportation network due to the one existing bridge with a restriction and as a result, the best value for money option identified is to not fix the cause of the restriction until the bridge is replaced. A separate new crossing structure is anticipated to be built during the forecast period that will not have loading or dimensional restrictions once completed. The City's existing approach of maintaining a limited length of unpaved road at an average condition of Good is unchanged. Upgrading the unpaved road length to paved would lead to significantly higher lifecycle costs and would be a poor value for money investment due to the limited traffic volume on the unpaved road length. The City is adjusting its prioritization methods for choosing which paved roadways to resurface for different classes of roads. The option of allocating more funding to higher volume roads will result in the funding spent benefiting a larger number of users. The impact of this choice however will result in local class roads reaching worse condition states on average over the 10-year forecast. With 243.0 lane-kilometres of local roads in the asset inventory, a significant reduction in the average condition of local roads would result in a large future financial need to prevent these assets from reaching failure condition. Insufficient funding is forecasted to be allocated to maintain the 2023 level of service for average pavement condition index value evenly across all road classes.

O. Reg. 588/17 S.6(1) 2(i-iv) Criteria	Explanation of Appropriateness
	The City is adjusting its prioritization methods for choosing which sidewalks to replace. The option of allocating more funding to older sidewalks in or approaching failure condition will result in the best value for money for increasing the average sidewalk condition. Insufficient funding is being allocated to maintain the 2023 level of service for average sidewalk condition index value. An additional impact of the change in sidewalk prioritization is that the percentage of sidewalks that comply with the AODA minimum clearance width of 1.5 metres is significantly improved because older sidewalks are more likely to be sub-standard width. Through an ongoing update to the City's Engineering Design Criteria Manual, the City is considering changes to align the guidance document with industry best practices and current standards. Not aligning with best practices and current standards typically leads to higher overall lifecycle cost. Considering the impacts on operating costs and reliability of replacing assets before the asset reaches a Poor or Very Poor condition state. Assets in Poor or Very Poor condition typically have higher annual operations and maintenance costs. The risk of not doing lifecycle management activities includes the risks identified in Table 22: Transportation – Lifecycle Management Strategy. Adopting a do-nothing approach would result in significantly higher lifecycle costs and risk, a rapid decline in levels of service, and would substantially reduce the long-term sustainability of the City's assets. During the design stage of capital projects, anticipated future climate change impacts are considered. Table 23: Transportation – Climate Change and Other Risks includes a summary of adaptation and mitigation measures that could be used in response to the challenges. Not proactively funding adaptation and mitigation measures is anticipated to cost significantly more over the lifecycle of the assets and lead to lower long-term asset reliability.

O. Reg. 588/17 S.6(1) 2(i-iv) Criteria	Explanation of Appropriateness
ii. How the proposed levels of service differ from the current levels of service.	Table 21: Transportation – Technical Levels of Service identifies the difference in performance between the most current level of service performance value available and the 2034 target performance where determined. The City will continue to measure current levels of service over time to establish a historical baseline or trend, and work towards establishing additional future targets. Adjustments to levels of service and determining future targets is a forward looking and iterative process that will occur over time as the City improves and refines its integrated approach to asset management. For the levels of service measures with 2034 targets identified, the differences between current and targets levels of service include: ▪ Minor increases in the density of each class of roads due to growth-related development. ▪ Reduction in the percentage of bridges with loading or dimensional restrictions primarily due to construction of a new structure. ▪ Reduction in the average pavement condition index for paved roads from 77.1 to 56.4. ▪ No change in the average surface condition for unpaved roads. ▪ Reduction in the average sidewalks condition index from 79.7 to 72.1. ▪ No change in the average bridge condition index value for bridges and structural culvert. ▪ Increase in the percentage of assets in Poor or Very Poor condition from 13.7% to 36.0%, largely driven by lower condition sidewalks and local roads. This is primarily due to more assets degrading into lower condition states than the forecasted funding allows to be renewed, rehabilitated, or replaced over the 10-year period. ▪ Increase in the percentage of sidewalks that comply with the AODA minimum clearance width of 1.5 metres from 76.6% to 88.3%. This is primarily due to prioritization of older and worse condition sidewalks. As the City moves towards integrating work orders for some operations and maintenance activities in the transportation service area into the same platform that is used for asset management, the City will be better equipped to measure technical levels of service values over time.
iii. Whether the proposed levels of service are achievable.	From a City staff resources perspective, the forecasted list of projects may be achievable and is dependent on future staffing levels. Whether the full project list moves forward is dependent on receiving regulatory approvals, Council approving funding through future budget deliberations, environmental assessments, coordination with nearby assets in other service areas, changes in legislation, changes in the City's Official Plan and achieved levels of intensification, and if the actual impacts of climate change are worse than forecasted.

O. Reg. 588/17 S.6(1) 2(i-iv) Criteria	Explanation of Appropriateness
iv. The municipality's ability to afford the proposed levels of service.	Over the 2025-2034 10-Year Capital and Reserve Forecast period, the transportation service area is funded by the following sources: ▪ Development Services and Engineering Operating Budgets; ▪ Environment and Infrastructure Service Operating Budgets; ▪ Capital Levy Reserve Fund; ▪ Gas Tax Obligatory Reserve Fund; ▪ General Asset Management Reserve Fund; ▪ OCIF Obligatory Reserve Fund; ▪ Roads and Related Obligatory Reserve Fund; and ▪ Debenture Reserve Fund. The financial strategy chapter included in this plan contains the O. Reg. 588/17 requirements of: ▪ An estimate of the annual costs for the lifecycle activities required to provide the proposed level of service; ▪ The annual funding projected to be available; ▪ The options examined by the City to maximize projected funding; and ▪ The identification of any funding deficit or shortfall. As the City has a population above 25,000, the financial strategy chapter contains the details required under S.6(1) 6(i-ii) of O. Reg. 588/17 regarding the costs and funding available due to population and employment growth. To promote alignment and consistency between City documents and City Council decision making, the proposed levels of service input into this chapter and the financial strategy chapter are aligned with the outcomes of the 2025 budget process and resulting 2025-2034 10 Year Capital and Reserve Forecast. The 2025-2034 10 Year Capital and Reserve Forecast was presented during the 2025 Budget process and resulted in the City utilizing its self-imposed 10% debt limit as well as a negative total reserve and reserve fund shortfall by 2034 in the amount of -$214.4 million in 2025 dollars. The Financial Strategy chapter of this plan provides a detailed discussion of the sustainability of the City's financial position. If the City follows a path of financial unsustainability, eventually some lifecycle activities would become unaffordable and the City may not achieve its proposed levels of service targets. Which activities the City will not undertake due to a shortfall depends on which reserves contain the large negative balances. Maintaining the proposed levels of service targets for all categories would require significant increases in funding levels. Transportation staff are looking ahead at future asset lifecycle needs beyond the 2025-2034 forecast period to right-size reserve contribution requirements and are considering the possibility of additional long-term funding pressures due to: ▪ Anticipated future changes in legislation or design standards that will have more stringent environmental requirements. An explanation of the options examined by the City to maximize the funding projected to be available to afford the proposed levels of service is included in Table 137: Financial Strategy – Funding Maximization Activities and Choices.

6.0
Water

6.0 Water

The City maintains a drinking water network to operate reliable, safe, and efficient distribution of potable water for the community. The water network services provided by the City include water treatment and distribution, water meter installation, cross-connection and backflow prevention, service connections, fire hydrants, and repair of watermain breaks. Water network infrastructure is the fourth-largest category of assets at a total replacement cost of $313,611,103 in 2023 dollars.

6.1 Asset Inventory and Replacement Cost

The City manages approximately 183.7 km of watermain, one booster station, two reservoir sites, three wells, and one water filtration plant. To support a safe and efficient network, the City also manages a network of 951 fire hydrants.

The replacement cost is estimated using primarily historic construction costs with consideration of standardized costing indices. Included in the cost of replacing each asset sub-segment is a set of components that together comprise a typical asset. The full set of components for each sub-segment is identified in Appendix 20.2.2.

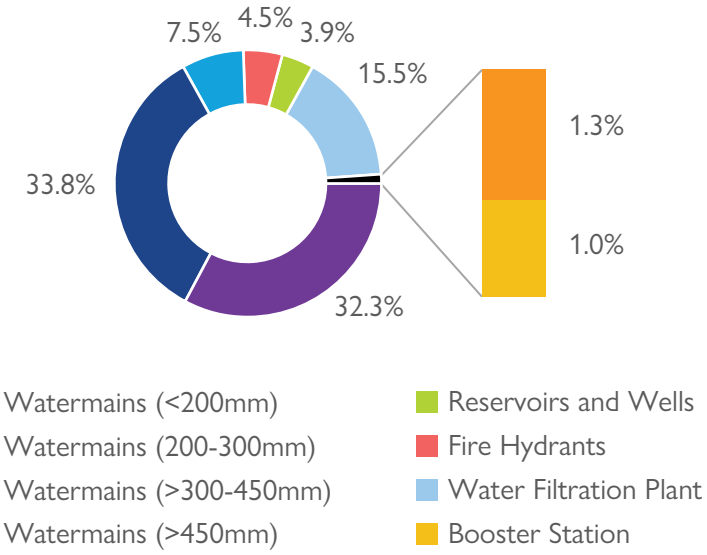
Table 25 includes the quantity, replacement cost method, and total replacement cost of each sub-segment of assets in the City's water network.

TABLE 25: **Water – Inventory and Replacement Cost**

Asset Segment	Asset Sub-Segment	Quantity	Replacement Cost Method	Replacement Cost	Percentage of Total Replacement Cost
Water Linear Network	Watermains (<200mm)	79,099m	Cost/Unit	$101,325,819	32.3%
Water Linear Network	Watermains (200-300mm)	82,821m	Cost/Unit	$106,093,701	33.8%
Water Linear Network	Watermains (>300-450mm)	18,470m	Cost/Unit	$23,660,070	7.5%
Water Linear Network	Watermains (>450mm)	3,273m	Cost/Unit	$4,192,713	1.3%
Water Linear Network	Fire Hydrants	951 hydrants	Cost/Unit	$14,265,000	4.5%
Water Vertical Network	Booster Station	1 station	Asset-Specific Cost Estimation	$3,116,850	1.0%
Water Vertical Network	Reservoirs and Wells	2 reservoir sites 3 wells	Asset-Specific Cost Estimation	$12,211,000	3.9%
Water Vertical Network	Water Filtration Plant	1 plant	Asset-Specific Cost Estimation	$48,745,950	15.5%

Figure 27 provides the data in table 25 visually with each sub-segment as a percentage of the total replacement cost. Most of the City's water network assets are watermains. Due to the small relative total value of the large diameter watermains and booster station, an additional diagram is provided for clarity.

FIGURE 27: **Water – Total Replacement Cost**



6.2 Asset Age and Estimated Useful Life

The estimated useful life of water assets is determined using a combination of staff knowledge, historical data, and industry standards. The average service life remaining is determined by the difference between the average estimated useful life and the average age, except when an asset has been assigned an assessed condition rating that may increase or decrease the average service life remaining.

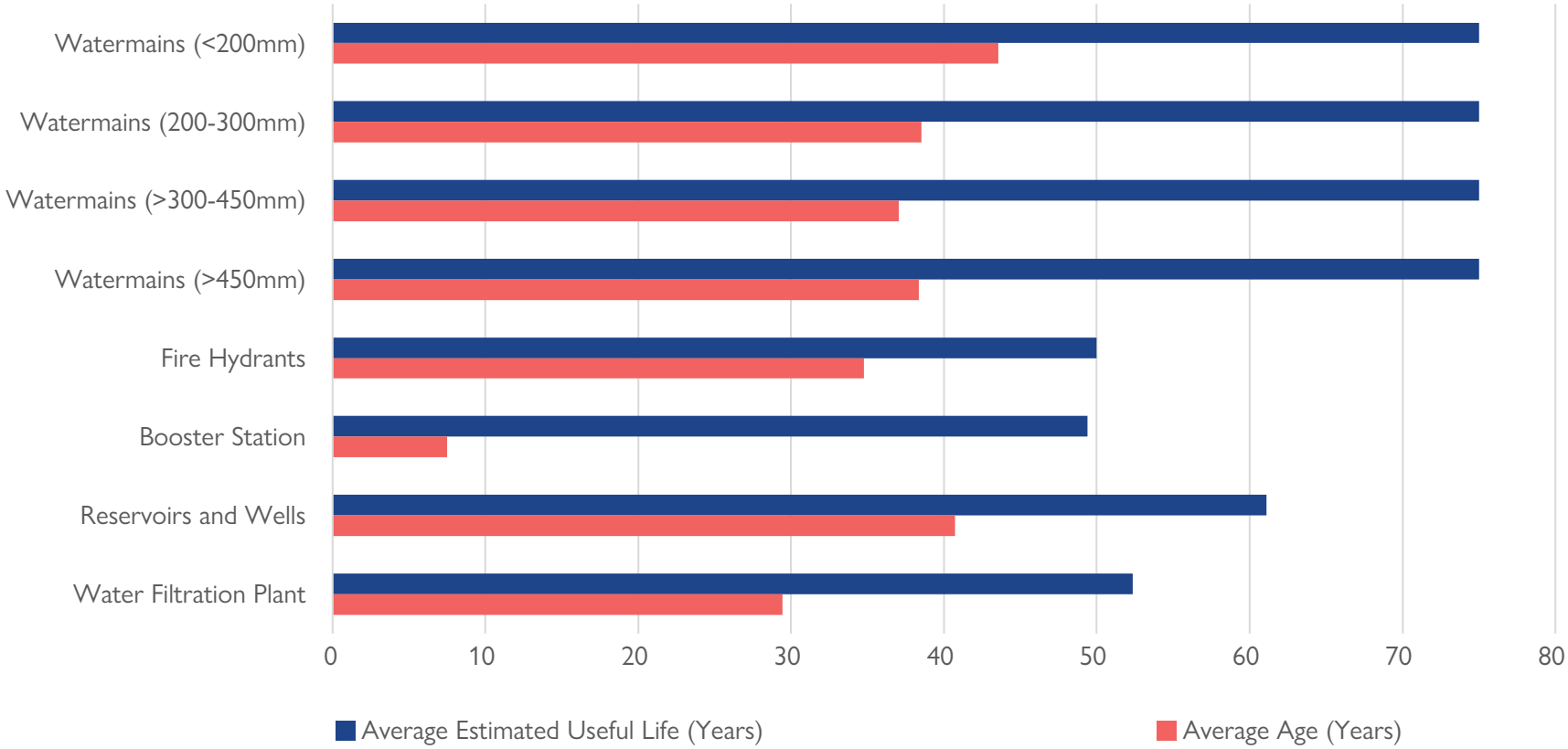
Table 26 summarizes the average age of each sub-segment based on the number of years that the assets have been in service.

TABLE 26: **Water – Average Age and Estimated Useful Life**

Asset Sub-Segment	Average Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)	Percentage of Average Service Life Remaining
Watermains (<200mm)	75.0	43.6	31.4	42%
Watermains (200-300mm)	75.0	38.5	36.5	49%
Watermains (>300-450mm)	75.0	37.0	38.0	51%
Watermains (>450mm)	75.0	38.3	36.7	49%
Fire Hydrants	50.0	34.7	15.3	31%
Booster Station	49.4	7.5	41.9	85%
Reservoirs and Wells	61.1	40.7	20.4	33%
Water Filtration Plant	52.3	29.5	22.8	44%

The age of an asset gives an indication of how close it is to the end of its estimated useful life and what lifecycle management strategies may be required. Figure 28 displays average asset age alongside the estimated useful life for each asset sub-segment.

FIGURE 28: **Water – Average Age and Estimated Useful Life**



Average asset ages have not exceeded the estimated useful life for any asset sub-segment.

6.3 Condition

The following sections and tables outline the condition breakdown for each group of assets and the City's methods for assessing asset condition. Where available and feasible, the City follows industry-standard best practices and generally accepted good engineering practices in the approach to assessing asset condition. When condition assessments are unavailable, an age-based condition rating is used based on the relative age of the asset compared to its estimated useful life.

Table 27 summarizes the variety of techniques used to assess the condition of the water assets on a regular basis.

TABLE 27: **Water – Approach to Assessing Condition**

Asset Segment	Asset Sub-Segment	Condition Data Collection Techniques	Target Frequency of Data Collection	Year of Last Assessment
Water Linear Network	Watermains (<200mm)	Age-based with tracking of watermain breaks.	Every year.	2023
Water Linear Network	Watermains (200-300mm)	Age-based with tracking of watermain breaks.	Every year.	2023
Water Linear Network	Watermains (>300-450mm)	Age-based with tracking of watermain breaks.	Every year.	2023
Water Linear Network	Watermains (>450mm)	Age-based with tracking of watermain breaks.	Every year.	2023
Water Linear Network	Fire Hydrants	Age-based and staff condition assessments.	Every year.	2023
Water Vertical Network	Booster Station	Age-based and condition assessments by staff and subject matter experts.	Every 5 years.	2017-2023
Water Vertical Network	Reservoirs and Wells	Age-based, reservoir and well inspections every five years, and condition assessments by staff and subject matter experts.	Every 5 years.	2017-2023
Water Vertical Network	Water Filtration Plant	Age-based and condition assessments by staff and subject matter experts.	Every 5 years.	2017-2023

Table 28 provides a summary of the condition rating systems for each sub-segment of assets. Based on the condition data and information provided by staff and subject matter experts, the condition of assets is rated on a scale from Very Good to Very Poor.

TABLE 28: **Water – Condition Rating Scales**

Rating	Rating Description	Watermains (Five-Point Scale)	Fire Hydrants, Booster Station Reservoirs and Wells Water Filtration Plant (Five-Point Scale)
Very Good	Fit for Future	1.8 ≥ and ≥ 0	1 ≥ and ≥ 0
Good	Adequate for Now	2.6 ≥ and > 1.8	2 ≥ and > 1
Fair	Requires Attention	3.4 ≥ and > 2.6	3 ≥ and > 2
Poor	Increasing Potential of Affecting Service	4.2 ≥ and > 3.4	4 ≥ and > 3
Very Poor	Unfit for Sustained Service	5.0 ≥ and > 4.2	5 ≥ and > 4

Figure 29 illustrates the breakdown of condition ratings in terms of dollars of the City's water network assets. 49.0% of these assets are in Very Good to Good condition with a large proportion, 16.6%, rated as Very Poor.

FIGURE 29: **Water – Condition Rating Summary**

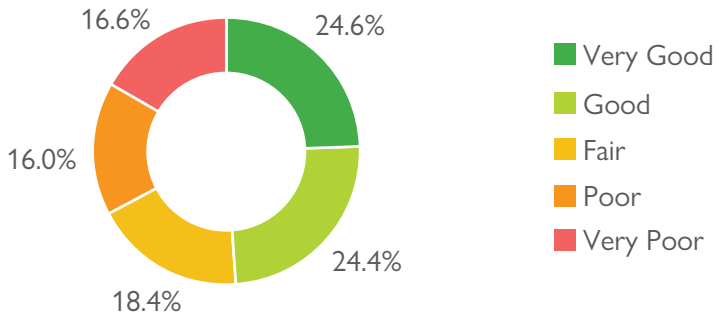


FIGURE 30: **Water – Breakdown of Condition Rating – Percentage of Cost**

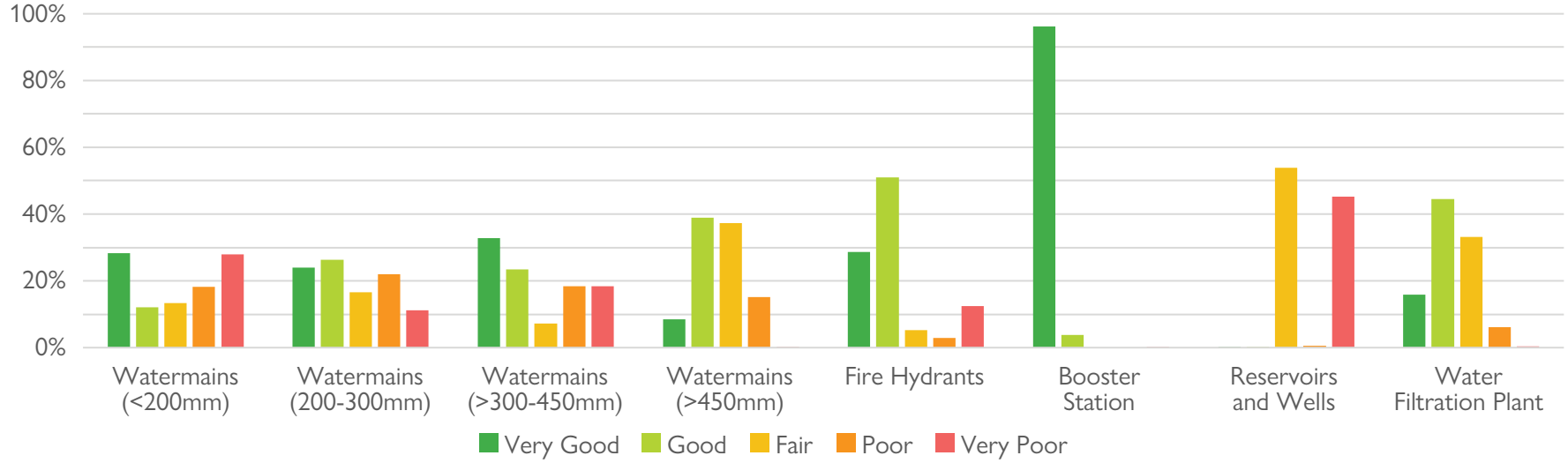
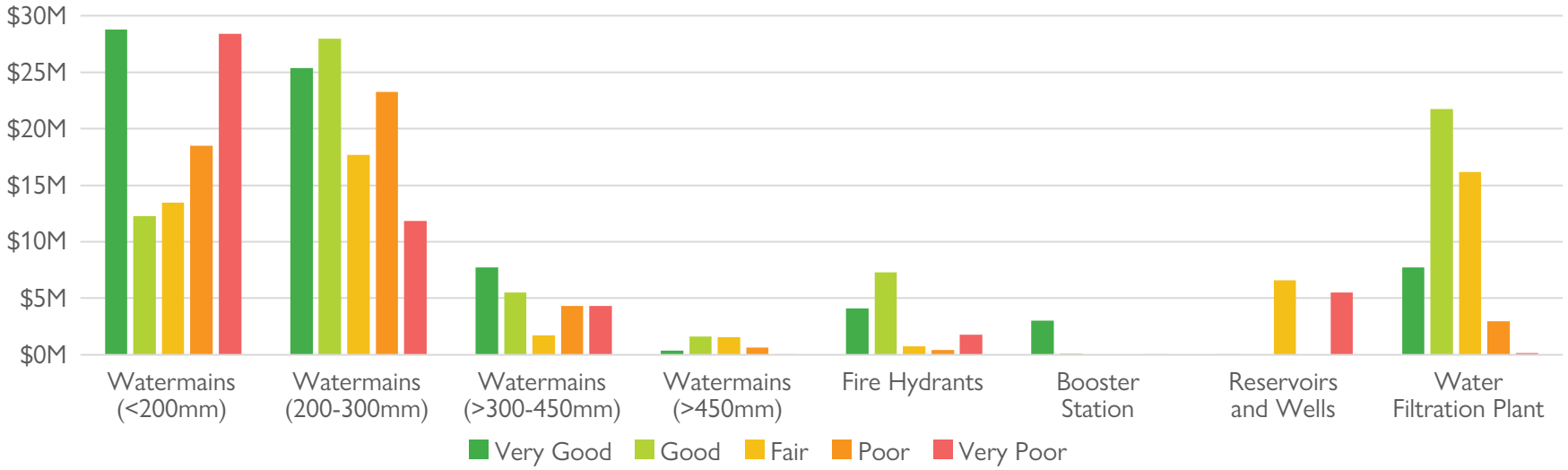


Figure 30 illustrates the breakdown of asset condition ratings for all water network assets in terms of the percentage of total replacement cost for that sub-segment. Due to the differences in methodology for calculating condition between sub-segments, direct comparisons between sub-segments may not be consistent depending on which sub-segments are compared.

Figure 31 illustrates the same breakdown but in terms of the total replacement cost rather than the percentage of total replacement cost for each sub-segment. This illustrates the substantial cost implications of the combined large quantity of watermains compared to the relatively smaller value of some of the non-watermain assets.

FIGURE 31: **Water – Breakdown of Condition Rating – Cost**



The overall average condition of water network assets is Fair. Assets are maintained through the selection of an optimal treatment method based on the current condition and anticipated future deterioration. More information is found in the lifecycle management strategy details in Section 6.5. The following sections will present the condition information for groups of these assets in more detail.

6.3.1 Watermains

Figures 32, 33, 34, 35, and 36 provide a breakdown of watermain condition for all watermains, and also by asset sub-segment for the different diameter groupings.

FIGURE 32: **Water – Breakdown of Condition Rating – All Watermains**

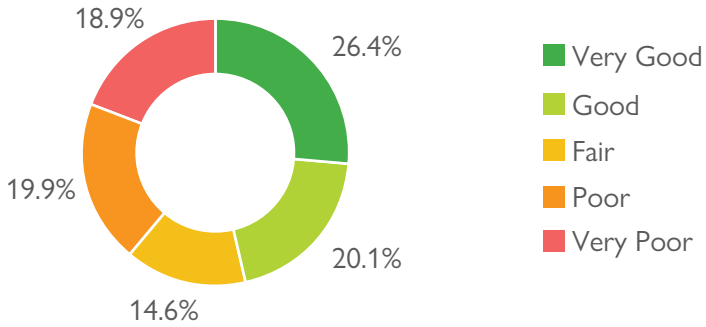


FIGURE 33: **Water – Breakdown of Condition Rating – Watermains (<200mm)**

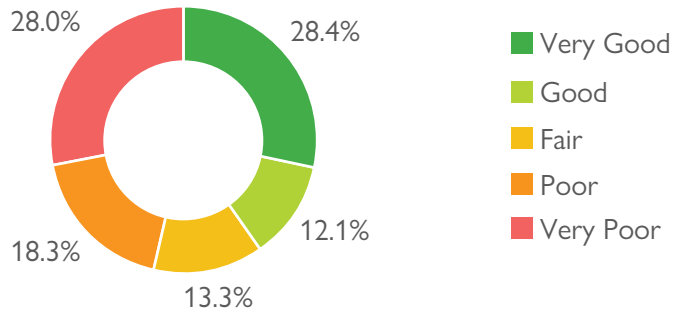


FIGURE 34: **Water – Breakdown of Condition Rating – Watermains (200-300mm)**

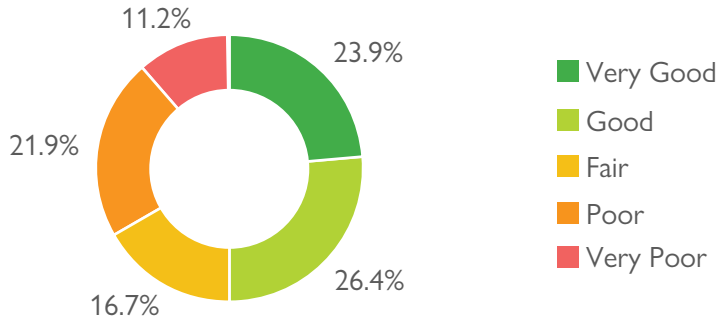


FIGURE 35: **Water – Breakdown of Condition Rating – Watermains (>300-450mm)**

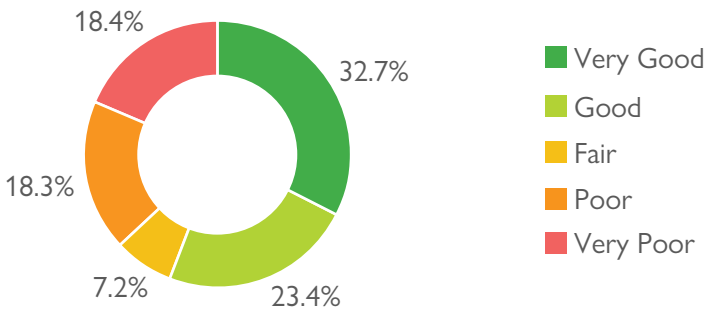
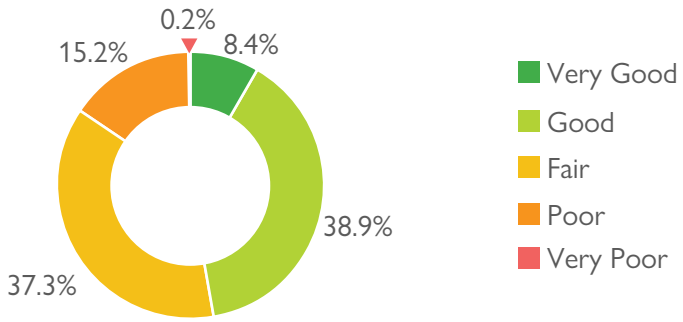


FIGURE 36: **Water – Breakdown of Condition Rating – Watermains (>450mm)**



46.5% of the City's watermains are in Very Good or Good condition with a large proportion, 18.9%, rated as Very Poor. This indicates that much of the watermain network is reaching or exceeding the end of its service life. With 38.8% of watermains in Poor or Very Poor condition, the data indicates that there is a need for both immediate-term and long-term investments to continue the management of deficiencies.

However, the breakdown of condition ratings varies significantly depending on the group of diameters considered. Smaller watermains with a diameter less than 200mm have a larger portion, 46.3%, of the assets in Poor or Very Poor condition. Conversely, the largest watermains have only 15.4% in Poor or Very Poor condition. The City actively manages risk by prioritizing the larger diameter watermains in the capital planning process as their failure would impact the largest number of users.

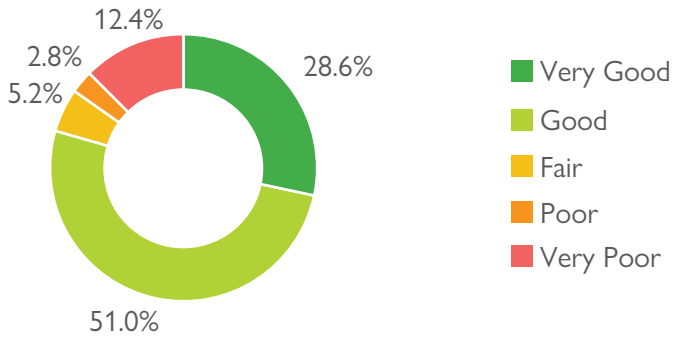
There are inherent challenges with completing condition assessments for active watermains, as the condition assessment generally requires in-pipe equipment, and significant staff and financial resources. The watermain condition assessment process is currently limited to a desktop exercise. It is recommended that a physical condition assessment program is considered for larger diameter watermains on a regular basis to have a more accurate understanding of the true condition of these assets. This will ensure that the most cost-effective approach to managing assets is used while ensuring that the City has the information required to accurately manage the level of risk for these critical assets.

Due to the current condition assessment process being a desktop exercise, a table of condition ratings with photos and descriptions is omitted.

6.3.2 Fire Hydrants

Figure 37 provides a breakdown of asset condition for the fire hydrant assets.

FIGURE 37: **Water – Breakdown of Condition Rating – Fire Hydrants**



City staff inspect the fire hydrants annually and assign a score from 1 to 5 that corresponds to a rating between Very Good to Very Poor. The most recent inspection data included in this plan is from 2022.

79.6% of the City's fire hydrants are in Very Good or Good condition with a significant proportion, 12.4%, rated as Very Poor. Only a small proportion of the hydrants are in Fair or Poor condition. The data indicates that most of the hydrants are well maintained; however, investment in the immediate-term is needed to manage the assets in Very Poor condition. Fire suppression is a critical service provided by the City where low-reliability or out-of-service hydrants could lead to delays in the time it takes for the fire services to effectively suppress a fire.

Table 29 illustrates the fire hydrant condition ratings.

TABLE 29: **Water – Condition Rating Descriptions and Photos – Fire Hydrants**

Condition State: **Very Good**	Condition State: **Good**	Condition State: **Fair**
Scale: 1 ≥ and ≥ 0 **Description:** Fit for Future 	**Scale:** 2 ≥ and > 1 **Description:** Adequate for Now 	**Scale:** 3 ≥ and > 2 **Description:** Requires Attention 

Condition State: **Poor**	Condition State: **Very Poor**
Scale: 4 ≥ and > 3 **Description:** Increasing Potential of Affecting Service 	**Scale:** 5 ≥ and > 4 **Description:** Unfit for Sustained Service Not available due to recent fire hydrant painting.

6.3.3 Booster Station, Reservoirs and Wells, and Water Filtration Plant

Figures 38, 39, 40, and 41 provide a breakdown of asset condition for the vertical water network assets and each sub-segment.

FIGURE 38: **Water – Breakdown of Condition Rating – All Vertical**

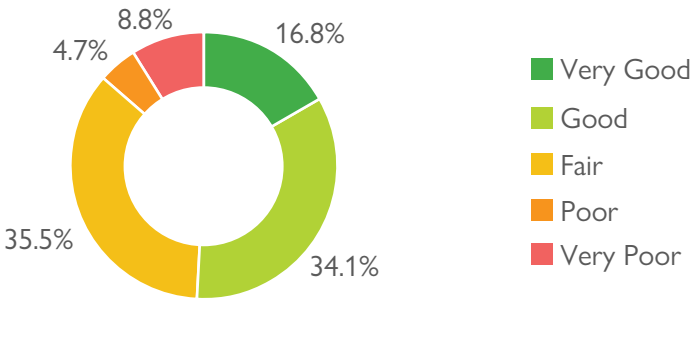


FIGURE 39: **Water – Breakdown of Condition Rating – Booster Station**

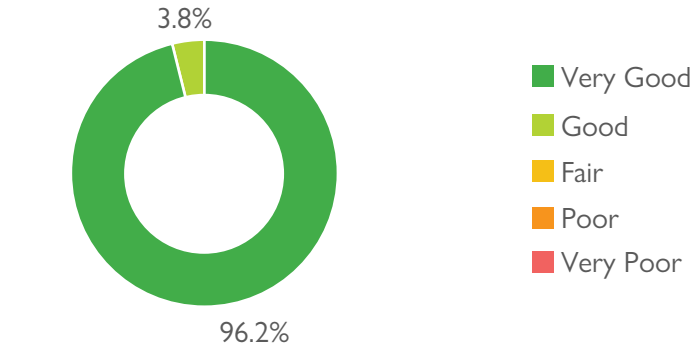


FIGURE 40: **Water – Breakdown of Condition Rating – Reservoirs and Wells**

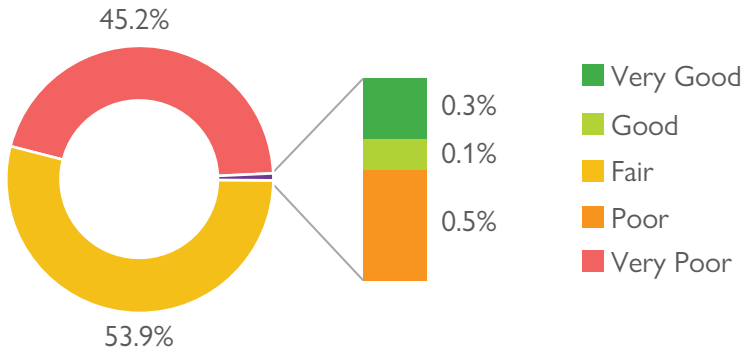
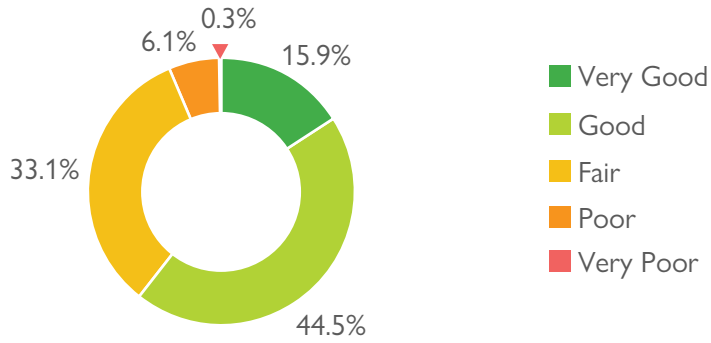


FIGURE 41: **Water – Breakdown of Condition Rating – Water Filtration Plant**



At a target interval of every five years, the condition of these assets is evaluated by external subject matter experts using a variety of condition assessment techniques. The results are analyzed to assign a condition score from 1 to 5 for each asset that corresponds to a rating between Very Good to Very Poor. The most recent inspections were completed in 2023. Staff also complete assessments on an as-needed basis in response to deficiencies, renewal projects, and upgrades. However, condition inspection data from 2017 is included for assets not recently inspected.

50.9% of the City's vertical water assets are in Very Good or Good condition with a moderate proportion, 8.8%, rated as Very Poor. This indicates that some assets are reaching or exceeding the end of their service life. With 13.5% of water vertical assets in Poor or Very Poor condition, the data indicates that there is a need for both immediate-term and long-term investments to continue the management of deficiencies.

However, the breakdown of condition ratings varies significantly depending on the sub-segment considered. The booster station is newer with all assets in Very Good or Good condition. On the other hand, the reservoir sites and wells assets are almost evenly split between Fair and Very Poor condition. The water filtration plant is on average in Good condition with a moderate proportion of assets in Poor or Very Poor condition. The investment priority will vary over time in response to the differences in the mix of asset condition between the different sub-segments.

Table 30 illustrates the condition ratings defined with respect to a variety of water vertical assets.

TABLE 30: Water – Condition Rating Descriptions and Photos – Vertical

Condition State: **Very Good**	Condition State: **Good**	Condition State: **Fair**
Scale: 1 ≥ and ≥ 0 **Description:** Fit for Future 	**Scale:** 2 ≥ and > 1 **Description:** Adequate for Now 	**Scale:** 3 ≥ and > 2 **Description:** Requires Attention 

Condition State: **Poor**	Condition State: **Very Poor**
Scale: 4 ≥ and > 3 **Description:** Increasing Potential of Affecting Service 	**Scale:** 5 ≥ and > 4 **Description:** Unfit for Sustained Service 

6.4 Levels of Service and Performance Measures

The City's assets exist to deliver services to its users. Levels of service are a measurement of the actual service provided so that decisions are made based on the nature and quality of that service, rather than only the condition of an asset. These are used to summarize the type of service being provided that reflects the values and desires of stakeholders in the community.

Tables 31 and 32 identify the City's historical and proposed levels of service for the water network assets. These metrics include any technical and community level of service metrics that are required to comply with Ontario Regulation 588/17, as well as any additional metrics provided by the City.

6.4.1 Community Levels of Service

Table 31 identifies the qualitative descriptions that determine the community levels of service provided by the water assets.

TABLE 31: **Water – Community Levels of Service**

Service Attribute	Community Levels of Service	Related Assets
Scope	The City maintains a drinking water network to ensure reliable, safe, and efficient distribution of potable water for the community. The water network services provided by the City include water treatment and distribution, water meter installation, cross-connection and backflow prevention, service connections, fire hydrants, and repair of watermain breaks. Due to the geographical isolation of Grape Island, the City's water network does not extend across the waterway to service the properties located on the island. The extent of the City's water network including the locations of water vertical assets is illustrated by Map 3.	All
Scope	The extent of the area within 150 m of a fire hydrant is illustrated by Map 3.	Hydrants
Reliability	Boil water advisories are triggered because of adverse water quality reports from routine water quality testing or localized spot testing after events that have the potential to allow for contaminants to enter the system. Watermain breaks are one such type of event where this testing takes place. The City has a standard operating procedure for managing these events and the issuance of boil water advisories.	All
Reliability	Watermain breaks result from various reasons including soil conditions, weather, installation practices, and strikes during excavations. Extreme weather changes can cause the ground to swell and contract, placing excessive pressure on the watermain, causing a pipe to break. Also, as the water temperature starts to get colder in the fall, contraction of the pipes may cause pipe connections and joints to fail. If this happens, the water usually finds its way to the surface. Due to the watermain being under pressure, water will continue to flow until the break is repaired. Service interruptions can be caused by routine municipal projects including watermain replacement, distribution system repairs of pipe breaks, service connection repairs or replacements, and maintenance of vertical infrastructure. When feasible, users are informed in advance of any interruption, including details regarding location, duration, and any actions required by the user with instructions. If the duration of interruption is prolonged, a temporary water service may be installed to minimize the impact on users.	Watermains
Quality	The City inspects and maintains the drinking water system at a condition level to operate as designed.	All
Capacity	The City strives to align capacity of infrastructure to service demand.	All

6.4.2 Technical Levels of Service

Table 32 identifies the quantitative metrics that determine the technical level of service provided by water assets.

TABLE 32: **Water – Technical Levels of Service**

Service Attribute	Description of What Performance Measure Captures	Performance Measure	2023	2024	2034 Target	Related Assets
Scope	How much of the City is connected to the water system.	Percentage of properties connected to the municipal water system.	90.7%	92.3%	≥90.7%	Watermains
Scope	How much of the City is in the preferred proximity to a fire hydrant.	Percentage of properties where fire flow is available.	98.2%	98.3%	≥98.2%	Watermains, Hydrants
Reliability	Duration of boil water advisories.	The number of connection-days per year where a boil water advisory is in place compared to the total number of properties connected to the municipal water system.	0	0	0	All
Reliability	Duration of watermain breaks.	The number of connection-days per year due to watermain breaks compared to the total number of properties connected to the municipal water system.	0.0011	0.0011	≤1.0	Watermains
Reliability	Frequency of watermain breaks.	The number of detected and repaired watermain breaks per kilometre of watermain.	0.0708	0.0599	≤1.0	Watermains
Quality	Condition of the linear water system.	Percentage of linear assets in Very Poor condition.	18.9%	19.1%	≤31.9%	Watermains
Quality	Condition of the vertical water system.	Percentage of vertical assets in Very Poor condition.	8.8%	N/A	≤18.4%	Vertical
Quality	Ability of the system to provide preferred flow rates for fire services.	Percentage of fire hydrants providing below-standard fire flows.	0.4%	0.4%	<1.0%	Watermains, Hydrants
Quality	Frequency of inspections of the water distribution network.	Percentage of total transmission watermain length inspected per five-year cycle using in-pipe technologies. Transmission mains are defined as greater than 450mm or crossing a highway.	0%	0%	0%	Watermains (>450mm)
Capacity	Sufficiency of capacity of infrastructure to meet user demand.	Percentage of treated potable water as a portion of the rated treatment capacity of the network (based on max day use).	39.6%	42.0%	<80.0%	Vertical

6.5 Lifecycle Management Strategy

It is important to proactively manage asset deterioration through a lifecycle management strategy that balances cost, risk, and the level of service. Table 33 describes the current lifecycle management activities completed and includes the risks associated with not completing these activities through using a do-nothing approach.

TABLE 33: **Water – Lifecycle Management Strategies**

Activity Type	Description of Current Strategy	Risks Associated with Not Completing Activities
Operations and Maintenance	Watermains ▪ Flushing, valve exercising, and air relief valve and chamber inspections. ▪ Repairing breaks and leaks of watermains and service laterals to the property line. Vertical Water Assets ▪ Comprehensive maintenance plans in accordance with the City's computerized maintenance management system using industry best practices and equipment manufacturer recommendations. ▪ Reservoirs are inspected and cleaned every five years. ▪ Wells are inspected every five years. Fire Hydrants ▪ Annual inspections. ▪ Painting, lubrication, and replacement of components such as seals, gaskets, and caps. Most maintenance and operations activities are completed by City staff with external contractors brought in as needed for activities that are beyond the capacity of internal resources. The City is implementing more preventative and predictive maintenance programs using a software solution tied to the asset inventory. The City's network of watermains is comprised of different pipe materials that require different maintenance depending on size, purpose, environmental factors, and location.	▪ Deficiencies are not identified through inspections. ▪ Higher lifecycle costs if maintenance is delayed or completed incorrectly. ▪ Premature asset failure, health and safety risks, and service disruptions. ▪ If a watermain break or replacement impacts the road network, then congestion, closures, and other disruptions may lead to user dissatisfaction.

Activity Type	Description of Current Strategy	Risks Associated with Not Completing Activities
Renewal and Rehabilitation	Watermains ▪ Minor capital activities: valve replacements, short partial pipe segment replacements, and new or replacement service connections. ▪ Major capital activities: trenchless relining where there is an opportunity to reduce the impact of open cut excavation, but re-lining is relatively uncommon for watermains. Vertical Water Assets ▪ Renewal options are considered for the larger or more difficult to replace assets such as concrete structures, pumps, and specialized system components with long lead-time for replacement. Fire Hydrants ▪ Internal components are rebuilt to extend life, as needed.	▪ Renewal and rehabilitation activities may increase asset life less than anticipated resulting in a need for repeated activities or premature asset failure. ▪ Higher lifecycle costs if work is delayed or completed incorrectly. ▪ Increased service disruption to users through lower system reliability. ▪ Increased risk of contaminants entering the system due to higher frequency of watermain break events.
Replacement and Disposal	Watermains ▪ Watermains are considered end of life when the estimated condition of the pipe has deteriorated to the state where repeated breaks or pipe collapses are occurring or are expected to occur soon. Anticipated to occur past an age of 75 years old. ▪ Focus on older assets due to reliance on an age-based assessment of current condition. ▪ The decision-making process that determines replacement timing is partially dependent on the requirements of the other underground infrastructure (e.g. sanitary sewer, storm) and the roadway above. ▪ The City aims to align replacement timing with roadways and the other sub-surface infrastructure needs to reduce total cost and disruption to the community. ▪ Safe disposal of hazardous or contaminated materials and soils. ▪ In recent years there has been a focus on replacement cast iron, ductile iron, and asbestos cement pipes with PVC. Water Vertical Assets ▪ Water vertical assets are considered end of life when renewal and rehabilitation activities are no longer cost-effective compared to replacement of the asset. ▪ Safe disposal of hazardous or contaminated materials and soils. Fire Hydrants ▪ Fire hydrants are considered end of life when the condition of the hydrant has deteriorated to the state where it is no longer able to reliably provide sufficient fire flows.	▪ Risk to public safety if contaminants enter the system due to assets in a very poor or failed condition state. ▪ Risk to public and fire service staff safety due to increased response times or reduced fire flows if hydrants are inoperable or operating at an insufficient flow rate. ▪ Delay in replacement and disposal projects may result in significantly higher costs, longer service disruptions, liability concerns, delays to emergency response times, and user dissatisfaction if watermain replacements impact the roads. ▪ Poor coordination with roads and the other sub-surface infrastructure may result in significantly higher costs and repeated disruptions to the community. ▪ Improper disposal could lead to negative environmental impacts with associated cleanup expenses.

Activity Type	Description of Current Strategy	Risks Associated with Not Completing Activities
Growth-Related and Service Enhancement Lifecycle Needs	Watermains ▪ Adjustments due to capacity requirements or availability of superior alternative materials. Water Vertical Assets ▪ Adjustments due to capacity requirements. ▪ Changes to Ministry of Environment, Conservation and Parks requirements. Fire Hydrants ▪ Adjustments due to capacity requirements.	▪ Delay or cancellation of growth-related activities causing the network to be unable to sufficiently accommodate growth. ▪ Master plans may over or underestimate the required expansions to accommodate the impacts of growth. ▪ Increased lifecycle costs. ▪ Reduction in watermain system pressure due to undercapacity. ▪ Non-compliance with Ministry of Environment, Conservation and Parks requirements.
Non-Infrastructure	Watermains ▪ Natural water hardness assists in limiting the concentration of lead in the system. Water Vertical Assets ▪ Capacity studies, modeling, and design guidelines. Fire Hydrants ▪ Inspections.	▪ Rate of asset deterioration is over or underestimated.

6.6 Forecasted Capital Requirements

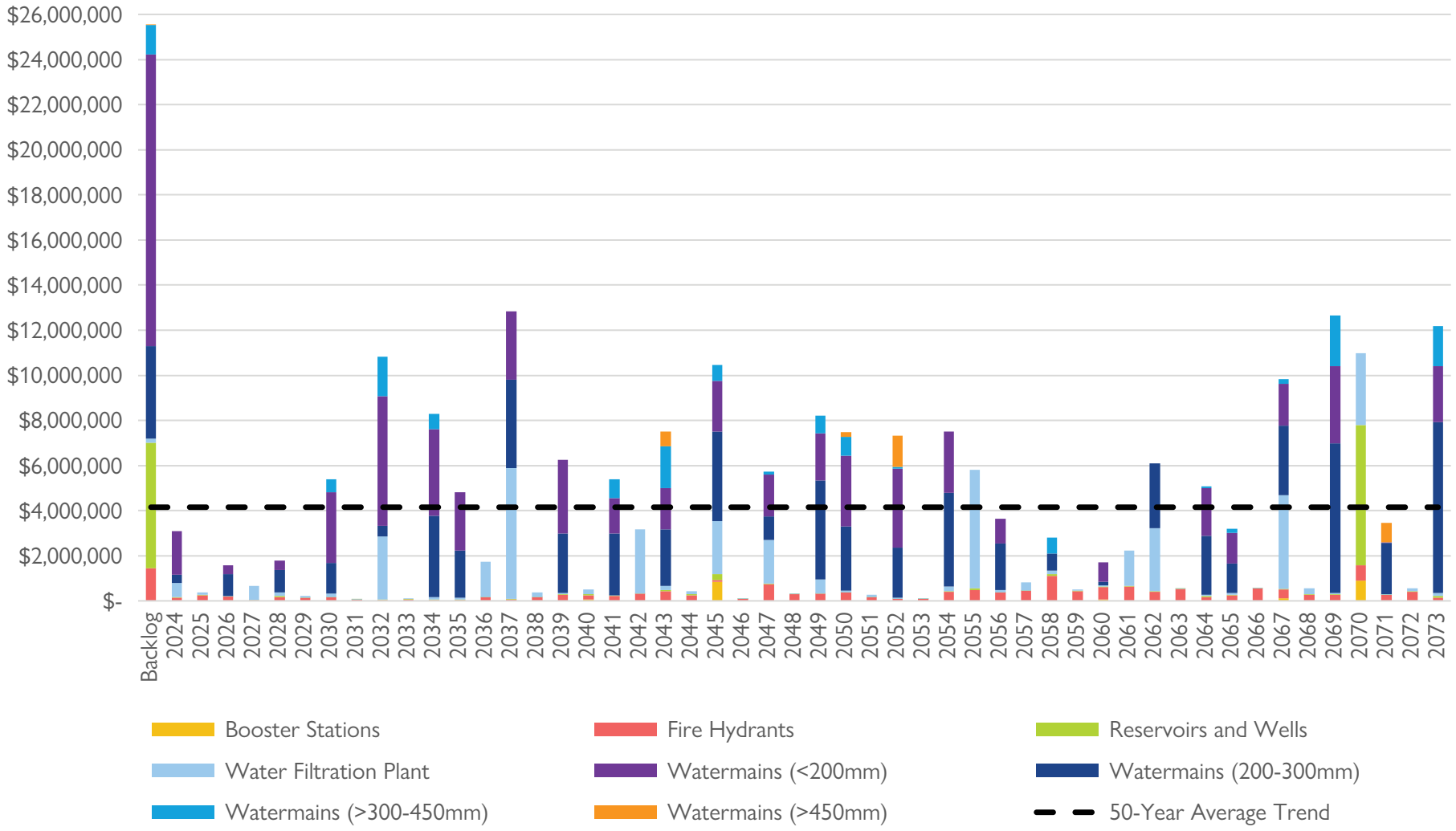
The City continuously invests in maintaining its assets and has been increasing budget amounts to more closely align with asset needs.

The annual capital requirement represents the average cost per year that the City is estimated to require to allocate towards funding infrastructure needs. Based on the available data at the time of this plan, more information is required for this calculation. A more complete asset inventory would result in capturing more assets and more accurate lifecycle costs. When more assets are added to the portfolio, the average annual funding need would also increase and be better representative of the actual spending required to manage the City's assets.

Based on the best available current information, to maintain the current level of service and lifecycle management strategy, the annual sustainable capital funding requirement for existing water network assets is estimated to be $4,152,561.

The 2024 capital budget funding allocation was $15,861,676. This means that there exists a funding surplus of $11,709,115 in 2024. Figure 42 illustrates a 50-year forecast of the annual capital asset needs for water network assets, including the cost and asset lifecycle impacts of completing renewal and rehabilitation activities.

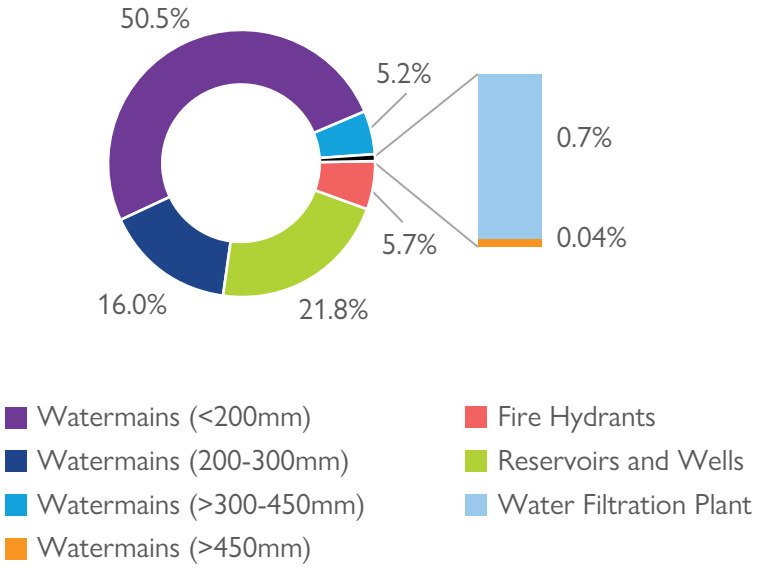
FIGURE 42: **Water – Annual Capital Requirement – 50-Year Forecast**



Due to historical inconsistency in the timing of the various assets coming into service, a sawtooth pattern is present where in some years the total annual requirement is near zero followed by a spike that reaches well above the long-term average. The City's asset management program aims to smooth out this behaviour in favour of a more consistent amount of annual spending. The 50-year average trend excludes the value of the backlog.

The City has a significant and growing backlog of $25,549,632, primarily composed of watermains beyond their estimated useful life of 75 years. The City's oldest in-service watermains date back to 1914 and are well overdue for replacement. Figure 43 provides a breakdown of the sources of the backlog.

FIGURE 43: **Water – Breakdown of Backlog**



Almost three-quarters of the backlog, 71.8%, is a result of Very Poor condition, end of life watermains; the group of smallest diameters, under 200mm, make up half of this backlog. The Harvie Hill reservoir is also a significant source of the backlog, accounting for 21.5% of the total. A large, multi-year investment would be required to overcome the backlog. Otherwise, it can be expected that the current level of service will decrease, and the level of risk will increase over the coming years. In Ontario, the *Safe Drinking Water Act, 2002* sets the requirements the City must abide by to ensure that it is maintaining a safe and reliable drinking water supply to its users. A sustained and growing backlog increases the likelihood of adverse water quality events and increases the risk that the City could find itself in contravention of the drinking water quality standards.

An important note to consider is that the condition of watermains is primarily an age-based estimation. Watermains beyond their estimated useful life of 75 years may be able to remain in service for many more years if the condition of the pipe is better than anticipated. In-pipe condition assessments would generate a more accurate representation of the actual condition of the pipes in the ground. However, in-pipe inspections are not cost effective for small or medium-sized watermains. This potential condition assessment process is only applicable to critical, large watermains. Relining of watermains is not generally feasible based on cost or service interruptions to complete the work, nor is watermain relining expected to address the primary causes of failure of watermains in the City.

For further details on capital requirements, please see the Financial Summary portion of this plan that details the funding needs for all categories of assets over the next 10 years, including discussion of impacts from growth.

6.7 Climate Change and Other Risks

Table 34 summarizes key trends, challenges, and risks that the City is currently facing in delivering the desired level of service.

TABLE 34: Water – Climate Change and Other Risks

Trend, Challenge, or Risk	Summary
Climate Change and Extreme Weather Events	Risks, including those as a result of climate change, are considered as part of the Drinking Water Quality Management Standard. Risks to the water infrastructure are reviewed, assessed, and evaluated for mitigation as part of the Drinking Water Quality Management Standard process. Through the Orillia Water Master Plan Update project, a resiliency assessment of the water filtration plant was completed to determine the potential impacts of climate change on the facility, identify potentially vulnerable components, and recommend measures to improve climate change resiliency. The climate change effects that are the most likely to affect the water filtration plant are: ▪ Deterioration of the raw water quality, which could cause a deterioration of the treated water quality if the coagulation/ flocculation and filtration processes cannot be adjusted or modified as necessary. ▪ Increases in water demands for extended periods, potentially above the currently projected maximum day demands could exceed the plant's capacity to produce drinking water that meets all quality standards and objectives. The City is considering the following adaptation and mitigation measures in response to the challenges: ▪ Incorporate new best practices and technology in the design, construction, and maintenance of assets to increase resiliency while managing affordability. Potential future adaptation and mitigation measures include: ▪ Use of lower embodied carbon materials to potentially reduce the carbon footprint of infrastructure projects. ▪ Coordinate infrastructure design, construction, and maintenance with updated stormwater data and flood mapping to determine what options exist to improve resiliency during stormwater events.
Infrastructure Design and Installation	The City is getting better at standardizing engineering designs and ensuring that these are coordinated across departments and divisions through its 2015 Engineering Design Criteria Manual (DCM), which is due to be updated. Further efforts and refinements are continuously required to enhance and improve the process.
Lifecycle Management Strategies	The City's network of watermains is comprised of several different pipe materials. Some materials have higher break rates and present more operational challenges. In recent years there has been a focus on replacing cast iron and ductile iron pipes with PVC or concrete pipes. There is also a new focus on replacing lead water service lines proactively ahead of roadway resurfacing projects to minimize long-term costs of removing lead from the water distribution system. Reconstruction is usually tied to road reconstruction, which may represent a concern as the lifecycle of sub-surface infrastructure and roads do not always align. The maintenance practice for vertical assets has generally been reactive. The City wants to implement more preventative and predictive maintenance programs in the future. The adoption of a work order management system tied to the asset management inventory system will provide an improved connection between maintenance programs and service delivery outcomes.
Infrastructure Reinvestment	The reinvestment in infrastructure has been very reactive. Renewal and rehabilitation budgets have not increased in proportion to the age of infrastructure, resulting in a growing backlog. There have been some moderate shifts to proactive reinvestment in the recent period.

6.8 Recommendations and Improvement Plan

Asset Inventory

- Continue to review and refine the asset inventory to improve scope, accuracy, and a more detailed breakdown of the assets within the water distribution network.
- Continue to add asset information to GIS layers for improved staff efficiency.

Condition

- Continue to identify condition assessment strategies for high-value and high-risk water network assets.
- Enhance the current approach to condition assessment to incorporate additional asset data as it becomes available; for example, using more detailed watermain break and/or leak detection information.
- Explore industry best practices and new technologies to develop a better condition assessment strategy for the water distribution network, including consideration of in-pipe inspections for large diameter watermains.

Lifecycle Management Strategies

- Evaluate the efficacy of the City's lifecycle management strategies at regular intervals to determine the impact of cost, condition, and risk.

Levels of Service

- Continue to measure current levels of service in accordance with the metrics identified in Ontario Regulation 588/17 and the additional metrics included by the City.
- Track annual progress towards the City's proposed levels of service targets.

6.9 Updates For 2025 Compliance

To achieve compliance with the July 1, 2025, requirements under O. Reg. 588/17, updates were made to the following items in this chapter:

- Table 31: Water – Community Levels of Service and Table 32: Water – Technical Levels of Service were updated to contain the levels of service and performance measures for 2024, and to contain the levels and measures that the City proposes to achieve over the 10-year period of 2025-2034.
- Split the condition of the water system technical level of service measure into two new measures named condition of the linear water system and condition of the vertical water system.

In addition to the updates listed, various minor wording, layout, or graphical updates were made to the chapter to provide additional information or to improve clarity, visual appeal, or accessibility.

O. Reg. 588/17 further requires an explanation of why the proposed levels of service are appropriate for the City based on an assessment of four criteria. Table 35 contains the explanation available for the criteria.

TABLE 35: **Water – Proposed Levels of Service Appropriateness Assessment**

O. Reg. 588/17 S.6(1) 2(i-iv) Criteria	Explanation of Appropriateness
i. The options for the proposed levels of service and the risks associated with those options to the long-term sustainability of the municipality.	The City aims to at minimum maintain the percentage of properties connected to the municipal water system and to add more customers over time as development occurs and as the water system expands to reach existing properties beyond the system's current boundaries. Designing, constructing, and operating the water system to accommodate growth is a cost-effective choice that provides reliable, safe, and efficient access to potable water for the community. Table 33: Water – Lifecycle Management Strategies identifies the risks associated with not completing growth-related and service enhancement lifecycle needs. The City constructs and maintains fire hydrants throughout the extent of the water system and assumes additional hydrants as development occurs and the system expands. Not constructing and maintaining hydrants could impact the effectiveness of the Orillia Fire Department and lead to higher lifecycle costs for fire services. As well, fire hydrants are used for flushing the water system as a regular system operations activity where a lack of hydrants could result in higher water system operations and maintenance lifecycle costs. The City aims to not experience any boil water advisories in any year. Boil water advisories are a contingency plan to protect public water supplies in an emergency situation. The City aims to limit the connection-days per year due to watermain breaks compared to the total number of properties connected to the municipal water system to a limit equivalent to a one-day disruption to the overall distribution system. The City also aims to limit the frequency of watermain breaks to less than or equal to one break per kilometre of watermain. More frequent watermain breaks result in higher lifecycle costs and prolonged breaks in larger transmission mains could result in costly widespread disruption of the water system. A reliable and efficient distribution system is necessary for a municipal water system to be financially sustainable long-term. Considering the impacts on lifecycle costs and reliability of replacing assets before the asset reaches a Very Poor condition state that may result in higher lifecycle costs due to unplanned maintenance and repairs. Assets in Very Poor condition typically have higher annual operations and maintenance costs. A funding level that results in many water assets falling into a Very Poor condition or into a backlog of work is less financially sustainable long-term due to the higher costs of unplanned lifecycle management activities.

O. Reg. 588/17 S.6(1) 2(i-iv) Criteria	Explanation of Appropriateness
	The City aims to limit the percentage of fire hydrants providing below-standard fire flows. System looping through constructing new watermains or upgrades to existing water assets may be required as the City grows to maintain preferred fire flow rates to at least 99.0% of fire hydrants. Through updates to the City's Water Master Plan, the plan identifies the infrastructure and studies required to optimize, upgrade, and expand the City's drinking water supply, distribution, storage and pumping systems to accommodate growth and intensification to the year 2027. Table 33: Water – Lifecycle Management Strategies identifies the risks associated with not completing growth-related and service enhancement lifecycle needs. Through an ongoing update to the City's Engineering Design Criteria Manual, the City is considering changes to align the guidance document with industry best practices and current standards. Not aligning with best practices and current standards typically leads to higher overall lifecycle cost. The risk of not doing lifecycle management activities includes the risks identified in Table 33: Water – Lifecycle Management Strategy. Adopting a do-nothing approach would result in significantly higher lifecycle costs and risk, a rapid decline in levels of service, and would substantially reduce the long-term sustainability of the City's assets. In-pipe inspections provide the detailed condition data used to determine what lifecycle management strategy option is most cost effective over the lifecycle of the asset. Not obtaining this information could lead to higher lifecycle costs in the long-term and lower long-term financial sustainability. During the design stage of capital projects, anticipated future climate change impacts are considered. Table 34: Water – Climate Change and Other Risks includes a summary of adaptation and mitigation measures that could be used in response to the challenges. Not proactively funding adaptation and mitigation measures is anticipated to cost significantly more over the lifecycle of the assets and lead to lower long-term asset reliability
ii. How the proposed levels of service differ from the current levels of service.	Table 32: Water – Technical Levels of Service identifies the difference in performance between the most current level of service performance value available and the 2034 target performance. The City will continue to measure current levels of service over time to establish a historical baseline or trend, and work towards establishing additional future targets. Adjustments to levels of service and determining future targets is a forward looking and iterative process that will occur over time as the City improves and refines its integrated approach to asset management. For the levels of service measures with 2034 targets identified, the anticipated impacts of the differences between current and targets levels of service include: ▪ The City is aiming to maintain the coverage area of its linear network to be no worse off in 10 years compared to 2023 or 2024 in terms of the percentage of properties connected to the municipal water system. ▪ The City is aiming to maintain the coverage area of its fire hydrants to be no worse off in 10 years compared to 2023 or 2024 in terms of the percentage of properties where fire flow is available. ▪ The City aims to continue to not experience any boil water advisories. ▪ The City aims to limit the connection-days per year due to watermain breaks to a limit equivalent to a one-day disruption to the overall water distribution system. In 2023 and 2024 the City did not experience watermain breaks that would result in widespread disruption. ▪ The City aims to limit the number of watermain breaks detected and repairs to one break per kilometre of watermain. As portions of the water distribution system continue to age and more watermains fall into the backlog, it is forecasted that a larger number of watermain breaks will occur annually over the forecast period.

O. Reg. 588/17 S.6(1) 2(i-iv) Criteria	Explanation of Appropriateness
	▪ The percentage of water linear assets in Very Poor condition is forecasted to increase from 19.1% to an upper limit of 31.9%. This is primarily due to more linear assets aging into lower condition states than are planned to be rehabilitated or replaced over the 10-year period. ▪ The percentage of water vertical assets in Very Poor condition is forecast to increase from 8.8% to an upper limit of 18.4%. This is primarily due to more vertical assets aging into lower condition states than are planned to be rehabilitated or replaced over the 10-year period. ▪ The City aims to limit the percentage of fire hydrants providing below-standard fire flows to less than 1.0% of hydrants. In 2023 and 2024 the City stayed below the target limit. ▪ The City is exploring the possibility funding in-pipe condition inspections of its transmission watermains in future capital budgets. The 2025-2034 10 Year Capital and Reserve Forecast does not include funding for these inspections. ▪ The City will explore options for increasing the treatment capacity to accommodate additional future growth before the percentage of treated potable water as a portion of the rated treatment capacity of the network reaches 80%. As the City moves towards integrating more work orders for operations and maintenance activities in the water service area into the same platform that is used for asset management, the City will be better equipped to measure technical levels of service values over time.
iii. Whether the proposed levels of service are achievable.	From a City staff resources perspective, the forecasted list of projects is achievable and is dependent on future staffing levels. Whether the full project list moves forward is dependent on receiving regulatory approvals, Council approving funding through future budget deliberations, environmental assessments, coordination with nearby assets in other service areas, changes in legislation, changes in the City's Official Plan and achieved levels of intensification, opportunities to do cross-municipal boundary servicing, if forecasted growth occurs, and if the actual impacts of climate change are worse than forecasted.
iv. The municipality's ability to afford the proposed levels of service.	Over the 2025-2034 10-Year Capital and Reserve Forecast period, the water service area is funded by the following sources: ▪ Water Services Operating Budget, including revenues from rates and fees; ▪ Water Asset Management Reserve Fund; ▪ Development Contributions; ▪ Federal Grants; and ▪ Provincial Grants. The financial strategy chapter included in this plan contains the O. Reg. 588/17 requirements of: ▪ An estimate of the annual costs for the lifecycle activities required to provide the proposed level of service; ▪ The annual funding projected to be available; ▪ The options examined by the City to maximize projected funding; and ▪ The identification of any funding deficit or shortfall. As the City has a population above 25,000, the financial strategy chapter contains the details required under S.6(1) 6(i-ii) of O. Reg. 588/17 regarding the costs and funding available due to population and employment growth. To promote alignment and consistency between City documents and City Council decision making, the proposed levels of service input into this chapter and the financial strategy chapter are aligned with the outcomes of the 2025 budget process and resulting 2025-2034 10 Year Capital and Reserve Forecast. The 2025-2034 10 Year Capital and Reserve Forecast was presented during the 2025 Budget process and resulted in the City utilizing its self-imposed 10% debt limit as well as a negative total reserve and reserve fund shortfall by 2034 in the amount of -$214.4 million in 2025 dollars. The Financial Strategy chapter of this plan provides a detailed discussion of the sustainability of the City's financial position.

O. Reg. 588/17 S.6(1) 2(i-iv) Criteria	Explanation of Appropriateness
	If the City follows a path of financial unsustainability, eventually some lifecycle activities would become unaffordable and the City may not achieve its proposed levels of service targets. Which activities the City will not undertake due to a shortfall depends on which reserves contain the large negative balances. Maintaining the proposed levels of service targets for all categories would require significant increases in funding levels. Water staff are looking ahead at future asset lifecycle needs beyond the 2025-2034 forecast period to right-size reserve contribution requirements and are considering the possibility of additional long-term funding pressures due to: ▪ Future more stringent environmental regulations or water quality standards; ▪ A large number of high-cost assets reaching the end of their useful life at similar times; and ▪ Water treatment plant twinning for capacity increase to support growth. An explanation of the options examined by the City to maximize the funding projected to be available to afford the proposed levels of service is included in Table 137: Financial Strategy – Funding Maximization Activities and Choices

7.0
Wastewater

7.0 Wastewater

The City maintains a wastewater network to support reliable, safe, and efficient collection and treatment of wastewater for the community. The wastewater network services provided by the City include collection, treatment, service connections, and repair of sanitary sewer breaks. Wastewater network infrastructure is the largest category of assets at a total replacement cost of $480,436,478 in 2023 dollars.

7.1 Asset Inventory and Replacement Cost

The City manages approximately 158.5 km of gravity sewermains, 9.7 km of forcemains, one wastewater treatment centre, and 20 pump stations.

The replacement cost is estimated using primarily historic construction costs with consideration of standardized costing indices. Included in the cost of replacing each asset sub-segment is a set of components that together comprise a typical asset. The full set of components for each sub-segment is identified in Appendix 20.2.3.

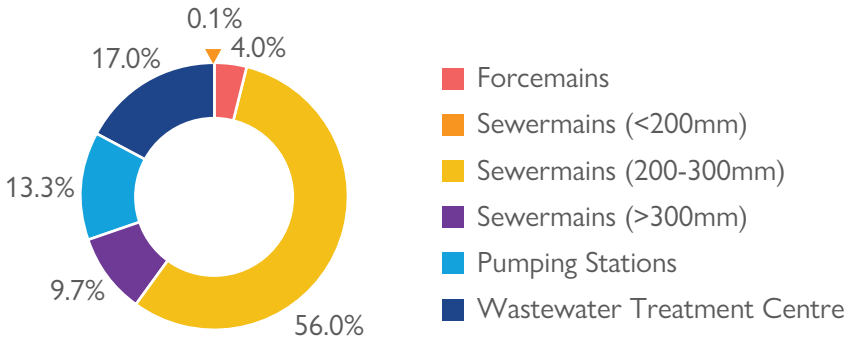
Table 36 includes the quantity, replacement cost method, and total replacement cost of each sub-segment of assets in the City's wastewater network.

TABLE 36: **Wastewater – Inventory and Replacement Cost**

Asset Segment	Asset Sub-Segment	Quantity	Replacement Cost Method	Replacement Cost	Percentage of Total Replacement Cost
Wastewater Linear Network	Forcemains	9,668m	Cost/Unit	$19,278,510	4.0%
Wastewater Linear Network	Sewermains (<200mm)	331m	Cost/Unit	$660,480	0.1%
Wastewater Linear Network	Sewermains (200-300mm)	134,862m	Cost/Unit	$268,914,943	56.0%
Wastewater Linear Network	Sewermains (>300mm)	23,261m	Cost/Unit	$46,382,545	9.7%
Wastewater Vertical Network	Pumping Stations	20 Stations	Asset-Specific Cost Estimation	$63,700,000	13.3%
Wastewater Vertical Network	Wastewater Treatment Centre	1 Centre	Asset-Specific Cost Estimation	$81,500,000	17.0%

Figure 44 provides the data in table 36 visually with each sub-segment as a percentage of the total replacement cost. Most of the City's wastewater network assets are sewermains.

FIGURE 44: **Wastewater – Total Replacement Cost**



7.2 Asset Age and Estimated Useful Life

The estimated useful life of wastewater assets is determined using a combination of staff knowledge, historical data, and industry standards. The average service life remaining is determined by the difference between the average estimated useful life and the average age, except when an asset has been assigned an assessed condition rating that may increase or decrease the average service life remaining.

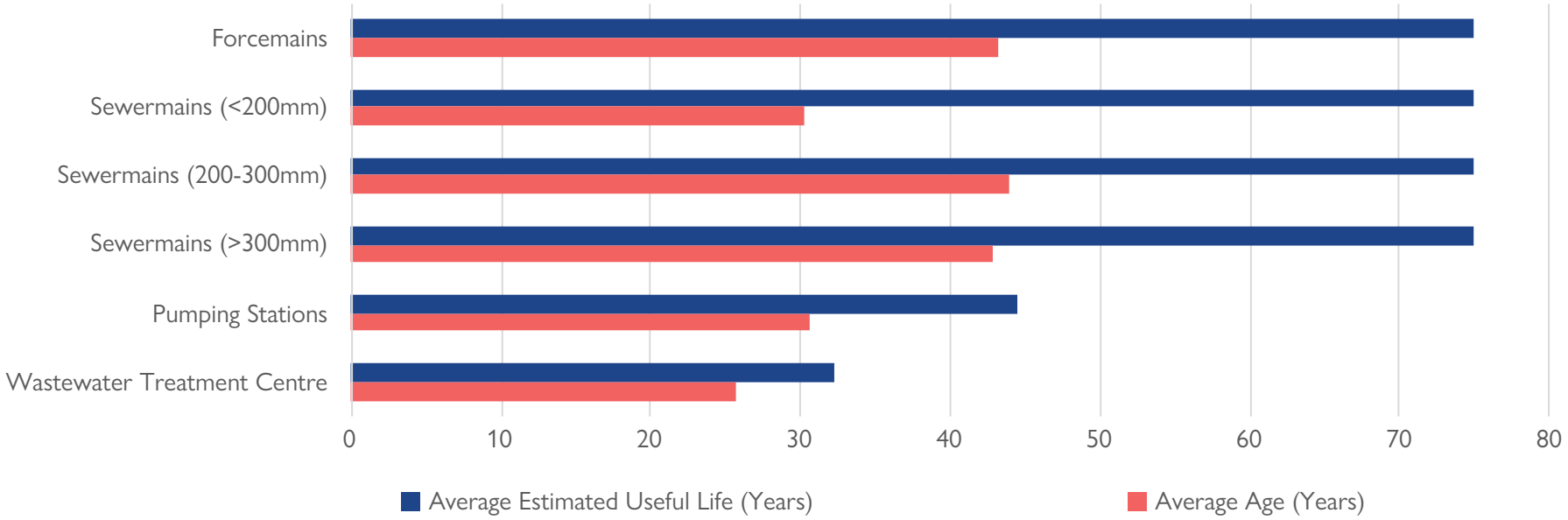
Table 37 summarizes the average age of each sub-segment based on the number of years that the assets have been in service.

TABLE 37: **Wastewater – Average Age and Estimated Useful Life**

Asset Sub-Segment	Average Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)	Percentage of Average Service Life Remaining
Forcemains	75.0	43.2	31.8	42%
Sewermains (<200mm)	75.0	30.3	44.7	60%
Sewermains (200-300mm)	75.0	43.9	31.1	41%
Sewermains (>300mm)	75.0	42.8	32.2	43%
Pumping Stations	44.5	30.5	14.0	31%
Wastewater Treatment Centre	32.2	25.6	6.6	20%

The age of an asset gives an indication of how close it is to the end of its estimated useful life and what lifecycle management strategies may be required. Figure 45 displays average asset age alongside the estimated useful life for each asset sub-segment.

FIGURE 45: **Wastewater – Average Age and Estimated Useful Life**



Average asset ages have not exceeded the average estimated useful life for any sub-segment.

7.3 Condition

The following sections and tables outline the condition breakdown for each sub-segment of assets and the City's methods for assessing asset condition. Where available and feasible, the City follows industry-standard best practices and generally accepted good engineering practices in the approach to assessing asset condition. When condition assessments are unavailable, an age-based condition rating is used based on the relative age of the asset compared to its estimated useful life.

Table 38 summarizes the variety of techniques used to assess the condition of the wastewater assets on a regular frequency.

TABLE 38: **Wastewater – Approach to Assessing Condition**

Asset Sub-Segment	Condition Data Collection Techniques	Frequency of Data Collection	Year of Last Assessment
Forcemains	Age-based.	Every year.	2023
Sewermains	Age-based and in-pipe camera inspections.	Every year and varies.	Varies
Pump Stations	Age-based and condition assessments by staff and subject matter experts.	Every 1-5 years.	2020-2023
Wastewater Treatment Centre	Age-based and condition assessments by staff and subject matter experts.	Every 1-5 years.	2020-2023

Table 39 provides a summary of the condition rating systems for all sub-segments of wastewater assets. Based on the condition data and information provided by subject matter experts, the condition of assets is rated on a scale from Very Good to Very Poor.

TABLE 39: **Wastewater – Condition Rating Scales**

Rating	Rating Description	Sewermains, Forcemains (Five-Point Scale)	Pump Stations, Wastewater Treatment Centre (Five-Point Scale)
Very Good	Fit for Future	1.8 ≥ and ≥ 1.0	1 ≥ and ≥ 0
Good	Adequate for Now	2.6 ≥ and > 1.8	2 ≥ and > 1
Fair	Requires Attention	3.4 ≥ and > 2.6	3 ≥ and > 2
Poor	Increasing Potential of Affecting Service	4.2 ≥ and > 3.4	4 ≥ and > 3
Very Poor	Unfit for Sustained Service	5.0 ≥ and > 4.2	5 ≥ and > 4

Figure 46 illustrates the breakdown of condition ratings in terms of dollars of the City's wastewater assets. 31.1% of these assets are in Very Good to Good condition with a large proportion, 15.9%, rated as Very Poor.

FIGURE 46: **Wastewater – Condition Rating Summary**

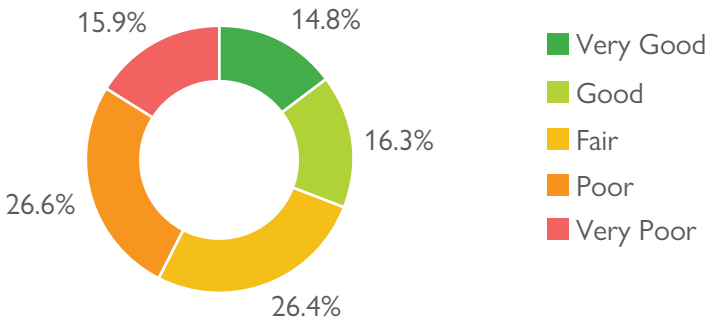
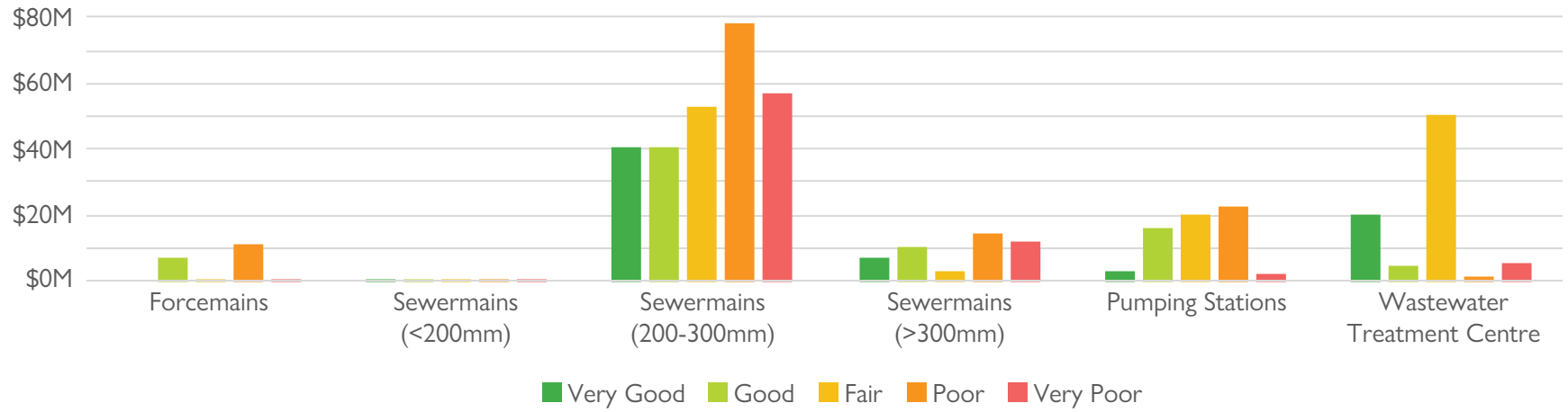


FIGURE 47: **Wastewater – Breakdown of Condition Rating – Percentage of Cost**

Figure 47 illustrates the breakdown of condition ratings for all wastewater assets in terms of the percentage of total replacement cost. A key point is that due to the differences in methodology for calculating condition between sub-segments, direct comparisons between sub-segments may not be consistent depending on which sub-segments are compared.

Figure 48 illustrates the same breakdown but in terms of the total replacement cost, rather than the percentage of total replacement cost for each sub-segment. This illustrates the large cost implications of the quantity of 200 to 300mm diameter sewermains compared to the smaller value of the other sub-segments.

FIGURE 48: **Wastewater – Breakdown of Condition Rating – Cost**



The overall condition of wastewater assets is Fair. Assets are maintained by using the best treatment option to manage the current condition and anticipated future deterioration of the asset. More information is found in the lifecycle management strategy details in Section 7.5. The following sections will present the condition information for each sub-segment or group of sub-segments of assets in more detail.

7.3.1 Forcemains and Sewermains

Figures 49, 50, 51, 52, and 53 provide a breakdown of condition ratings for the linear network of forcemains and sewermains, and also by asset sub-segment for the different diameter groupings.

FIGURE 49: **Wastewater – Breakdown of Condition Rating – All Forcemains and Sewermains**

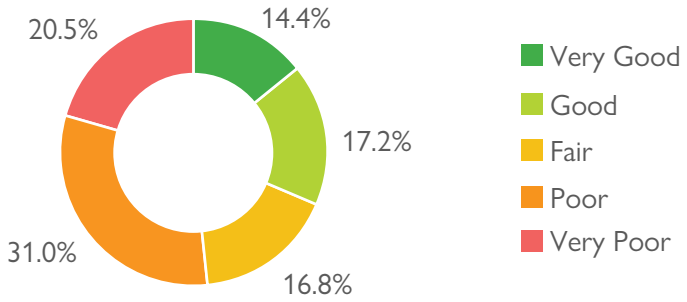


FIGURE 50: **Wastewater – Breakdown of Condition Rating – Forcemains**

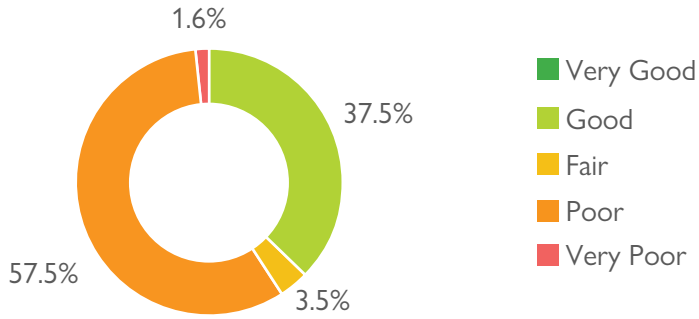


FIGURE 51: **Wastewater – Breakdown of Condition Rating – Sewermains (<200mm)**

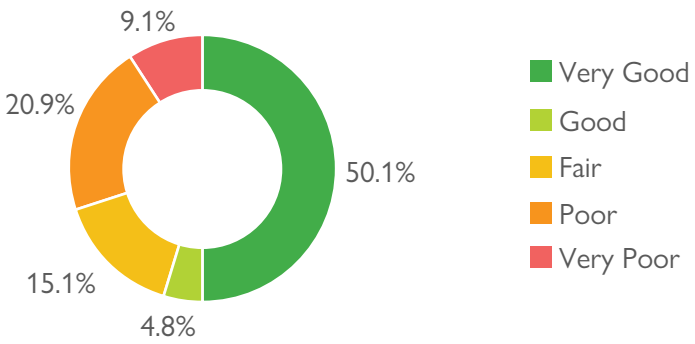


FIGURE 52: **Wastewater – Breakdown of Condition Rating – Sewermains (200-300mm)**

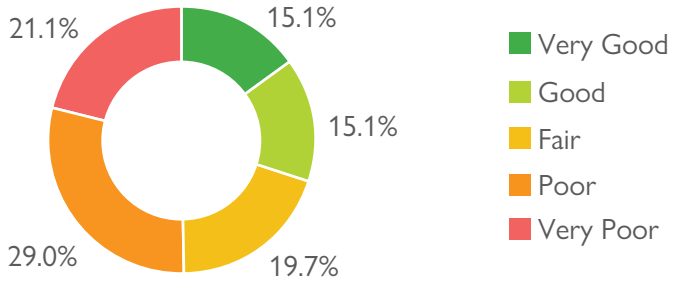
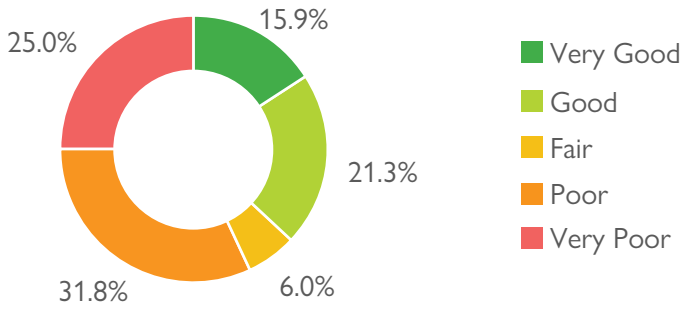


FIGURE 53: **Wastewater – Breakdown of Condition Rating – Sewermains (>300mm)**



31.6% of the City's wastewater forcemains and sewermains are in Very Good or Good condition with a large proportion, 20.5%, rated as Very Poor. This indicates that much of the wastewater network is reaching or exceeding the end of its service life. With 51.5% of the wastewater linear network in Poor or Very Poor condition, the data indicates that there is a need for both immediate-term and long-term investments to continue the management of deficiencies.

However, the breakdown of condition ratings varies significantly depending on the group of sewermain diameters considered. Smaller sewermains with a diameter less than 200mm have 30.0% of the assets in Poor or Very Poor condition. The middle-sized sewermains with a diameter between 200 to 300mm have 50.1% of assets in Poor or Very Poor condition. The largest sewermains have 56.8% in Poor and Very Poor condition. 59.1% of the forcemains are in Poor or Very Poor condition.

Table 40 illustrates the sewermains condition ratings. Example photos are not available for forcemains.

TABLE 40: Wastewater – Condition Rating Descriptions and Photos – Sewermains

Condition State: **Very Good**	Condition State: **Good**	Condition State: **Fair**
Scale: 1.8 ≥ and ≥ 1.0 **Description:** Fit for Future 	**Scale:** 2.6 ≥ and > 1.8 **Description:** Adequate for Now 	**Scale:** 3.4 ≥ and > 2.6 **Description:** Requires Attention 

Condition State: **Poor**	Condition State: **Very Poor**
Scale: 4.2 ≥ and > 3.4 **Description:** Increasing Potential of Affecting Service 	**Scale:** 5.0 ≥ and > 4.2 **Description:** Unfit for Sustained Service 

7.3.2 Pumping Stations and Wastewater Treatment Centre

Figures 54, 55, and 56 provide a breakdown of asset condition for the vertical wastewater network assets and each sub-segment.

FIGURE 54: **Wastewater – Breakdown of Condition Rating – All Vertical**

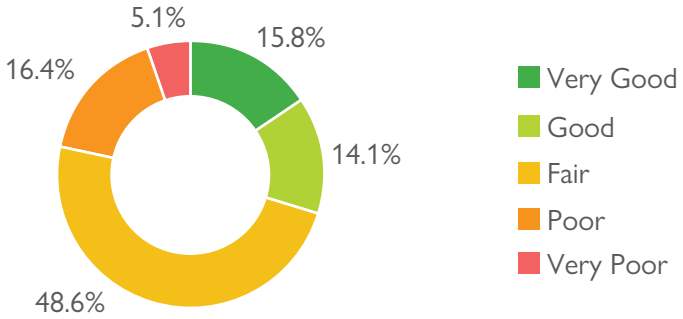


FIGURE 55: **Wastewater – Breakdown of Condition Rating – Pumping Stations**

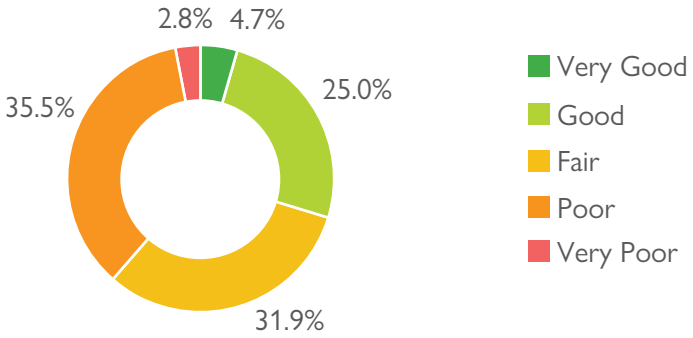
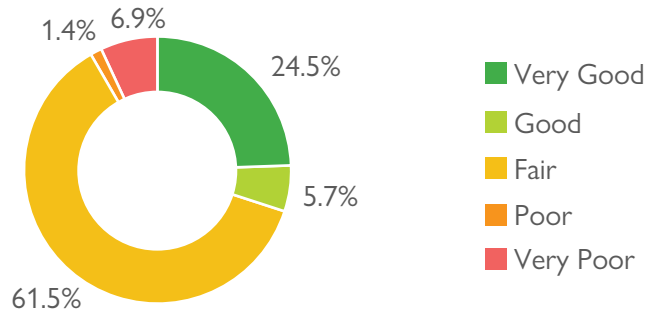


FIGURE 56: **Wastewater – Breakdown of Condition Rating – Wastewater Treatment Centre**



At a target interval of every five years, the condition of these assets is evaluated by external subject matter experts using a variety of condition assessment techniques. The results are analyzed to assign a condition score from 1 to 5 for each asset that corresponds to a rating between Very Good to Very Poor. The most recent inspections were completed in 2023. Staff also complete assessments on an as-needed basis in response to deficiencies, renewal projects, and upgrades. However, condition inspection data from 2020 is included for assets not recently inspected.

29.9% of the City's vertical wastewater assets are in Very Good or Good condition with a moderate proportion, 5.1%, rated as Very Poor. This indicates that some of the wastewater vertical assets are reaching or exceeding the end of their service life. With 21.5% of wastewater vertical assets in Poor or Very Poor condition, the data indicates that there is a need for both immediate-term and long-term investments to continue the management of deficiencies.

However, the breakdown of condition ratings varies significantly depending on the sub-segment considered. The wastewater pumping stations have a mix of condition ratings, but are primarily in Fair or Poor condition with a quarter of the assets in Good condition. Most of the wastewater treatment centre is in Fair condition with 30.2% of assets in Good or Very Good condition. The investment priority will vary over time in response to the differences in the mix of asset condition between the different sub-segments.

Table 41 illustrates the condition ratings defined with respect to a variety of wastewater vertical assets.

TABLE 41: Wastewater – Condition Rating Descriptions and Photos – Vertical

Condition State: **Very Good**	Condition State: **Good**	Condition State: **Fair**
Scale: 1 ≥ and ≥ 0 **Description:** Fit for Future 	**Scale:** 2 ≥ and > 1 **Description:** Adequate for Now 	**Scale:** 3 ≥ and > 2 **Description:** Requires Attention 

Condition State: **Poor**	Condition State: **Very Poor**
Scale: 4 ≥ and > 3 **Description:** Increasing Potential of Affecting Service 	**Scale:** 5 ≥ and > 4 **Description:** Unfit for Sustained Service 

7.4 Levels of Service and Performance Measures

The City's assets exist to deliver services to its users. Levels of service are a measurement of the actual service provided so that decisions are made based on the nature and quality of that service, rather than only the condition of an asset. These are used to summarize the type of service being provided that reflects the values and desires of stakeholders in the community.

Tables 42 and 43 identify the City's historical and proposed levels of service for the wastewater network assets. These metrics include any technical and community level of service metrics that are required to comply with Ontario Regulation 588/17, as well as any additional metrics provided by the City.

7.4.1 Community Levels of Service

Table 42 identifies the qualitative descriptions that determine the community levels of service provided by the wastewater assets.

TABLE 42: **Wastewater – Community Levels of Service**

Service Attribute	Community Levels of Service	Related Assets
Scope	The City maintains a wastewater network to support reliable, safe, cost effective, and efficient collection, treatment, and discharge of wastewater within the community to the receiving water body. The extent of the City's wastewater network, including the locations of wastewater vertical assets, is illustrated by Map 4.	All
Reliability	The City does not have combined sewers in the wastewater system.	Sewermains
Reliability	Stormwater can enter the municipal wastewater system through improperly connected roof drains, damaged or deteriorated maintenance hole lids, frame, and chimneys, and through the pick holes in depressed maintenance holes. Groundwater can enter the system through deficiencies in the underground pipes such as breaks, cracks, root intrusion, and misaligned pipes taking up some of the available capacity of the collection and treatment infrastructure.	Sewermains
Reliability	The wastewater system is designed to be resilient against water inflow and infiltration. Maintenance holes are typically installed to be at grade and not in depressed areas. Repairs to maintenance holes are completed when issues are identified, and the necessary resources are available. Relining of sewermains to repair breaks, cracks, and misaligned pipes can reduce the quantity of groundwater entering the wastewater system through these pipe defects. The wastewater system is designed with capacity to manage peak flows significantly higher than typical daily flows. If a pumping station or the wastewater treatment centre is overwhelmed with higher-than-normal flows, bypasses or overflow procedures could be used to manage the flow overwhelming the infrastructure.	All
Reliability	Effluent discharged from the wastewater treatment centre conforms with the following standards: • TP – annual average limit is 0.1mg/L and 996kg/year; monthly average limit is 0.18mg/L • CBOD5 – monthly average limit is 15mg/L • TSS – monthly average limit is 15mg/L • E.Coli – monthly average limit is 200 CFU/100mL • pH – monthly average of 6.0-9.5 inclusive	Vertical
Quality	The City inspects and maintains the wastewater system at a condition level to operate as designed.	All

7.4.2 Technical Levels of Service

Table 43 identifies the quantitative metrics that determine the technical level of service provided by wastewater assets.

TABLE 43: **Wastewater – Technical Levels of Service**

Service Attribute	Description of What Performance Measure Captures	Performance Measure	2023	2024	Target	Related Assets
Scope	How much of the City is connected to the wastewater system.	Percentage of properties connected to the municipal wastewater system.	90.1%	91.7%	≥90.1%	Sewermains
Reliability	How often the wastewater system is unable to manage the peak flows.	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	0.0006	0	All
Reliability	Duration of wastewater backups.	The number of connection-days per year due to wastewater backups compared to the total number of properties connected to the municipal wastewater system.	0.0007	0.0013	≤1.0	All
Reliability	Frequency of wastewater effluent violations.	The number of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal wastewater system.	0	0	0	Vertical
Reliability	Frequency of unplanned repairs that significantly impact the transportation network.	Annual number of emergency road closures due to emergency wastewater network repairs.	9	4	<20	Sewermains
Quality	Condition of the linear wastewater system.	Percentage of linear assets in Very Poor condition.	20.5%	21.2%	≤32.4%	Linear
Quality	Condition of the vertical wastewater system.	Percentage of vertical assets in Very Poor condition.	5.1%	N/A	≤25.0%	Vertical
Quality	Frequency of inspections of the collection network.	Percentage of total sewermain length inspected per year using in-pipe technologies.	1.8%	1.8%	10.0%	Sewermains

7.5 Lifecycle Management Strategy

It is important to proactively manage asset deterioration through a lifecycle management strategy that balances cost, risk, and the level of service. Table 44 describes the current lifecycle management activities completed and includes the risks associated with not completing these activities through using a do-nothing approach.

TABLE 44: **Wastewater – Lifecycle Management Strategies**

Activity Type	Description of Current Strategy	Risks Associated with Not Completing Activities
Operations and Maintenance	Sewermains and Forcemains ▪ CCTV inspections, flushing, rodding, and clearing of blockages. ▪ Repairing breaks and leaks. Wastewater Vertical Assets ▪ Comprehensive maintenance plans in accordance with the City's Wastewater Collection and Facility Operations Manual, using industry best practices and equipment manufacturer recommendations. ▪ Comprehensive maintenance plans in accordance with the City's Wastewater System Pumping Station and Collection System Operations and Maintenance Manual, using industry best practices and equipment manufacturer recommendations. Most maintenance and operations activities are completed by City staff with external contractors brought in as needed for activities that are beyond the capacity of internal resources.	Deficiencies are not identified through inspections. Higher lifecycle costs if maintenance is delayed or completed incorrectly. Premature asset failure, health and safety risks, and service disruptions. If a sewer break, replacement, or repair impacts the road network then congestion, closures, and other disruptions leading to user dissatisfaction.
Renewal and Rehabilitation	Sewermains and Forcemains ▪ Minor capital activities: short partial pipe segment replacements and maintenance hole leak repairs. ▪ Major capital activities: trenchless re-lining where there is an opportunity to reduce the impact of open cut excavation. When a sewermain is considered a high priority for replacement or rehabilitation, but does not align with road reconstruction plans, trenchless re-lining may be a feasible option. Wastewater Vertical Assets ▪ End of life replacement is the primary strategy. ▪ Renewal options are considered for the larger or more difficult to replace assets such as concrete structures, pumps, control systems, and specialized system components with long lead-time for replacements. Pumps and grinders may be refurbished every five to 10 years.	Renewal and rehabilitation activities may increase asset life less than anticipated resulting in a need for repeated activities or premature asset failure. Higher lifecycle costs if work is delayed or completed incorrectly. Increased service disruption to users through lower system reliability.

Activity Type	Description of Current Strategy	Risks Associated with Not Completing Activities
Replacement and Disposal	Sewermains and Forcemains ▪ Sewermains and forcemains are considered end of life when the estimated condition of the pipe has deteriorated to the state where repeated breaks or collapses are occurring or are expected to occur soon. Anticipated to occur past an age of 75 years old. ▪ Focus on older assets due to reliance on an age-based assessment of current condition. ▪ The decision-making process that determines replacement timing is partially dependent on the requirements of the other underground infrastructure (e.g. watermains, stormwater sewers) and the roadway above. ▪ The City aims to align replacement timing with roadways and the other sub-surface infrastructure needs to reduce total cost and disruption to the community. ▪ Safe disposal of hazardous or contaminated materials and soils. Wastewater Vertical Assets ▪ Pump station and wastewater treatment centre assets are considered end of life when renewal and rehabilitation activities are no longer cost-effective compared to replacement of the asset. ▪ Safe disposal of hazardous or contaminated materials and soils.	Delay in replacement and disposal projects may result in significantly higher costs, longer service disruptions, liability concerns, delays to emergency response times, and user dissatisfaction if replacements impact the roads. Poor coordination with roads and the other sub-surface infrastructure may result in significantly higher costs and repeated disruptions to the community. Improper disposal could lead to negative environmental impacts with associated cleanup and disposal expenses.
Growth-Related and Service Enhancements Lifecycle Needs	Sewermains and Forcemains ▪ Adjustments due to capacity requirements or availability of superior alternative materials. Wastewater Vertical Assets ▪ Adjustments due to capacity requirements. ▪ Changes to Ministry of Environment, Conservation and Parks requirements.	Delay or cancellation of growth-related activities causing the network to be unable to sufficiently accommodate growth. Master plans may over or underestimate the required expansions to accommodate the impacts of growth. Increased lifecycle costs. Increased likelihood of performance issues due to undercapacity. Non-compliance with Ministry of Environment, Conservation and Parks requirements.
Non-Infrastructure	Sewermains and Forcemains ▪ Capacity studies, modeling, and design guidelines. Wastewater Vertical Assets ▪ Capacity studies, modeling, and design guidelines.	Rate of asset deterioration is over or underestimated.

7.6 Forecasted Capital Requirements

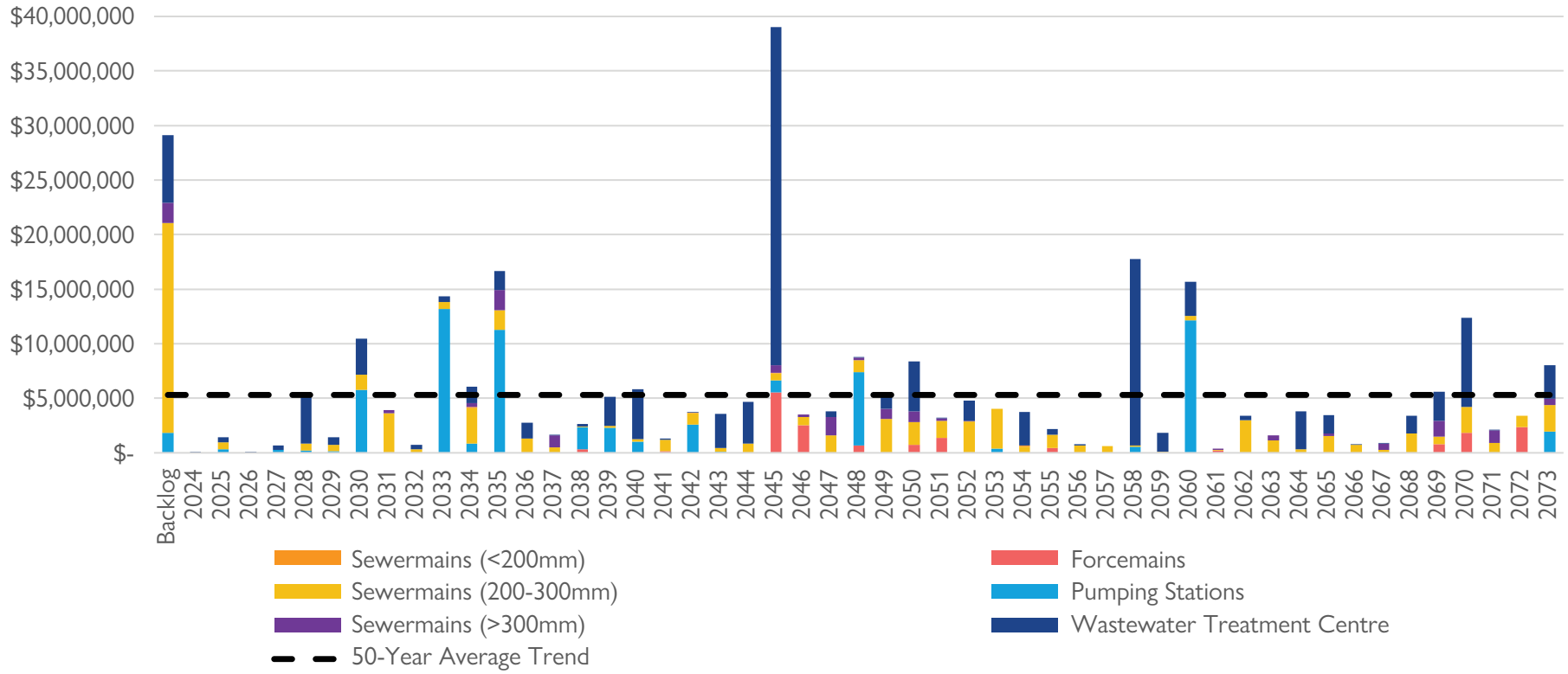
The City continuously invests in maintaining its assets and has been increasing budget amounts to more closely align with asset needs.

The annual capital requirement represents the average cost per year that the City is estimated to require to allocate towards funding infrastructure needs. Based on the available data at the time of this plan, more information is required for this calculation. A more complete asset inventory would result in capturing more assets and more accurate lifecycle costs. When more assets are added to the portfolio, the average annual funding need would also increase and be better representative of the actual spending required to manage the City's assets.

Based on the best available current information, to maintain the current level of service and lifecycle management strategy, the annual sustainable capital funding requirement for existing wastewater network assets is estimated to be $5,307,667.

The 2024 capital budget funding allocation was $4,475,770. This means that there exists a funding deficit, or funding shortfall, of $831,897 in 2024. Figure 57 illustrates a 50-year forecast of the annual capital asset needs for wastewater network assets, including the cost and asset lifecycle impacts of completing renewal and rehabilitation activities.

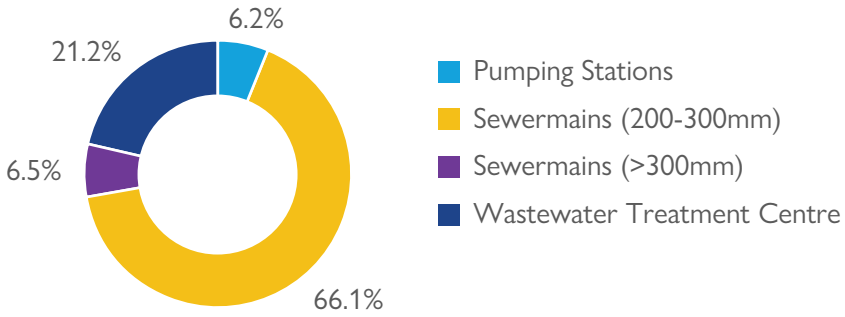
FIGURE 57: **Wastewater – Annual Capital Requirement – 50-Year Forecast**



Due to historical inconsistency in the timing of the various assets coming into service, a pattern is present where in some years the total annual requirement approaches zero followed by a wave that reaches a peak above the long-term average before again approaching zero. The City's asset management program aims to smooth out this wavy behaviour in favour of a more consistent amount of annual spending. The 50-year average trend excludes the value of the backlog.

The City has a significant and growing backlog of $29,105,300, primarily composed of wastewater sewermains and portions of the wastewater treatment centre beyond their estimated useful life. The City's oldest in-service sewermains date back to 1907 and are well overdue for replacement. Figure 58 provides a breakdown of the sources of the backlog.

FIGURE 58: **Wastewater – Breakdown of Backlog**



Almost three-quarters of the backlog, 72.6%, is a result of Very Poor condition, end of life wastewater sewermains. Approximately one-fifth of the backlog, 21.2%, is a result of Very Poor condition or end of life wastewater treatment centre assets. A large, multi-year investment would be required to overcome the backlog. Otherwise, it can be expected that the current level of service will decrease, and the level of risk will increase over the coming years.

An important note to consider is that due to the availability of in-pipe inspection condition information, there is a higher level of confidence in the scope of this backlog as the City can confirm the true level of deterioration inside the pipes in addition to using an age-based estimate. This data also provides some of the key information required to determine what pipes may be suitable for trenchless rehabilitation as a cost-saving lifecycle management strategy.

For further details on capital requirements, please see the Financial Summary portion of this plan that details the funding needs for all categories of assets over the next 10 years, including discussion of impacts from growth.

7.7 Climate Change and Other Risks

Table 45 summarizes key trends, challenges, and risks that the City is currently facing in delivering the desired level of service.

TABLE 45: **Wastewater – Climate Change and Other Risks**

Trend, Challenge, or Risk	Summary
Climate Change and Extreme Weather Events	It is anticipated that there will be many challenges in managing the impacts of climate change, including: ▪ Potential increased damage to wastewater infrastructure through flooding and erosion due to more frequent extreme wet weather events. ▪ Increased uncertainty in impacts of extreme weather events and what is the most cost-effective resiliency strategy or group of strategies. ▪ Increased inflow and infiltration into the wastewater system during more frequent extreme wet weather events. Significant inflow and infiltration (I and I) are challenging the wastewater treatment plant and pumping stations as wet weather events are exceeding the design capacity of the system. ▪ Severe weather events can cause power outages that complicate the operation of the City's 20 pumping stations. The City is considering the following adaptation and mitigation measures in response to the challenges: ▪ Incorporate new best practices and technology in the design, construction, and maintenance of assets to increase resiliency while managing affordability. Potential future adaptation and mitigation measures include: ▪ Use of lower embodied carbon materials to potentially reduce the carbon footprint of infrastructure projects. ▪ Coordinate infrastructure design, construction, and maintenance with updated stormwater data and flood mapping to determine what options exist to improve resiliency during stormwater events.
Infrastructure Design and Installation	The City is getting better at standardizing engineering designs and ensuring that these are coordinated across departments and divisions through its 2015 Engineering Design Criteria Manual (DCM), which is due to be updated. Further efforts and refinements are continuously required to enhance and improve the process.
Lifecycle Management Strategies	The City's network of wastewater sewermains are comprised of several different pipe materials. Some materials have higher break rates and present more operational challenges. In recent years there has been a focus on replacing clay and asbestos cement pipes with PVC or concrete. Reconstruction of wastewater sewermain and forcemain assets is usually tied to road reconstruction, which may represent a concern as the lifecycle of sub-surface infrastructure and roads do not always align. The maintenance practice for vertical assets has generally been reactive. The City wants to implement more preventative and predictive maintenance programs in the future. The adoption of a work order management system tied to the asset management inventory system will provide an improved connection between maintenance programs and service delivery outcomes.
Infrastructure Reinvestment	The reinvestment in infrastructure has been reactive. Renewal and rehabilitation budgets have not increased in proportion to the age of infrastructure resulting in a growing backlog. There have been some moderate shifts to proactive reinvestment in the recent period.

7.8 Recommendations and Improvement Plan

Asset Inventory

- Continue to review and refine the asset inventory to improve scope, accuracy, and a more detailed breakdown of the assets within the wastewater network.
- Continue to add asset information to GIS layers for improved staff efficiency.
- Review the replacement cost of the wastewater treatment centre to improve accuracy of the capital forecast and associated annual requirement.

Condition

- Continue the CCTV inspection program of the wastewater linear network to enhance the accuracy of condition assessments and to continuously gather up to date condition data.
- Explore industry best practices and new technologies to develop a better condition assessment strategy for the variety of non-pipe wastewater assets.

Lifecycle Management Strategies

- Evaluate the efficacy of the City's lifecycle management strategies at regular intervals to determine the impact of cost, condition, and risk.
- Consider implementing a flow monitoring program to address concerns with inflow and infiltration.
- Consider implementing a maintenance hole inspection program, as well as a lining and grouting program to correct deficiencies documented during the inspections.
- Develop more detailed preventative maintenance strategies and programs to maintain the current level of service.
- Consider actively managing risk by prioritizing the larger diameter sewermains in the capital planning process as their failure would impact the largest number of users.

Levels of Service

- Continue to measure current levels of service in accordance with the metrics identified in Ontario Regulation 588/17 and the additional metrics included by the City.
- Track annual progress towards the City's proposed levels of service targets.

7.9 Updates For 2025 Compliance

To achieve compliance with the July 1, 2025, requirements under O. Reg. 588/17, updates were made to the following items in this chapter:

- Table 42: Wastewater – Community Levels of Service and Table 43: Wastewater – Technical Levels of Service were updated to contain the levels of service and performance measures for 2024, and to contain the levels and measures that the City proposes to achieve over the 10-year period of 2025-2034.
- Split the condition of the wastewater system technical level of service measure into two new measures named condition of the linear wastewater system and condition of the vertical wastewater system.

In addition to the updates listed, various minor wording, layout, or graphical updates were made to the chapter to provide additional information or to improve clarity, visual appeal, or accessibility.

O. Reg. 588/17 further requires an explanation of why the proposed levels of service are appropriate for the City based on an assessment of four criteria. Table 46 contains the explanation available for the criteria.

TABLE 46: Wastewater – Proposed Levels of Service Appropriateness Assessment

O. Reg. 588/17 S.6(1) 2(i-iv) Criteria	Explanation of Appropriateness
i. The options for the proposed levels of service and the risks associated with those options to the long-term sustainability of the municipality.	The City aims to at minimum maintain the percentage of properties connected to the municipal wastewater system and to add more customers over time as development occurs and as the wastewater system expands to reach existing properties beyond the system's current boundaries. Designing, constructing, and operating the wastewater system to accommodate growth is a cost-effective choice that provides reliable, safe, and efficient collection and treatment of wastewater for the community. Table 44: Wastewater – Lifecycle Management Strategies identifies the risks associated with not completing growth-related and service enhancement lifecycle needs. The City aims to minimize 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. Spills, bypasses, or overflows could occur if the wastewater system experiences flows beyond what the system can handle. The City will be reviewing the design capacity of its system and has forecasted capital projects related to upgrading its sewage pumping stations to be able to handle higher flows. The main risk of not funding systems upgrades to handle higher flows are the financial and non-financial costs of remedying the impacts of spills, bypasses, or overflows. The City aims to limit the connection-days per year due to wastewater backups compared to the total number of properties connected to the municipal wastewater system to a limit equivalent to a one-day disruption to the overall collection system. More frequent wastewater backups result in higher lifecycle costs and prolonged backups could result in high-cost widespread disruption of the collection system. A reliable and efficient collection system is necessary for a municipal wastewater system to be financially sustainable long-term. The City aims to not experience any effluent violations in any year. The City aims to limit the number of emergency road closures due to emergency wastewater network repair. If a sewermain break, replacement, or repair impacts the road network then congestion, closures, and other disruptions leading to user dissatisfaction can occur. The City considers the impacts on lifecycle costs and reliability of replacing assets before the asset reaches a Very Poor condition state that may result in higher lifecycle costs due to unplanned maintenance and repairs. Assets in Very Poor condition typically have higher annual operations and maintenance costs. A funding level that results in many wastewater assets falling into a Very Poor condition or into a backlog of work is less financially sustainable long-term due to the higher costs of unplanned lifecycle management activities. Through updates to the City's Wastewater Master Plan, the plan identifies the infrastructure and studies required to optimize, upgrade, and expand the City's drinking wastewater collection, treatment, and pumping systems to accommodate growth and intensification to the year 2027. Table 44: Wastewater – Lifecycle Management Strategies identifies the risks associated with not completing growth-related and service enhancement lifecycle needs. Through an ongoing update to the City's Engineering Design Criteria Manual, the City is considering changes to align the guidance document with industry best practices and current standards. Not aligning with best practices and current standards typically leads to higher overall lifecycle cost.

O. Reg. 588/17 S.6(1) 2(i-iv) Criteria	Explanation of Appropriateness
	The risk of not doing lifecycle management activities includes the risks identified in Table 44: Wastewater – Lifecycle Management Strategy. Adopting a do-nothing approach would result in significantly higher lifecycle costs and risk, a rapid decline in levels of service, and would substantially reduce the long-term sustainability of the City's assets. In-pipe inspections provide the detailed condition data used to determine what lifecycle management strategy option is most cost effective over the lifecycle of the asset. Not obtaining this information could lead to higher lifecycle costs in the long-term and lower long-term financial sustainability. During the design stage of capital projects, anticipated future climate change impacts are considered. Table 45: Wastewater – Climate Change and Other Risks includes a summary of adaptation and mitigation measures that could be used in response to the challenges. Not proactively funding adaptation and mitigation measures is anticipated to cost significantly more over the lifecycle of the assets and lead to lower long-term asset reliability
ii. How the proposed levels of service differ from the current levels of service.	Table 43: Wastewater – Technical Levels of Service identifies the difference in performance between the most current level of service performance value available and the 2034 target performance. The City will continue to measure current levels of service over time to establish a historical baseline or trend, and work towards establishing additional future targets. Adjustments to levels of service and determining future targets is a forward looking and iterative process that will occur over time as the City improves and refines its integrated approach to asset management. For the levels of service measures with 2034 targets identified, the anticipated impacts of the differences between current and targets levels of service include: ▪ The City aims to maintain the coverage area of its linear network to be no worse off in 10 years compared to 2023 or 2024 in terms of the percentage of properties connected to the municipal wastewater system. ▪ The City aims to continue to not experience any events where the combined sewer flow in the municipal system exceeds the system capacity. ▪ The City aims to limit the connection-days per year due to wastewater backups compared to the total number of properties connected to the municipal wastewater system to a limit equivalent to a one-day disruption to the overall linear system. ▪ The City aims to continue to not experience any effluent violations. ▪ The City aims to limit the number of emergency road closures due to emergency wastewater network repairs to less than 20 per year. Historically the City experiences less than 20 per year, however, insufficient long-term funding would result in more assets in lower condition states and a higher number of emergency repairs required in the future. ▪ The percentage of wastewater linear assets in Very Poor condition is forecast to increase from 21.2% to an upper limit of 32.4%. This is primarily due to more linear assets aging into lower condition states than are planned to be rehabilitated or replaced over the 10-year period. ▪ The percentage of wastewater vertical assets in Very Poor condition is forecast to increase from 5.1% to an upper limit of 25.0%. This is primarily due to more vertical assets aging into lower condition states than are planned to be rehabilitated or replaced over the 10-year period. ▪ The City is forecasted to fund in-pipe condition inspections of sewermains on a 10-year cycle. Historically the City did not inspect the entire sewermain network on a fixed cycle. As the City moves towards integrating more work orders for operations and maintenance activities in the wastewater service area into the same platform that is used for asset management, the City will be better equipped to measure technical levels of service values over time.

O. Reg. 588/17 S.6(1) 2(i-iv) Criteria	Explanation of Appropriateness
iii. Whether the proposed levels of service are achievable.	From a City staff resources perspective, the forecasted list of projects is achievable and is dependent on future staffing levels. Whether the full project list moves forward is dependent on receiving regulatory approvals, Council approving funding through future budget deliberations, environmental assessments, coordination with nearby assets in other service areas, changes in legislation, changes in the City's Official Plan and achieved levels of intensification, opportunities to do cross-municipal boundary servicing, if forecasted growth occurs, and if the actual impacts of climate change are worse than forecasted.
iv. The municipality's ability to afford the proposed levels of service.	Over the 2025-2034 10-Year Capital and Reserve Forecast period, the wastewater services area is funded by the following sources: ▪ Wastewater Services Operating Budget, including revenues from rates and fees; ▪ Wastewater Asset Management Reserve Fund; ▪ Development Contributions; ▪ Federal Grants; and ▪ Provincial Grants. The financial strategy chapter included in this plan contains the O. Reg. 588/17 requirements of: ▪ An estimate of the annual costs for the lifecycle activities required to provide the proposed level of service; ▪ The annual funding projected to be available; ▪ The options examined by the City to maximize projected funding; and ▪ The identification of any funding deficit or shortfall. As the City has a population above 25,000, the financial strategy chapter contains the details required under S.6(1) 6(i-ii) of O. Reg. 588/17 regarding the costs and funding available due to population and employment growth. To promote alignment and consistency between City documents and City Council decision making, the proposed levels of service input into this chapter and the financial strategy chapter are aligned with the outcomes of the 2025 budget process and resulting 2025-2034 10 Year Capital and Reserve Forecast. The 2025-2034 10 Year Capital and Reserve Forecast was presented during the 2025 Budget process and resulted in the City utilizing its self-imposed 10% debt limit as well as a negative total reserve and reserve fund shortfall by 2034 in the amount of -$214.4 million in 2025 dollars. The Financial Strategy chapter of this plan provides a detailed discussion of the sustainability of the City's financial position. If the City follows a path of financial unsustainability, eventually some lifecycle activities would become unaffordable and the City may not achieve its proposed levels of service targets. Which activities the City will not undertake due to a shortfall depends on which reserves contain the large negative balances. Maintaining the proposed levels of service targets for all categories would require significant increases in funding levels. Wastewater staff are looking ahead at future asset lifecycle needs beyond the 2025-2034 forecast period to right-size reserve contribution requirements and are considering the possibility of additional long-term funding pressures due to: ▪ Future more stringent environmental regulations or wastewater effluent quality standards; ▪ A large number of high-cost assets reaching the end of their useful life at similar times; and ▪ Wastewater treatment plant expansion for capacity increase to support growth. An explanation of the options examined by the City to maximize the funding projected to be available to afford the proposed levels of service is included in Table 137: Financial Strategy – Funding Maximization Activities and Choices

8.0
Stormwater

8.0 Stormwater

The City maintains a stormwater network to support reliable, safe, and efficient collection, treatment, and discharge of stormwater within the community to the receiving water bodies. The stormwater network services provided by the City work in coordination with the transportation network and natural assets to convey runoff generated during precipitation events and provide ecosystem services to the community. Stormwater network infrastructure is the fifth-largest category of assets at a total replacement cost of $238,500,207 in 2023 dollars.

8.1 Asset Inventory and Replacement Cost

The City manages approximately 85.4 km of stormwater sewers, 1,780 maintenance holes, two pump stations, six stormwater management ponds, 13 oil and grit separators, 163.7 km of ditches, 2,953 catch basins with 23.7 km of leads connecting the catch basins to the sewers, and 36.5 km of culverts under roadways and driveways.

The stormwater network inventory remains at basic level of maturity with many missing or incomplete records, which is common across municipalities. Through the ongoing Stormwater Management Infrastructure Inventory and Condition Assessment project, improvements in data accuracy will provide more accurate findings in future revisions of this plan. The City has identified 10 additional oil and grit separators that were not included in the 2024 revision of this plan.

The replacement cost is estimated using primarily historic construction costs with consideration of standardized costing indices. Included in the cost of replacing each asset is a set of components that together comprise a typical asset. The full set of components for each sub-segment is identified in Appendix 20.2.4.

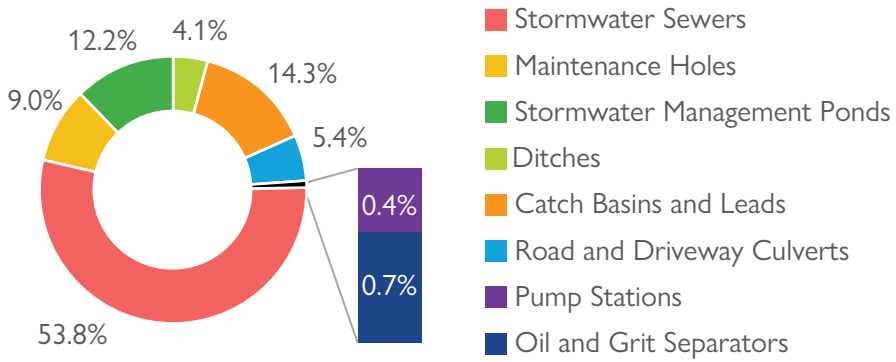
Table 47 includes the quantity, replacement cost method, and total replacement cost in 2023 dollars of each sub-segment of assets in the City's stormwater network.

TABLE 47: **Stormwater – Inventory and Replacement Cost**

Asset Sub-Segment	Quantity	Replacement Cost Method	Replacement Cost	Percentage of Total Replacement Cost
Stormwater Sewers	85,401m	Cost/Unit	$128,331,775	53.8%
Maintenance Holes	1,780 maintenance holes	Cost/Unit	$21,495,280	9.0%
Pump Stations	2 stations	Asset-Specific Cost Estimation	$966,976	0.4%
Stormwater Management Ponds	486,054m^3 of storage capacity	Cost/Unit	$29,163,238	12.2%
Oil and Grit Separators	13 separators	Asset-Specific Cost Estimation	$1,685,001	0.7%
Ditches	163,743m	Cost/Unit	$9,872,522	4.1%
Catch Basins and Leads	2,953 basins 23,688m	Cost/Unit	$34,210,415	14.3%
Road and Driveway Culverts	36,500m	Cost/Unit	$12,775,000	5.4%

Figure 59 provides the data in table 47 visually with each sub-segment as a percentage of the total replacement cost. Most of the City's stormwater assets are stormwater sewers at approximately half of the assets by value. Due to the small relative total value of pump stations and oil and grit separators, an additional diagram is provided for clarity.

FIGURE 59: **Stormwater – Total Replacement Cost**



8.2 Asset Age and Estimated Useful Life

The estimated useful life of stormwater assets is determined using a combination of staff knowledge, historical data, and industry standards. Data revisions have been ongoing by City staff to address stormwater sewer network data gaps in support of the City's Comprehensive Stormwater Master Plan Update project. The average service life remaining is determined by the difference between the average estimated useful life and the average age, except when an asset has been assigned an assessed condition rating that may increase or decrease the average service life remaining.

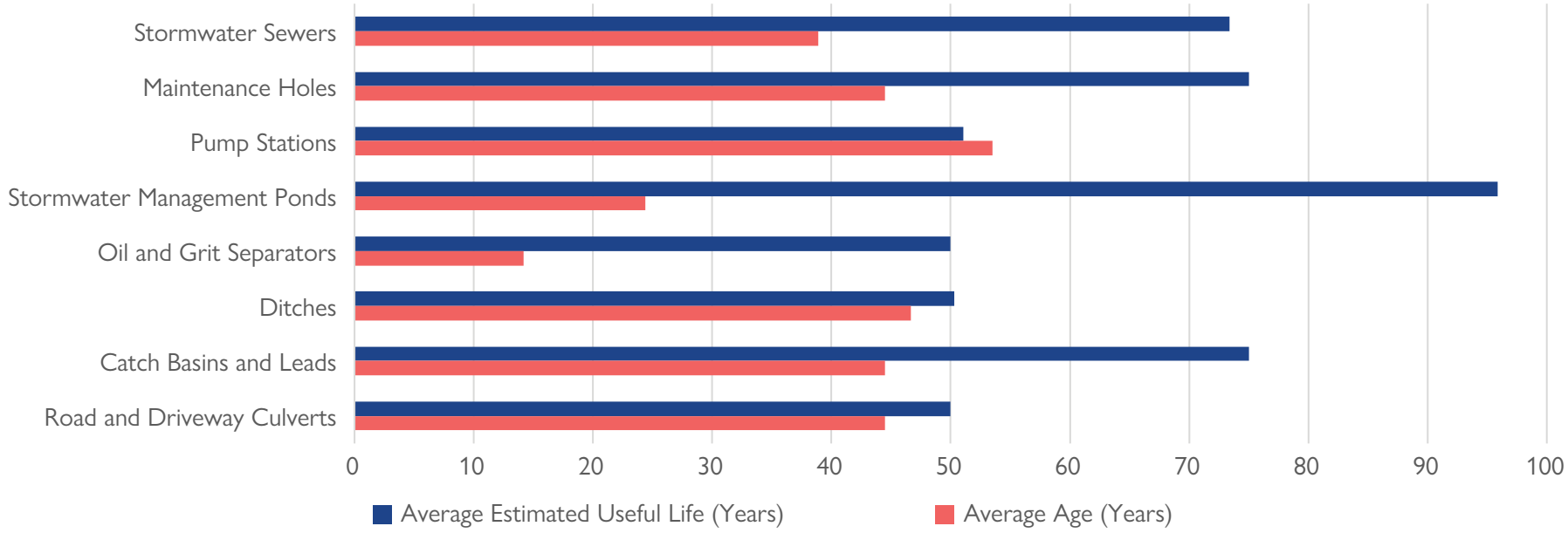
Table 48 summarizes the average age of each sub-segment based on the number of years that the assets have been in service.

TABLE 48: **Stormwater – Average Age and Estimated Useful Life**

Asset Sub-Segment	Average Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)	Percentage of Average Service Life Remaining
Stormwater Sewers	73.4	38.9	34.5	47%
Maintenance Holes	75.0	44.5	30.5	41%
Pump Stations	51.1	53.5	-2.4	-5%
Stormwater Management Ponds	95.9	24.4	71.5	75%
Oil and Grit Separators	50.0	14.2	35.8	72%
Ditches	50.3	46.7	3.6	7%
Catch Basins and Leads	75.0	44.5	30.5	41%
Road and Driveway Culverts	50.0	44.5	5.5	11%

The age of an asset gives an indication of how close it is to the end of its estimated useful life and what lifecycle management strategies may be required. Figure 60 displays average asset age alongside the estimated useful life for each asset sub-segment.

FIGURE 60: **Stormwater – Average Age and Estimated Useful Life**



Average asset ages have exceeded the average estimated useful life for the pump stations sub-segment.

Using the current limited information available on the culverts, catch basins and leads, and the ditches, an average installation year of 1980 was assumed for most of these assets. This results in all three of these sub-segments nearing their associated estimated useful life. Future improvements in data accuracy through the Stormwater Inventory and Condition Assessment capital project will allow the City to remove the installation year assumption for many of these assets and provide a more accurate average age.

8.3 Condition

The following sections and tables outline the condition breakdown for each sub-segment of assets and the City's methods for assessing asset condition. Where available and feasible, the City follows industry-standard best practices and generally accepted good engineering practices in the approach to assessing asset condition. When condition assessments are unavailable, an age-based condition rating is used based on the relative age of the asset compared to its estimated useful life.

Table 49 summarizes the variety of techniques used to assess the condition of the stormwater assets on a regular frequency.

TABLE 49: **Stormwater – Approach to Assessing Condition**

Asset Sub-Segment	Condition Data Collection Techniques	Frequency of Data Collection	Year of Last Assessment
Stormwater Sewers	Age-based and in-pipe camera inspection.	Every year and varies.	Varies
Maintenance Holes	Age-based.	Every year.	2023
Pump Stations	Age-based and condition assessments by staff and subject matter experts.	Every 1-5 years.	2020-2023
Stormwater Management Ponds	Age-based.	Every year.	2023
Oil and Grit Separators	Age-based.	Every year.	2023
Ditches	Age-based.	Every year.	2023
Catch Basins and Leads	Age-based.	Every year.	2023
Road and Driveway Culverts	Age-based.	Every year.	2023

Table 50 provides a summary of the condition rating systems for all sub-segments of stormwater assets. Based on the condition data and information provided by subject matter experts, the condition of assets is rated on a scale from Very Good to Very Poor.

TABLE 50: **Stormwater – Condition Rating Scales**

Rating	Rating Description	All Stormwater Assets (Five-Point Scale)
Very Good	Fit for Future	1.8 ≥ and ≥ 1.0
Good	Adequate for Now	2.6 ≥ and > 1.8
Fair	Requires Attention	3.4 ≥ and > 2.6
Poor	Increasing Potential of Affecting Service	4.2 ≥ and > 3.4
Very Poor	Unfit for Sustained Service	5.0 ≥ and > 4.2

Figure 61 illustrates the breakdown of condition ratings of the City's stormwater assets. 37.9% of these assets are in Very Good to Good condition with a large proportion, 19.4%, rated as Very Poor.

FIGURE 61: **Stormwater – Condition Rating Summary**

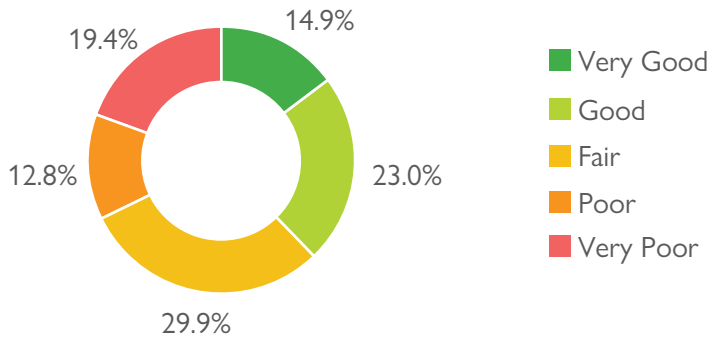


Figure 62 illustrates the breakdown of condition ratings for all stormwater assets in terms of the percentage of total replacement cost. A key point is that due to the differences in methodology for calculating condition between sub-segments, direct comparisons between sub-segments may not be consistent depending on which sub-segments are compared.

FIGURE 62: **Stormwater – Breakdown of Condition Rating – Percentage of Cost**

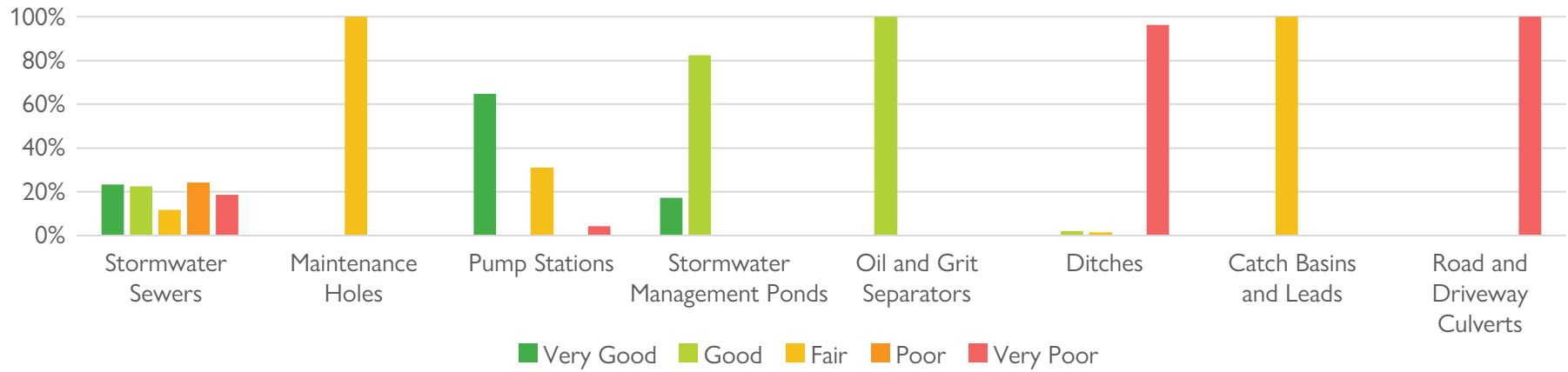
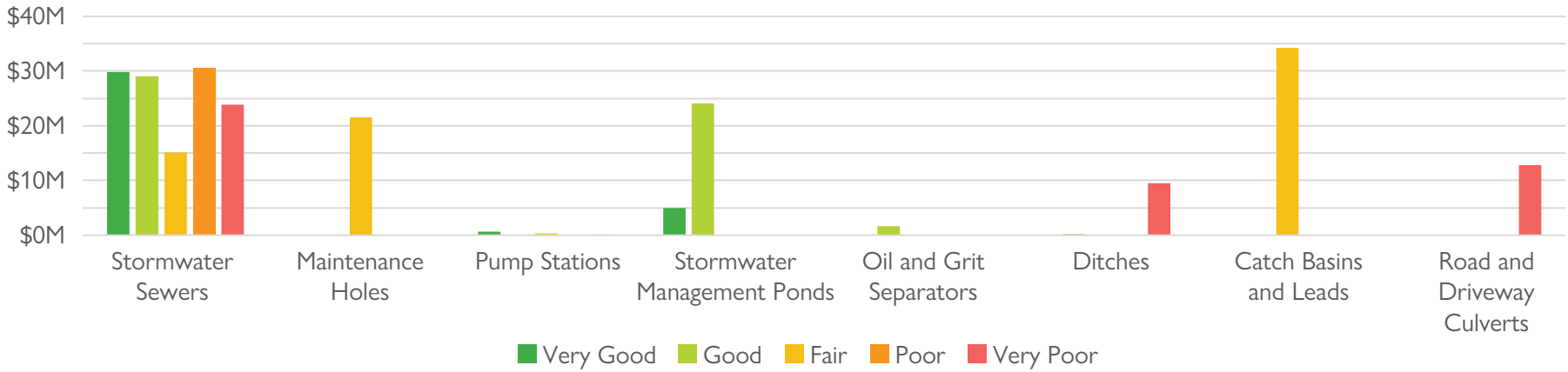


Figure 63 illustrates the same breakdown but in terms of the total replacement cost rather than the percentage of total replacement cost for each sub-segment. This illustrates the large cost implications of the quantity of sewers, maintenance holes, catch basins and leads, and stormwater management ponds compared to the smaller value of the other sub-segments.

The overall average condition of stormwater assets is Fair. Assets are maintained by using the best treatment option to manage the current condition and anticipated future deterioration of the asset. More information is found in the lifecycle management strategy details in Section 8.5. The following sections present the condition information for each sub-segment or group of sub-segments of assets in more detail.

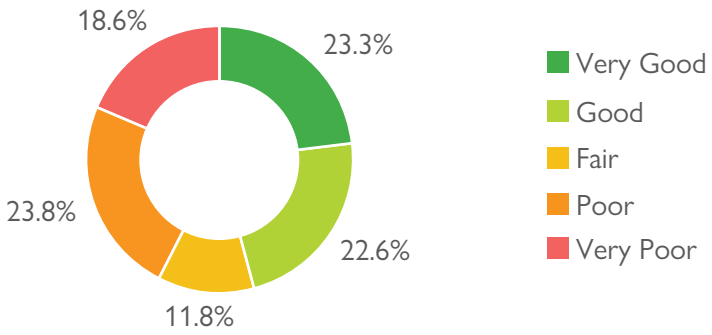
FIGURE 63: **Stormwater – Breakdown of Condition Rating – Cost**



8.3.1 Stormwater Sewers

Figure 64 provides a breakdown of condition ratings for all stormwater sewers.

FIGURE 64: **Stormwater – Breakdown of Condition Rating – Sewers**



45.9% of the City's stormwater sewers are in Very Good or Good condition with a large proportion, 18.6%, rated as Very Poor. This indicates that much of the stormwater sewer network is reaching or exceeding the end of its service life. With 42.4% of stormwater sewers in Poor or Very Poor condition, the data indicates that there is a need for both immediate-term and long-term investments to continue the management of deficiencies.

As data improves, the City will consider examining the breakdown of condition ratings for different groups of diameters as was discussed for watermains and sanitary sewers in this plan. The City actively manages risk by prioritizing the larger diameter stormwater sewers in the capital planning process as their failure has the potential to impact the largest number of users.

There are inherent challenges with completing condition assessments for stormwater sewers, as the condition assessment generally requires in-pipe equipment, and significant staff and financial resources. The stormwater sewer condition assessment process is currently limited to a desktop exercise using an age-based approach. In recent years, the City has expanded its CCTV in-pipe inspection program to include stormwater sewers. There is currently a 17-year cycle to inspect the entire network; however, this is a recent initiative with limited consistent condition data compared to the size of the network.

Through the ongoing Stormwater Management Infrastructure Inventory and Condition Assessment project, more accurate condition data will be obtained for all stormwater sewers in the City. This will establish a consistent baseline of data for the 17-year CCTV inspection cycle to build upon. This will ensure that the most cost-effective approach to managing assets is used while providing the City with more of the information required to accurately manage the level of risk for these assets.

Due to the current condition assessment process being a desktop exercise, a table of condition ratings with photos and descriptions is omitted.

8.3.2 Maintenance Holes, Ditches, Catch Basins and Leads, and Road and Driveway Culverts

Figures 65, 66, 67, 68, and 69 provide a breakdown of condition ratings for the linear stormwater assets and each sub-segment, excluding the stormwater sewers.

FIGURE 65: **Stormwater – Breakdown of Condition Rating – Linear (Excluding Sewers)**

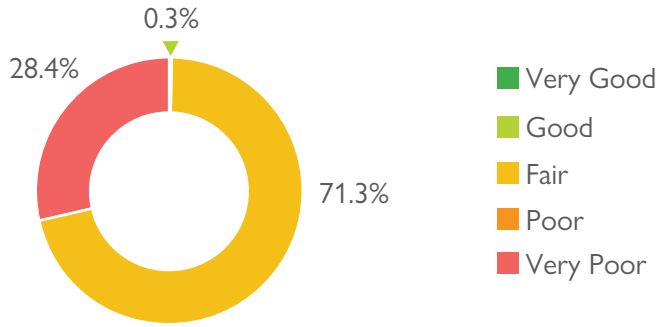


FIGURE 66: **Stormwater – Breakdown of Condition Rating – Maintenance Holes**

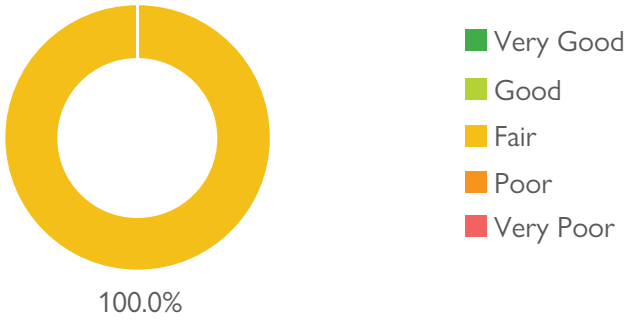


FIGURE 67: **Stormwater – Breakdown of Condition Rating – Ditches**

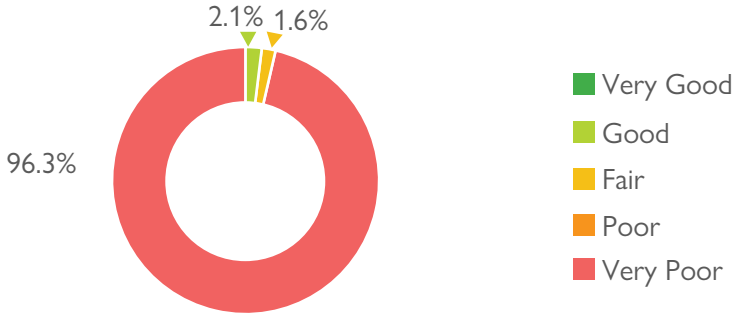


FIGURE 68: **Stormwater – Breakdown of Condition Rating – Catch Basins and Leads**

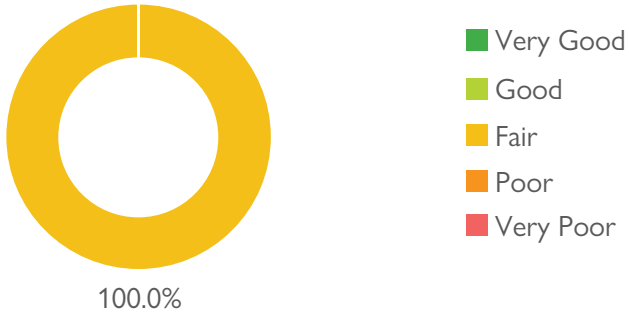
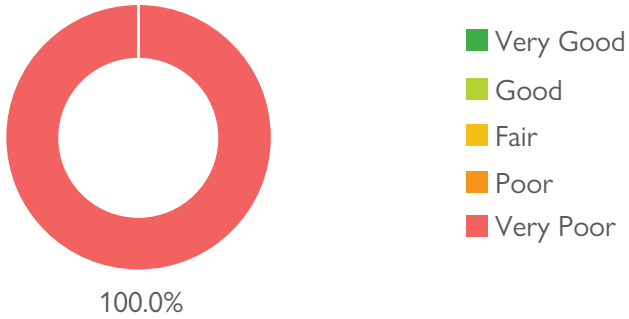


FIGURE 69: **Stormwater – Breakdown of Condition Rating – Road and Driveway Culverts**



Due to the 1980 average in-service date assumption for most of these assets, the breakdown of condition ratings lacks the typically varied distribution of ratings found in other asset sub-segments. All the maintenance holes, catch basins and leads have a rating of Fair while all the road and driveway culverts have a rating of Very Poor. There are a small number of ditches with a known in-service year other than 1980 that have an age-based condition in the Good (2.1%) or Fair (1.6%) rating; however, almost all the ditches (96.3%) have a rating of Very Poor.

Table 51 illustrates the condition ratings for variety of these assets. Photos and descriptions for the Very Good and Poor states are omitted due to no assets within these ratings currently.

TABLE 51: Stormwater – Condition Rating Descriptions and Photos – Linear (Excluding Sewers)

Condition State: **Very Good**	Condition State: **Good**	Condition State: **Fair**
Scale: 1.8 ≥ and ≥ 1.0 **Description:** Fit for Future Omitted due to no assets within this rating currently.	**Scale:** 2.6 ≥ and > 1.8 **Description:** Adequate for Now 	**Scale:** 3.4 ≥ and > 2.6 **Description:** Requires Attention 

Condition State: **Poor**	Condition State: **Very Poor**
Scale: 4.2 ≥ and > 3.4 **Description:** Increasing Potential of Affecting Service Omitted due to no assets within this rating currently.	**Scale:** 5.0 ≥ and > 4.2 **Description:** Unfit for Sustained Service 

8.3.3 Pump Stations, Stormwater Management Ponds, and Oil and Grit Separators

Figures 70, 71, 72, and 73 provide a breakdown of asset condition for the vertical stormwater network assets and each sub-segment.

FIGURE 70: **Stormwater – Breakdown of Condition Rating – All Vertical**

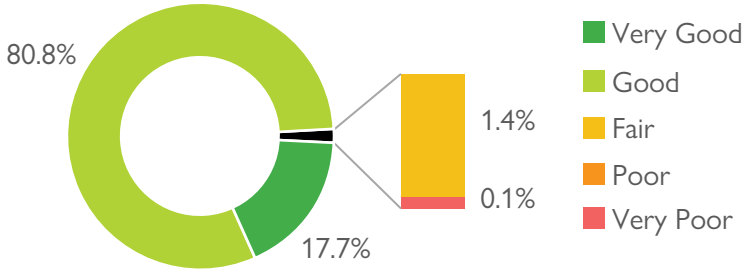


FIGURE 71: **Stormwater – Breakdown of Condition Rating – Pump Stations**

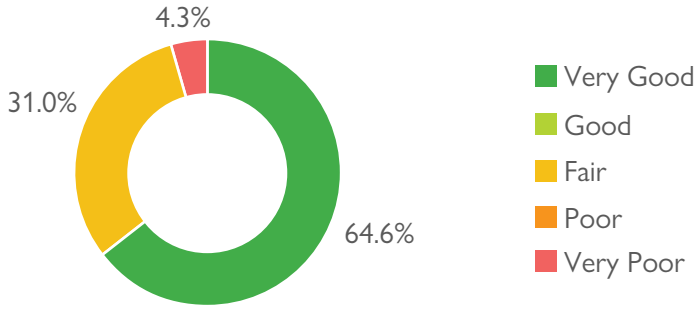


FIGURE 72: **Stormwater – Breakdown of Condition Rating – Stormwater Management Ponds**

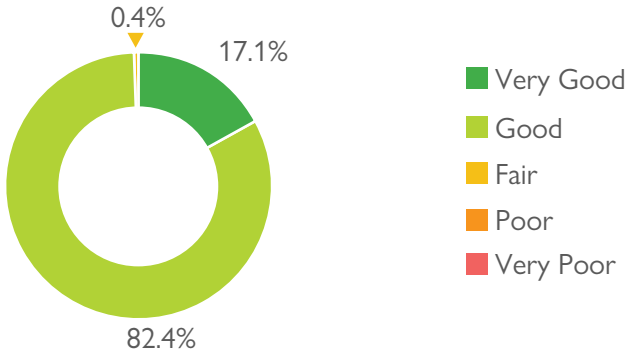
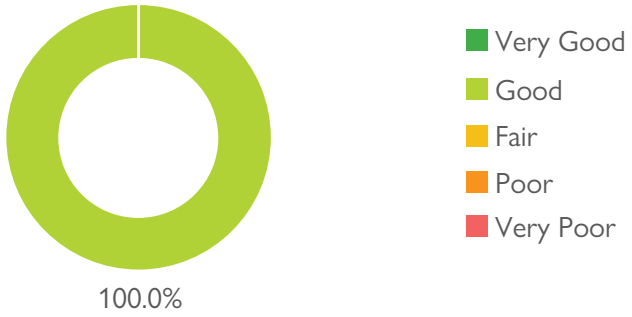


FIGURE 73: **Stormwater – Breakdown of Condition Rating – Oil and Grit Separators**



Every five years, the condition of the larger pump station's assets is evaluated by a subject matter expert using a variety of condition assessment techniques. The results are analyzed to assign a condition score from 1 to 5 for each asset that corresponds to a rating between Very Good to Very Poor. The most recent inspections were completed in 2023. Any assets missing a condition assessment are assigned an age-based condition. Staff also complete assessments on an as-needed basis in response to deficiencies, renewal projects, and upgrades. However, condition inspection data from 2020 is included for assets not recently inspected. The condition for the smaller pump station, stormwater management ponds, and oil and grit separators are an age-based assumption.

98.5% of the City's stormwater vertical assets are in Very Good or Good condition with an insignificant proportion, 0.1%, rated as Very Poor. This indicates that minimal assets are reaching or exceeding the end of their service life. With 0.1% of stormwater vertical assets in Poor or Very Poor condition, the data indicates that majority of the capital needs of these assets are being met. The pump station asset with the Very Poor rating is the Cedar Island Road Pump Station. This is a small pump station contained within a small underground concrete chamber with a pump that is near the end of its useful life. There is an ongoing assessment to address the performance capacity of that pump station and a new design will be considered as part of that assessment.

Table 52 illustrates the condition ratings defined with respect to a variety of stormwater vertical assets. A photo for the Poor state is omitted due to no assets within this rating currently.

TABLE 52: Stormwater – Condition Rating Descriptions and Photos – Vertical

Condition State: **Very Good**	Condition State: **Good**	Condition State: **Fair**
Scale: 1.8 ≥ and ≥ 1.0 **Description:** Fit for Future 	**Scale:** 2.6 ≥ and > 1.8 **Description:** Adequate for Now 	**Scale:** 3.4 ≥ and > 2.6 **Description:** Requires Attention 

Condition State: **Poor**	Condition State: **Very Poor**
Scale: 4.2 ≥ and > 3.4 **Description:** Increasing Potential of Affecting Service Omitted due to no assets within this rating currently.	**Scale:** 5.0 ≥ and > 4.2 **Description:** Unfit for Sustained Service 

8.4 Levels of Service and Performance Measures

The City's assets exist to deliver services to its users. Levels of service are a measurement of the actual service provided so that decisions are made based on the nature and quality of that service, rather than only the condition of an asset. These are used to summarize the type of service being provided that reflects the values and desires of stakeholders in the community.

Tables 53 and 54 identify the City's historical and proposed levels of service for the stormwater network assets. These metrics include any technical and community level of service metrics that are required to comply with Ontario Regulation 588/17, as well as any additional metrics provided by the City.

8.4.1 Community Levels of Service

Table 53 identifies the qualitative descriptions that determine the community levels of service provided by the stormwater assets.

TABLE 53: **Stormwater – Community Levels of Service**

Service Attribute	Community Levels of Service	Related Assets
Scope	The City maintains a stormwater network to support reliable, safe, and efficient collection, treatment, and discharge of surface water within the community to the receiving water bodies. The extent of the City's stormwater network, including the locations of stormwater vertical assets, is illustrated by Map 5.	All
Reliability	The stormwater system operates as intended to convey surface water runoff to the subsurface storm infrastructure.	All
Quality	The City inspects and maintains the stormwater system at a condition level to operate as designed.	All

8.4.2 Technical Levels of Service

Table 54 identifies the quantitative metrics that determine the technical level of service provided by stormwater assets.

TABLE 54: **Stormwater – Technical Levels of Service**

Service Attribute	Description of What Performance Measure Captures	Performance Measure	2023	2024	2034 Target	Related Assets
Scope	Quantifying the City's overland flow routes that can manage less frequent major storm events.	Percentage of properties in municipality resilient to a 100-year storm.	13.6%	N/A	≥13.6%	All
Scope	Quantifying the City's stormwater sewer network that can manage more frequent wet weather events.	Percentage of the municipal stormwater management system resilient to a five-year storm.	0%	0%	≥0%	All
Reliability	Frequency of overwhelmed stormwater infrastructure that significantly impacts the transportation network.	Annual number of emergency road closures during major storm and wet weather events.	N/A	N/A	N/A	All
Quality	Condition of the stormwater system.	Percentage of assets in Poor or Very Poor condition.	32.2%	N/A	N/A	All
Quality	Frequency of inspections of the collection network.	Percentage of total stormwater sewer length inspected per year using in-pipe technologies.	N/A	N/A	10.0%	Sewers

The City currently does not have comprehensive 100-year storm floodplain mapping available to determine the 100-year storm measure. Instead, the percentage of properties in the City resilient to a 100-year storm is calculated using the percentage of properties located within the Mill Creek regulatory floodplain or located on lands with an elevation below 220.5 m as described in the City's Zoning By-law 2014-44. All other properties are assumed resilient for the purpose of this measure. As of May 2025, 53 properties had at least a portion of their land within the Mill Creek regulatory floodplain, 1,554 properties had at least a portion of their land within the areas with an elevation below 220.5m, and 6 properties had at least a portion of their land in both the Mill Creek regulatory floodplain and areas below an elevation of 220.5m.

Regarding the resiliency to a five-year storm measure, the City's Engineering Design Criteria manual requires City infrastructure to be sized to accommodate a two-year storm event. The manual does not require City infrastructure to be resilient to a five-year storm event. Until the City completes a hydrological model that considers overland flows, there is insufficient data to estimate how much of the City's stormwater management system can handle a five-year storm event. It is assumed that none of the City is resilient to a five-year event.

8.5 Lifecycle Management Strategy

It is important to proactively manage asset deterioration through a lifecycle management strategy that balances cost, risk, and the level of service. Table 55 describes the current lifecycle management activities completed and includes the risks associated with not completing these activities through a do-nothing approach.

TABLE 55: **Stormwater – Lifecycle Management Strategy**

Activity Type	Description of Current Strategy	Risks Associated with Not Completing Activities
Operations and Maintenance	All operations and maintenance strategies listed are completed in accordance with the City's Operations and Maintenance Manual unless otherwise specified. Sewers and Maintenance Holes ▪ Flushing, CCTV inspections, clearing of blockages, and grate cleaning. ▪ Repairing breaks and leaks. Pump Stations ▪ Comprehensive maintenance plans in accordance with the City's Stormwater Collection and Facility Operations Manual using industry best practices and equipment manufacturer recommendations. Stormwater Management Ponds ▪ Safety checks, sediment surveys, full inspections, valve exercising, and other activities. Oil and Grit Separators ▪ Visual inspections and cleaning. Ditches ▪ Visual inspection and removal of sediment deposits as required. Catch Basins and Leads ▪ Visual inspection and cleaning. Road and Driveway Culverts ▪ Maintenance may be performed as required on an as-needed basis. Maintenance and operations activities are completed by City staff with external contractors brought in as needed.	▪ Failure to comply with provincial requirements, including, but not exclusive to, the City's Consolidated Linear Infrastructure – Environmental Compliance Approval (CLI-ECA). ▪ Deficiencies are not identified through inspections. ▪ Higher lifecycle costs if maintenance is delayed or completed incorrectly. ▪ Premature asset failure, health and safety risks, and service disruptions. ▪ Congestion, closures, and other disruptions leading to user dissatisfaction if road network is impacted. ▪ Excessive erosion, flooding, or overland flow during stormwater events. ▪ Decreased water quality due to increased contaminants. ▪ Increased probability of an adverse impact to the environment.

Activity Type	Description of Current Strategy	Risks Associated with Not Completing Activities
Renewal and Rehabilitation	Sewers and Maintenance Holes ▪ Minor capital activities: Valve replacements, short partial pipe segment replacements, maintenance hole leak repairs. ▪ Major capital activities: Trenchless relining where there is an opportunity to reduce the impact of open cut excavation. When a sewer is considered a high priority for replacement or rehabilitation, but does not align with road reconstruction plans, trenchless re-lining may be a feasible option. Pump Stations ▪ Renewal options are considered for the larger or more difficult to replace assets such as concrete structures, pumps, control systems, and specialized system components with long lead-time for replacements. Stormwater Management Ponds ▪ Embankment stabilization and repairs. ▪ Removal of accumulated sediment as required. Oil and Grit Separators ▪ End of life replacement is the primary strategy. Ditches ▪ Embankment stabilization and repairs. Catch Basins and Leads ▪ End of life replacement is the primary strategy. Road and Driveway Culverts ▪ End of life replacement is the primary strategy.	▪ Renewal and rehabilitation activities may increase asset life less than anticipated, resulting in a need for repeated activities or premature asset failure. ▪ Higher lifecycle costs if work is delayed or completed incorrectly. ▪ Increased service disruption to users through lower system reliability. ▪ Decreased water quality due to increased contaminants. ▪ Increased risk of downstream flood impacts due to lower stormwater management pond capacity if accumulated sediment obstructs the pond inlets and outlets and is not removed.

Activity Type	Description of Current Strategy	Risks Associated with Not Completing Activities
Replacement and Disposal	Sewers and Maintenance Holes ▪ Sewers and maintenance holes are considered end of life when the estimated condition of the pipe or maintenance hole has deteriorated to the state where repeated breaks or collapses are occurring or are expected to occur soon. Anticipated to occur past an age of 75 years old. ▪ Focus on older assets due to reliance on an age-based assessment of current condition. ▪ The decision-making process that determines replacement timing is partially dependent on the requirements of the other underground infrastructure (e.g. watermains, sanitary sewers) and the roadway above. ▪ The City aims to align replacement timing with roadways and the other sub-surface infrastructure needs to reduce total cost and disruption to the community. ▪ Safe disposal of hazardous or contaminated materials and soils. Pump Stations ▪ Pump station assets are considered end of life when renewal and rehabilitation activities are no longer cost-effective compared to replacement of the asset. ▪ Safe disposal of hazardous or contaminated materials and soils. Stormwater Management Ponds ▪ Current pond designs do not require replacement. Pond retrofit with partial reconstruction may be required to conform with new standards or to address current provincial guidance criteria. ▪ Evaluating sediment reuse options rather than disposal in a landfill. Oil and Grit Separators ▪ Oil and grit separator assets are considered end of life when renewal and rehabilitation activities are no longer cost-effective compared to replacement of the asset. Ditches ▪ Replacement is not typically required for unpaved ditches. ▪ Replacement of surface material for paved ditches to restore the ditch to a vegetative condition. ▪ Replacement of armouring and erosion control materials once worn and no longer effective. Catch Basins and Leads ▪ Catch basins and leads are considered end of life when the estimated condition of the catch basin or lead has deteriorated to the state where repeated breaks or collapses are occurring or are expected to occur soon. Anticipated to occur past an age of 75 years old. Road and Driveway Culverts ▪ Road and driveway culverts are considered end of life when the estimated condition of the culvert has deteriorated to the state where repeated blockages or collapses are occurring or are expected to occur soon. Anticipated to occur past an age of 50 years old.	▪ Risk to environment if contaminants enter the system and are discharged to the receiving water bodies due to assets in a very poor or failed condition state. ▪ Risk to property, City assets, and natural environment if erosion is not effectively managed. ▪ Delay in replacement and disposal projects may result in significantly higher costs, longer service disruptions, liability concerns, delays to emergency response times, and user dissatisfaction if replacements impact the roads. ▪ Poor coordination with roads and the other sub-surface infrastructure may result in significantly higher costs and repeated disruptions to the community. ▪ Improper disposal could lead to negative environmental impacts with associated cleanup and disposal expenses.

Activity Type	Description of Current Strategy	Risks Associated with Not Completing Activities
Growth-Related and Service Enhancements Lifecycle Needs	Sewers and Maintenance Holes ▪ Adjustments due to capacity requirements or availability of superior alternative materials. Pump Stations ▪ Adjustments due to capacity requirements. ▪ Changes to Ministry of Environment, Conservation and Parks requirements. Stormwater Management Ponds ▪ Adjustments due to capacity or water quality requirements. Oil and Grit Separators ▪ Adjustments due to capacity, water quality requirements, or availability of superior designs. Ditches ▪ Adjustments due to capacity requirements. ▪ Naturalization of paved ditches to improve water quality. Catch Basins and Leads ▪ Adjustments due to capacity requirements. Road and Driveway Culverts ▪ Adjustments due to capacity requirements.	▪ Delay or cancellation of growth-related activities causing the network to be unable to sufficiently accommodate growth. ▪ Master plans may over or underestimate the required expansions to accommodate the impacts of growth. ▪ Increased lifecycle costs. ▪ Increased likelihood of performance issues due to undercapacity. ▪ Non-compliance with Ministry of Environment, Conservation and Parks requirements.
Non-Infrastructure	All Stormwater Sub-segments ▪ Capacity studies and modeling, stormwater design guidelines.	▪ Rate of asset deterioration is over or underestimated. ▪ Excessive erosion, flooding, or overland flow during stormwater events if designed capacity is based on outdated studies, modeling, and design guidelines.

8.6 Forecasted Capital Requirements

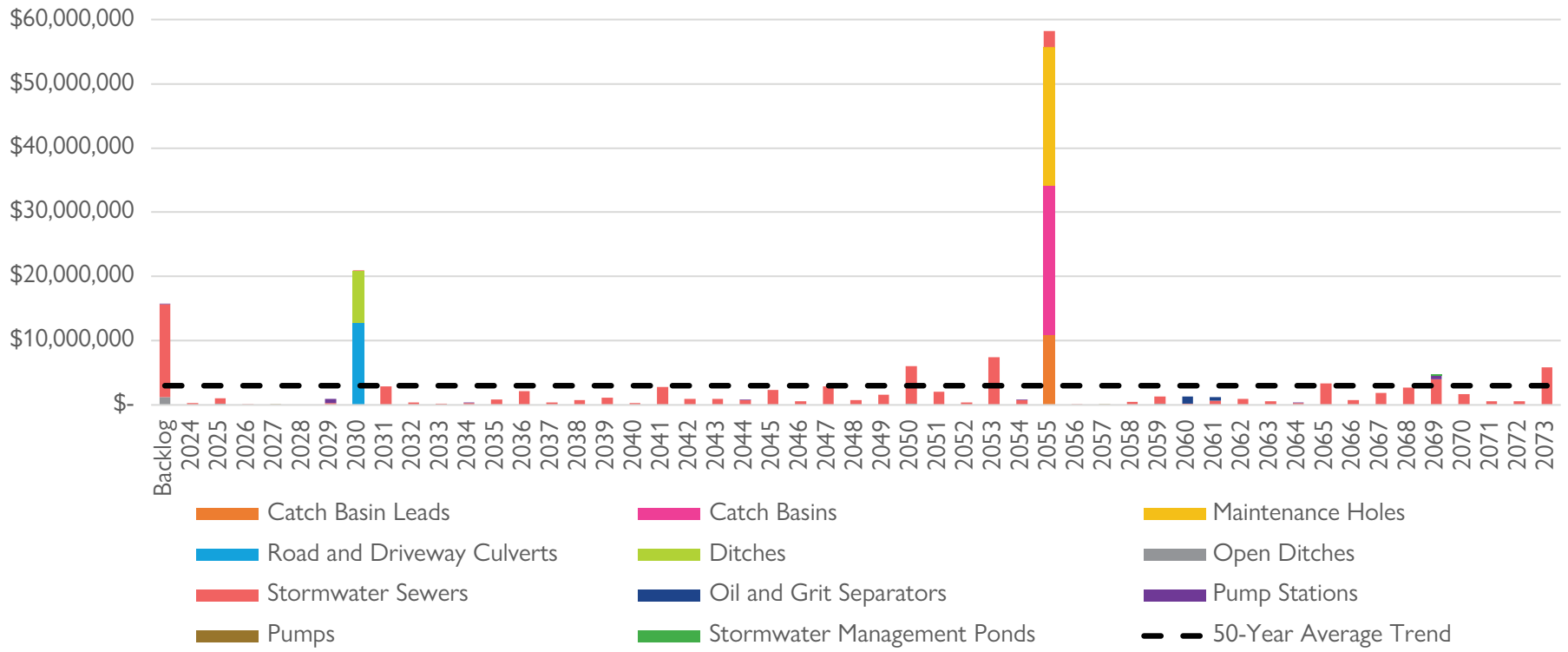
The City continuously invests in maintaining its assets and has been increasing budget amounts to more closely align with asset needs.

The annual capital requirement represents the average cost per year that the City is estimated to require to allocate towards funding infrastructure needs. Based on the available data at the time of this plan, more information is required for this calculation. A more complete asset inventory would result in capturing more assets and more accurate lifecycle costs. When more assets are added to the portfolio, the average annual funding need would also increase and be better representative of the actual spending required to manage the City's assets.

Based on the best available current information, to maintain the current level of service and lifecycle management strategy, the annual sustainable capital funding requirement for existing stormwater network assets is estimated to be $2,731,761.

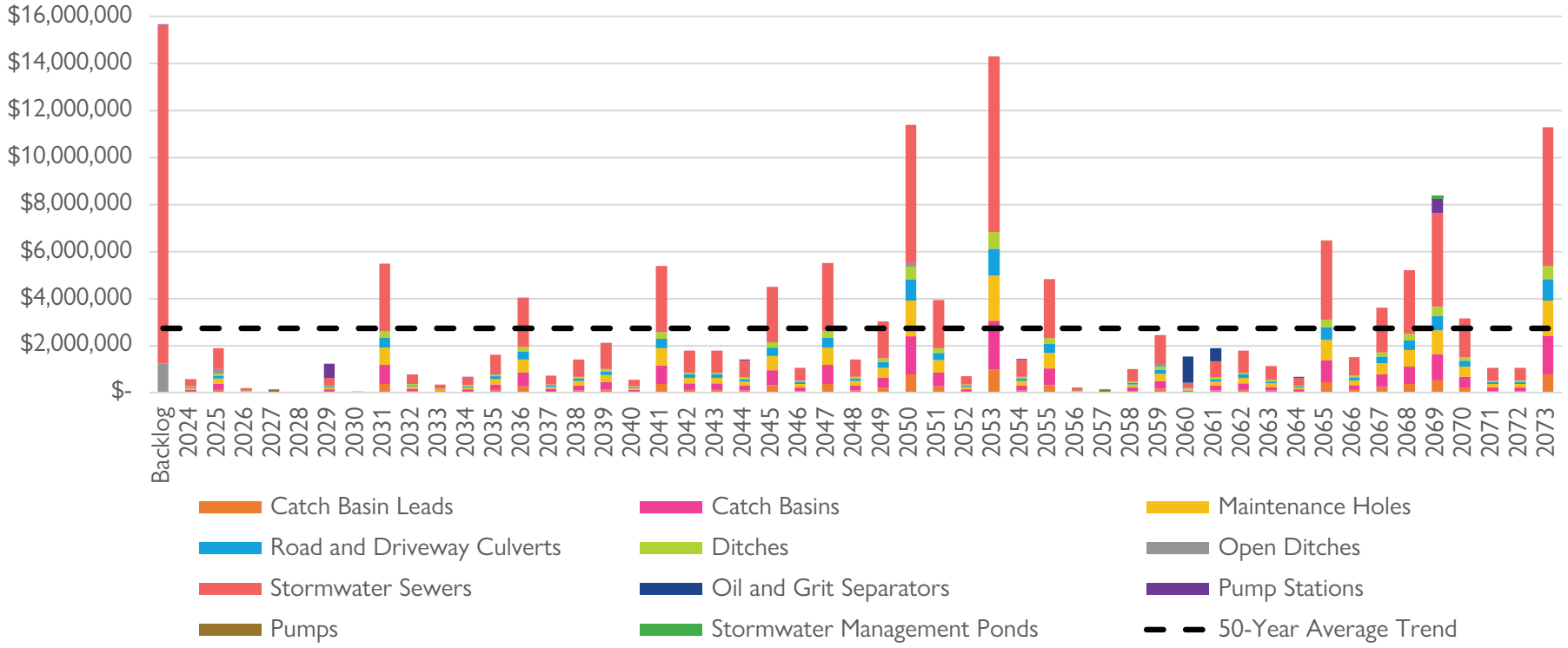
The 2024 capital budget funding allocation was $3,957,604. This means that there exists a funding surplus of $1,225,843 in 2024. Figure 74 illustrates a 50-year forecast of the annual capital asset needs for stormwater network assets, including the cost and asset lifecycle impacts of completing renewal and rehabilitation activities.

FIGURE 74: **Stormwater – Annual Capital Requirement – 50-Year Forecast**



Due to the 1980 in-service year assumption for maintenance holes, catch basins and leads, road and driveway culverts, and most ditches, outsized spikes exist in the forecast where all these assets come due for replacement in the same year. It is expected that the true age distribution of these assets is more aligned with the age distribution of the stormwater sewers. Using an assumption where the in-service year of these non-sewer assets matches the in-service year of stormwater sewers, the adjusted forecast is illustrated in figure 75.

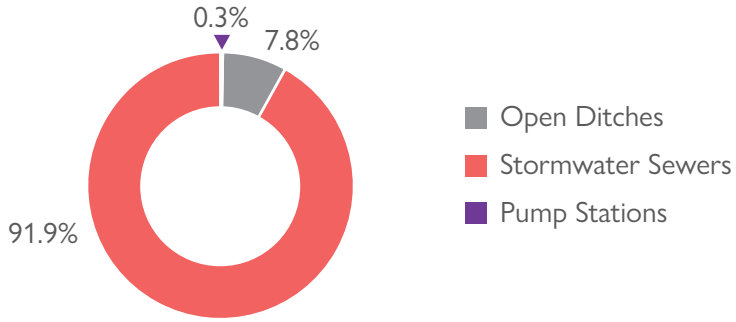
FIGURE 75: **Stormwater – Annual Capital Requirement – Adjusted 50-Year Forecast**



This adjusted forecast is a more realistic outlook of annual requirement that better matches how the City manages stormwater assets. Through reconstruction projects, the City replaces the various stormwater assets all at the same time along a corridor. The 50-year average trend excludes the value of the backlog.

The City has a significant and growing backlog of $15,675,405, primarily composed of stormwater sewers beyond their estimated useful life of 75 years. The City's oldest in-service stormwater sewers date back to 1905 and are well overdue for replacement. Figure 76 provides a breakdown of the sources of the backlog.

FIGURE 76: **Stormwater – Breakdown of Backlog**



Almost all of the backlog, 91.9%, is a result of very poor condition, end of life stormwater sewers. A large, multi-year investment would be required to overcome the backlog. Otherwise, it can be expected that the current level of service will decrease, and the level of risk will increase over the coming years.

An important note to consider is that the condition of stormwater sewers is primarily an age-based estimation. Stormwater sewers beyond their estimated useful life of 75 years may be able to remain in service for many more years if the condition of the pipe is better than anticipated. In-pipe condition assessments generate a more accurate representation of the actual condition of the pipes in the ground and may significantly decrease the backlog through the extension of the estimated useful life of old pipes. This data also provides some of the key information required to determine what pipes may be suitable for trenchless rehabilitation as a cost-saving lifecycle management strategy. Through the ongoing Stormwater Management Infrastructure Inventory and Condition Assessment project, a comprehensive condition assessment of stormwater sewers is taking place that will provide the City with in-pipe condition information.

For further details on capital requirements, please see the Financial Summary portion of this plan that details the funding needs for all categories of assets over the next 10 years, including discussion of impacts from growth.

8.7 Climate Change and Other Risks

Table 56 summarizes key trends, challenges, and risks that the City is currently facing in delivering the desired level of service.

TABLE 56: Stormwater – Climate Change and Other Risks

Trend, Challenge, or Risk	Summary
Asset Data and Information	There is a lack of confidence in the available inventory data. Staff have prioritized data collection and refinement to increase confidence in the accuracy and reliability of the data. Completion of the Stormwater Management Infrastructure Inventory and Condition Assessment project will provide accurate condition data for all known stormwater sewers in the City.
Climate Change and Extreme Weather Events	It is anticipated that there will be many challenges in managing the impacts of climate change, including: ▪ Potential increased damage to stormwater infrastructure through flooding and erosion due to more frequent extreme wet weather events. ▪ Increased uncertainty on the impact of higher intensity, frequency, and duration of rainfall events that can make it difficult to right-size infrastructure for the future. ▪ Increased uncertainty in impacts of extreme weather events and what is the most cost-effective resiliency strategy or group of strategies. The City is considering the following adaptation and mitigation measures in response to the challenges: ▪ Incorporate new best practices and technology in the design, construction, and maintenance of assets to increase resiliency while managing affordability. ▪ The City is looking to incorporate more Low Impact Developments (LIDs) as a good value for money investment to mitigate against more extreme wet weather events. Potential future adaptation and mitigation measures include: ▪ Use of lower embodied carbon materials to minimize the impact of infrastructure. ▪ Coordinate infrastructure design, construction, and maintenance with updated stormwater data and flood mapping to determine what options exist to improve resiliency during stormwater events.
Infrastructure Design and Installation	The City is getting better at standardizing engineering designs and ensuring that these are coordinated across departments and divisions through its 2015 Engineering Design Criteria Manual (DCM), which is due to be updated. Further efforts and refinements are continuously required to enhance and improve the process. City policy encourages the inclusion of Low Impact Development Best Management Practices (LID BMPs) including bioswales and other green infrastructure.
Lifecycle Management Strategies	The City's network of stormwater sewers is comprised of several different pipe materials. Some materials have higher break rates and present more operational challenges. In recent years there has been a focus on replacing clay and corrugated steel pipes with PVC. Reconstruction of stormwater assets is usually tied to road reconstruction, which may represent a concern as the lifecycle of sub-surface infrastructure and roads do not always align. The maintenance practice for vertical assets has generally been reactive. The City wants to implement more preventative and predictive maintenance programs in the future. The adoption of a work order management system tied to the asset management inventory system will provide an improved connection between maintenance programs and service delivery outcomes.
Infrastructure Reinvestment	The reinvestment in infrastructure has been reactive. Renewal and rehabilitation budgets have not increased in proportion to the age of infrastructure resulting in a growing backlog. There have been some moderate shifts to proactive reinvestment in the recent period.

8.8 Recommendations and Improvement Plan

Asset Inventory

- Continue to review and refine the asset inventory to improve scope, accuracy, and a more detailed breakdown of the assets within the stormwater network.
- Continue to add asset information to GIS layers for improved staff efficiency.

Condition

- Integrate the results of the ongoing Stormwater Management Infrastructure Inventory and Condition Assessment project into the asset inventory and adjust estimated useful lives to reflect the true condition of stormwater assets.
- Consider undertaking a stormwater infrastructure condition assessment project at regular 10-year intervals to update the condition assessment data.
- Explore industry best practices and new technologies to develop a better condition assessment strategy for the variety of non-pipe stormwater assets.

Lifecycle Management Strategies

- Evaluate the efficacy of the City's lifecycle management strategies at regular intervals to determine the impact of cost, condition, and risk.
- Develop more detailed preventative maintenance strategies and programs to maintain the current level of service.

Levels of Service

- Continue to measure current levels of service in accordance with the metrics identified in Ontario Regulation 588/17 and the additional metrics included by the City.
- Track annual progress towards the City's proposed levels of service targets.

8.9 Updates For 2025 Compliance

To achieve compliance with the July 1, 2025, requirements under O. Reg. 588/17, updates were made to the following items in this chapter:

- Table 53: Stormwater – Community Levels of Service and Table 54: Stormwater – Technical Levels of Service were updated to contain the levels of service and performance measures for 2024, and to contain the levels and measures that the City proposes to achieve over the 10-year period of 2025-2034.
- Table 55: Stormwater – Lifecycle Management Strategy was updated to identify the lifecycle activities needed to provide the proposed levels of service for the 10-year period at the best value for money over the lifecycle of the assets, and to identify the risks associated with not completing lifecycle activities for each activity type.
- Revised quantity of oil and grit separators in Table 47: Stormwater – Inventory and Replacement Cost. Revision of the associated replacement cost, age, estimated useful life, condition, and capital requirements tables and figures will be completed in a future revision of this plan.

In addition to the updates listed, various minor wording, layout, or graphical updates were made to the chapter to provide additional information or to improve clarity, visual appeal, or accessibility.

O. Reg. 588/17 further requires an explanation of why the proposed levels of service are appropriate for the City based on an assessment of four criteria. Table 57 contains the explanation available for the criteria.

TABLE 57: Stormwater – Proposed Levels of Service Appropriateness Assessment

O. Reg. 588/17 S.6(1) 2(i-iv) Criteria	Explanation of Appropriateness
i. The options for the proposed levels of service and the risks associated with those options to the long-term sustainability of the municipality.	Through an ongoing update to the City's Engineering Design Criteria Manual, the City is considering changes to increase stormwater system resiliency due to intensification and anticipated climate change impacts. Furthermore, updating the engineering design criteria will align the guidance document with industry best practices and current standards. Not aligning with best practices and current standards typically leads to higher overall lifecycle cost. Considering the impacts on operating costs and reliability of replacing assets before the asset reaches a Poor or Very Poor condition state. Assets in Poor or Very Poor condition typically have higher annual operations and maintenance costs. In-pipe inspections provide the detailed condition data used to determine what lifecycle management strategy option is most cost effective over the lifecycle of the asset. Not obtaining this information would lead to higher lifecycle costs in the long-term and lower financial sustainability. Although not currently captured as a technical level of service measure, the 2025-2034 10 Year Capital and Reserve Forecast includes stormwater projects focused on end of pipe retrofits to improve the water quality of stormwater discharge. By completing these projects, the City is demonstrating it commitment to environmental stewardship and the long-term health and sustainability of Lake Simcoe and Lake Couchiching. The risk of not doing lifecycle management activities includes the risks identified in Table 55: Stormwater – Lifecycle Management Strategy. Adopting a do-nothing approach would result in significantly higher lifecycle costs and risk, a rapid decline in levels of service, and would substantially reduce the long-term sustainability of the City's assets. During the design stage of capital projects, anticipated future climate change impacts are considered. Table 56: Stormwater – Climate Change and Other Risks includes a summary of adaptation and mitigation measures that could be used in response to the challenges. Not proactively funding adaptation and mitigation measures is anticipated to cost significantly more over the lifecycle of the assets and lead to lower long-term asset reliability.

O. Reg. 588/17 S.6(1) 2(i-iv) Criteria	Explanation of Appropriateness
ii. How the proposed levels of service differ from the current levels of service.	Table 54: Stormwater – Technical Levels of Service identifies the difference in performance between the most current level of service performance value available and the 2034 target performance where determined. The City will continue to measure current levels of service over time to establish a historical baseline or trend, and work towards establishing additional future targets. Adjustments to levels of service and determining future targets is a forward looking and iterative process that will occur over time as the City improves and refines its integrated approach to asset management. For the levels of service measures with 2034 targets identified, the differences between current and targets levels of service include: ▪ The City is aiming to improve the resiliency of the stormwater system to wet weather events and as a result, the aim is to be no worse off in 10 years compared to 2023 or 2024 in terms of the percentage of properties resilient to and the stormwater system's resilience to varying wet weather events. ▪ The City is aiming to improve the scope and accuracy of its stormwater mapping and forecasting capabilities to analyze the level of resiliency of the stormwater system during different intensities and frequencies of wet weather events. ▪ The City is planning to examine in more detail some recurring problem areas where the impacts of wet weather events have previously caused emergency road closures. ▪ During 2024, the City commenced an updated annual program to flush and in-pipe camera the linear network of stormwater sewers on a cycle of 10 years to identify issues and make repairs as appropriate and as funds allow. Historical in-pipe condition assessments did not follow a consistent cycle or frequency across the system with a portion assessed every year. A 2034 target performance will be established for the condition of the stormwater system after the results of the ongoing Stormwater Management Infrastructure Inventory and Condition Assessment project are received. As the City moves towards integrating work orders for some operations and maintenance activities in the stormwater service area into the same platform that is used for asset management, the City will be better equipped to measure technical levels of service values over time including some of those currently listed as not available (N/A) in Table 54.
iii. Whether the proposed levels of service are achievable.	From a City staff resources perspective, the forecasted list of projects may be achievable and is dependent on future staffing levels. Whether the full project list moves forward is dependent on receiving regulatory approvals, Council approving funding through future budget deliberations, environmental assessments, coordination with nearby assets in other service areas, changes in legislation, changes in the City's Official Plan and achieved levels of intensification, and if the actual impacts of climate change are worse than forecasted.

O. Reg. 588/17 S.6(1) 2(i-iv) Criteria	Explanation of Appropriateness
iv. The municipality's ability to afford the proposed levels of service.	Over the 2025-2034 10-Year Capital and Reserve Forecast period, the stormwater service area is funded by the following sources: ▪ Stormwater Asset Management Reserve Fund; ▪ Stormwater Obligatory Reserve Fund; and ▪ Debenture Reserve Fund. The financial strategy chapter included in this plan contains the O. Reg. 588/17 requirements of: ▪ An estimate of the annual costs for the lifecycle activities required to provide the proposed level of service; ▪ The annual funding projected to be available; ▪ The options examined by the City to maximize projected funding; and ▪ The identification of any funding deficit or shortfall. As the City has a population above 25,000, the financial strategy chapter contains the details required under S.6(1) 6(i-ii) of O. Reg. 588/17 regarding the costs and funding available due to population and employment growth. To promote alignment and consistency between City documents and City Council decision making, the proposed levels of service input into this chapter and the financial strategy chapter are aligned with the outcomes of the 2025 budget process and resulting 2025-2034 10 Year Capital and Reserve Forecast. The 2025-2034 10 Year Capital and Reserve Forecast was presented during the 2025 Budget process and resulted in the City utilizing its self-imposed 10% debt limit as well as a negative total reserve and reserve fund shortfall by 2034 in the amount of -$214.4 million in 2025 dollars. The Financial Strategy chapter of this plan provides a detailed discussion of the sustainability of the City's financial position. If the City follows a path of financial unsustainability, eventually some lifecycle activities would become unaffordable and the City may not achieve its proposed levels of service targets. Which activities the City will not undertake due to a shortfall depends on which reserves contain the large negative balances. Maintaining the proposed levels of service targets for all categories would require significant increases in funding levels. Stormwater staff are looking ahead at future asset lifecycle needs beyond the 2025-2034 forecast period to right-size reserve contribution requirements and are considering the possibility of additional long-term funding pressures due to: ▪ Anticipated future changes in legislation that will have more stringent environmental requirements. An explanation of the options examined by the City to maximize the funding projected to be available to afford the proposed levels of service is included in Table 137: Financial Strategy – Funding Maximization Activities and Choices.

9.0
Fire Services

9.0 Fire Services

The City provides fire services to prevent and mitigate losses and injuries as a result of events requiring a response. These services include fire suppression, emergency medical response, automobile extrication, search and rescue, hazardous materials spill response, public education, and building inspections. Fire services is the tenth-largest category of assets at a total replacement cost of $12,216,086 in 2023 dollars.

9.1 Asset Inventory and Replacement Cost

The City manages two fire halls, a wide variety of personal protective equipment and tools, four passenger vehicles, and a small fleet of fire apparatus vehicles including one aerial platform tower vehicle, one rescue vehicle, three pumper vehicles, two boats, and a fire prevention kit with trailer.

The inventory is up to date as of the end of 2023. The structure of the fire halls is excluded from this category since those assets are managed separately through the Facilities service area.

The replacement cost is either based on estimates provided by vendors or on average purchase prices of recently acquired assets with similar characteristics. Included in the cost of replacing each asset is a set of components that together comprise a typical asset. The full set of components for each sub-segment is identified in Appendix 20.2.5.

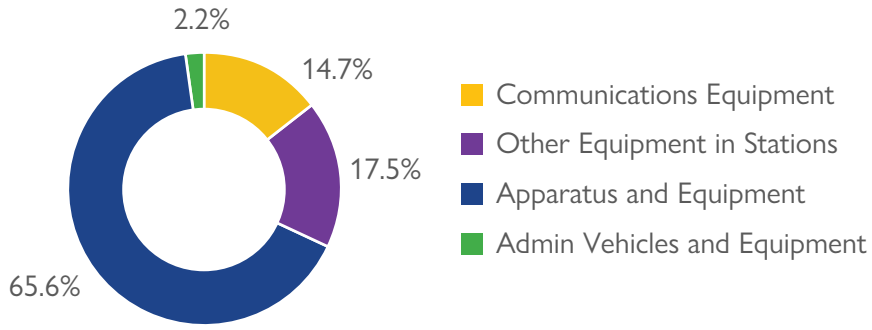
Table 58 includes the quantity, replacement cost method, and total replacement cost in 2023 dollars of each sub-segment of assets in the City's fire asset inventory.

TABLE 58: **Fire – Inventory and Replacement Cost**

Asset Sub-Segment	Quantity	Replacement Cost Method	Replacement Cost	Percentage of Total Replacement Cost
Communications Equipment	44	Asset-Specific Cost Estimation	$1,796,081	14.7%
Other Equipment in Stations	273	Asset-Specific Cost Estimation	$2,137,734	17.5%
Apparatus and Equipment	7 apparatus vehicles with equipment Fire prevention kit and trailer	Asset-Specific Cost Estimation	$8,018,071	65.6%
Admin Vehicles and Equipment	4 passenger vehicles with equipment	Asset-Specific Cost Estimation	$264,200	2.2%

Figure 77 provides the data in table 58 visually with each sub-segment as a percentage of the total replacement cost. Most of the City's fire assets are apparatus and equipment at over half of the asset value.

FIGURE 77: **Fire – Total Replacement Cost**



9.2 Asset Age and Estimated Useful Life

The estimated useful life of fire assets is determined using a combination of staff knowledge, historical data, and industry standards. The average service life remaining is determined by the difference between the average estimated useful life and the average age, except when an asset has been assigned an assessed condition rating that may increase or decrease the average service life remaining.

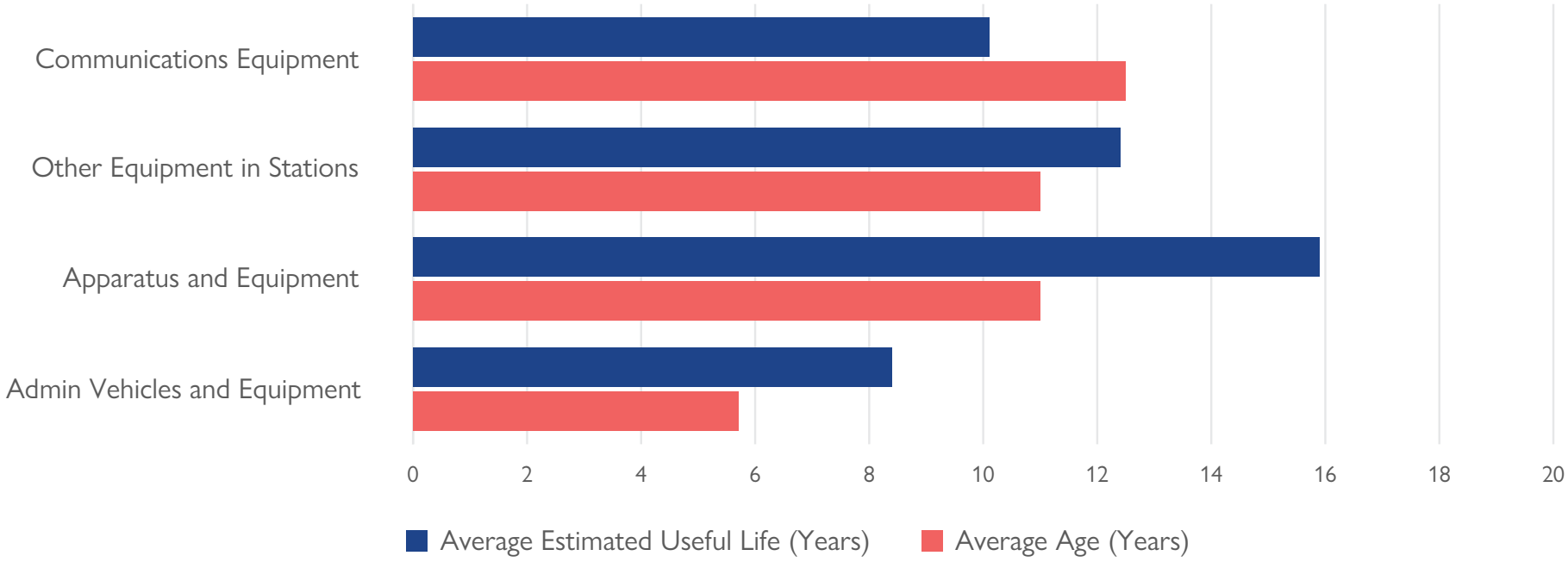
Table 59 summarizes the average age of each sub-segment based on the number of years that the assets have been in service.

TABLE 59: **Fire – Average Age and Estimated Useful Life**

Asset Sub-Segment	Average Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)	Percentage of Average Service Life Remaining
Communications Equipment	10.2	13.0	-2.8	-28%
Other Equipment in Stations	12.6	11.0	1.6	13%
Apparatus and Equipment	15.9	10.9	5.0	31%
Admin Vehicles and Equipment	8.3	5.8	2.5	30%

The age of an asset gives an indication of how close it is to the end of its estimated useful life and what lifecycle management strategies may be required. Figure 78 displays average asset age alongside the estimated useful life for each asset sub-segment.

FIGURE 78: **Fire – Average Age and Estimated Useful Life**



Average asset age has exceeded the average estimated useful life for the communications equipment sub-segment. A significant portion of the value in the communications equipment sub-segment is the 9-1-1 call equipment that is set to be updated to the new Next Generation 9-1-1 system. Once this update is complete, the average age of the communications equipment is expected to significantly decrease and become less than the average estimated useful life.

Further improvements are required to the asset inventory to ensure that the estimated useful life assigned to assets is reflective of the true length of time that assets are typically in service.

9.3 Condition

The following sections and tables outline the condition breakdown for fire assets and the City's methods for assessing asset condition. Where available and feasible, the City follows industry standard best practices and generally accepted good engineering practices in the approach to assessing asset condition. When condition assessments are unavailable, an age-based condition rating is used based on the relative age of the asset compared to its estimated useful life. In addition to the techniques discussed below, a reliability grade is assigned by the Fire Underwriters Survey approximately every 10 years through a review of the entire fire department, including review of the asset inventory.

Table 60 summarizes the variety of techniques used to assess the condition of the fire assets on a regular frequency.

TABLE 60: **Fire – Approach to Assessing Condition**

Asset Sub-Segment	Condition Data Collection Techniques	Frequency of Data Collection	Year of Last Assessment
Communications Equipment	Annual inspections in accordance with the National Fire Protection Association (NFPA) standards where required. Other assets are visually inspected annually by staff.	Every year or 10 years.	2023
Other Equipment in Stations	Annual inspections in accordance with the National Fire Protection Association (NFPA) standards where required. Other assets are visually inspected annually by staff.	Every year or 10 years.	2023
Apparatus and Equipment	Annual inspections in accordance with the National Fire Protection Association (NFPA) standards where required. Other assets are visually inspected annually by staff.	Every year.	2023
Admin Vehicles and Equipment	Annual inspections by staff.	Every year.	2023

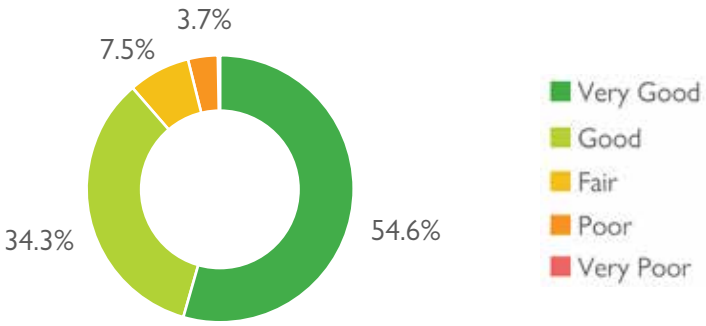
Table 61 provides a summary of the condition rating systems for all sub-segments of fire assets. Based on the condition data collected, the condition of assets is rated on a scale from Very Good to Very Poor.

TABLE 61: **Fire – Condition Rating Summary**

Rating	Rating Description	All Fire Assets (Five-Point Scale)
Very Good	Fit for Future	1.8 ≥ and ≥ 0
Good	Adequate for Now	2.6 ≥ and > 1.8
Fair	Requires Attention	3.4 ≥ and > 2.6
Poor	Increasing Potential of Affecting Service	4.2 ≥ and > 3.4
Very Poor	Unfit for Sustained Service	5.0 ≥ and > 4.2

Figure 79 illustrates the breakdown of condition ratings of the City's fire assets. 88.9% of these assets are in Very Good to Good condition with no assets rated as Very Poor.

FIGURE 79: **Fire – Condition Rating Summary**



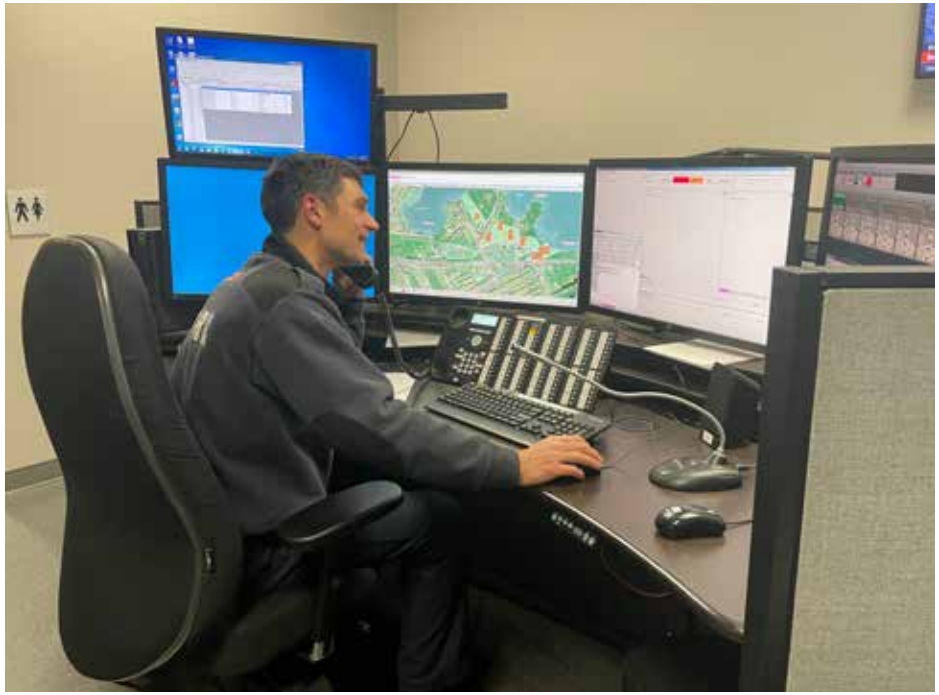


FIGURE 80: Fire – Breakdown of Condition Rating – Percentage of Cost

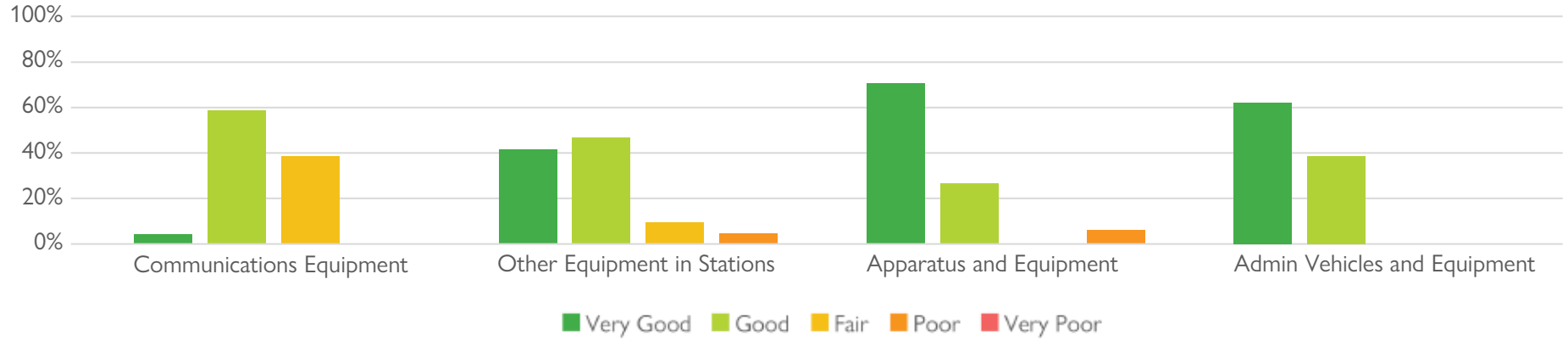
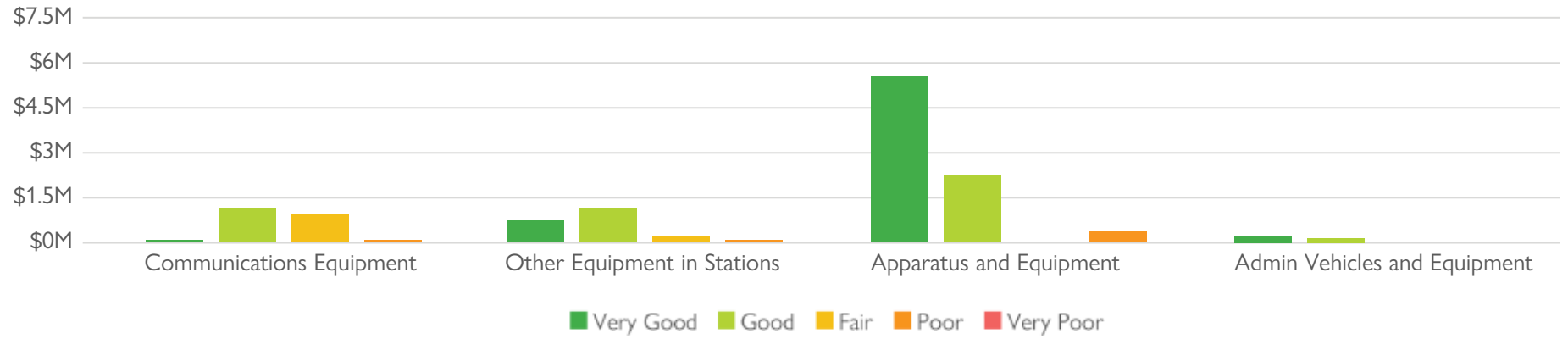


Figure 80 illustrates the breakdown of condition ratings for all fire assets in terms of the percentage of total replacement cost. A key point is that due to the differences in methodology for calculating condition between sub-segments, direct comparisons between sub-segments may not be consistent depending on which sub-segments are compared.

Figure 81 illustrates the same breakdown but in terms of the total replacement cost rather than the percentage of total replacement cost for each sub-segment. This illustrates the smaller cost implications of the admin vehicles and equipment assets compared to the larger value of the other sub-segments.

FIGURE 81: Fire – Breakdown of Condition Rating – Cost



The overall average condition of fire assets is Good.

Assets are maintained by using the best treatment option to manage the current condition and anticipated future deterioration of the asset. More information is found in the lifecycle management strategy details in Section 9.5. Due to the upcoming upgrade to the Next Generation 9-1-1 system and the many equipment assets that will be impacted, this plan omits sections presenting the fully detailed condition information for each sub-segment or group of sub-segments of assets.

9.4 Levels of Service and Performance Measures

The City's assets exist to deliver services to its users. Levels of service are a measurement of the actual service provided so that decisions are made based on the nature and quality of that service, rather than only the condition of an asset. These are used to summarize the type of service being provided that reflects the values and desires of stakeholders in the community.

Tables 62 and 63 identify the City's historical and proposed levels of service for the fire assets. These metrics include any technical and community level of service metrics that are required to comply with Ontario Regulation 588/17, as well as any additional metrics provided by the City.

9.4.1 Community Levels of Service

Table 62 identifies the qualitative descriptions that determine the community levels of service provided by fire assets.

TABLE 62: **Fire – Community Levels of Service**

Service Attribute	Community Levels of Service	Related Assets
Minimize Lifecycle Cost	The City minimizes average annual lifecycle costs for fire apparatus and support vehicles.	Apparatus and Equipment, Admin Vehicles and Equipment
Reliability	The City strives to minimize breakdowns of fire apparatus and support vehicles.	Apparatus and Equipment, Admin Vehicles and Equipment
Availability	The City strives to minimize the number of days that fire apparatus and support vehicles are out of service.	Apparatus and Equipment, Admin Vehicles and Equipment
Quality	The City inspects and maintains the fire inventory at a condition level to ensure that it functions as designed.	All

9.4.2 Technical Levels of Service

Table 63 identifies the quantitative metrics that determine the technical level of service provided by fire assets.

TABLE 63: **Fire – Technical Levels of Service**

Service Attribute	Description of What Performance Measure Captures	Performance Measure	2023	2024	Target	Related Assets
Minimize Lifecycle Cost	Replacement of fire apparatus when repair and maintenance costs become uneconomical.	Number of fire apparatus with repair and maintenance costs less than the age-based threshold percentage of replacement cost as a percentage of the total number of fire apparatus. The age-based threshold percentages for apparatus are: 0-3 Years: 20% 4-7 Years: 17.5% 8-10 Years: 15% 11-13 Years: 12.5% 14-15 Years: 10%	N/A	N/A	N/A	Apparatus and Equipment
Minimize Lifecycle Cost	Replacement of fire support vehicles when repair and maintenance costs become uneconomical.	Number of fire support vehicles with repair and maintenance costs less than the age-based threshold percentage of replacement cost as a percentage of the total number of fire support vehicles. The age-based threshold percentages for support vehicles have not been determined yet.	N/A	N/A	N/A	Admin Vehicles and Equipment
Reliability	Mechanical failures that prevent fire apparatus from completing trips.	Number of towing and roadside service incidents for fire apparatus that are due to mechanical failures per 100,000 km travelled.	N/A	N/A	N/A	Apparatus and Equipment
Reliability	Mechanical failures that prevent fire support vehicles from completing trips.	Number of towing and roadside service incidents for fire support vehicles that are due to mechanical failures per 100,000 km travelled.	N/A	N/A	N/A	Admin Vehicles and Equipment
Availability	Time fire apparatus are out of service.	Number of days fire apparatus are out of service per apparatus for unplanned maintenance or repairs.	N/A	14	N/A	Apparatus and Equipment
Availability	Time fire support vehicles are out of service.	Number of days fire support vehicles are out of service per support vehicle for unplanned maintenance or repairs.	N/A	N/A	N/A	Admin Vehicles and Equipment
Quality	Condition of the fire inventory.	Percentage of fire assets in Poor or Very Poor condition.	3.7%	N/A	≤10%	All

9.5 Lifecycle Management Strategy

It is important to proactively manage asset deterioration through a lifecycle management strategy that balances cost, risk, and the level of service. Table 64 describes the current lifecycle management activities completed and includes the risks associated with not completing these activities through using a do-nothing approach.

TABLE 64: **Fire – Lifecycle Management Strategy**

Activity Type	Description of Current Strategy	Risks Associated with Not Completing Activities
Operations and Maintenance	Fire Services performs regular maintenance on its fire apparatus and support vehicles. Regular maintenance is a critical part of the lifecycle of these assets because failing to perform regular maintenance leads to higher repair costs.	▪ Deficiencies are not identified through inspections. ▪ Higher lifecycle costs if maintenance is delayed or completed incorrectly. ▪ Premature asset failure, health and safety risks, and service disruptions.
Renewal and Rehabilitation	Replacement is the primary strategy at the end of the asset estimated useful life; however, renewal and rehabilitation options are considered to ensure the best value for money option is chosen.	▪ Renewal and rehabilitation activities may increase asset life less than anticipated resulting in a need for repeated activities or premature asset failure. ▪ Higher lifecycle costs if work is delayed or completed incorrectly.
Replacement and Disposal	Replacements of assets with a replacement cost of $20,000 and over are funded through the City's capital budget. Assets with a replacement cost under $20,000 (e.g. communications equipment, fire hose nozzles, hand tools, etc.) are replaced on failure, and generally funded through the operating budget. The Fire Services Division maintains a 10-year replacement forecast for these assets in a spreadsheet format. The forecast is based on acquisition date and estimated expected useful life (based on NFPA estimates where available).	▪ Delay in replacement and disposal projects may result in significantly higher costs, longer service disruptions, liability concerns, delays to emergency response times, and user dissatisfaction.
Growth-Related and Service Enhancements Lifecycle Needs	The City's Fire Master Plan identifies capital assets that are needed to address population growth at a high level. For example, the 2017 Fire Master Plan identifies that there is a potential need for a third fire hall in the future and describes criteria for selecting a site, desired building attributes, and estimates of construction costs. Fire Services Division staff take the Fire Master Plan recommendations into consideration when developing the 10-year capital plan.	▪ Delay or cancellation of growth-related activities causing the service to be unable to sufficiently accommodate growth. ▪ Master plans may over or underestimate the required expansions to accommodate the impacts of growth.
Non-Infrastructure	Inspections and master plans.	▪ Rate of asset deterioration is over or underestimated.
Identification of Short-Term Priorities	Fire Services Division staff monitor fire apparatus, vehicles, and equipment for issues while they are in use, reporting them to management to be addressed.	▪ Decrease in service performance, higher lifecycle costs, and funding may not be prioritized in a way that ensures the best value for money option is picked to maintain the level of service.

9.6 Forecasted Capital Requirements

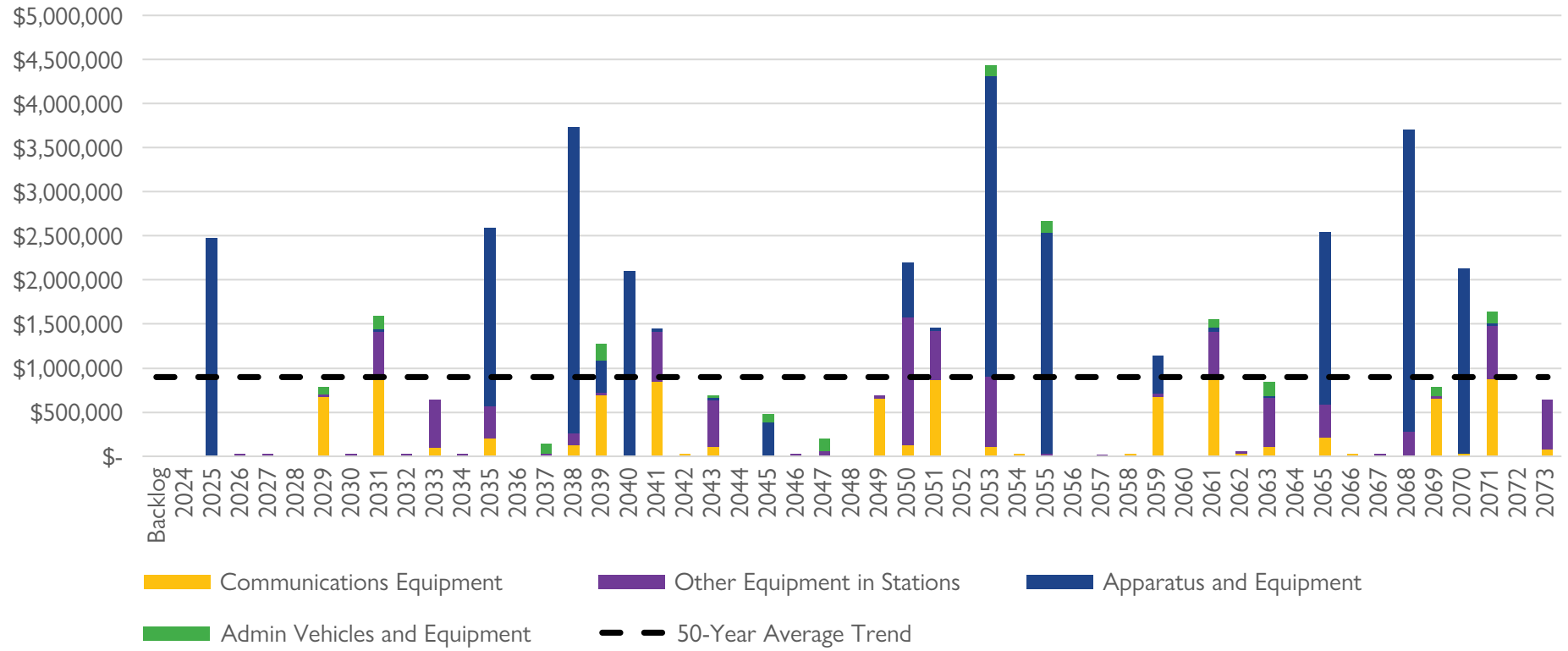
The City continuously invests in maintaining its assets and has been increasing budget amounts to more closely align with asset needs.

The annual capital requirement represents the average cost per year that the City is estimated to require to allocate towards funding asset needs. Based on the available data at the time of this plan, more information is required for this calculation. A more complete asset inventory would result in capturing more assets and more accurate lifecycle costs. When more assets are added to the portfolio, the average annual funding need would also increase and be better representative of the actual spending required to manage the City's assets.

Based on the best available current information, to maintain the current level of service and lifecycle management strategy, the annual sustainable capital funding requirement for existing fire assets is estimated to be $898,641.

The 2024 capital budget funding allocation was $177,000. This means that there exists a funding deficit, or funding shortfall, of $721,641 in 2024. Figure 82 illustrates a 50-year forecast of the annual capital asset needs for fire assets, including the cost and asset lifecycle impacts of completing renewal and rehabilitation activities.

FIGURE 82: **Fire – Annual Capital Requirement – 50-Year Forecast**



Due to historical inconsistency in the timing of the various assets coming into service, a sawtooth pattern is present where in some years the total annual requirement is low followed by a spike that reaches well above the long-term average. The City's asset management program aims to smooth out this behaviour in favour of a more consistent amount of annual spending. However, due to the nature of the lifecycle of infrequently replaced and higher-cost fire apparatus, it is anticipated that spending will have to remain less consistent over time to match the lifecycle management strategy needs of the apparatus assets. Contributions to reserves for apparatus purchases will be considered in a future revision of this plan.

For further details on capital requirements, please see the Financial Summary portion of this plan that details the funding needs for all categories of assets over the next 10 years, including discussion of impacts from growth.

9.7 Climate Change and Other Risks

Table 65 summarizes key trends, challenges, and risks that the City is currently facing in delivering the desired level of service.

TABLE 65: **Fire – Climate Change and Other Risks**

Trend, Challenge, or Risk	Summary
Climate Change and Extreme Weather Events	It is anticipated that there will be challenges in managing the impacts of climate change, including: ▪ Potential increased call volume and frequency due to more frequent severe weather events. ▪ Potential delays to response times due to extreme wet weather events flooding or damaging roads, extreme snowfall events stressing winter control operations capacity, and extreme wind events downing trees resulting in blocked roads, fallen powerlines, and damaged buildings complicating rescue efforts. ▪ Increased uncertainty in impacts of extreme weather events and what is the most cost-effective resiliency strategy or group of strategies. The City is considering the following adaptation and mitigation measures in response to the challenges: ▪ Incorporate new best practices and technology in the design, procurement, and maintenance of assets to increase resiliency while managing affordability.

9.8 Recommendations and Improvement Plan

Asset Inventory

- Continue to review and refine the asset inventory to improve scope, accuracy, and update estimated useful life values.

Levels of Service

- Continue to measure current levels of service in accordance with the metrics identified in Ontario Regulation 588/17 and the additional metrics included by the City.
- Track annual progress towards the City's proposed levels of service targets.

9.9 Updates For 2025 Compliance

To achieve compliance with the July 1, 2025, requirements under O. Reg. 588/17, updates were made to the following items in this chapter:

- Table 62: Fire – Community Levels of Service and Table 63: Fire – Technical Levels of Service were updated to contain the levels of service and performance measures for 2024, and to contain the levels and measures that the City proposes to achieve over the 10-year period of 2025-2034.
- Split the Equipment in Stations asset sub-segment into two new sub-segments named Communications Equipment and Other Equipment in Stations because communications equipment has unique lifecycle needs.

In addition to the updates listed, various minor wording, layout, or graphical updates were made to the chapter to provide additional information or to improve clarity, visual appeal, or accessibility.

O. Reg. 588/17 further requires an explanation of why the proposed levels of service are appropriate for the City based on an assessment of four criteria. Table 66 contains the explanation available for the criteria.

TABLE 66: Fire – Proposed Levels of Service Appropriateness Assessment

O. Reg. 588/17 S.6(1) 2(i-iv) Criteria	Explanation of Appropriateness
i. The options for the proposed levels of service and the risks associated with those options to the long-term sustainability of the municipality.	Considering the impacts on operating costs and reliability of replacing assets before the asset reaches a Poor or Very Poor condition state. Assets in Poor or Very Poor condition typically have higher annual operations and maintenance costs. The City gives a heightened level of consideration to maintaining the condition of personal protective equipment above a Poor or Very Poor condition to avoid health and safety risks. The City follows the NFPA guidelines stating that bunker gear should be replaced every 10 years for health and safety reasons. The City considers the trade-off between purchasing replacement apparatus vehicles rather than keeping existing vehicles with higher than typical repair and maintenance costs. The Fire Underwriters Survey provide the determination of fire-related insurance rates partially based on how much of the City's apparatus is at or beyond 15 years of age. Industry standard practice is that fire apparatus should respond to first alarms for the first fifteen years of service. For the next five years, it should be held in reserve status for use at major fires or used as a temporary replacement for out-of-service first line apparatus. As fire apparatus age and accumulate front line usage, the frequency of mechanical failures can increase significantly over the final years of service of the apparatus. Adjusting planned maintenance and repair frequencies to limit the amount of time vehicles are out of service due and to limit the higher lifecycle costs, delays to emergency response times, and user dissatisfaction that may occur due to unplanned maintenance or repairs causing longer service disruptions. The risk of not doing lifecycle management activities includes the risks identified in Table 64: Fire - Lifecycle Management Strategy. Adopting a do-nothing approach would result in significantly higher lifecycle costs and risk, a rapid decline in levels of service, and would substantially reduce the long-term sustainability of the City's assets. During the design stage of capital projects, anticipated future climate change impacts are considered. Table 65: Fire – Climate Change and Other Risks includes a summary of adaptation and mitigation measures that could be used in response to the challenges.
ii. How the proposed levels of service differ from the current levels of service.	Table 63: Fire – Technical Levels of Service identifies the difference in performance between the most current level of service performance value available and the 2034 target performance where determined. A 2034 target performance has not been determined yet for some measures included in this chapter. The City will continue to measure current levels of service over time to establish a historical baseline or trend, and work towards establishing additional future targets. Adjustments to levels of service and determining future targets is a forward looking and iterative process that will occur over time as the City improves and refines its integrated approach to asset management. For the levels of service measures with 2034 targets identified, the anticipated impacts of the differences between current and targets levels of service include: ▪ The percentage of fire service assets in Poor or Very Poor condition is forecasted to remain within an upper limit of 10%. This limit allows for flexibility for the City to manage fluctuations in the number assets in worse condition states that are due for replacement in the following year. As the City mores towards aligning the maintenance and procurement of fire service area vehicles to the practices used for the rest of the City fleet, the City will be better equipped to measure technical levels of service values over time and set future targets, including those currently listed as not available (N/A) in Table 63.

O. Reg. 588/17 S.6(1) 2(i-iv) Criteria	Explanation of Appropriateness
iii. Whether the proposed levels of service are achievable.	From a City staff resources perspective, the forecasted list of projects is achievable and is dependent on future staffing levels. Whether the full project list moves forward is dependent on receiving regulatory approvals, Council approving funding through future budget deliberations, environmental assessments, market availability and lead times, if population growth occurs at the forecasted rate, and NFPA regulation changes.
iv. The municipality's ability to afford the proposed levels of service.	Over the 2025-2034 10-Year Capital and Reserve Forecast period, the fire services area is funded by the following sources: ▪ Fire Services Operating Budget; ▪ Provincial Grant; ▪ Capital Levy Reserve Fund; ▪ Fleet and Equipment Asset Management Reserve Fund; ▪ General Asset Management Reserve Fund; ▪ IT and Innovation Reserve Fund; ▪ Fire Obligatory Reserve Fund; and ▪ Debenture Reserve Fund. The financial strategy chapter included in this plan contains the O. Reg. 588/17 requirements of: ▪ An estimate of the annual costs for the lifecycle activities required to provide the proposed level of service; ▪ The annual funding projected to be available; ▪ The options examined by the City to maximize projected funding; and ▪ The identification of any funding deficit or shortfall. As the City has a population above 25,000, the financial strategy chapter contains the details required under S.6(1) 6(i-ii) of O. Reg. 588/17 regarding the costs and funding available due to population and employment growth. To promote alignment and consistency between City documents and City Council decision making, the proposed levels of service input into this chapter and the financial strategy chapter are aligned with the outcomes of the 2025 budget process and resulting 2025-2034 10 Year Capital and Reserve Forecast. The 2025-2034 10 Year Capital and Reserve Forecast was presented during the 2025 Budget process and resulted in the City utilizing its self-imposed 10% debt limit as well as a negative total reserve and reserve fund shortfall by 2034 in the amount of -$214.4 million in 2025 dollars. The Financial Strategy chapter of this plan provides a detailed discussion of the sustainability of the City's financial position. If the City follows a path of financial unsustainability, eventually some lifecycle activities would become unaffordable and the City may not achieve its proposed levels of service targets. Which activities the City will not undertake due to a shortfall depends on which reserves contain the large negative balances. Maintaining the proposed levels of service targets for all categories would require significant increases in funding levels. Fire services staff are looking ahead at future asset lifecycle needs beyond the 2025-2034 forecast period to right-size reserve contribution requirements and are considering the possibility of additional long-term funding pressures due to: ▪ Anticipated future changes in legislation that change the availability of and financial incentives to purchase alternative energy apparatus or support vehicles. ▪ Increased density of buildings with higher floor counts causing changes in training needs. ▪ Anticipated need for a local training centre for training of firefighters as the number of firefighters grow and training needs increase. An explanation of the options examined by the City to maximize the funding projected to be available to afford the proposed levels of service is included in Table 137: Financial Strategy – Funding Maximization Activities and Choices

10.0
Fleet and Transit

10.0 Fleet and Transit

City-owned fleet and transit vehicles and equipment are operated in a variety of service areas across the City including transportation, parks, recreation, water, wastewater, stormwater, transit, and other City service areas. Activities include transportation of City staff, winter control, surveying, earthmoving, ice pad surfacing, public transit, grass mowing and fertilizing, and street sweeping. Fleet and transit is the eighth-largest category of assets at a total replacement cost of $33,516,574 in 2023 dollars.

10.1 Asset Inventory and Replacement Cost

The City fleet and transit asset inventory is comprised of 154 assets, including 12 buses, 15 plow trucks, nine sidewalk machines, six tractors, 39 trucks, cars, or vans, and a wide variety of other vehicles and equipment. Fire apparatus is excluded from this category since those assets are managed separately through the Fire service area.

The replacement cost is estimated using primarily historic purchase costs with consideration of standardized costing indices. Included in the cost of replacing each asset is a set of components that together comprise a typical asset. The City is aiming to better align with industry standards for vehicle and equipment categorization going forward, and future revisions of this plan may reflect changes in categorization. The full set of components for each sub-segment and a newly developed vehicle categorization system are identified in Appendix 20.2.6.

To ensure that the replacement cost estimated is reflective of the current model year of vehicles available from manufacturers and suppliers, a high-level replacement cost review took place in February of 2024.

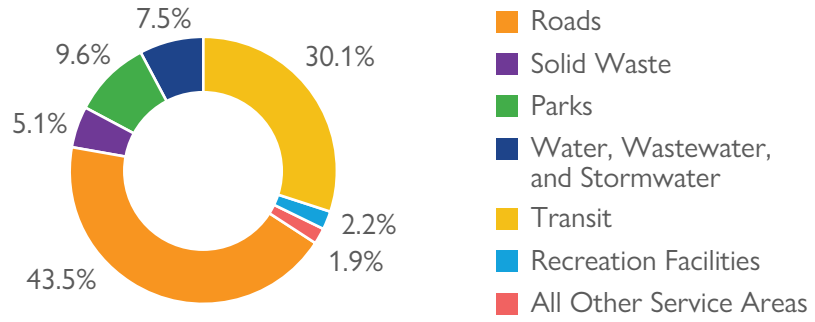
Table 67 includes the quantity, replacement cost method, and total replacement cost in 2023 dollars of each sub-segment of assets in the City's fleet and transit inventory.

TABLE 67: **Fleet and Transit – Inventory and Replacement Cost**

Asset Sub-Segment	Quantity	Replacement Cost Method	Replacement Cost	Percentage of Total Replacement Cost
Roads	51 vehicles	Asset-Specific Cost Estimation	$14,588,811	43.5%
Solid Waste	4 vehicles	Asset-Specific Cost Estimation	$1,725,000	5.1%
Parks	53 vehicles	Asset-Specific Cost Estimation	$3,216,013	9.6%
Recreation Facilities	7 vehicles	Asset-Specific Cost Estimation	$750,000	2.2%
Water, Wastewater, and Stormwater	19 vehicles	Asset-Specific Cost Estimation	$2,501,750	7.5%
Transit	12 buses	Asset-Specific Cost Estimation	$10,100,000	30.1%
All Other Service Areas	8 vehicles	Asset-Specific Cost Estimation	$635,000	1.9%

Figure 83 provides the data in table 67 visually with each sub-segment as a percentage of the total replacement cost.

FIGURE 83: **Fleet and Transit – Total Replacement Cost**



10.2 Asset Age and Estimated Useful Life

The estimated useful life of fleet and transit assets is determined using a combination of staff knowledge, historical data, and industry standards. The average service life remaining is determined by the difference between the average estimated useful life and the average age, except when an asset has been assigned an assessed condition rating that may increase or decrease the average service life remaining.

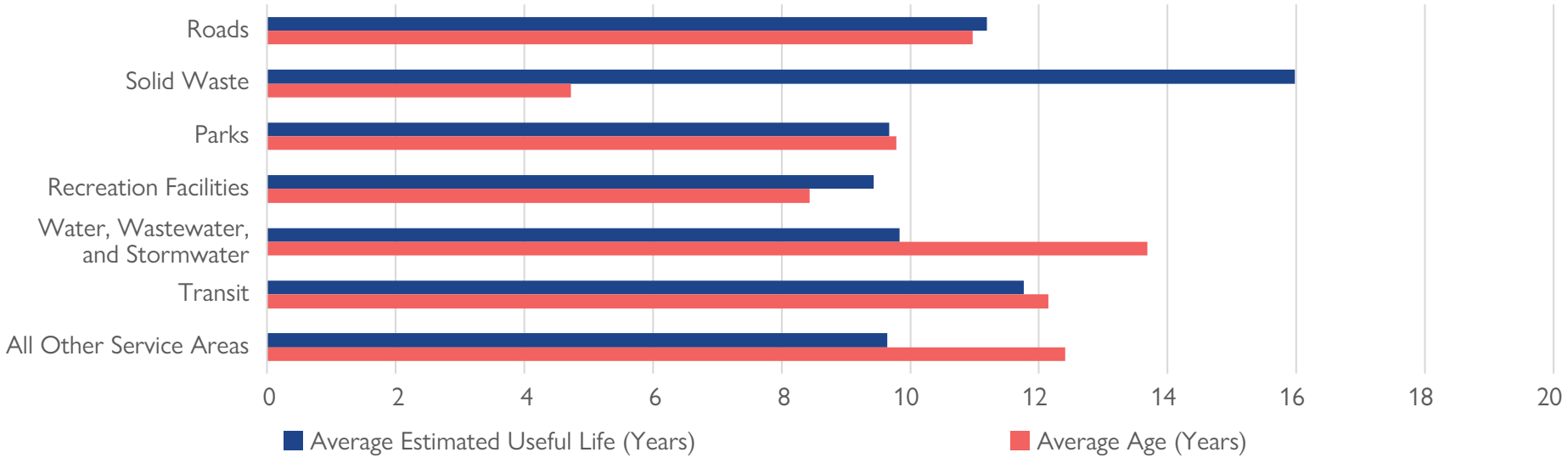
Table 68 summarizes the average age of each sub-segment based on the number of years that the assets have been in service.

TABLE 68: **Fleet and Transit – Average Age and Estimated Useful Life**

Asset Sub-Segment	Average Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)	Percentage of Average Service Life Remaining
Roads	11.2	11.0	0.2	2%
Solid Waste	16.0	4.7	11.3	70%
Parks	9.7	9.8	-0.1	-1%
Recreation Facilities	9.4	8.4	1.0	10%
Water, Wastewater, and Stormwater	9.8	13.7	-3.9	-39%
Transit	11.8	12.1	-0.3	-3%
All Other Service Areas	9.6	12.4	-2.8	-29%

The age of an asset gives an indication of how close it is to the end of its estimated useful life and what lifecycle management strategies may be required. Figure 84 displays average asset age alongside the estimated useful life for each asset sub-segment.

FIGURE 84: **Fleet and Transit – Average Age and Estimated Useful Life**



Average asset ages have exceeded the average estimated useful life for parks, water, wastewater, and stormwater, transit, and all other service areas sub-segments. The average age for roads and recreation facilities is close to the average estimated useful life. Further improvements are required to the asset inventory to ensure that the estimated useful life assigned to assets is reflective of the true length of time that assets are typically in service. A comprehensive review of the fleet asset estimated useful lives may be completed in 2024 as part of a potential fleet optimization review.

10.3 Condition

The following sections and tables outline the condition breakdown for each sub-segment of assets and the City's methods for assessing asset condition. Where available and feasible, the City follows industry-standard best practices and generally accepted good engineering practices in the approach to assessing asset condition. When condition assessments are unavailable, an age-based condition rating is used based on the relative age of the asset compared to its estimated useful life.

Table 69 summarizes the variety of techniques used to assess the condition of the fleet and transit assets on a regular frequency.

TABLE 69: Fleet and Transit – Approach to Assessing Condition

Asset Sub-Segment	Condition Data Collection Techniques	Frequency of Data Collection	Year of Last Assessment
Roads	Annual comprehensive condition assessment in accordance with the City's Fleet Management Policy.	Every year.	2023-2024
Solid Waste	Annual comprehensive condition assessment in accordance with the City's Fleet Management Policy.	Every year.	2023-2024
Parks	Annual comprehensive condition assessment in accordance with the City's Fleet Management Policy.	Every year.	2023-2024
Recreation Facilities	Annual comprehensive condition assessment in accordance with the City's Fleet Management Policy.	Every year.	2023-2024
Water, Wastewater, and Stormwater	Annual comprehensive condition assessment in accordance with the City's Fleet Management Policy.	Every year.	2023-2024
Transit	Age-based.	Every year.	2023
All Other Service Areas	Annual comprehensive condition assessment in accordance with the City's Fleet Management Policy.	Every year.	2023-2024

Based on the condition data and information provided by subject matter experts, the condition of assets is rated on a scale from Very Good to Very Poor. The annual comprehensive condition assessment for fleet assets includes a scoring system that considers the following factors:

- Age
- Lifecycle usage
- Reliability
- Maintenance and repair costs
- A mechanical and body assessment

Each factor is scored on a range from 1 to 5 and adding the scores together gives an overall condition score. For consistency, the same scale is used for the age-based condition assessment of the transit assets.

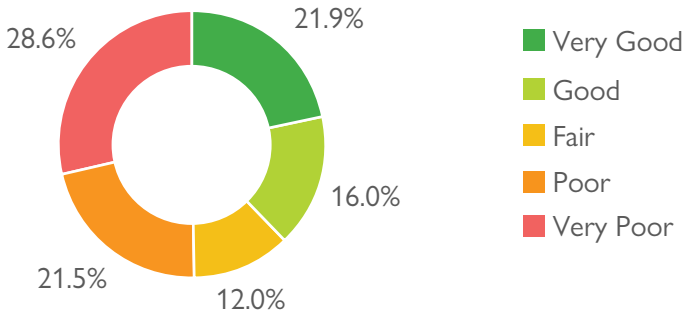
To ensure accurate and up to date information is available for this plan, a high-level reassessment of the condition of the roads, solid waste, and parks sub-segments was conducted in February of 2024 to supplement the information available from the 2023 annual comprehensive condition assessments. Table 70 provides a summary of the condition rating systems for all sub-segments of fleet and transit assets.

TABLE 70: **Fleet and Transit – Condition Rating Scales**

Rating	Rating Description	All Fleet and Transit Assets (Five-Point Scale)
Very Good	Fit for Future	8 ≥ and ≥ 0
Good	Adequate for Now	10 ≥ and > 8
Fair	Requires Attention	12 ≥ and > 10
Poor	Increasing Potential of Affecting Service	16 ≥ and > 12
Very Poor	Unfit for Sustained Service	> 16

Figure 85 illustrates the breakdown of condition ratings of the City's fleet and transit assets. 37.9% of these assets are in Very Good to Good condition with a large proportion, 28.6%, rated as Very Poor.

FIGURE 85: **Fleet and Transit – Condition Rating Summary**



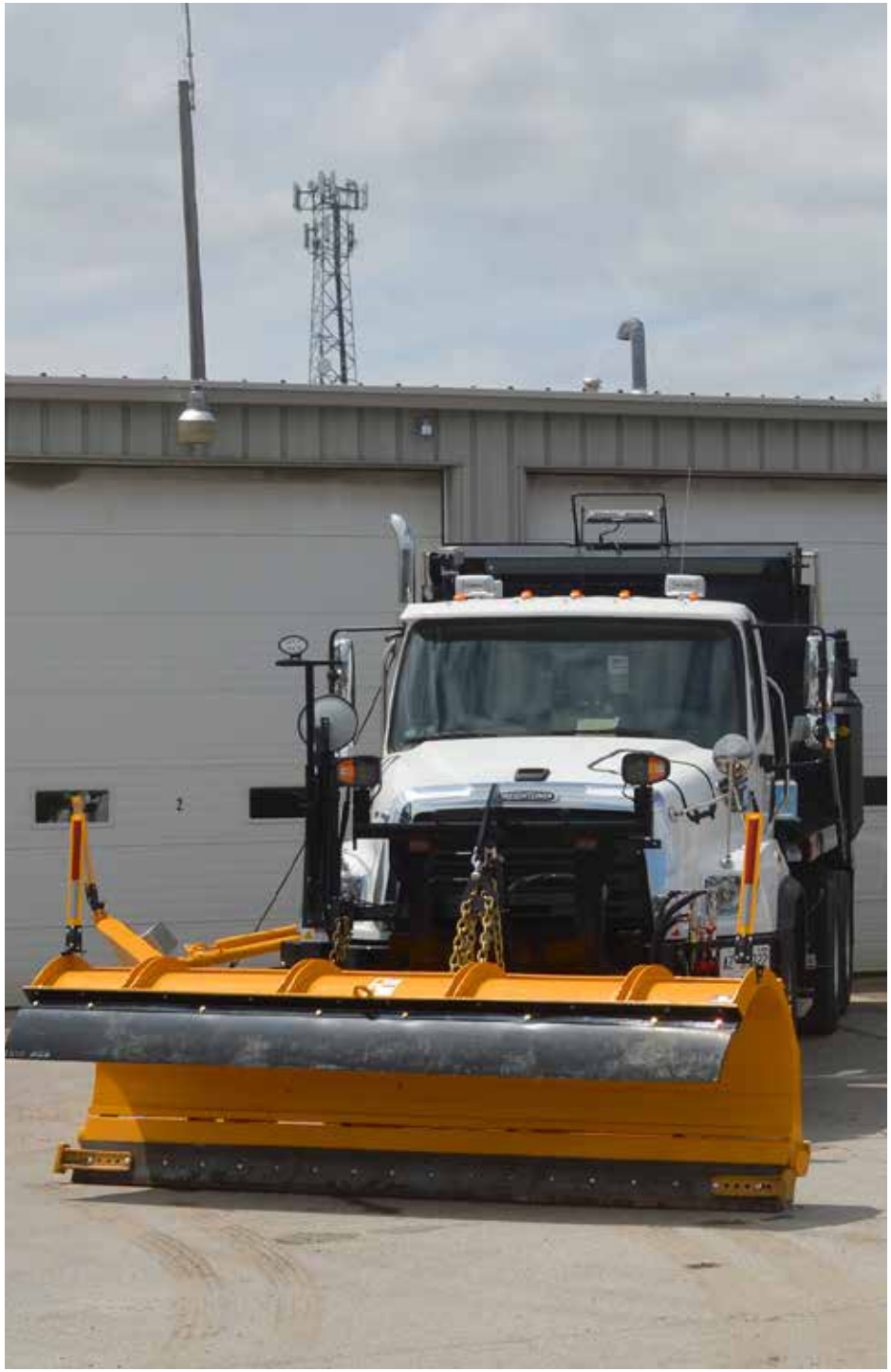


FIGURE 86: **Fleet and Transit – Breakdown of Condition Rating – Percentage of Cost**

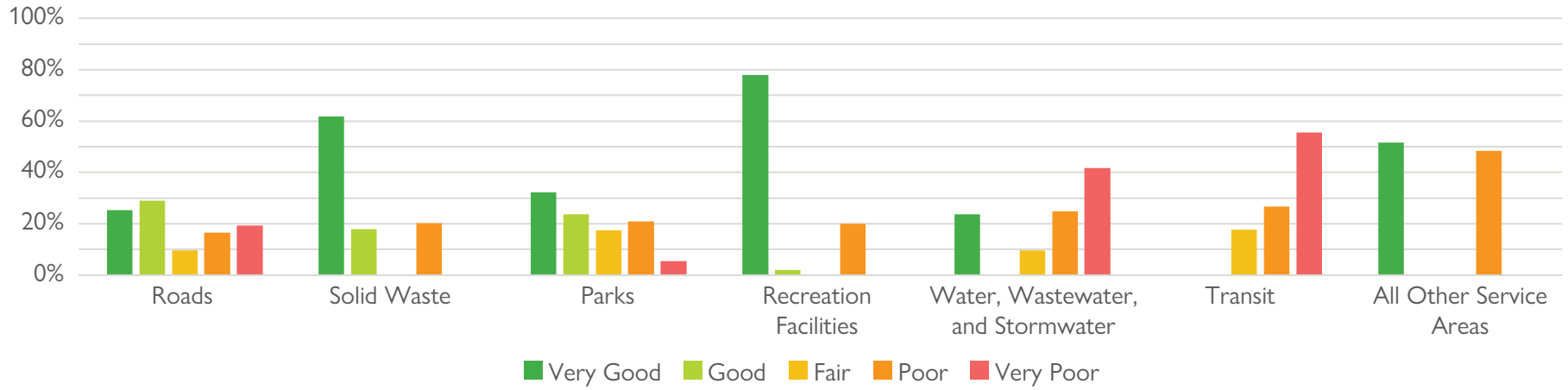
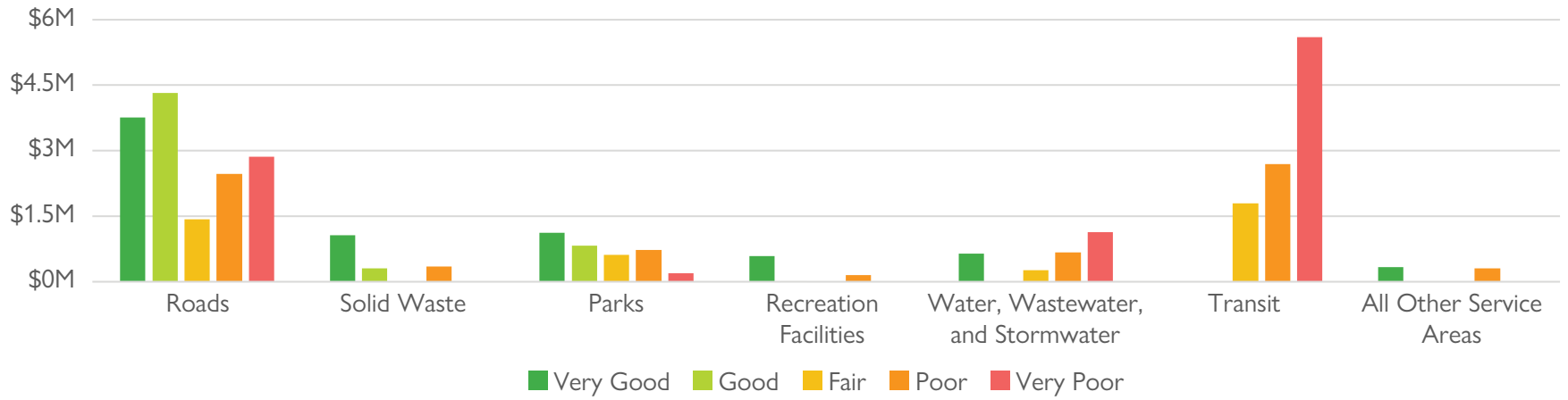


Figure 86 illustrates the breakdown of condition ratings for all fleet and transit assets in terms of the percentage of total replacement cost. A key point is that due to the differences in methodology for calculating condition between sub-segments, direct comparisons between sub-segments may not be consistent depending on which sub-segments are compared.

Figure 87 illustrates the same breakdown but in terms of the total replacement cost rather than the percentage of total replacement cost for each sub-segment. This illustrates the large cost implications of the roads and transit assets compared to the smaller value of the other sub-segments.

FIGURE 87: **Fleet and Transit – Breakdown of Condition Rating – Cost**



The overall average condition of fleet and transit assets is Fair. Assets are maintained by using the best treatment option to manage the current condition and anticipated future deterioration of the asset. More information is found in the lifecycle management strategy details in Section 10.5.

Due to a potential fleet optimization review occurring in 2024, this plan omits sections presenting the fully detailed condition information for each sub-segment or group of sub-segments of assets. This review may alter the service area composition of the fleet and therefore breakdown of asset condition. A future revision of this plan may include the fully detailed condition information for each sub-segment or group of sub-segments of assets after any fleet composition or categorization changes are finalized. The fleet optimization review will provide the following benefits to the City:

- Better alignment with industry standards for fleet categorization.
- Greater utilization for fleet assets.
- Improved fleet planning and lifecycle maintenance.

10.4 Levels of Service and Performance Measures

The City's assets exist to deliver services to its users. Levels of service are a measurement of the actual service provided so that decisions are made based on the nature and quality of that service, rather than only the condition of an asset. These are used to summarize the type of service being provided that reflects the values and desires of stakeholders in the community.

Tables 71 and 72 identify the City's historical and proposed levels of service for the fleet and transit assets. These metrics include any technical and community level of service metrics that are required to comply with Ontario Regulation 588/17, as well as any additional metrics provided by the City.

10.4.1 Community Levels of Service

Table 71 identifies the qualitative descriptions that determine the community levels of service provided by the fleet and transit assets.

TABLE 71: **Fleet and Transit – Community Levels of Service**

Service Attribute	Community Levels of Service	Related Assets
Reliability	The City strives to have vehicles perform as intended.	All
Availability	The City strives to ensure that vehicles are available for use when required by staff to perform their duties.	All
Environment	The City strives to lower its carbon emissions.	All
Quality	The City inspects and maintains the fleet inventory at a condition level to ensure that it functions as designed.	All

10.4.2 Technical Levels of Service

Table 72 identifies the quantitative metrics that determine the technical level of service provided by fleet and transit assets. Some measures are identified but the required data is not available for 2023 or 2024 and as a result, they may be calculated in a future revision. Some measures also cannot be calculated until the new fleet categorization system is fully implemented.

TABLE 72: **Fleet and Transit – Technical Levels of Service**

Service Attribute	Description of What Performance Measure Captures	Performance Measure	2023	2024	Target	Related Assets
Reliability	Vehicles are not in need of immediate repair or replacement.	Number of vehicles not in the lowest condition rating as a percentage of the total number of vehicles.	71%	N/A	≥85%	All
Reliability	Planning of maintenance work.	Number of proactive work orders as a percentage of the total number of work orders.	N/A	N/A	N/A	All
Availability	Time vehicles are out of service.	Number of out-of-service days per vehicle.	N/A	N/A	N/A	All
Availability	Availability of vehicles to fill in for ones that are out of service.	Number of spare vehicles as a percentage of the total number of vehicles.	N/A	N/A	N/A	All
Environment	Alternative energy options of light-duty vehicles.	Number of alternative energy light-duty vehicles as a percentage of the total number of light-duty vehicles.	1	4	12	All
Environment	Alternative energy options of medium-duty vehicles.	Number of alternative energy medium-duty vehicles as a percentage of the total number of medium-duty vehicles.	0	0	1	All
Environment	Alternative energy options of heavy-duty vehicles.	Number of alternative energy heavy-duty vehicles as a percentage of the total number of heavy-duty vehicles.	0	0	0	All
Environment	Alternative energy options of motorized special equipment.	Number of alternative energy specialized equipment units as a percentage of the total number of specialized equipment units.	0	3	5	All
Environment	Total number of alternative energy fleet assets.	Number of alternative energy assets within the City of Orillia fleet.	1	7	18	All
Quality	Condition of the fleet inventory.	Percentage of fleet assets in Poor or Very Poor condition.	50.1%	N/A	≤25.0%	All

10.5 Lifecycle Management Strategy

It is important to proactively manage asset deterioration through a lifecycle management strategy that balances cost, risk, and the level of service. Table 73 describes the current lifecycle management activities completed for vehicles managed by the City. The transit buses are operated and maintained by TOK Transit under contract with the City. Table 73 also includes the risks associated with not completing these activities through using a do-nothing approach.

TABLE 73: **Fleet and Transit – Lifecycle Management Strategy**

Activity Type	Description of Current Strategy	Risks Associated with Not Completing Activities
Operations and Maintenance	The City's operations and maintenance activities for fleet follow detailed guidelines in the Fleet Management Policy. For example, the policy states that the goal of the maintenance program is to keep "vehicles in sound operating condition."	▪ Deficiencies are not identified through inspections. ▪ Higher lifecycle costs if maintenance is delayed or completed incorrectly. ▪ Premature asset failure, health and safety risks, and service disruptions.
Renewal and Rehabilitation	Vehicle renewal and rehabilitation decisions are based on the Fleet Management Policy.	▪ Renewal and rehabilitation activities may increase asset life less than anticipated resulting in a need for repeated activities or premature asset failure. ▪ Higher lifecycle costs if work is delayed or completed incorrectly.
Replacement and Disposal	Vehicle replacement decisions are based on the Fleet Management Policy, which has detailed procedures for identifying when vehicles are to be replaced. The replacement forecast is currently maintained in a spreadsheet.	▪ Delay in replacement and disposal projects may result in significantly higher costs, longer service disruptions, liability concerns, and user dissatisfaction.
Growth-Related and Service Enhancements Lifecycle Needs	Growth requirements for fleet are driven by staffing increases.	▪ Delay or cancellation of growth-related activities causing the service to be unable to sufficiently accommodate growth.
Non-Infrastructure	Inspections and optimization studies.	▪ Rate of asset deterioration is over or underestimated.
Identification of Short-Term Priorities	The 10-year capital plan, which is mainly based on expected useful life, is revised as a vehicle nears its scheduled replacement date based on the vehicle's condition score and a formal review by City staff.	▪ Decrease in service performance, higher lifecycle costs, and funding may not be prioritized in a way that ensures the best value for money option is picked to maintain the level of service.

10.6 Forecasted Capital Requirements

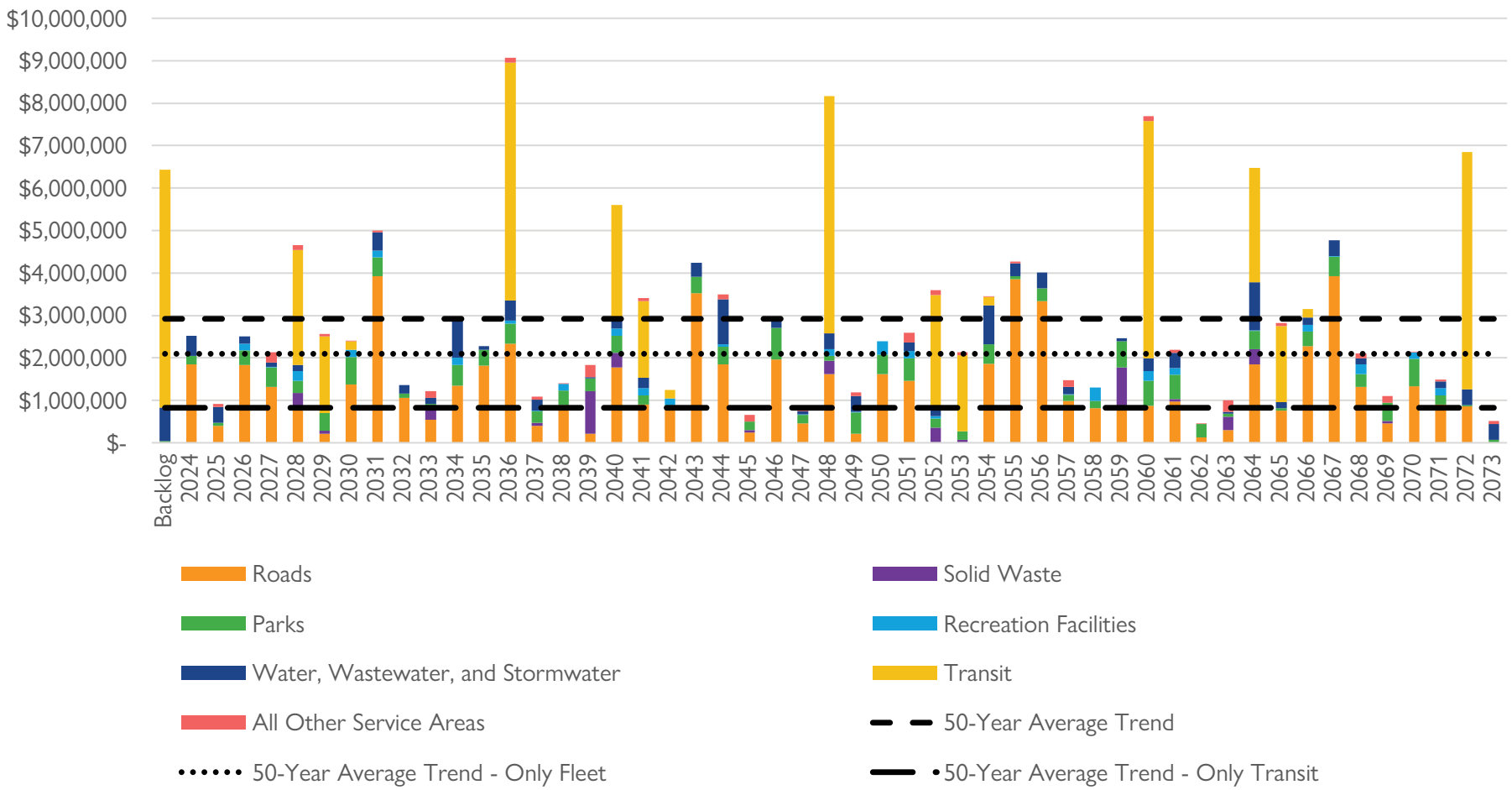
The City continuously invests in maintaining its assets and has been increasing budget amounts to more closely align with asset needs.

The annual capital requirement represents the average cost per year that the City is estimated to require to allocate towards funding asset needs. Based on the available data at the time of this plan, more information is required for this calculation. A more complete asset inventory would result in capturing more assets and more accurate lifecycle costs. When more assets are added to the portfolio, the average annual funding need would also increase and be better representative of the actual spending required to manage the City's assets.

Based on the best available current information, to maintain the current level of service and lifecycle management strategy, the annual sustainable capital funding requirement for existing fleet and transit assets is estimated to be $2,095,708 for fleet and $824,000 for transit, totaling $2,919,708.

The 2024 capital budget funding allocation was $2,250,000 for fleet and $1,750,000 for transit. This means that there exists a funding surplus of $154,292 for fleet and $926,000 for transit in 2024. Figure 88 illustrates a 50-year forecast of the annual capital asset needs for fleet and transit assets, including the cost and asset lifecycle impacts of completing renewal and rehabilitation activities.

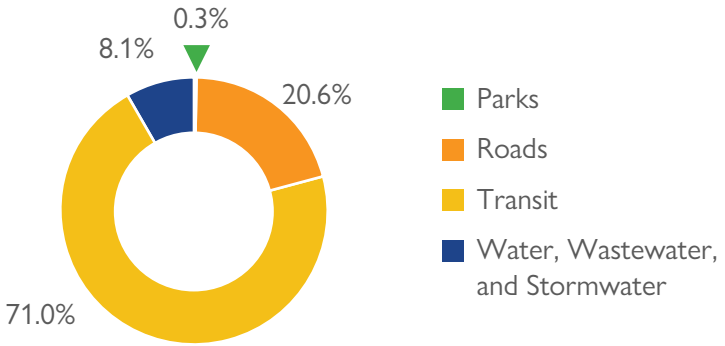
FIGURE 88: **Fleet and Transit – Annual Capital Requirement – 50-Year Forecast**



Due to historical inconsistency in the timing of the various assets coming into service, a sawtooth pattern is present where in some years the total annual requirement is lower than average followed by a spike that reaches well above the long-term average. The City's asset management program aims to smooth out this behaviour in favour of a more consistent amount of annual spending.

The City has a significant backlog of $6,435,000, primarily composed of transit buses and roads fleet beyond their estimated useful life or out of service. Figure 89 provides a breakdown of the sources of the backlog.

FIGURE 89: **Fleet and Transit – Breakdown of Backlog**



Most of the backlog, 71%, is a result of Very Poor condition, end of life transit buses. There is also a significant backlog of roads and water, wastewater, and stormwater fleet. A large, multi-year investment would be required to overcome the backlog. Otherwise, it can be expected that the current level of service will decrease, and the level of risk will increase over the coming years. The 2024 funding surplus will result in a reduction in the size of the backlog.

For further details on capital requirements, please see the Financial Summary portion of this plan that details the funding needs for all categories of assets over the next 10 years, including discussion of impacts from growth.

10.7 Climate Change and Other Risks

Table 74 summarizes key trends, challenges, and risks that the City is currently facing in delivering the desired level of service.

TABLE 74: **Fleet and Transit – Climate Change and Other Risks**

Trend, Challenge, or Risk	Summary
Climate Change and Extreme Weather Events	It is anticipated that there will be many challenges in managing the impacts of climate change, including: ▪ Transitioning to net-zero emission fleet to reduce greenhouse gas emissions, especially for medium and heavy-duty fleet where current technology may be operationally insufficient or not cost effective for Orillia's requirements. ▪ Increased pressure on winter control activities due to more frequent extreme snowfall events. ▪ Increased uncertainty in impacts of extreme weather events and what is the most cost-effective resiliency strategy or group of strategies. The City is considering the following adaptation and mitigation measures in response to the challenges: ▪ Incorporate new best practices and technology in the design, procurement, and maintenance of assets to increase resiliency while managing affordability.
Lifecycle Management Strategies	The adoption of a work order management system tied to the asset management inventory system will provide an improved connection between asset maintenance programs and service delivery outcomes.

10.8 Recommendations and Improvement Plan

Asset Inventory

- Continue to review and refine the asset inventory to improve scope, accuracy, and update estimated useful life values.
- Continue to integrate the City's asset management inventory with the information available in the fleet management processes.
- Implement the new vehicle categorization system that aligns better with industry standards and best practices.

Condition

- Explore industry best practices and new technologies to develop a better condition assessment strategy for the variety of fleet and transit assets.
- Consider comparing actual performance of vehicles as determined by the condition rating system to the expected useful lives in the Fleet Management Policy to determine if they are consistent.

Lifecycle Management Strategies

- Evaluate the efficacy of the City's lifecycle management strategies at regular intervals to determine the impact of cost, condition, and risk.
- Consider a comprehensive review of the Fleet Management Policy to align the City's processes and procedures with industry standard best practices.
- Consider the outcomes from the 2024 Fleet Optimization and Net-Zero Strategy project in determining which strategies will enable the City to be more cost-effective in the choice of lifecycle management strategies.
- Consider linking the planning for fleet expansion to the planning process for staffing increases.
- Consider multi-year budget approvals for vehicle replacements to better manage supply chain delays.

Levels of Service

- Continue to measure current levels of service in accordance with the metrics identified in Ontario Regulation 588/17 and the additional metrics included by the City.
- Track annual progress towards the City's proposed levels of service targets.
- Consider the outcomes from fleet optimization review in determining potential changes to the current levels of service and identifying proposed levels of service.

10.9 Updates For 2025 Compliance

To achieve compliance with the July 1, 2025, requirements under O. Reg. 588/17, updates were made to the following items in this chapter:

- Table 71: Fleet and Transit – Community Levels of Service and Table 72: Fleet and Transit – Technical Levels of Service were updated to contain the levels of service and performance measures for 2024, and to contain the levels and measures that the City proposes to achieve over the 10-year period of 2025-2034.
- Table 73: Fleet and Transit - Lifecycle Management Strategy was updated to identify the lifecycle activities needed to provide the proposed levels of service for the 10-year period at the best value for money over the lifecycle of the assets, and to identify the risks associated with not completing lifecycle activities for each activity type.

In addition to the updates listed, various minor wording, layout, or graphical updates were made to the chapter to provide additional information or to improve clarity, visual appeal, or accessibility.

O. Reg. 588/17 further requires an explanation of why the proposed levels of service are appropriate for the City based on an assessment of four criteria. Table 75 contains the explanation available for the criteria.

TABLE 75: Fleet and Transit – Proposed Levels of Service Appropriateness Assessment

O. Reg. 588/17 S.6(1) 2(i-iv) Criteria	Explanation of Appropriateness
i. The options for the proposed levels of service and the risks associated with those options to the long-term sustainability of the municipality.	Considering the impacts on operating costs and reliability of replacing assets before the asset reaches a Poor or Very Poor condition state. Assets in Poor or Very Poor condition typically have higher annual operations and maintenance costs. Current alternative energy vehicles available for purchase may not be cost effective for Orillia's requirements. Purchasing alternative energy vehicles that typically have a higher upfront capital cost may reduce the overall number of vehicles in Very Poor condition that can be replaced during the 10-year forecast period. In particular, alternative energy heavy duty vehicles currently available on the market can be more than double the initial procurement cost, and the current energy infrastructure at the Municipal Operations Centre and other City-owned facilities are insufficient to handle the electrical needs to charge electric heavy duty vehicles. It would be cost prohibitive to upgrade the energy infrastructure using current technology. The current equipment in the City's mechanics shop does not have sufficient capacity to handle the heavier weight and alternative maintenance tools required to handle heavy duty alternative energy vehicles. Adjusting planned maintenance and repair frequencies to limit the amount of time vehicles are out of service and to limit the higher lifecycle costs due to unplanned maintenance or repairs. The risk of not doing lifecycle management activities includes the risks identified in Table 73: Fleet and Transit - Lifecycle Management Strategy. Adopting a do-nothing approach would result in significantly higher lifecycle costs and risk, a rapid decline in levels of service, and would substantially reduce the long-term sustainability of the City's assets. During the planning stage of vehicle procurement and capital projects, anticipated future climate change impacts are considered. Table 74: Fleet and Transit – Climate Change and Other Risks includes a summary of adaptation and mitigation measures that could be used in response to the challenges.
ii. How the proposed levels of service differ from the current levels of service.	Table 72: Fleet and Transit – Technical Levels of Service identifies the difference in performance between the most current level of service performance value available and the 2034 target performance where determined. A 2034 target performance has not been determined yet for some measures included in this chapter. The City will continue to measure current levels of service over time to establish a historical baseline or trend, and work towards establishing additional future targets. Adjustments to levels of service and determining future targets is a forward looking and iterative process that will occur over time as the City improves and refines its integrated approach to asset management. For the levels of service measures with 2034 targets identified, the anticipated impacts of the differences between current and targets levels of service include: ▪ The percentage of vehicles not in need of immediate repair or replacement is forecast to increase from 71% to greater than or equal to 85%. This is primarily due to less vehicles aging into lower condition states than are planned to be rehabilitated or replaced over the 10-year period. ▪ The City is aiming to increase its total number of fleet assets fueled by alternative energy sources from seven in 2024 to 18 in 2034. ▪ The percentage of fleet assets in Poor or Very Poor condition is forecast to decrease from 50.1% to less than or equal to 25.0%. This is primarily due to less vehicles aging into lower condition states than are planned to be rehabilitated or replaced over the 10-year period. As the City moves towards integrating work orders for some operations and maintenance activities in the fleet and transit service area into the same platform that is used for asset management, the City will be better equipped to measure technical levels of service values over time including some of those currently listed as not available (N/A) in Table 72.

O. Reg. 588/17 S.6(1) 2(i-iv) Criteria	Explanation of Appropriateness
iii. Whether the proposed levels of service are achievable.	From a City staff resources perspective, the forecasted list of projects is achievable and is dependent on future staffing levels. Whether the full project list moves forward is dependent on Council approving funding through future budget deliberations, changes in legislation, change in market availability of vehicles, change in the City's fleet needs as levels of service change in other service areas, and if the actual impacts of climate change are worse than forecasted.
iv. The municipality's ability to afford the proposed levels of service.	Over the 2025-2034 10-Year Capital and Reserve Forecast period, the fleet and transit service area is funded by the following sources: ▪ Fleet Operating Budget; ▪ Provincial Grant; ▪ Capital Levy Reserve Fund; ▪ Fleet and Equipment Asset Management Reserve Fund; ▪ Transit Asset Management Reserve Fund; ▪ Environmental Obligatory Reserve Fund; ▪ Transit Services Obligatory Reserve Fund; and ▪ Debenture Reserve Fund. The financial strategy chapter included in this plan contains the O. Reg. 588/17 requirements of: ▪ An estimate of the annual costs for the lifecycle activities required to provide the proposed level of service; ▪ The annual funding projected to be available; ▪ The options examined by the City to maximize projected funding; and ▪ The identification of any funding deficit or shortfall. As the City has a population above 25,000, the financial strategy chapter contains the details required under S.6(1) 6(i-ii) of O. Reg. 588/17 regarding the costs and funding available due to population and employment growth. To promote alignment and consistency between City documents and City Council decision making, the proposed levels of service input into this chapter and the financial strategy chapter are aligned with the outcomes of the 2025 budget process and resulting 2025-2034 10 Year Capital and Reserve Forecast. The 2025-2034 10 Year Capital and Reserve Forecast was presented during the 2025 Budget process and resulted in the City utilizing its self-imposed 10% debt limit as well as a negative total reserve and reserve fund shortfall by 2034 in the amount of -$214.4 million in 2025 dollars. The Financial Strategy chapter of this plan provides a detailed discussion of the sustainability of the City's financial position. If the City follows a path of financial unsustainability, eventually some lifecycle activities would become unaffordable and the City may not achieve its proposed levels of service targets. Which activities the City will not undertake due to a shortfall depends on which reserves contain the large negative balances. Maintaining the proposed levels of service targets for all categories would require significant increases in funding levels. Fleet and transit staff are looking ahead at future asset lifecycle needs beyond the 2025-2034 forecast period to right-size reserve contribution requirements and are considering the possibility of additional long-term funding pressures due to: ▪ Anticipated future changes in legislation that change the availability of and financial incentives to purchase alternative energy vehicles or equipment. An explanation of the options examined by the City to maximize the funding projected to be available to afford the proposed levels of service is included in Table 137: Financial Strategy – Funding Maximization Activities and Choices.

11.0
Facilities

11.0 Facilities

The City manages a variety of facilities that are used by City staff, City Council, tenants, and members of the public. To ensure the efficient provision of City services, complex facilities must be continuously maintained to provide a reliable, safe, and accessible environment. Corporate facilities exist primarily to enable the provision of City services, including administrative municipal offices, operations municipal facilities, fire halls, water and wastewater treatment facilities, and historical sites. Recreation facilities exist to provide or support services related to the parks, recreation, culture, and tourism service areas. In the City's parks, the City manages both washroom facilities and additional auxiliary facilities, such as bandstands, pavilions, and storage locations. Facilities is the third-largest category of assets at a total replacement cost of $354,031,842 in 2023 dollars.

11.1 Asset Inventory and Replacement Cost

The City's facilities' asset inventory is comprised of 51 facilities, including 26 corporate facilities, seven recreation facilities, nine park washrooms, and a mix of nine auxiliary parks facilities. The individual parts of each facility are broken down in more detail following the ASTM UNIFORMAT II standard. Specific pieces of equipment, including some water heaters, HVAC units, electrical panels, among other similar assets, are not included in this category because those assets have not yet been integrated into the City's asset inventory. However, the estimated replacement cost for each sub-segment does include all relevant assets, including those pieces of equipment.

The replacement cost estimate is calculated by subject matter experts using industry-standard cost estimate processes. This includes unit rates published by Means Publishing and/or Marshall & Swift Valuation Service. The City is provided the estimated cost to reproduce a facility and all associated assets located on the same property. The estimate assumes the use of similar materials and includes the cost of demolishing the existing facility using current market prices for materials and labour. Appendix 20.2.7 identifies the full set of components for each sub-segment.

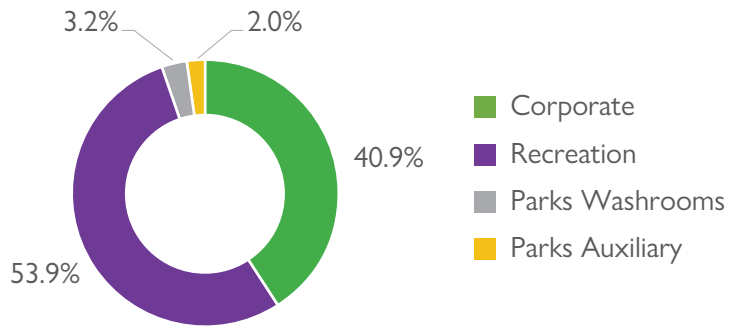
Table 76 includes the quantity, replacement cost method, and total replacement cost in 2023 dollars of each sub-segment of assets in the City's facilities' inventory.

TABLE 76: Facilities – Inventory and Replacement Cost

Asset Sub-Segment	Quantity	Replacement Cost Method	Replacement Cost	Percentage of Total Replacement Cost
Corporate	26	Asset-Specific Cost Estimation and Cost/Unit	$144,824,808	40.9%
Recreation	7	Asset-Specific Cost Estimation and Cost/Unit	$190,715,844	53.9%
Parks Washrooms	9	Asset-Specific Cost Estimation and Cost/Unit	$11,487,732	3.2%
Parks Auxiliary	9	Asset-Specific Cost Estimation and Cost/Unit	$7,003,458	2.0%

Figure 90 provides the data in table 76 visually with each sub-segment as a percentage of the total replacement cost.

FIGURE 90: Facilities – Total Replacement Cost



11.2 Asset Age and Estimated Useful Life

The estimated useful life of facilities' assets is determined using subject matter expert knowledge and industry standards. The average service life remaining is determined by the difference between the average estimated useful life and the average age, except when an asset has been assigned an assessed condition rating that may increase or decrease the average service life remaining.

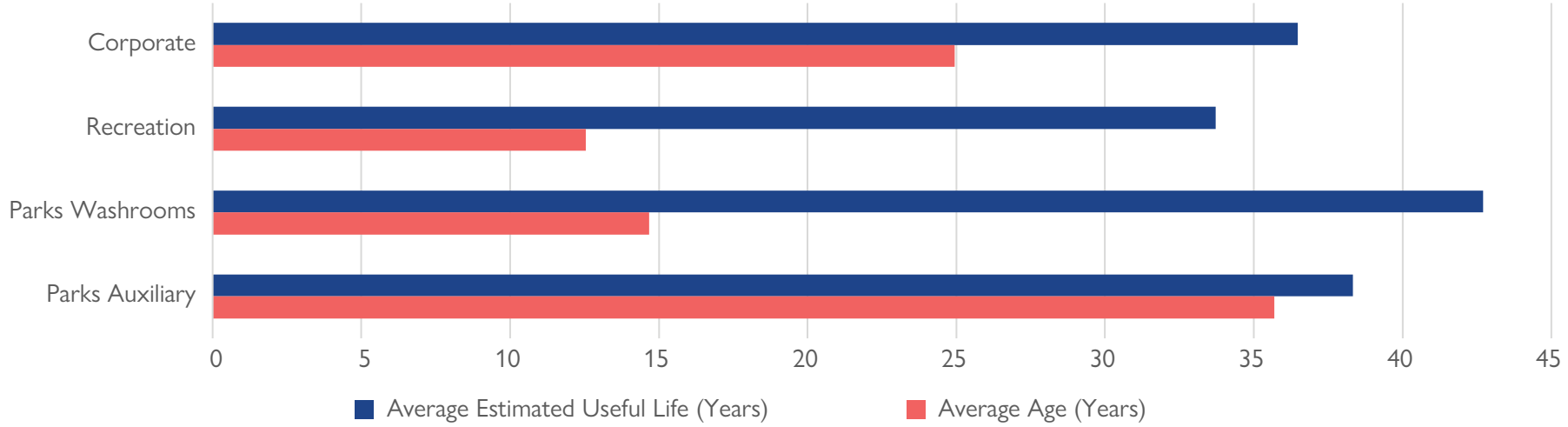
Table 77 summarizes the average age and service life remaining of each sub-segment based on the number of years that the assets have been in service.

TABLE 77: **Facilities – Average Age and Estimated Useful Life**

Asset Sub-Segment	Average Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)	Percentage of Average Service Life Remaining
Corporate	36.5	25.0	11.5	32%
Recreation	33.7	12.5	21.2	63%
Parks Washrooms	42.7	14.7	28.0	66%
Parks Auxiliary	38.3	35.7	2.6	7%

The age of an asset gives an indication of how close it is to the end of its estimated useful life and what lifecycle management strategies may be required. Figure 91 displays average asset age alongside the estimated useful life for each asset sub-segment.

FIGURE 91: **Facilities – Average Age and Estimated Useful Life**



Average asset ages have not exceeded the average estimated useful life for any sub-segments.

As a result of the comprehensive corporate facility condition assessments done in 2023, all facilities were assigned a condition rating that may change the average service life remaining for those assets. For each sub-segment of facilities' assets, the average service life remaining is longer than would be calculated using only the average estimated useful life and average age. This suggests that on average, assets are expected to be kept in service longer than their estimated useful life. Adjustments to the estimated useful life values may be required to ensure that they reflect the actual amount of time that assets can provide the required level of service.

11.3 Condition

The following sections and tables outline the condition breakdown for each sub-segment of assets and the City's methods for assessing asset condition. Where available and feasible, the City follows industry-standard best practices and generally accepted good engineering practices in the approach to assessing asset condition. When condition assessments are unavailable, an age-based condition rating is used based on the relative age of the asset compared to its estimated useful life.

Table 78 summarizes the variety of techniques used to assess the condition of the facilities' assets.

TABLE 78: Facilities – Approach to Assessing Condition

Asset Sub-Segment	Condition Data Collection Techniques	Frequency of Data Collection	Year of Last Assessment
Corporate	Condition assessments by subject matter experts and staff.	No set frequency.	2023
Recreation	Condition assessments by subject matter experts and staff.	No set frequency.	2023
Parks Washrooms	Condition assessments by subject matter experts and staff.	No set frequency.	2023
Parks Auxiliary	Condition assessments by subject matter experts and staff.	No set frequency.	2023

Formal building condition assessments are used to evaluate the condition of City facilities at an element level (UNIFORMAT II Level 3). The City performs monthly health and safety inspections of its facilities as required by the *Occupational Health and Safety Act*. Staff perform a variety of other routine inspections at facilities: annual fire alarm tests; bi-annual generator tests; regular inspections of some HVAC, refrigeration, and water treatment equipment; greenhouse gas audits; elevator maintenance inspections; backflow preventer inspections; and roof inspections. Streetlights are monitored continuously and maintained on an ongoing basis. Traffic signals are inspected in compliance with Minimum Maintenance Standards under the *Municipal Act,* 2001, S.O. 2001, c. 25.

Table 79 provides a summary of the condition rating systems for all sub-segments of facilities' assets. Based on the condition data and information provided by subject matter experts and staff, the condition of assets is rated on a scale from Very Good to Very Poor.

TABLE 79: **Facilities – Condition Rating Scales**

Rating	Rating Description	All Facilities Assets (Five-Point Scale)
Very Good	Fit for Future	1
Good	Adequate for Now	2
Fair	Requires Attention	3
Poor	Increasing Potential of Affecting Service	4
Very Poor	Unfit for Sustained Service	5

Figure 92 illustrates the breakdown of condition ratings of the City's facilities' assets. 56.4% of these assets are in Very Good to Good condition with a small proportion, 4.5%, rated as Very Poor.

FIGURE 92: **Facilities – Condition Rating Summary**

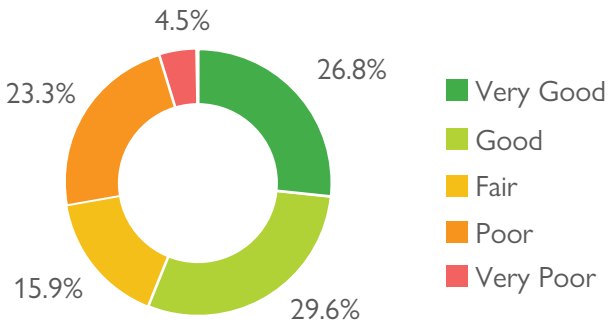


FIGURE 93: **Facilities – Breakdown of Condition Rating – Percentage of Cost**

Figure 93 illustrates the breakdown of condition ratings for all facilities' assets in terms of the percentage of total replacement cost. A key point is that due to the differences in methodology for calculating condition between sub-segments, direct comparisons between sub-segments may not be consistent depending on which sub-segments are compared.

Figure 94 illustrates the same breakdown but in terms of the total replacement cost rather than the percentage of total replacement cost for each sub-segment. This illustrates the large cost implications of the corporate and recreation facilities' assets compared to the smaller value of the parks-related assets.

FIGURE 94: **Facilities – Breakdown of Condition Rating – Cost**

The overall average condition of facilities assets is Fair. Assets are maintained by using the best treatment option to manage the current condition and anticipated future deterioration of the asset. More information is found in the lifecycle management strategy details in Section 11.5.

Due to the asset inventory not currently including all specific pieces of equipment, such as water heaters, HVAC units, electrical panels, among other similar assets, this plan omits sections presenting the fully detailed condition information for each sub-segment or group of sub-segments of assets. A future revision of this plan may include the fully detailed condition information for each sub-segment or group of sub-segments of assets after the asset inventory is updated.

11.4 Levels of Service and Performance Measures

The City's assets exist to deliver services to its users. Levels of service are a measurement of the actual service provided so that decisions are made based on the nature and quality of that service, rather than only the condition of an asset. These are used to summarize the type of service being provided that reflects the values and desires of stakeholders in the community.

Tables 80 and 81 identify the City's historical and proposed levels of service for the facilities' assets. These metrics include any technical and community level of service metrics that are required to comply with Ontario Regulation 588/17, as well as any additional metrics provided by the City.

11.4.1 Community Levels of Service

Table 80 identifies the qualitative descriptions that determine the community levels of service provided by the facilities' assets.

TABLE 80: **Facilities – Community Levels of Service**

Service Attribute	Community Levels of Service	Related Assets
Accessibility	The City strives to make its facilities accessible to everyone.	All
Comfort	The City provides facilities that are pleasant to be in.	All
Security	The City takes steps to reduce risk of criminal activities at facilities.	All
Reliability	The City strives to have its facilities available for use during normal operating hours.	All
Energy Efficiency	The City strives to reduce emissions of greenhouse gases.	All
Capacity	The City strives to align capacity of facilities to service demand.	All
Capacity	The City stores vehicles indoors when doing so improves operational efficiency or reduces lifecycle costs.	Corporate
Quality	The City inspects and maintains facilities at a condition level to ensure that it functions as designed.	All

11.4.2 Technical Levels of Service

Table 81 identifies the quantitative metrics that determine the technical level of service provided by facilities assets. Some measures are identified but the required data is not available for 2023 or 2024 and as a result, they may be calculated in a future revision.

TABLE 81: **Facilities – Technical Levels of Service**

Service Attribute	Description of What Performance Measure Captures	Performance Measure	2023	2024	Target	Related Assets
Accessibility	Facilities that are accessible to people with disabilities.	Number of facilities that meet *Accessibility for Ontarians with Disabilities Act* requirements as a percentage of the total number of facilities.	N/A	N/A	N/A	All
Comfort	Adequacy of lighting levels.	Number of complaints about lighting levels per 1,000 sq ft of gross floor area.	N/A	N/A	N/A	All
Comfort	Cleanliness of facilities.	Number of complaints about cleanliness per 1,000 sq ft of gross floor area.	N/A	N/A	N/A	All
Security	Extent of vandalism at facilities.	Dollar value of repairs required because of vandalism per 1,000 sq ft of gross floor area.	N/A	N/A	N/A	All
Reliability	Frequency of unplanned closures.	Number of unplanned closures of facilities due to component failures per 1,000 sq ft of gross floor area.	N/A	0.0017	0.0050	All
Reliability	Condition of facility mechanical systems.	Number of service facility components (components that are categorized under "D Services" in Level 1 of the UNIFORMAT II system) with a condition rating of fair or better as a percentage of the total number of service facility components.	N/A	N/A	N/A	All
Energy Efficiency	Electricity consumption.	Kilowatt-hours of electricity consumed per 1,000 sq ft of gross floor area.	N/A	N/A	N/A	All
Energy Efficiency	Natural gas consumption.	Cubic metres of natural gas consumed per 1,000 sq ft of gross floor area.	N/A	N/A	N/A	All
Energy Efficiency	Propane consumption.	Litres of propane consumed per 1,000 sq ft of gross floor area.	N/A	N/A	N/A	All
Energy Efficiency	Net-zero facilities.	Number of facilities that are net-zero as a percentage of the total number of facilities.	N/A	0%	2%	All
Capacity	Sufficiency of capacity of facilities to meet user demand.	Number of facilities with utilization rates at or below design capacity as a percentage of the total number of facilities.	N/A	N/A	N/A	All
Capacity	Adequacy of indoor parking facilities for City vehicles.	Number of vehicles stored indoors as a percentage of the total number of vehicles during the winter control season.	N/A	N/A	N/A	Corporate
Quality	Condition of the facilities' inventory.	Percentage of facilities' assets in Poor or Very Poor condition.	27.8%	N/A	N/A	All

11.5 Lifecycle Management Strategy

It is important to proactively manage asset deterioration through a lifecycle management strategy that balances cost, risk, and the level of service. Table 82 describes the current lifecycle management activities completed and includes the risks associated with not completing these activities through using a do-nothing approach.

TABLE 82: **Facilities – Lifecycle Management Strategy**

Activity Type	Description of Current Strategy	Risks Associated with Not Completing Activities
Operations and Maintenance	The Facilities, Climate Change, and Operations Division has been developing maintenance plans for facilities and continues to refine and expand those maintenance plans over time. Improvements to security systems are being considered for operational reasons.	▪ Deficiencies are not identified through inspections. ▪ Higher lifecycle costs if maintenance is delayed or completed incorrectly. ▪ Premature asset failure, health and safety risks, and service disruptions.
Renewal and Rehabilitation	Renewal and rehabilitation capital projects are identified by Division staff operating facilities and through discussions with users of facilities. Division staff meet to review and prioritize the capital projects and to ultimately prepare a 10-year capital plan.	▪ Renewal and rehabilitation activities may increase asset life less than anticipated resulting in a need for repeated activities or premature asset failure. ▪ Higher lifecycle costs if work is delayed or completed incorrectly.
Replacement and Disposal	Replacement and disposal capital projects are identified by Division staff operating facilities and through discussions with users of facilities. Division staff meet to review and prioritize the capital projects and to ultimately prepare a 10-year capital plan.	▪ Delay in replacement and disposal projects may result in significantly higher costs, longer service disruptions, liability concerns, and user dissatisfaction.
Growth-Related and Service Enhancements Lifecycle Needs	The City undertakes Parks, Recreation, and Culture Master Plans to identify future capital needs resulting from growth.	▪ Delay or cancellation of growth-related activities causing the service to be unable to sufficiently accommodate growth. ▪ Master plans may over or underestimate the required expansions to accommodate the impacts of growth.
Non-Infrastructure	Inspections and master plans.	▪ Rate of asset deterioration is over or underestimated.
Identification of Short-Term Priorities	Capital projects are undertaken to address deficiencies identified by the staff involved in operating facilities.	▪ Decrease in service performance, higher lifecycle costs, and funding may not be prioritized in a way that ensures the best value for money option is picked to maintain the level of service.

11.6 Forecasted Capital Requirements

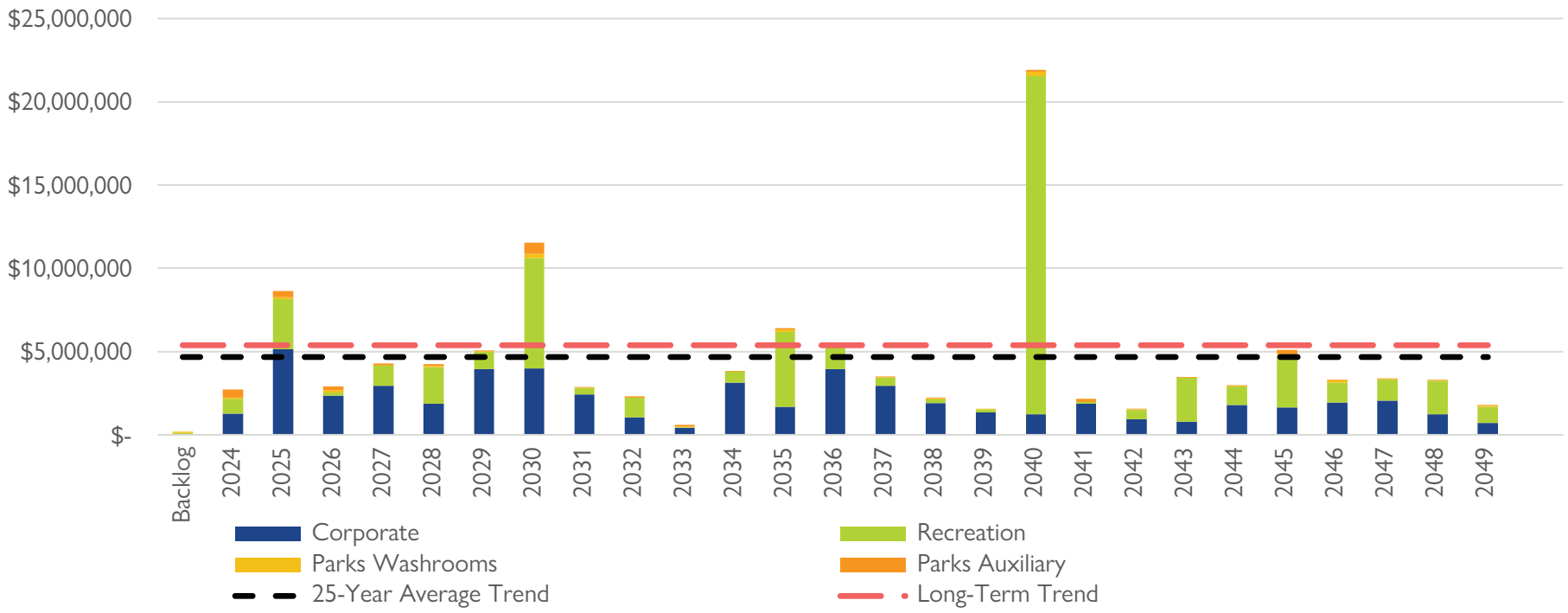
The City continuously invests in maintaining its assets and has been increasing budget amounts to more closely align with asset needs.

The annual capital requirement represents the average cost per year that the City is estimated to require to allocate towards funding asset needs. Based on the available data at the time of this plan, more information is required for this calculation. A more complete asset inventory would result in capturing more assets and more accurate lifecycle costs. When more assets are added to the portfolio, the average annual funding need would also increase and be better representative of the actual spending required to manage the City's assets.

Based on the best available current information, to maintain the current level of service and lifecycle management strategy, the annual sustainable capital funding requirement for existing facilities' assets is estimated to be $5,381,653.

The 2024 capital budget funding allocation was $16,234,000. This means that there exists a funding surplus of $10,852,347. Figure 95 illustrates a 25-year forecast of the annual capital asset needs for facilities' assets, including the cost and asset lifecycle impacts of completing renewal and rehabilitation activities.

FIGURE 95: **Facilities – Annual Capital Requirement – 25-Year Forecast**

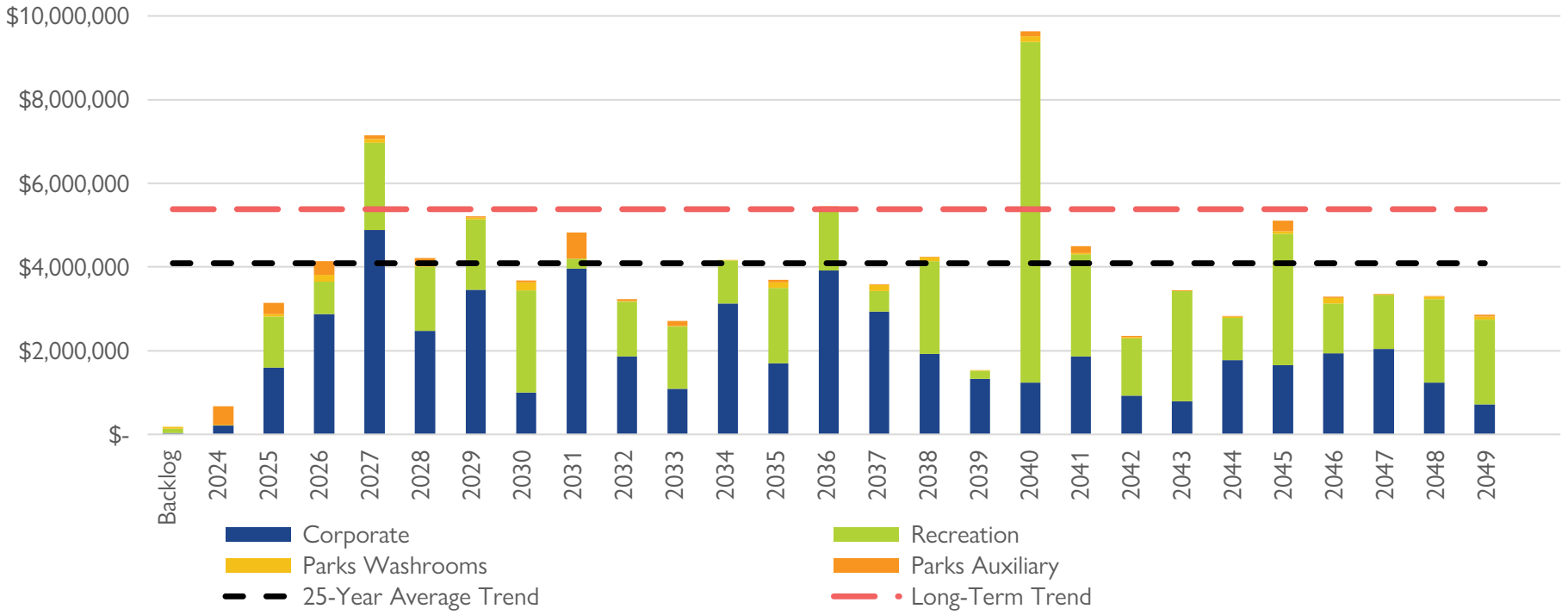


This forecast was developed as part of the comprehensive corporate facility condition assessments done in 2023 and is a modified approach compared to the 50-year forecast used for other asset categories. Due to a lot of equipment not being currently captured in the inventory, a 25-year annual requirement trend of $4,673,652 is undercounting the total asset needs over the forecast period. Some facilities' assets have an estimated useful life of up to 170 years, and as a result, a 25-year forecast period may also not account for major asset replacements in the long-term. The long-term trend of $5,381,653 in annual asset needs is a more comprehensive estimate of the long-term capital lifecycle costs.

However, the more detailed 25-year forecast that is based on recent and accurate condition assessments remains a very important and useful measure. To maintain the current level of service and estimate the costs of changing service levels, accurate short-term and medium-term forecasts are necessary. The City updates its 10-year capital plan each year during the budget process. The budget process requires the detailed short and medium-term asset need forecasts to ensure the projects selected provide the City with the best value for money. The City also aims to group projects together for cost efficiencies where possible by aligning the timing of different projects.

Figure 96 illustrates an example of a revised 25-year forecast of the annual capital needs where the timing of needs has been adjusted to take advantage of cost efficiencies, changes in the lifecycle management strategy scope, or smooth out some spikes.

FIGURE 96: **Facilities – Annual Capital Requirement – Adjusted 25-Year Forecast**



Due to historical inconsistency in the timing of the various assets coming into service, a sawtooth pattern is present where in some years the total annual requirement is lower than average followed by an uncommon spike that reaches well above the long-term average. The City's asset management program aims to smooth out this behaviour in favour of a more consistent amount of annual spending.

A small backlog of $180,000 exists for facilities' assets that are beyond their service life or are in a failed condition state requiring replacement or decommissioning. These assets are primarily related to plumbing, HVAC, or electrical services.

For further details on capital requirements, please see the Financial Summary portion of this plan that details the funding needs for all categories of assets over the next 10 years, including discussion of impacts from growth.

11.7 Climate Change and Other Risks

Table 83 summarizes key trends, challenges, and risks that the City is currently facing in delivering the desired level of service.

TABLE 83: **Facilities – Climate Change and Other Risks**

Trend, Challenge, or Risk	Summary
Climate Change and Extreme Weather Events	It is anticipated that there will be many challenges in managing the impacts of climate change, including: ▪ Potential increased damage to facility structures during extreme weather events. ▪ Increased uncertainty on the impact of higher intensity, frequency, and duration of rainfall events that can make it difficult to right-size stormwater management infrastructure for the future. ▪ Increased uncertainty in impacts of extreme weather events and what is the most cost-effective resiliency strategy or group of strategies. ▪ Additional discussion of challenges can be found in the City's Climate Change Action Plan report. The City is considering the following adaptation and mitigation measures in response to the challenges: ▪ The City is aiming to reach its Net-Zero targets by following three Big Moves: Local Renewable Energy, Transportation, and Buildings as detailed in the City's Climate Change Action Plan report. ▪ Update disaster management practices to ensure continuity of critical services during extreme weather events. ▪ Incorporate new best practices and technology in the design, procurement, and maintenance of assets to increase resiliency while managing affordability.
Lifecycle Management Strategies	The adoption of a work order management system tied to the asset management inventory system will provide an improved connection between asset maintenance programs and service delivery outcomes.

11.8 Recommendations and Improvement Plan

Asset Inventory

- Continue to review and refine the asset inventory to improve scope, accuracy, and update estimated useful life values.
- Expand the asset inventory to include all significant equipment assets.

Condition

- Consider setting a fixed condition assessment schedule to assess asset condition at regular intervals.
- Explore industry best practices and new technologies to develop a better condition assessment strategy for the variety of facilities' assets.

Lifecycle Management Strategies

- Evaluate the efficacy of the City's lifecycle management strategies at regular intervals to determine the impact of cost, condition, and risk.
- Integrate maintenance and operations work order data into the tracking of individual assets.
- Develop more detailed preventative maintenance strategies and programs to maintain the current level of service.
- Consider if facilities could be managed more efficiently if building management systems were consistent between facilities.
- Consider developing a facility security rating scoring system to identify and manage security concerns.

Levels of Service

- Continue to measure current levels of service in accordance with the metrics identified in Ontario Regulation 588/17 and the additional metrics included by the City.
- Track annual progress towards the City's proposed levels of service targets.

11.9 Updates For 2025 Compliance

To achieve compliance with the July 1, 2025, requirements under O. Reg. 588/17, updates were made to the following items in this chapter:

- Table 80: Facilities – Community Levels of Service and Table 81: Facilities – Technical Levels of Service were updated to contain the levels of service and performance measures for 2024, and to contain the levels and measures that the City proposes to achieve over the 10-year period of 2025-2034.

In addition to the updates listed, various minor wording, layout, or graphical updates were made to the chapter to provide additional information or to improve clarity, visual appeal, or accessibility.

O. Reg. 588/17 further requires an explanation of why the proposed levels of service are appropriate for the City based on an assessment of four criteria. Table 84 contains the explanation available for the criteria.

TABLE 84: Facilities – Proposed Levels of Service Appropriateness Assessment

O. Reg. 588/17 S.6(1) 2(i-iv) Criteria	Explanation of Appropriateness
i. The options for the proposed levels of service and the risks associated with those options to the long-term sustainability of the municipality.	During the design stage of capital projects, accessibility constraints and impacts are considered. Retrofitting existing buildings to meet modern accessibility standards can be a significant upfront capital cost and increase the lifecycle cost of a facility. The City aims to minimize the number of complaints regarding lighting levels and cleanliness by following standard operating procedures and responding to complaints. Lowering of the level of service for managing these complaints may lead to lower facility utilization due to user dissatisfaction, lower revenues, and a less financially sustainable service. The City aims to minimize the frequency and repair costs of vandalism events by updating security monitoring and access control systems and designing facility exteriors with graffiti-resistant materials or coatings. Considering the impacts on operating costs and reliability of replacing assets before the asset reaches a Poor or Very Poor condition state that may result in higher lifecycle costs due to unplanned maintenance and repairs. Adjusting planned maintenance and repair frequencies to limit the amount of time facilities are out of service and to limit the higher lifecycle costs due to unplanned maintenance or repairs. Unplanned facility closures due to component failures may result in lower revenues and a less financially sustainable service. Balancing capital costs with cost to increase energy efficiency of replacement HVAC, lighting fixtures, and other energy-intensive facility components. The City aims to achieve good values for money from its existing assets during transitions to more energy efficient replacement assets over time. The City's Climate Change Action Plan details scenarios and options for achieving net-zero emissions in the long term. Constructing new facilities to a net-zero standard typically comes with a significantly higher upfront capital cost and will be considered on a case-by-case basis. A cost-benefit analysis will be considered to determine the facility energy usage standard with the most sustainable lifecycle cost. The risk of not doing lifecycle management activities includes the risks identified in Table 82: Facilities - Lifecycle Management Strategy. Adopting a do-nothing approach would result in significantly higher lifecycle costs and risk, a rapid decline in levels of service, and would substantially reduce the long-term sustainability of the City's assets. During the planning stage of capital projects, anticipated future climate change impacts are considered. Table 83: Facilities – Climate Change and Other Risks includes a summary of adaptation and mitigation measures that could be used in response to the challenges.

O. Reg. 588/17 S.6(1) 2(i-iv) Criteria	Explanation of Appropriateness
ii. How the proposed levels of service differ from the current levels of service.	Table 81: Facilities – Technical Levels of Service identifies the difference in performance between the most current level of service performance value available and the 2034 target performance where determined. A 2034 target performance has not been determined yet for some measures included in this chapter. The City will continue to measure current levels of service over time to establish a historical baseline or trend, and work towards establishing additional future targets. Adjustments to levels of service and determining future targets is a forward looking and iterative process that will occur over time as the City improves and refines its integrated approach to asset management. For the levels of service measures with 2034 targets identified, the anticipated impacts of the differences between current and targets levels of service include: ▪ The City aims to limit the number of unplanned closures of facilities due to component failures per 1,000 square feet of gross floor area to a limit equivalent to three closures in a year. In 2024 the City experienced one unplanned closure due to component failures across its approximately 594,000 square feet of facilities. ▪ The City is aiming to increase its number of facilities that are net-zero as a percentage of the total number of facilities from 0% in 2024 to 2% in 2034. As the City moves towards integrating more work orders for operations and maintenance activities in the facilities service area into the same platform that is used for asset management, the City will be better equipped to measure technical levels of service values over time and set future targets, including those currently listed as not available (N/A) in Table 81.
iii. Whether the proposed levels of service are achievable.	From a City staff resources perspective, the forecasted list of projects is achievable and is dependent on future staffing levels. Whether the full project list moves forward is dependent on receiving regulatory approvals, Council approving funding through future budget deliberations, environmental assessments, heritage designations, and building code changes.

O. Reg. 588/17 S.6(1) 2(i-iv) Criteria	Explanation of Appropriateness
iv. The municipality's ability to afford the proposed levels of service.	Over the 2025-2034 10-Year Capital and Reserve Forecast period, the facilities service area is fully funded by the following sources: ▪ Capital Levy Reserve ▪ General Asset Management Reserve Fund ▪ Opera House Asset Management Reserve Fund ▪ Water Asset Management Reserve Fund ▪ Wastewater Asset Management Reserve Fund ▪ Storm Water Asset Management Reserve Fund ▪ Parking Asset Management Reserve Fund ▪ Cash In Lieu Recreation Land/Community Benefit Charge Obligatory Reserve Fund ▪ Debenture Reserve Fund ▪ Federal Grants ▪ Provincial Grants The financial strategy chapter included in this plan contains the O. Reg. 588/17 requirements of: ▪ An estimate of the annual costs for the lifecycle activities required to provide the proposed level of service; ▪ The annual funding projected to be available; ▪ The options examined by the City to maximize projected funding; and ▪ The identification of any funding deficit or shortfall. As the City has a population above 25,000, the financial strategy chapter contains the details required under S.6(1) 6(i-ii) of O. Reg. 588/17 regarding the costs and funding available due to population and employment growth. To promote alignment and consistency between City documents and City Council decision making, the proposed levels of service input into this chapter and the financial strategy chapter are aligned with the outcomes of the 2025 budget process and resulting 2025-2034 10 Year Capital and Reserve Forecast. The 2025-2034 10 Year Capital and Reserve Forecast was presented during the 2025 Budget process and resulted in the City utilizing its self-imposed 10% debt limit as well as a negative total reserve and reserve fund shortfall by 2034 in the amount of -$214.4 million in 2025 dollars. The Financial Strategy chapter of this plan provides a detailed discussion of the sustainability of the City's financial position. If the City follows a path of financial unsustainability, eventually some lifecycle activities would become unaffordable and the City may not achieve its proposed levels of service targets. Which activities the City will not undertake due to a shortfall depends on which reserves contain the large negative balances. Maintaining the proposed levels of service targets for all categories would require significant increases in funding levels. An explanation of the options examined by the City to maximize the funding projected to be available to afford the proposed levels of service is included in Table 137: Financial Strategy – Funding Maximization Activities and Choices

12.0
Solid Waste

12.0 Solid Waste

The City maintains a Waste Diversion Site to ensure the efficient management of solid waste materials. Activities at the Waste Diversion Site include landfilling, open air windrow composting, operation of the household hazardous waste depot, and operation of various other depots for divertible materials. Additionally, the City manages the closed Kitchener Park Landfill site. Solid waste is the seventh-largest category of assets at a total replacement cost of $103,403,962 in 2023 dollars.

12.1 Asset Inventory and Replacement Cost

At the active Waste Diversion Site, the City manages eight active landfill cells, two alternate cover plates, four capped landfill cells, one composting pad with an associated swale and two pumps to dewater the swale through a forcemain, roadways, fences, two structures, one weighscale, three roll-off bins, and 56 monitoring wells. At the Kitchener Park site, the City manages a gas barrier and venting system, 12 gas probes, and 16 monitoring wells. Fleet assets used at the Waste Diversion Site are captured in the Fleet and Transit chapter of this plan.

The replacement cost is estimated using primarily historic construction costs with consideration of standardized costing indices. Included in the cost of replacing each asset is a set of components that together comprise a typical asset. The full set of components for each sub-segment is identified in Appendix 20.2.8.

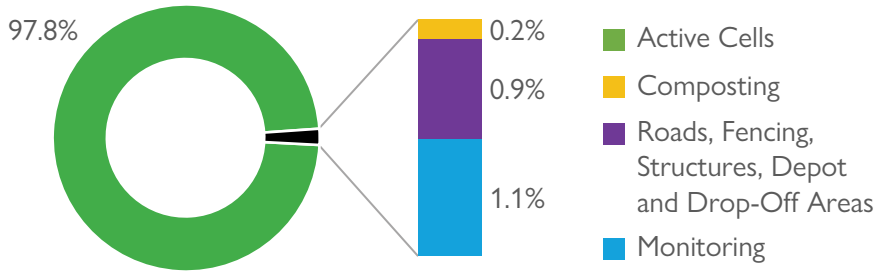
Table 85 includes the quantity, replacement cost method, and total replacement cost in 2023 dollars of each sub-segment of assets in the City's solid waste inventory.

TABLE 85: **Solid Waste – Inventory and Replacement Cost**

Asset Sub-Segment	Quantity	Replacement Cost Method	Replacement Cost	Percentage of Total Replacement Cost
Active Cells	8 active cells 2 alternate cover plates	Cost/Unit	$101,140,620	97.8%
Cell Final Caps	4 capped cells	Cost/Unit	$0	0.0%
Composting	1 pad with swale, pumps, and forcemain	Cost/Unit	$184,000	0.2%
Roads, Fencing, Structures, Depot and Drop Off Areas	11,578 m^2 of internal roadway 0.720 lane km perimeter roadway 1,500 m of perimeter fence 2 reuse depot structures 1 weighscale 3 roll-off steel bins	Asset-Specific Cost Estimation and Cost/Unit	$959,342	0.9%
Monitoring	72 wells 12 gas probes 1 gas barrier and venting system	Cost/Unit	$1,120,000	1.1%

Figure 97 provides the data in table 85 visually with each sub-segment as a percentage of the total replacement cost. Almost all the value of the City's solid waste assets are the eight active cells with landfilling capacity remaining. Due to the small relative total value of all other solid waste assets, an additional diagram is provided for clarity. The capped cells are omitted due to their $0 replacement value since capped cells are not replaced. Capped cells are instead monitored after capping.

FIGURE 97: **Solid Waste – Total Replacement Cost**



12.2 Asset Age and Estimated Useful Life

The estimated useful life of solid waste assets is determined using a combination of staff knowledge, historical data, and industry standards. The average service life remaining is determined by the difference between the average estimated useful life and the average age, except when an asset has been assigned an assessed condition rating that may increase or decrease the average service life remaining.

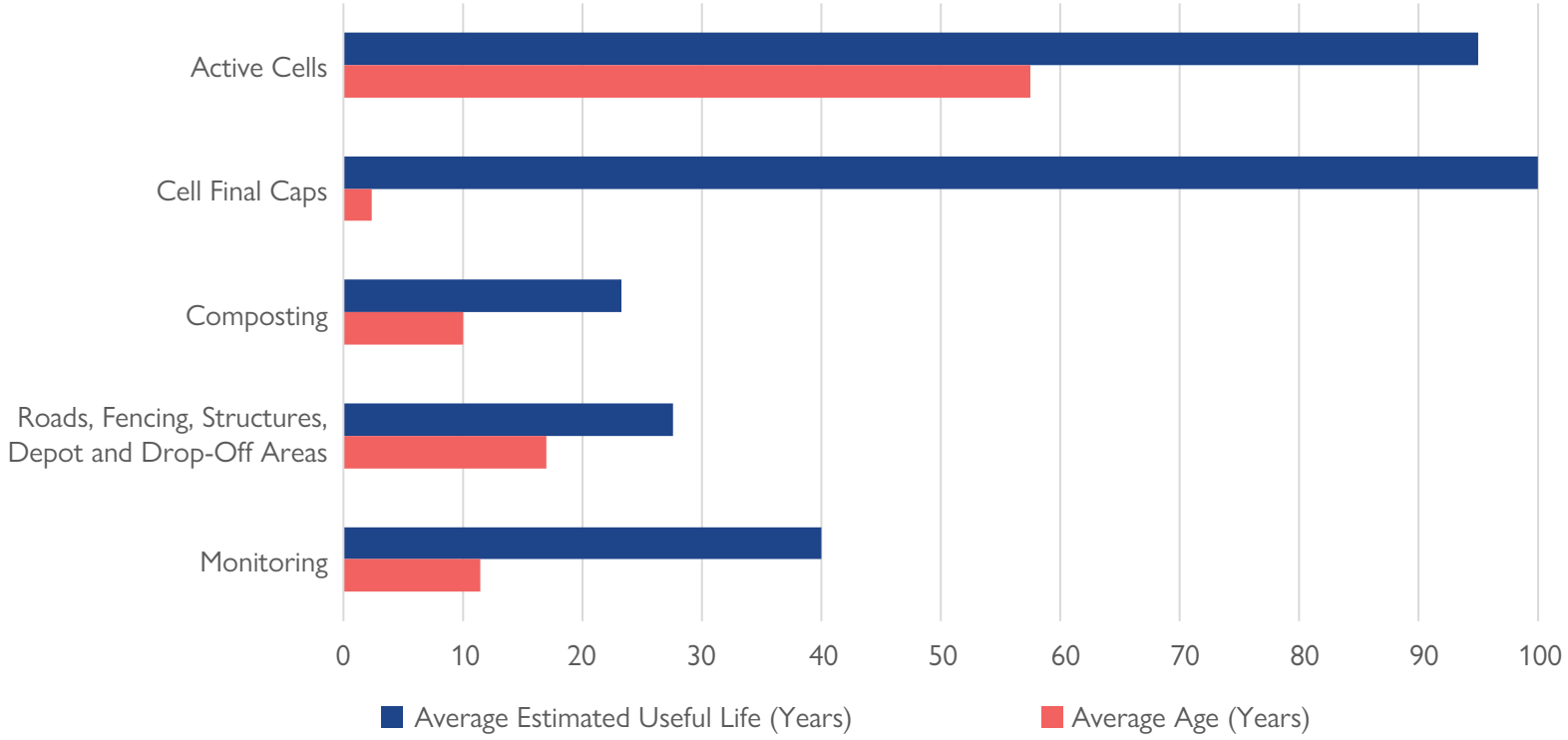
Table 86 summarizes the average age of each sub-segment based on the number of years that the assets have been in service.

TABLE 86: **Solid Waste – Average Age and Estimated Useful Life**

Asset Sub-Segment	Average Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)	Percentage of Average Service Life Remaining
Active Cells	95.0	57.5	37.5	39%
Cell Final Caps	100.0	2.4	97.6	98%
Composting	23.3	10.0	13.3	57%
Roads, Fencing, Structures, Depot and Drop-Off Areas	27.6	17.0	10.6	39%
Monitoring	40.0	11.5	28.5	71%

The age of an asset gives an indication of how close it is to the end of its estimated useful life and what lifecycle management strategies may be required. Figure 98 displays average asset age alongside the estimated useful life for each asset sub-segment.

FIGURE 98: **Solid Waste – Average Age and Estimated Useful Life**



Average asset ages have not exceeded the average estimated useful life for any sub-segments.

12.3 Condition

The following sections and tables outline the condition breakdown for each sub-segment of assets and the City's methods for assessing asset condition. Where available and feasible, the City follows industry-standard best practices and generally accepted good engineering practices in the approach to assessing asset condition. When condition assessments are unavailable, an age-based condition rating is used based on the relative age of the asset compared to its estimated useful life.

Table 87 summarizes the variety of techniques used to assess the condition of the solid waste assets on a regular frequency.

TABLE 87: Solid Waste – Approach to Assessing Condition

Asset Sub-Segment	Condition Data Collection Techniques	Frequency of Data Collection	Year of Last Assessment
Cells	Condition assessments by staff and subject matter experts.	Every 1-5 years.	2023
Cell Final Caps	Condition assessments by staff and subject matter experts.	Every 1-5 years.	2023
Composting	Condition assessments by staff and subject matter experts.	Every 1-5 years.	2023
Roads, Fencing, Structures, Depot and Drop-Off Areas	Condition assessments by staff and subject matter experts.	Every 1-5 years.	2023
Monitoring	Condition assessments by staff and subject matter experts.	Every 1-5 years.	2023

Table 88 provides a summary of the condition rating systems for all sub-segments of solid waste assets. Based on the condition data and information provided by subject matter experts, the condition of assets is rated on a scale from Very Good to Very Poor.

TABLE 88: **Solid Waste – Condition Rating Scales**

Rating	Rating Description	All Solid Waste Assets (Five-Point Scale)
Very Good	Fit for Future	1 ≥ and ≥ 0
Good	Adequate for Now	2 ≥ and > 1
Fair	Requires Attention	3 ≥ and > 2
Poor	Increasing Potential of Affecting Service	4 ≥ and > 3
Very Poor	Unfit for Sustained Service	5 ≥ and > 4

Figure 99 illustrates the breakdown of condition ratings of the City's solid waste assets. 98.9% of these assets are in Very Good to Good condition with 0.004% rated as Poor and none rated as Very Poor.

FIGURE 99: **Solid Waste – Condition Rating Summary**

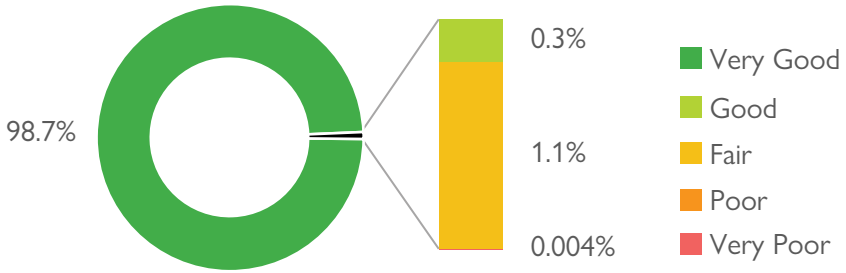


FIGURE 100: Solid Waste – Breakdown of Condition Rating – Percentage of Cost

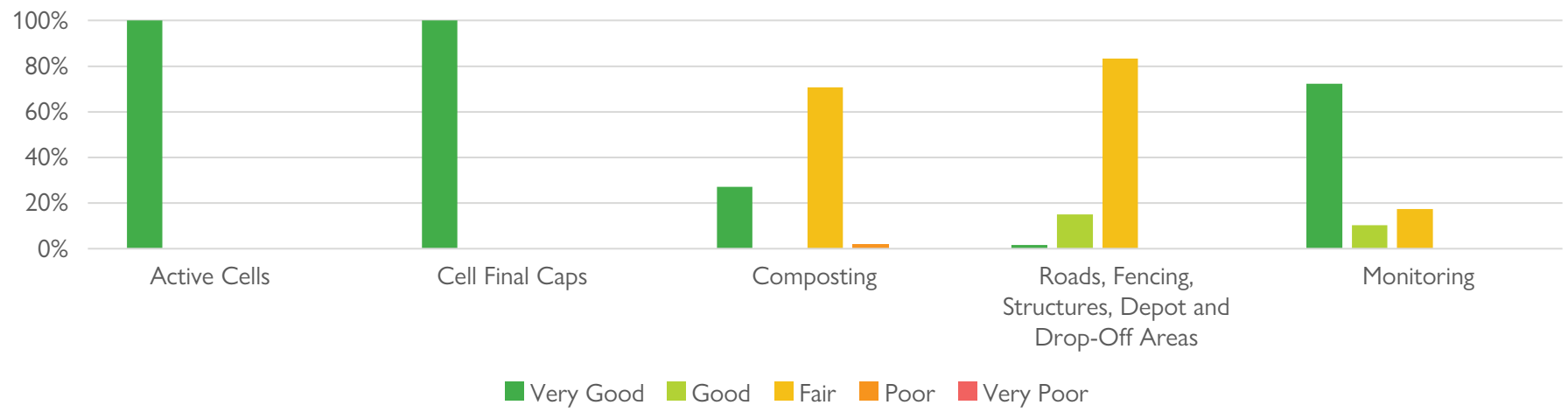
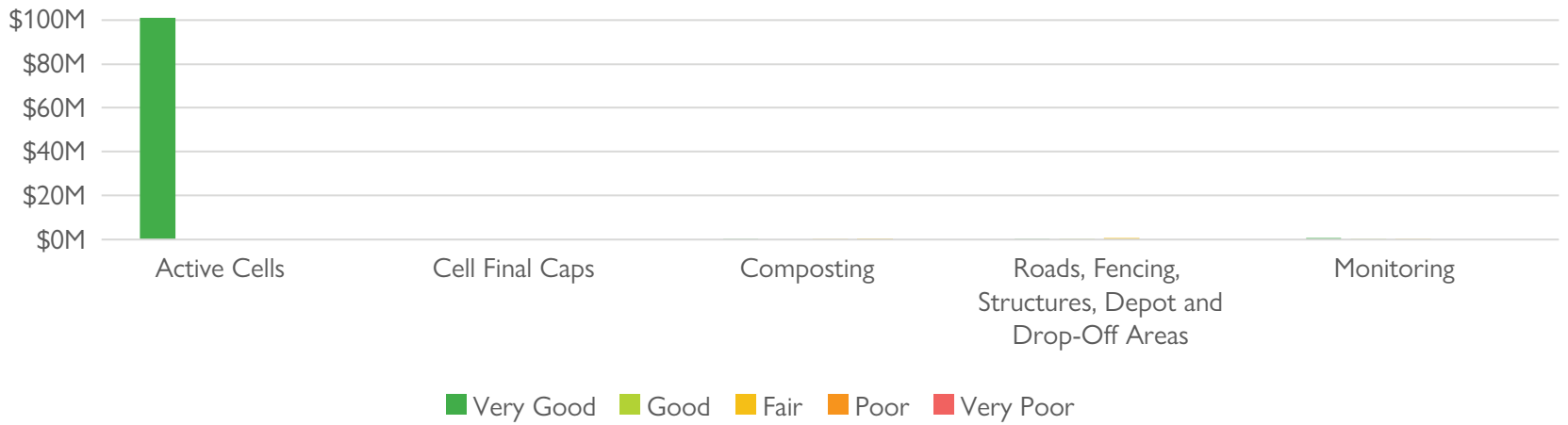


Figure 100 illustrates the breakdown of condition ratings for all solid waste assets in terms of the percentage of total replacement cost. A key point is that due to the differences in methodology for calculating condition between sub-segments, direct comparisons between sub-segments may not be consistent depending on which sub-segments are compared.

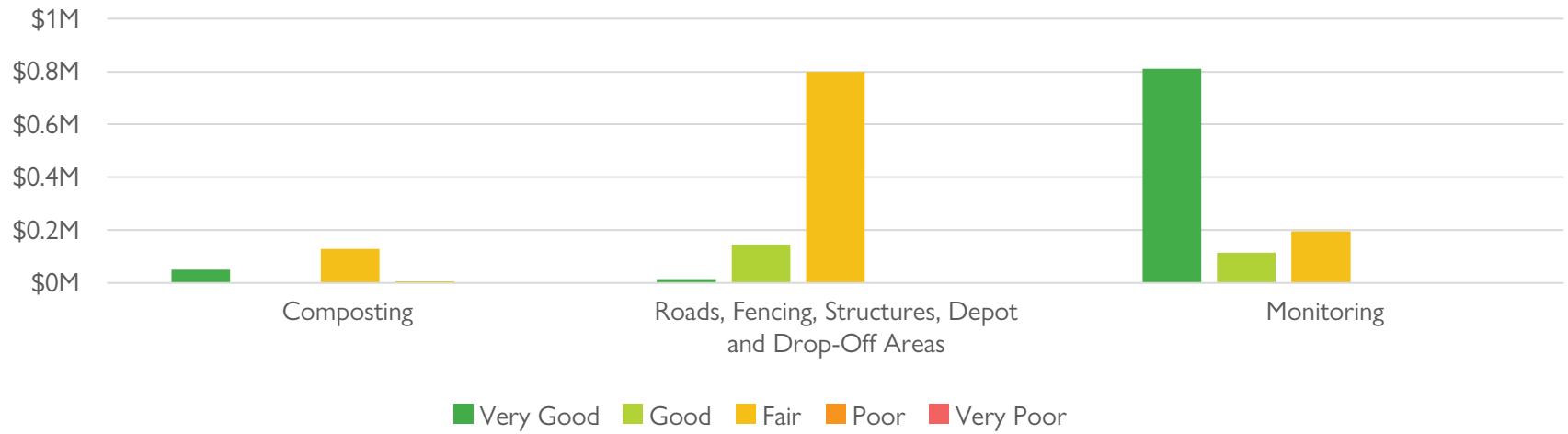
Figure 101 illustrates the same breakdown but in terms of the total replacement cost rather than the percentage of total replacement cost for each sub-segment. This illustrates the large cost implications of the landfill cells compared to the much smaller value of the other sub-segments.

FIGURE 101: Solid Waste – Breakdown of Condition Rating – Cost



Due to the very large difference in replacement costs, the other sub-segments are not visible. Figure 102 excludes the landfill cells to allow for better visibility of the other sub-segments. The capped cells are omitted due to their $0 replacement value.

FIGURE 102: **Solid Waste – Breakdown of Condition Rating – Cost – Excluding Cells and Cell Final Caps**

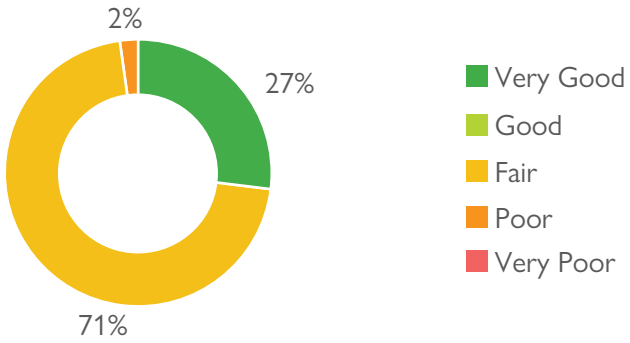


The overall average condition of solid waste assets is Very Good, largely due to the outsized impact of the value of the cells. Excluding the cells, the overage average condition of the other solid waste assets is Good. Assets are maintained by using the best treatment option to manage the current condition and anticipated future deterioration of the asset. More information is found in the lifecycle management strategy details in Section 12.5. The following sections will present the condition information for each sub-segment or group of sub-segments of assets in more detail, except for the cells and capped cells as they are all in Very Good condition.

12.3.1 Composting

Figure 103 provides a breakdown of asset condition for composting assets.

FIGURE 103: **Solid Waste – Breakdown of Condition Rating – Composting**



Every year, a visual inspection of the composting assets is undertaken by subject matter experts. This results in a condition rating score from 1 to 5 for each asset that corresponds to a rating between Very Good to Very Poor. The most recent inspections were completed in 2023.

27% of the City's composting assets are in Very Good or Good condition with no assets rated as Very Poor. This indicates that most of the composting assets are midlife. With 2% of composting assets in Poor or Very Poor condition, the data indicates that there is some near-term investment needed in addition to long-term investments required to continue the management of deficiencies.

12.3.2 Roads, Fencing, Structures, Depot and Drop-Off Areas

Figures 104, 105, 106, and 107 provide a breakdown of asset condition for roads, fencing, structures, depot and drop-off areas assets and each group of assets.

FIGURE 104: **Solid Waste – Breakdown of Condition Rating – Roads, Fencing, Structures, Depot and Drop-Off Areas**

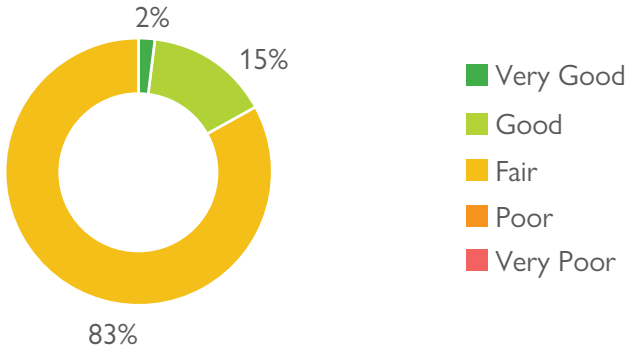


FIGURE 105: **Solid Waste – Breakdown of Condition Rating – Roads and Fencing**

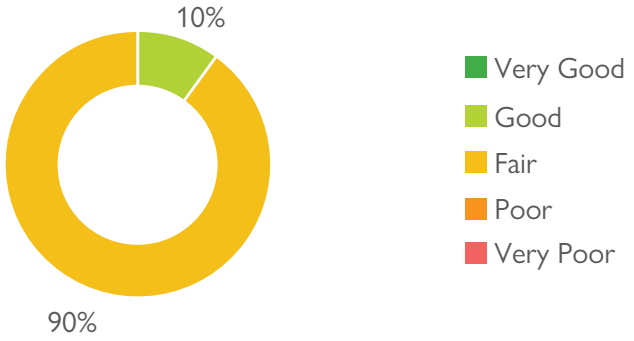


FIGURE 106: **Solid Waste – Breakdown of Condition Rating – Structures**

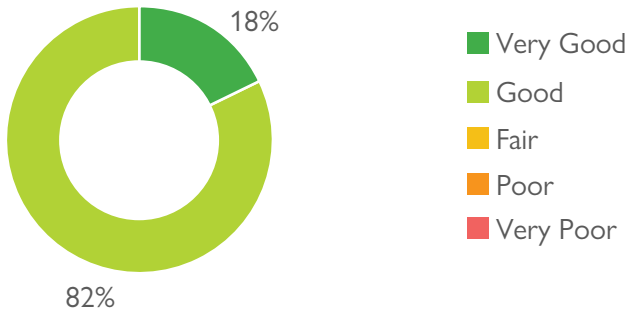
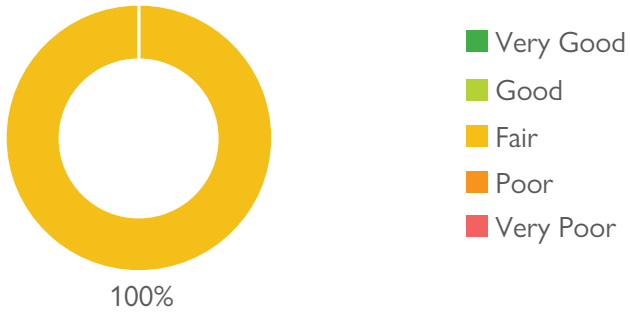


FIGURE 107: **Solid Waste – Breakdown of Condition Rating – Depot and Drop-Off Areas**



Every year, a visual inspection of the roads, fencing, structures, depot and drop-off areas assets is undertaken by subject matter experts. This results in a condition rating score from 1 to 5 for each asset that corresponds to a rating between Very Good to Very Poor. The most recent inspections were completed in 2023.

17% of the City's roads, fencing, structures, depot and drop-off areas assets are in Very Good or Good condition with no assets rated as Very Poor. This indicates that most of these assets are midlife. With none of these assets in Poor or Very Poor condition, the data indicates that overall there is minimal immediate investment needed in addition to the long-term investments required to continue the management of deficiencies.

However, the breakdown of condition ratings varies depending on the group considered. The structures are all in Very Good or Good condition while the large majority or entirety of the other sub-segments are in Fair condition. The investment priority will vary over time in response to the differences in the mix of asset conditions between the different groups.

Table 89 illustrates the condition ratings defined with respect to a variety of the roads, fencing, structures, depot and drop-off areas assets. Photos for the Poor and Very Poor states are omitted due to no assets within these ratings currently.

TABLE 89: **Solid Waste – Condition Rating Descriptions and Photos – Roads, Fencing, Structures, Depot and Drop-Off Areas**

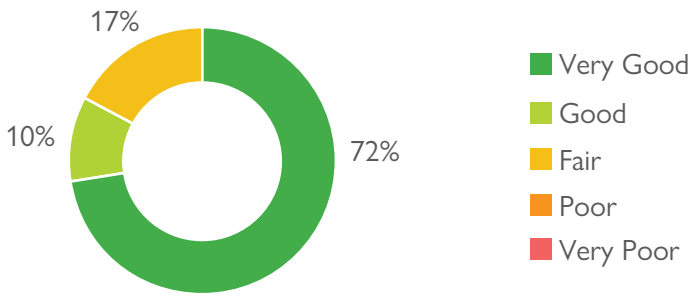
Condition State: **Very Good**	Condition State: **Good**	Condition State: **Fair**
Scale: 1 ≥ and ≥ 0 **Description:** Fit for Future 	**Scale:** 2 ≥ and > 1 **Description:** Adequate for Now 	**Scale:** 3 ≥ and > 2 **Description:** Requires Attention 

Condition State: **Poor**	Condition State: **Very Poor**
Scale: 4 ≥ and > 3 **Description:** Increasing Potential of Affecting Service Omitted due to no assets within this rating currently.	**Scale:** 5 ≥ and > 4 **Description:** Unfit for Sustained Service Omitted due to no assets within this rating currently.

12.3.3 Monitoring

Figure 108 provides a breakdown of asset condition for monitoring assets.

FIGURE 108: **Solid Waste – Breakdown of Condition Rating – Monitoring**



Every year, a visual inspection of the monitoring assets is undertaken by subject matter experts. This results in a condition rating score from 1 to 5 for each asset that corresponds to a rating between Very Good to Very Poor. The most recent inspections were completed in 2023.

82% of the City's monitoring assets are in Very Good or Good condition with no assets rated as Very Poor. This indicates that most of the monitoring assets are newer to midlife and well-maintained. With none of these assets in Poor or Very Poor condition, the data indicates that there is minimal immediate investment needed in addition to the long-term investments required to continue the management of deficiencies.

12.4 Levels of Service and Performance Measures

The City's assets exist to deliver services to its users. Levels of service are a measurement of the actual service provided so that decisions are made based on the nature and quality of that service, rather than only the condition of an asset. These are used to summarize the type of service being provided that reflects the values and desires of stakeholders in the community.

Tables 90 and 91 identify the City's historical and proposed levels of service for the solid waste assets. These metrics include any technical and community level of service metrics that are required to comply with Ontario Regulation 588/17, as well as any additional metrics provided by the City.

12.4.1 Community Levels of Service

Table 90 identifies the qualitative descriptions that determine the community levels of service provided by the solid waste assets.

TABLE 90: **Solid Waste – Community Levels of Service**

Service Attribute	Community Levels of Service	Related Assets
Efficiency	The City strives to use capacity at landfills efficiently.	Active Cells
Capacity	The City strives to have sufficient capacity to manage compostable waste.	Composting
Reliability	Equipment at the landfill usually operates as intended.	Composting, Roads, Fencing, Structures, Depot and Drop-Off Areas, Monitoring
Quality	The City inspects and maintains the solid waste inventory at a condition level to ensure that it functions as designed.	All

12.4.2 Technical Levels of Service

Table 91 identifies the quantitative metrics that determine the technical level of service provided by solid waste assets.

TABLE 91: **Solid Waste – Technical Levels of Service**

Service Attribute	Description of What Performance Measure Captures	Performance Measure	2023	2024	Target	Related Assets
Efficiency	The rate at which the landfill is being filled.	Tonnes of waste accepted per capita.	N/A	0.12	N/A	Active Cells
Efficiency	Utilization of cover material.	Ratio of tonnes of waste accepted to cover material.	N/A	50%	N/A	Active Cells
Capacity	Utilization of capacity to process compost waste.	Tonnes of compostable waste processed as a percentage of processing capacity.	N/A	90%	N/A	Composting
Reliability	Planning of maintenance work.	Number of proactive work orders for landfill equipment repairs as a percentage of the total number of work orders.	N/A	10%	N/A	Composting, Roads, Fencing, Structures, Depot and Drop- Off Areas, Monitoring
Reliability	Availability of garbage bunkers.	Number of days garbage bunkers are unavailable per bunker.	N/A	0%	N/A	Depot and Drop-Off Areas
Reliability	Availability of weighscale.	Number of days weighscale is unavailable.	N/A	0%	N/A	Structures
Reliability	Availability of compost swale pumps.	Number of days swale pumps are unavailable per pump.	N/A	0%	N/A	Composting
Quality	Condition of the solid waste inventory.	Percentage of solid waste assets in Poor or Very Poor condition.	0.004%	0.002%	0.002%	All
Quality	Condition of the solid waste inventory, excluding cells and cell final caps.	Percentage of solid waste assets in Poor or Very Poor condition, excluding cells and cell final caps.	0.2%	0.1%	0.1%	Composting, Roads, Fencing, Structures, Depot and Drop- Off Areas, Monitoring

12.5 Lifecycle Management Strategy

It is important to proactively manage asset deterioration through a lifecycle management strategy that balances cost, risk, and the level of service. Table 92 describes the current lifecycle management activities completed and includes the risks associated with not completing these activities through using a do-nothing approach.

TABLE 92: **Solid Waste – Lifecycle Management Strategy**

Activity Type	Description of Current Strategy	Risks Associated with Not Completing Activities
Operations and Maintenance	Any minor operations and maintenance needs are managed by staff.	▪ Deficiencies are not identified through inspections. ▪ Higher lifecycle costs if maintenance is delayed or completed incorrectly. ▪ Premature asset failure, health and safety risks, and service disruptions.
Renewal and Rehabilitation	Renewal and rehabilitation activities are identified based on industry standards. Division staff are considering using PSD Citywide to formalize planning for lifecycle renewal and rehabilitation activities. Lifecycle planning is guided by the Landfill Progression Plan, which is updated every 10 years.	▪ Renewal and rehabilitation activities may increase asset life less than anticipated, resulting in a need for repeated activities or premature asset failure. ▪ Higher lifecycle costs if work is delayed or completed incorrectly.
Replacement and Disposal	Replacement and disposal lifecycle activities are identified based on industry standards. Division staff are considering using PSD Citywide to formalize planning for lifecycle replacement and disposal activities. Lifecycle planning is guided by the Landfill Progression Plan, which is updated every 10 years.	▪ Delay in replacement and disposal projects may result in significantly higher costs, longer service disruptions, liability concerns, and user dissatisfaction.
Growth-Related and Service Enhancements Lifecycle Needs	A new Waste Disposal Assessment Study (currently underway) will determine long-term capital needs, including how the landfill site is used and what assets are needed to operate them. The new study will also recommend a frequency for future updates to the study (the current update is the first in about 10 years).	▪ Delay or cancellation of growth-related activities causing the service to be unable to sufficiently accommodate growth.
Non-Infrastructure	Inspections and the landfill progression plans.	▪ Rate of asset deterioration is over or underestimated.
Identification of Short-Term Priorities	Short-term priorities for capital projects are identified by the contractor who operates the site. Replacements over $20,000 are considered capital.	▪ Decrease in service performance, higher lifecycle costs, and funding may not be prioritized in a way that ensures the best value for money option is picked to maintain the level of service.

12.6 Forecasted Capital Requirements

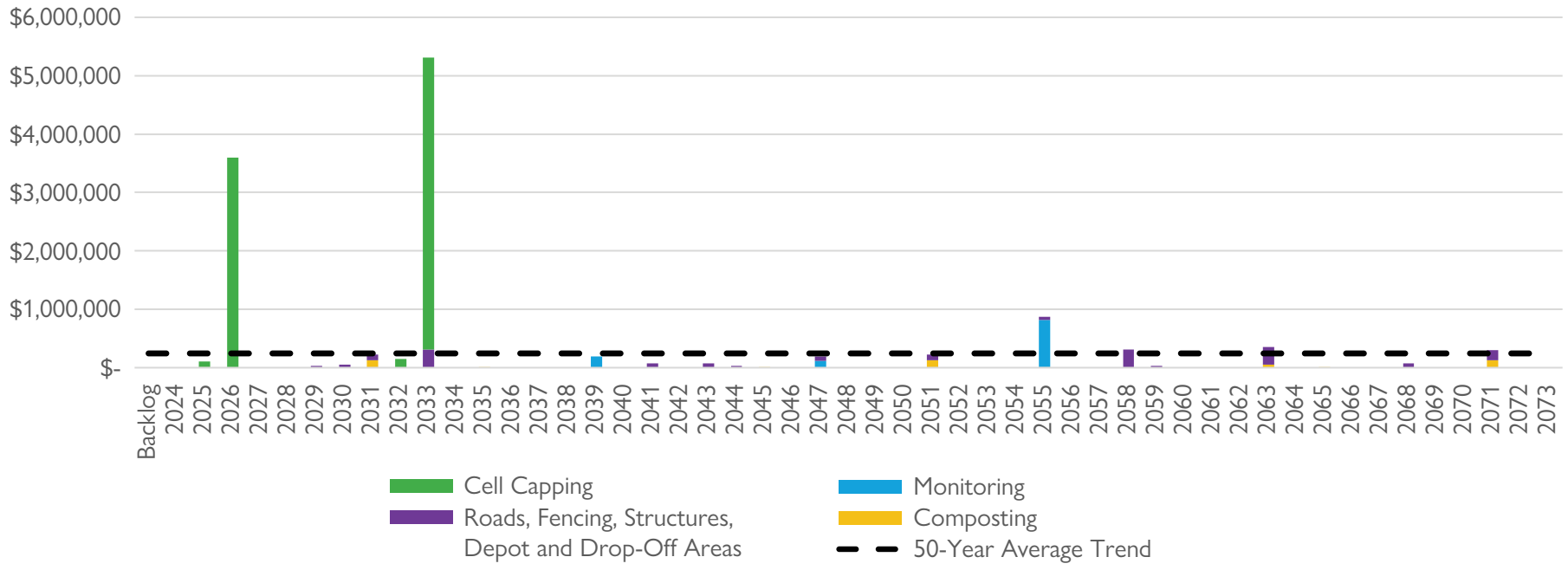
The City continuously invests in maintaining its assets and has been increasing budget amounts to more closely align with asset needs.

The annual capital requirement represents the average cost per year that the City is estimated to require to allocate towards funding infrastructure needs. Based on the available data at the time of this plan, more information is required for this calculation. A more complete asset inventory would result in capturing more assets and more accurate lifecycle costs. When more assets are added to the portfolio, the average annual funding need would also increase and be better representative of the actual spending required to manage the City's assets.

Based on the best available current information, to maintain the current level of service and lifecycle management strategy, the annual sustainable capital funding requirement for existing solid waste assets is estimated to be $244,280. This is comprised of $67,280 for current assets plus an additional $177,000 for future capping costs. There is a further additional average of $10,000 per year of maintenance and repair costs not itemized to specific asset sub-segment lifecycle management activities at this time.

The 2024 capital budget funding allocation was $155,000. However, $95,000 of this allocation is for maintenance projects that are not currently captured as lifecycle events in the City's asset management system. To avoid overstating the 2024 budget funding allocation compared to the annual requirement calculated, this plan will consider the $60,000 Household Hazardous Waste Depot Rehab project as the 2024 level of allocated funding. This means that there exists an infrastructure deficit, or funding shortfall, of $7,720 in 2024. Figure 109 illustrates a 50-year forecast of the annual capital asset needs for solid waste assets, including the cost of capping cells and asset lifecycle impacts of completing renewal and rehabilitation activities.

FIGURE 109: **Solid Waste – Annual Capital Requirement – 50-Year Forecast**

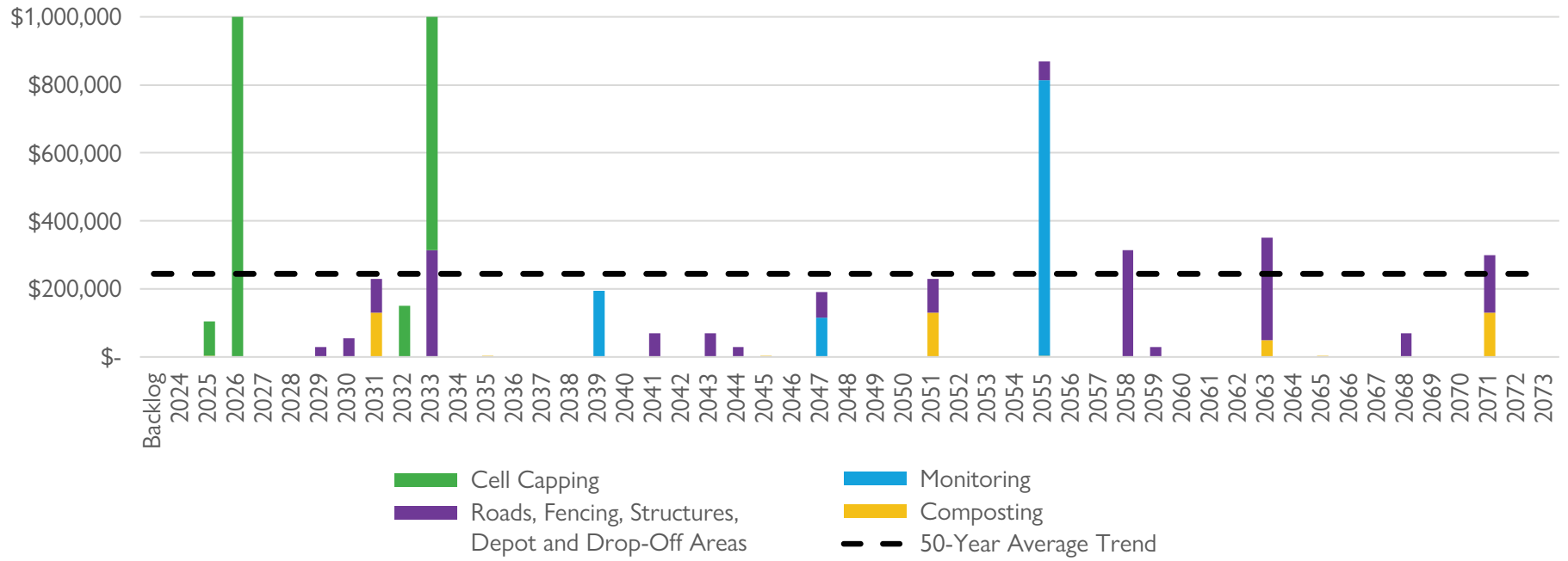


Separate from the annual requirement to support the current assets as part of an active site, the City's landfill closure obligations are captured in this plan. Landfill cells are not disposed of, rather a new landfill cap asset is created during the cell closure process. This process converts an active cell to an inactive capped cell. This cost associated with capping landfill cells in the future is included in this plan. As illustrated in figure 109, the infrequent cell capping costs are much higher than the other requirements. Due to the very large difference in requirements, the other sub-segments are not easily visible. Figure 110 cuts off the vertical height at $1,000,000 to allow for better visibility of the other values.

Due to historical inconsistency in the timing of the various assets coming into service, a sawtooth pattern is present where in some years the total annual requirement is zero followed by a spike that reaches near or above the long-term average. The City's asset management program aims to smooth out this behaviour in favour of a more consistent amount of annual spending. As the City approaches all active cells reaching their capacity, the City will consider various options for managing solid waste, including export to an outside waste disposal or processing facility. The cost of establishing a new landfill site is excluded from this plan.

For further details on capital requirements, please see the Financial Summary portion of this plan that details the funding needs for all categories of assets over the next 10 years, including discussion of impacts from growth.

FIGURE 110: **Solid Waste – Annual Capital Requirement – 50-Year Forecast – Truncated Axis**



12.7 Climate Change and Other Risks

Table 93 summarizes key trends, challenges, and risks that the City is currently facing in delivering the desired level of service.

TABLE 93: Solid Waste – Climate Change and Other Risks

Trend, Challenge, or Risk	Summary
Climate Change and Extreme Weather Events	It is anticipated that there will be many challenges in managing the impacts of climate change, including: ▪ Potential increased landfill leachate and disruption to composting activities due to more frequent extreme wet weather events. ▪ Increased uncertainty on the impact of higher intensity, frequency, and duration of rainfall events that can make it difficult to right-size infrastructure for the future. ▪ Increased uncertainty in impacts of extreme weather events and what is the most cost-effective resiliency strategy or group of strategies. The City is considering the following adaptation and mitigation measures in response to the challenges: ▪ Incorporate new best practices and technology in the design, construction, and maintenance of assets to increase resiliency while managing affordability. Potential future adaptation and mitigation measures include: ▪ Use of lower embodied carbon materials to minimize the impact of infrastructure.
Lifecycle Management Strategies	The maintenance practices for solid waste assets have historically been reactive. The City wants to implement more preventative and predictive maintenance programs in the future. The adoption of a work order management system tied to the asset management inventory system will provide an improved connection between maintenance programs and service delivery outcomes.
Infrastructure Reinvestment	The reinvestment in infrastructure has been reactive. There have been some moderate shifts to proactive reinvestment in the recent period.

12.8 Recommendations and Improvement Plan

Asset Inventory

- Continue to add asset information to GIS layers for improved staff efficiency.

Condition

- Consider implementing a process to assess the condition of the landfill using how water and wastewater assets are assessed as a starting point (incorporating age, risk of failure, etc.).
- Explore industry best practices and new technologies to develop a better condition assessment strategy for the variety of solid waste assets.

Lifecycle Management Strategies

- Evaluate the efficacy of the City's lifecycle management strategies at regular intervals to determine the impact of cost, condition, and risk.
- Develop more detailed preventative maintenance strategies and programs to maintain the current level of service.
- Consider forecasting the costs of options to meet post landfill closure solid waste needs, potentially including options such as, but not limited to:
  - Cost sharing of regional energy from waste or mixed-waste processing facilities, including haulage costs.
  - Cost of haulage and exporting material to privately managed landfills.

Levels of Service

- Continue to measure current levels of service in accordance with the metrics identified in Ontario Regulation 588/17 and the additional metrics included by the City.
- Track annual progress towards the City's proposed levels of service targets.

12.9 Updates For 2025 Compliance

To achieve compliance with the July 1, 2025, requirements under O. Reg. 588/17, updates were made to the following items in this chapter:

- Table 90: Solid Waste – Community Levels of Service and Table 91: Solid Waste – Technical Levels of Service were updated to contain the levels of service and performance measures for 2024, and to contain the levels and measures that the City proposes to achieve over the 10-year period of 2025-2034.
- Table 92: Solid Waste - Lifecycle Management Strategy was updated to identify the lifecycle activities needed to provide the proposed levels of service for the 10-year period at the best value for money over the lifecycle of the assets, and to identify the risks associated with not completing lifecycle activities for each activity type.

In addition to the updates listed, various minor wording, layout, or graphical updates were made to the chapter to provide additional information or to improve clarity, visual appeal, or accessibility.

O. Reg. 588/17 further requires an explanation of why the proposed levels of service are appropriate for the City based on an assessment of four criteria. Table 94 contains the explanation available for the criteria.

TABLE 94: Solid Waste – Proposed Levels of Service Appropriateness Assessment

O. Reg. 588/17 S.6(1) 2(i-iv) Criteria	Explanation of Appropriateness
i. The options for the proposed levels of service and the risks associated with those options to the long-term sustainability of the municipality.	Solid Waste is a required service where the City must provide collection services. Options for levels of service include usage of a licensed disposal facility instead of facilities owned by the City, collection frequency, operating hours of the landfill, set-out requirements for curbside collection, and scope of diversion programs. The City is not permitted to landfill hazardous waste under its current environmental compliance approval and as a result the City also operates a household hazardous waste depot. Considering the impacts on operating costs and reliability of replacing assets before the asset reaches a Poor or Very Poor condition state. Assets in Poor or Very Poor condition typically have higher annual operations and maintenance costs. The risk of not doing lifecycle management activities includes the risks identified in Table 92: Solid Waste - Lifecycle Management Strategy and could also include premature filling of the landfill by unnecessary disposal of divertible materials, non-compliance with the environmental compliance approval and applicable legislation, and increased operating costs in the long-term. The long-term sustainability of the solid waste service requires the City to remain in compliance with the environmental compliance approval and applicable legislation. During the design stage of capital projects, anticipated future climate change impacts are considered. Table 93: Solid Waste – Climate Change and Other Risks includes a summary of adaptation and mitigation measures that could be used in response to the challenges.
ii. How the proposed levels of service differ from the current levels of service.	Table 91: Solid Waste – Technical Levels of Service identifies the difference in performance between the most current level of service performance value available and the 2034 target performance where determined. A 2034 target performance has not been determined yet for some measures included in this chapter. The City will continue to measure current levels of service over time to establish a historical baseline or trend, and work towards establishing additional future targets. Adjustments to levels of service and determining future targets is a forward looking and iterative process that will occur over time as the City improves and refines its integrated approach to asset management. For the levels of service measures with 2034 targets identified, the anticipated impacts of the differences between current and targets levels of service include: ▪ The percentage of solid waste assets in Poor or Very Poor condition is forecast to remain at 2024 values. This is primarily due to a balanced value of assets degrading into lower condition states compared to the assets that are planned to be rehabilitated or replaced over the 10-year period. As the City moves towards improving its work order management practices, the City will be better equipped to measure technical levels of service values over time including some of those currently listed as not available (N/A) in Table 91.
iii. Whether the proposed levels of service are achievable.	From a City staff resources perspective, the forecasted list of projects is achievable. Whether the full project forecast is completed depends on receiving regulatory approvals, Council approving funding through future budget deliberations, environmental assessments, and future 5-Year Waste Management Plan recommendations.

O. Reg. 588/17 S.6(1) 2(i-iv) Criteria	Explanation of Appropriateness
iv. The municipality's ability to afford the proposed levels of service.	Over the 2025-2034 10-Year Capital and Reserve Forecast period, the solid waste service area is funded by the following sources: ▪ Landfill Site Asset Management Reserve Fund; ▪ Solid Waste Obligatory Reserve Fund; ▪ Land Reserve Fund; ▪ General Asset Management Reserve Fund; ▪ Capital Levy Reserve Fund; ▪ IT and Innovation Reserve Fund; and ▪ Debenture Reserve Fund. The financial strategy chapter included in this plan contains the O. Reg. 588/17 requirements of: ▪ An estimate of the annual costs for the lifecycle activities required to provide the proposed level of service; ▪ The annual funding projected to be available; ▪ The options examined by the City to maximize projected funding; and ▪ The identification of any funding deficit or shortfall. As the City has a population above 25,000, the financial strategy chapter contains the details required under S.6(1) 6(i-ii) of O. Reg. 588/17 regarding the costs and funding available due to population and employment growth. To promote alignment and consistency between City documents and City Council decision making, the proposed levels of service input into this chapter and the financial strategy chapter are aligned with the outcomes of the 2025 budget process and resulting 2025-2034 10 Year Capital and Reserve Forecast. The 2025-2034 10 Year Capital and Reserve Forecast was presented during the 2025 Budget process and resulted in the City utilizing its self-imposed 10% debt limit as well as a negative total reserve and reserve fund shortfall by 2034 in the amount of -$214.4 million in 2025 dollars. The Financial Strategy chapter of this plan provides a detailed discussion of the sustainability of the City's financial position. If the City follows a path of financial unsustainability, eventually some lifecycle activities would become unaffordable and the City may not achieve its proposed levels of service targets. Which activities the City will not undertake due to a shortfall depends on which reserves contain the large negative balances. Maintaining the proposed levels of service targets for all categories would require significant increases in funding levels. Solid waste staff are looking ahead at future asset lifecycle needs beyond the 2025-2034 forecast period to right-size reserve contribution requirements and are considering the possibility of additional long-term funding pressures due to: ▪ Waste export costs that would occur after the current landfill reaches final capacity; ▪ Exporting source-separated organics; and ▪ Anticipated future changes in legislation that will have more stringent environmental requirements. An explanation of the options examined by the City to maximize the funding projected to be available to afford the proposed levels of service is included in Table 137: Financial Strategy – Funding Maximization Activities and Choices.

13.0

Parks, Recreation, Culture, and Tourism

13.0 Parks, Recreation, Culture, and Tourism

The City manages parks, recreation, culture, and tourism (PRCT) assets to support the goals of increasing engaging recreation experiences, supporting and enhancing culture, arts, and an active lifestyle, and improving accessibility. PRCT is the sixth-largest category of assets at a total replacement cost of $168,554,858 in 2023 dollars.

13.1 Asset Inventory and Replacement Cost

The City manages 44 parks and parkettes including splash pads, athletic fields, baseball diamonds, courts, and off-leash dog zones. The City also manages 14 permanent outdoor public art installations, 90 pieces of fitness equipment, 206 boat slips, 72 m of dock with two boat launches, 800 m of boardwalk and 80 m of fishing pier. An inventory of the City's monuments and fountains will be included in a future revision of this plan.

Vehicles used by PRCT are excluded from this category since those assets are managed separately through the Fleet service area.

Facilities related to PRCT services are also excluded from this category since those assets are managed separately through the Facilities service area. The inventory is up to date as of the end of 2024.

The replacement cost is estimated using post-pandemic costs of recent or ongoing capital projects. The City is working towards establishing replacement cost estimates for its outdoor public art installations. Included in the cost of replacing each asset is a set of components that together comprise a typical asset. The full set of components for each sub-segment is identified in Appendix 20.2.9.

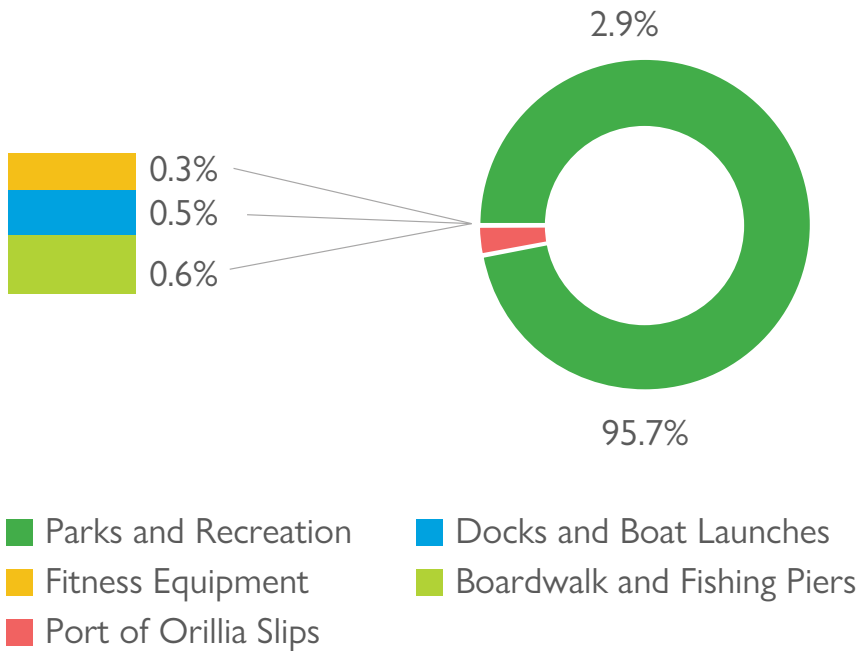
Table 95 includes the quantity, replacement cost method, and total replacement cost in 2023 dollars of each sub-segment of assets in the City's PRCT asset inventory.

TABLE 95: **Parks, Recreation, Culture, and Tourism – Inventory and Replacement Cost**

Asset Sub-Segment	Quantity	Replacement Cost Method	Replacement Cost	Percentage of Total Replacement Cost
Parks and Trails	44 parks or parkettes with amenities 34 km of trails	Cost/Unit	$161,310,096	95.7%
Outdoor Public Art	14 permanent installations	N/A	N/A	N/A
Fitness Equipment	90 pieces of equipment	Asset-Specific Cost Estimation	$538,032	0.3%
Port of Orillia Slips	206 slips	Cost/Unit	$4,951,923	2.9%
Docks and Boat Launches	72 m of dock 2 boat launches	Cost/Unit	$793,269	0.5%
Boardwalk and Fishing Piers	800 m of boardwalk 80 m of fishing pier	Cost/Unit	$961,538	0.6%
Monuments and Fountains	N/A	N/A	N/A	N/A

Figure 111 provides the data in table 95 visually with each sub-segment as a percentage of the total replacement cost.

FIGURE 111: **Parks, Recreation, Culture, and Tourism – Total Replacement Cost**



13.2 Asset Age and Estimated Useful Life

The estimated useful life of PRCT assets is determined using a combination of staff knowledge, historical data, and industry standards. The average service life remaining is determined by the difference between the average estimated useful life and the average age, except when an asset has been assigned an assessed condition rating that may increase or decrease the average service life remaining.

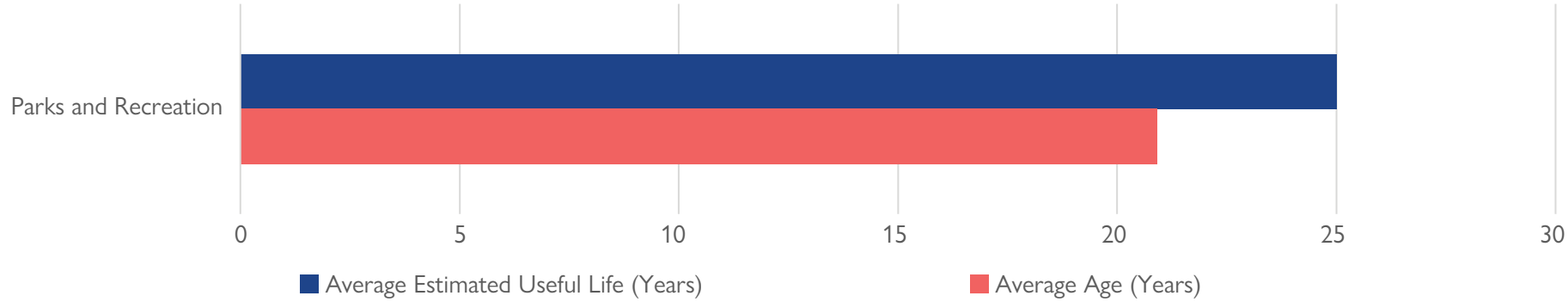
Table 96 summarizes the average age of each sub-segment based on the number of years that the assets have been in service. Due to poor historical data on Parks and Recreation assets in-service dates, the average age and service life remaining are low-confidence estimations.

TABLE 96: **Parks, Recreation, Culture, and Tourism – Average Age and Estimated Useful Life**

Asset Sub-Segment	Average Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)	Percentage of Average Service Life Remaining
Parks and Recreation	25.0	20.9	4.1	16%

The age of an asset gives an indication of how close it is to the end of its estimated useful life and what lifecycle management strategies may be required. Figure 112 displays average asset age alongside the estimated useful life for each asset sub-segment.

FIGURE 112: **Parks, Recreation, Culture, and Tourism – Average Age and Estimated Useful Life**



Average asset ages have not exceeded the average estimated useful life for any sub-segment. Further improvements are required to the asset inventory to ensure that the estimated useful life assigned to assets is reflective of the true length of time that assets are typically in service.

13.3 Condition

The following sections and tables outline the condition breakdown for PRCT assets and the City's methods for assessing asset condition. Where available and feasible, the City follows industry-standard best practices and generally accepted good engineering practices in the approach to assessing asset condition. When condition assessments are unavailable, an age-based condition rating is used based on the relative age of the asset compared to its estimated useful life.

Table 97 summarizes the variety of techniques used to assess the condition of the PRCT assets on a regular frequency.

TABLE 97: Parks, Recreation, Culture, and Tourism – Approach to Assessing Condition

Asset Sub-Segment	Condition Data Collection Techniques	Frequency of Data Collection	Year of Last Assessment
Parks and Recreation	Condition assessments by subject matter experts and staff.	During Master Plans.	2014

Routine inspections are completed for several specific types of assets to identify issues that need to be resolved. The types of inspections and their frequencies are listed below:

- Fitness equipment (e.g. cardio and selectorized machines, etc.) are inspected quarterly by a third party.
- Aquatic equipment is inspected visually daily for safety issues and more comprehensively inspected monthly.
- Some larger assets at recreation centres (e.g. rock wall, Tarzan rope, moveable floors, etc.) are inspected annually by a third party.
- Every park is visited by City staff at least every two weeks. Larger parks may have staff on-site daily during peak seasons.
- Playgrounds are inspected monthly in accordance with CSA standards.
- Courts (e.g. basketball, tennis, etc.) are inspected weekly.
- Ice rinks are inspected daily when operating.
- Park furniture is inspected regularly during park patrols.
- Trails are inspected at least once per month, excluding trails in Scout Valley.
- Trees are inspected annually by a staff arborist, except for trees in wood lots.
- Lighting at parks is inspected quarterly.
- Joint Health and Safety inspections of staff work areas are completed monthly.

The City has an Excel-based complaints tracker for parks that is used by front desk staff to document complaints (it is also used for roads, stormwater, water, and wastewater). The City is working to create a single complaints tracking system using the work order module in PSD Citywide software that will be used by all departments.

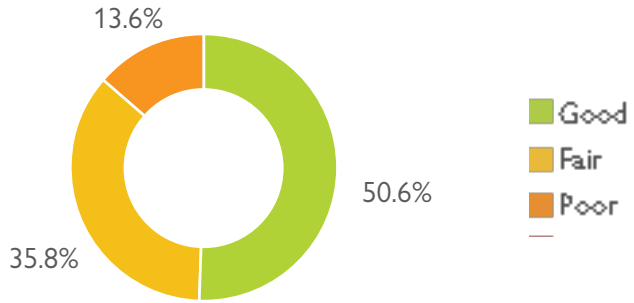
Table 98 provides a summary of the condition rating systems for all sub-segments of PRCT assets. Based on the condition data and information provided by subject matter experts, the condition of assets is rated on a scale from Good to Poor.

TABLE 98: Parks, Recreation, Culture, and Tourism – Condition Rating Scales

Rating	Rating Description	Parks and Recreation (Three-Point Scale)
Good	Good	1
Fair	Fair	2
Poor	Poor	3

Figure 113 illustrates the breakdown of condition ratings of the City's PRCT assets. 50.6% of these assets are in Good condition with the with a significant proportion, 13.6%, rated as Poor.

FIGURE 113: Parks, Recreation, Culture, and Tourism – Condition Rating Summary



The overall average condition of PRCT assets is Fair. Assets are maintained by using the best treatment option to manage the current condition and anticipated future deterioration of the asset. More information is found in the lifecycle management strategy details in Section 13.5.

More detailed breakdowns of the condition ratings for additional asset sub-segments will be included in a future revision of this plan.

13.4 Levels of Service and Performance Measures

The City's assets exist to deliver services to its users. Levels of service are a measurement of the actual service provided so that decisions are made based on the nature and quality of that service, rather than only the condition of an asset. These are used to summarize the type of service being provided that reflects the values and desires of stakeholders in the community.

Tables 99 and 100 identify the City's historical and proposed level of service for the PRCT assets. These metrics include any technical and community level of service metrics that are required to comply with Ontario Regulation 588/17, as well as any additional metrics provided by the City.

13.4.1 Community Levels of Service

Table 99 identifies the qualitative descriptions that determine the community levels of service provided by the PRCT assets.

TABLE 99: Parks, Recreation, Culture, and Tourism – Community Levels of Service

Service Attribute	Community Levels of Service	Related Assets
Proximity	The City strives to incorporate parks and greenspace into residential neighbourhoods.	Parks and Trails
Availability	The City's parks and park amenities are typically available for use with low to moderate congestion and waiting times.	Parks and Trails
Accessibility	The City strives to ensure that parks and park amenities can be used by everyone.	Parks and Trails
Quality	The City inspects and maintains the PRCT inventory at a condition level to ensure that it functions as designed.	Parks and Trails
Scope	The City strives to incorporate public art throughout the City in a variety of locations.	Outdoor Public Art

13.4.2 Technical Levels of Service

Table 100 identifies the quantitative metrics that determine the technical level of service provided by PRCT assets. Some of the performance measures will be calculated as part of the next Parks, Recreation, Culture and Trails Master Plan update project and will be included in a future revision of this plan.

TABLE 100: Parks, Recreation, Culture, and Tourism – Technical Levels of Service

Service Attribute	Description of What Performance Measure Captures	Performance Measure	2023	2024	Target	Related Assets
Proximity	Availability of parks within walking distance from residential properties.	Percentage of residentially zoned properties within the service radius of a park using the smallest service radius (400 m).	N/A	N/A	N/A	Parks and Trails
Proximity	Availability of off-leash dog areas within walking distance from residential properties.	Percentage of residentially zoned properties within the service radius of a park with an off-leash dog area using the smallest service radius (400 m).	N/A	N/A	N/A	Parks and Trails
Availability	Availability of parks for active use.	Hectares of parkland developed for active use per 1,000 residents.	N/A	N/A	N/A	Parks and Trails
Availability	Availability of greenspace area.	Hectares of naturalized parkland (no regular maintenance or fertilizer) per 1,000 residents.	N/A	N/A	N/A	Parks and Trails
Availability	Availability of parking at community parks.	Number of parking spots at community parks per 1,000 residents.	N/A	N/A	N/A	Parks and Trails
Accessibility	Availability of accessible park amenities.	Number of AODA-compliant park amenities as a percentage of the total number of park amenities.	N/A	N/A	N/A	Parks and Trails
Quality	City is following planned lifecycle for park amenities.	Replacement cost of park amenities that are within their design life as a percentage of total replacement cost of all park amenities.	N/A	N/A	N/A	Parks and Trails
Quality	Condition of the PRCT inventory.	Percentage of PRTC assets in Poor condition.	13.6%	N/A	≤25.0%	Parks and Trails
Quality	Paved versus unpaved parking lots.	Area of park parking lots that are paved as a percentage of the area of all parking lots.	N/A	N/A	N/A	Parks and Trails
Quality	Paved versus unpaved trails.	For trails (excluding natural trails and snowmobile trails), the length of paved sections as a percentage of the length of all sections.	N/A	N/A	N/A	Parks and Trails
Scope	Quantifying the City's outdoor public art installations.	Number of permanent outdoor public art installations.	N/A	14	N/A	Outdoor Public Art
Quality	Frequency of inspections of outdoor public art installations.	Percentage of permanent outdoor public art installations inspected per year.	N/A	N/A	N/A	Outdoor Public Art

13.5 Lifecycle Management Strategy

It is important to proactively manage asset deterioration through a lifecycle management strategy that balances cost, risk, and the level of service. Table 101 describes the current lifecycle management activities completed and includes the risks associated with not completing these activities through using a do-nothing approach.

TABLE 101: Parks, Recreation, Culture, and Tourism – Lifecycle Management Strategy

Activity Type	Description of Current Strategy	Risks Associated with Not Completing Activities
Operations and Maintenance	The City takes a proactive approach to managing its parks and recreation assets through a variety of operations and maintenance programs. The operations and maintenance programs are tailored to each park or facility and include activities such as: ▪ Component replacement, painting, and repair/cleaning of furniture, signs, playgrounds, swings, docks, walkways, courts, etc. on an as-needed basis based on inspection results. ▪ Crack sealing and cleaning of asphalt and concrete surfaces and courts as needed. ▪ Daily brooming and flooding of ice rinks. ▪ A third party manages larger recreational assets in recreation centres (e.g. rock wall, tarzan rope, moveable floor, etc.). ▪ Flushing and winterization of irrigation systems annually. ▪ Monitoring for and removal of invasive species, and monitoring and spraying of poison ivy. ▪ Collaborating with community partners to remove invasive phragmites (reeds). ▪ Aeration and fertilization of playing fields twice annually and turf annually. ▪ Clearing of snow from pathways, trails, and driving surfaces daily and as needed during precipitation events. ▪ Gravel parking lots graded twice a year and as needed. ▪ Management of debris left behind in encampments in parks and removal of garbage and debris left on trails. ▪ Garbage and recycling collection is done daily in the summer and twice a week in the winter. In addition to the proactive operations and maintenance activities identified above, staff respond to complaints as needed. The City plans to use the work order module in the PSD Citywide software to manage these activities in the future.	▪ Deficiencies are not identified through inspections. ▪ Higher lifecycle costs if maintenance is delayed or completed incorrectly. ▪ Premature asset failure, health and safety risks, and service disruptions.

Activity Type	Description of Current Strategy	Risks Associated with Not Completing Activities
Renewal and Rehabilitation	The major capital lifecycle activities for parks and recreation assets include replacement, rehabilitation, renewal, and significant upgrades. The timing of capital lifecycle activities is based on date of purchase, expected useful life (from Master Plans), and information on prior repairs completed. This data is tracked for all equipment in an asset tracker in Microsoft Teams. The City maintains a 10-year replacement plan for larger assets to ensure sufficient funding is available. A description of the major capital lifecycle activities specific to each asset category is provided below. ▪ When playground equipment reaches the end of its useful life, it is replaced with equipment that meets current design standards and accessibility requirements. ▪ Trails are resurfaced on an as-needed basis to maintain quality and safety. Resurfacings typically involve removing the surface material, regrading the trail base, and placement of a new surface. ▪ Replacement of other parks assets (e.g. furniture, lighting, trees, signage, plaques, shoreline protection, parking lots, etc.) is done on an as-needed basis, based on the asset condition, accessibility, and safety considerations. Replacements are typically like-for-like unless adjustments in design are needed to address accessibility concerns or other requirements. ▪ Where feasible, multiple park projects are bundled into single contracts to improve cost efficiency and to reduce the length of the service disruption to the public. ▪ Responding to community demand and new trends in recreation (e.g. disc golf, pickleball).	▪ Renewal and rehabilitation activities may increase asset life less than anticipated, resulting in a need for repeated activities or premature asset failure. ▪ Higher lifecycle costs if work is delayed or completed incorrectly.
Replacement and Disposal	Same as Renewal and Rehabilitation.	▪ Delay in replacement and disposal projects may result in significantly higher costs, longer service disruptions, liability concerns, and user dissatisfaction.
Growth-Related and Service Enhancements Lifecycle Needs	Population growth, urban design and active transportation factors are considered when planning new parks and trails. Other factors considered include: ▪ Emerging Needs: Adaptability to emerging trends, community preferences, and technological advancements help identify evolving needs. ▪ Community Input: Input from staff and the community is actively sought to understand concerns. ▪ External Assessments: Periodic external assessments and expert opinions, if available, inform the decision-making process.	▪ Delay or cancellation of growth-related activities causing the service to be unable to sufficiently accommodate growth. ▪ Master plans may over or underestimate the required expansions to accommodate the impacts of growth.
Non-Infrastructure	Inspections and master plans.	▪ Rate of asset deterioration is over or underestimated.
Identification of Short-Term Priorities	Any findings during inspections that impact usage, safety, or compliance with regulations are addressed promptly. Any issues identified are sent via email to staff supervisors. If an issue with an asset cannot be immediately addressed and it is not fit for use, it will be taken out of service until the issue is addressed.	▪ Decrease in service performance, higher lifecycle costs, and funding may not be prioritized in a way that ensures the best value for money option is picked to maintain the level of service.

13.6 Forecasted Capital Requirements

The City continuously invests in maintaining its assets and has been increasing budget amounts to more closely align with asset needs.

The annual capital requirement represents the average cost per year that the City is estimated to require to allocate towards funding asset needs. Based on the available data at the time of this plan, more information is required for this calculation. A more complete asset inventory would result in capturing more assets and more accurate lifecycle costs. When more assets are added to the portfolio, the average annual funding need would also increase and be better representative of the actual spending required to manage the City's assets.

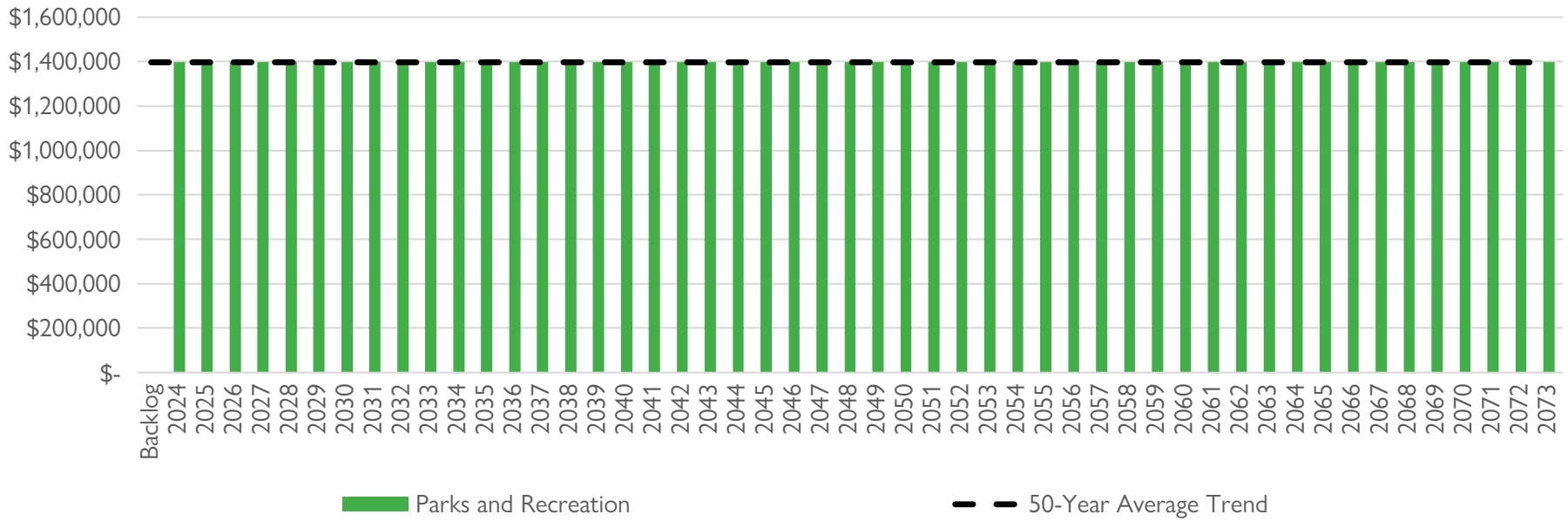
Based on the best available current information, to maintain the current level of service and lifecycle management strategy, the annual sustainable capital funding requirement for existing PRCT assets is estimated to be $1,396,670.

The 2024 capital budget funding allocation was $1,302,000. This means that there exists a funding deficit, or funding shortfall, of $94,670 in 2024. Figure 114 illustrates a 50-year forecast of the annual capital asset needs for PRCT, including the cost and asset lifecycle impacts of completing renewal and rehabilitation activities.

Due to low confidence in the in-service date of many parks and recreation assets, this plan assumes a constant spending requirement. The constant spending amount is aligned with a long-term average annual requirement calculated from the average estimated useful life and total replacement cost.

For further details on capital requirements, please see the Financial Summary portion of this plan that details the funding needs for all categories of assets over the next 10 years, including discussion of impacts from growth.

FIGURE 114: **Parks, Recreation, Culture, and Tourism – Annual Capital Requirement – 50-Year Forecast**



13.7 Climate Change and Other Risks

Table 102 summarizes key trends, challenges, and risks that the City is currently facing in delivering the desired level of service.

TABLE 102: **Parks, Recreation, Culture, and Tourism – Climate Change and Other Risks**

Trend, Challenge, or Risk	Summary
Climate Change and Extreme Weather Events	It is anticipated that there may be some challenges in managing the impacts of climate change, including: ▪ Potential increased damage to outdoors park amenities during more frequent severe wind and wet weather events. ▪ Potential increased demand and reliance on PRCT assets for shade and cooling during extreme heat events. ▪ Increased uncertainty in impacts of extreme weather events and what is the most cost-effective resiliency strategy or group of strategies. The City is considering the following adaptation and mitigation measures in response to the challenges: ▪ Incorporate new best practices and technology in the design, construction, and maintenance of assets to increase resiliency while managing affordability.

13.8 Recommendations and Improvement Plan

Asset Inventory

- Continue to review and refine the asset inventory to improve scope, accuracy, and update estimated useful life values.
- Expand the asset inventory to include assets in related service areas, and include fitness and non-park recreation assets.

Condition

- Align parks and recreation condition rating system with the Very Good to Very Poor system used for all other asset categories.
- Consider a more frequent condition assessment schedule to assess asset condition between master plans.
- Explore industry best practices and new technologies to develop a better condition assessment strategy for the variety of PRCT assets.
- Continue to integrate the City's asset management inventory with the information available in the PRCT service area service request and work order processes.

Levels of Service

- Continue to measure current levels of service in accordance with the metrics identified in Ontario Regulation 588/17 and the additional metrics included by the City.
- Track annual progress towards the City's proposed levels of service targets.

13.9 Updates For 2025 Compliance

To achieve compliance with the July 1, 2025, requirements under O. Reg. 588/17, updates were made to the following items in this chapter:

- Table 99: Parks, Recreation, Culture, and Tourism – Community Levels of Service and Table 100: Parks, Recreation, Culture, and Tourism – Technical Levels of Service were updated to contain the levels of service and performance measures for 2024, and to contain the levels and measures that the City proposes to achieve over the 10-year period of 2025-2034.
- Table 101: Parks, Recreation, Culture, and Tourism - Lifecycle Management Strategy was updated to identify the lifecycle activities needed to provide the proposed levels of service for the 10-year period at the best value for money over the lifecycle of the assets, and to identify the risks associated with not completing lifecycle activities for each activity type.
- Renamed Parks and Recreation sub-segment to Parks and Trails and updated the replacement cost based on a revised analysis of post-pandemic costs.
- Added new asset sub-segments to Table 95: Parks, Recreation, Culture, and Tourism – Inventory and Replacement Cost for the following:
  - Outdoor Public Art;
  - Fitness Equipment;
  - Port of Orillia Slips;
  - Docks and Boat Launches; and
  - Boardwalk and Fishing Piers.

Revision of the associated replacement cost, age, estimated useful life, condition, and capital requirements tables and figures will be completed in a future revision of this plan to include the new asset sub-segments.

In addition to the updates listed, various minor wording, layout, or graphical updates were made to the chapter to provide additional information or to improve clarity, visual appeal, or accessibility.

O. Reg. 588/17 further requires an explanation of why the proposed levels of service are appropriate for the City based on an assessment of four criteria. Table 103 contains the explanation available for the criteria.

TABLE 103: Parks, Recreation, Culture, and Tourism – Proposed Levels of Service Appropriateness Assessment

O. Reg. 588/17 S.6(1) 2(i-iv) Criteria	Explanation of Appropriateness
i. The options for the proposed levels of service and the risks associated with those options to the long-term sustainability of the municipality.	Considering the impacts on operating costs and reliability of replacing assets before the asset reaches a Poor condition state. Assets in Poor condition typically have higher annual operations and maintenance costs. The City's ongoing Parks, Recreation, Culture and Trails Master Plan project will involve a detailed analysis of levels of service that will provide current performance and future targets for some of the performance measures listed as not available (N/A) in Table 100: Parks, Recreation, Culture, and Tourism – Technical Levels of Service. The results of the master plan will be included in the next major asset management plan revision. The risk of not doing lifecycle management activities includes the risks identified in Table 101: Parks, Recreation, Culture, and Tourism - Lifecycle Management Strategy. Adopting a do-nothing approach would result in significantly higher lifecycle costs and risk, a rapid decline in levels of service, and would substantially reduce the long-term sustainability of the City's assets. During the design stage of capital projects, anticipated future climate change impacts are considered. Table 102: Parks, Recreation, Culture, and Tourism – Climate Change and Other Risks includes a summary of adaptation and mitigation measures that could be used in response to the challenges.
ii. How the proposed levels of service differ from the current levels of service.	Table 100: Parks, Recreation, Culture, and Tourism – Technical Levels of Service identifies the difference in performance between the most current level of service performance value available and the 2034 target performance where determined. A 2034 target performance has not been determined yet for some measures included in this chapter. The City will continue to measure current levels of service over time to establish a historical baseline or trend, and work towards establishing additional future targets. Adjustments to levels of service and determining future targets is a forward looking and iterative process that will occur over time as the City improves and refines its integrated approach to asset management. For the levels of service measures with 2034 targets identified, the anticipated impacts of the differences between current and targets levels of service include: ▪ The percentage of PRCT assets in Poor condition is forecast to increase from 13.6% to an upper limit of 25.0%. This is primarily due to more PRCT assets aging into lower condition states than are planned to be rehabilitated or replaced over the 10-year period. As the City moves towards integrating work orders for some operations and maintenance activities in the PRCT service area into the same platform that is used for asset management, the City will be better equipped to measure technical levels of service values over time including some of those currently listed as not available (N/A) in Table 100.
iii. Whether the proposed levels of service are achievable.	From a City staff resources perspective, the forecasted list of projects is achievable and is dependent on future staffing levels. Whether the full project list moves forward is dependent on receiving regulatory approvals, Council approving funding through future budget deliberations, environmental assessments, market availability for procurement of park amenities, and the actual level of population growth that occurs.

O. Reg. 588/17 S.6(1) 2(i-iv) Criteria	Explanation of Appropriateness
iv. The municipality's ability to afford the proposed levels of service.	Over the 2025-2034 10-Year Capital and Reserve Forecast period, the PRCT service area is funded by the following sources: ▪ Recreation and Culture Operating Budgets ▪ Youth Opportunities Reserve Fund ▪ General Asset Management Reserve Fund ▪ Capital Levy Reserve Fund ▪ Tourism Municipal Accommodation Tax Reserve Fund ▪ Indoor Recreation Obligatory Reserve Fund ▪ Land Reserve Fund ▪ Cash In Lieu Recreation Land/Community Benefit Charge Obligatory Reserve Fund ▪ Parks Obligatory Reserve Fund ▪ Debenture Reserve Fund ▪ Donations ▪ Federal Grants ▪ Provincial Grants The financial strategy chapter included in this plan contains the O. Reg. 588/17 requirements of: ▪ An estimate of the annual costs for the lifecycle activities required to provide the proposed level of service; ▪ The annual funding projected to be available; ▪ The options examined by the City to maximize projected funding; and ▪ The identification of any funding deficit or shortfall. As the City has a population above 25,000, the financial strategy chapter contains the details required under S.6(1) 6(i-ii) of O. Reg. 588/17 regarding the costs and funding available due to population and employment growth. To promote alignment and consistency between City documents and City Council decision making, the proposed levels of service input into this chapter and the financial strategy chapter are aligned with the outcomes of the 2025 budget process and resulting 2025-2034 10 Year Capital and Reserve Forecast. The 2025-2034 10 Year Capital and Reserve Forecast was presented during the 2025 Budget process and resulted in the City utilizing its self-imposed 10% debt limit as well as a negative total reserve and reserve fund shortfall by 2034 in the amount of -$214.4 million in 2025 dollars. The Financial Strategy chapter of this plan provides a detailed discussion of the sustainability of the City's financial position. If the City follows a path of financial unsustainability, eventually some lifecycle activities would become unaffordable and the City may not achieve its proposed levels of service targets. Which activities the City will not undertake due to a shortfall depends on which reserves contain the large negative balances. Maintaining the proposed levels of service targets for all categories would require significant increases in funding levels. PRCT staff are looking ahead at future asset lifecycle needs beyond the 2025-2034 forecast period to right-size reserve contribution requirements and are considering the possibility of additional long-term funding pressures due to: ▪ More strict regulations on recreation related facility systems; ▪ Increased insurance costs; ▪ New multi-purpose recreation facility or complex to maintain the service levels for a growing population and in response to changes in usage trends; and ▪ Future needs to be identified in the upcoming master plan. An explanation of the options examined by the City to maximize the funding projected to be available to afford the proposed levels of service is included in Table 137: Financial Strategy – Funding Maximization Activities and Choices.

14.0

Municipal Law Enforcement and Parking

14.0 Municipal Law Enforcement and Parking

The City maintains municipal law enforcement (MLE) and parking assets to support the enforcement of municipal by-laws and manage the network of parking locations and equipment. MLE and parking is the eleventh-largest category of assets at a total replacement cost of $4,403,690 in 2023 dollars.

14.1 Asset Inventory and Replacement Cost

The City manages eight City-owned parking lots, 15 active and five inactive or spare parts pay-and-display terminals, and 778 components of parking meters. Parking lots managed but not owned by the City and MLE personal equipment are excluded from the scope of this plan, except for discussions of levels of service and the annual cost for leased parking lots. Vehicles used by MLE are excluded from this category since those assets are managed separately through the Fleet service area. The inventory is up to date as of the end of 2023.

The replacement cost is estimated using primarily historic construction and procurement costs. Included in the cost of replacing each asset is a set of components that together comprise a typical asset. The full set of components for each sub-segment is identified in Appendix 20.2.10.

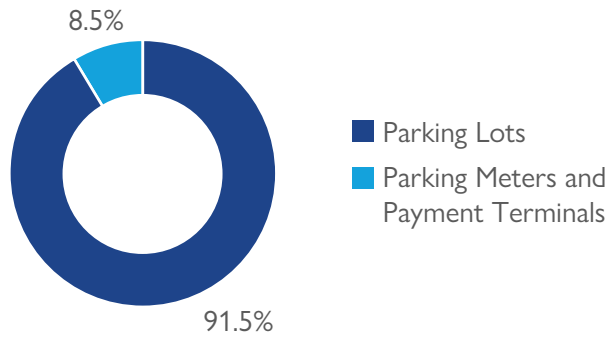
Table 104 includes the quantity, replacement cost method, and total replacement cost in 2023 dollars of each sub-segment of assets in the City's MLE and parking asset inventory.

TABLE 104: **Municipal Law Enforcement and Parking – Inventory and Replacement Cost**

Asset Sub-Segment	Quantity	Replacement Cost Method	Replacement Cost	Percentage of Total Replacement Cost
Parking Lots	8 parking lots	Cost/Unit	$4,028,000	91.5%
Parking Meters and Payment Terminals	319 Mech Units 226 Yokes 103 Housings 130 Posts and Foundations 15 active and 5 inactive pay-and-display terminals	Cost/Unit	$375,690	8.5%

Figure 115 provides the data in table 104 visually with each sub-segment as a percentage of the total replacement cost.

FIGURE 115: **Municipal Law Enforcement and Parking – Total Replacement Cost**



14.2 Asset Age and Estimated Useful Life

The estimated useful life of MLE and parking assets is determined using a combination of staff knowledge, historical data, and industry standards. The average service life remaining is determined by the difference between the average estimated useful life and the average age, except when an asset has been assigned an assessed condition rating that may increase or decrease the average service life remaining.

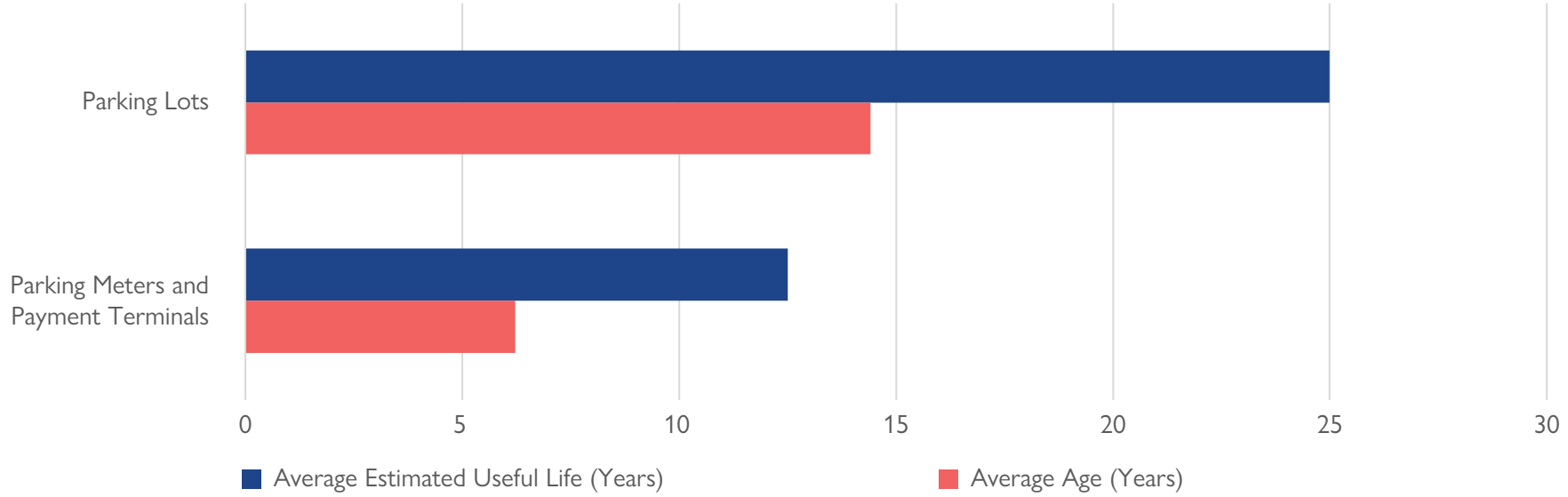
Table 105 summarizes the average age of each sub-segment based on the number of years that the assets have been in service.

TABLE 105: **Municipal Law Enforcement and Parking – Average Age and Estimated Useful Life**

Asset Sub-Segment	Average Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)	Percentage of Average Service Life Remaining
Parking Lots	25.0	14.4	10.6	42%
Parking Meters and Payment Terminals	12.5	6.2	6.3	50%

The age of an asset gives an indication of how close it is to the end of its estimated useful life and what lifecycle management strategies may be required. Figure 116 displays average asset age alongside the estimated useful life for each asset sub-segment.

FIGURE 116: **Municipal Law Enforcement and Parking – Average Age and Estimated Useful Life**



Average asset ages have not exceeded the average estimated useful life for any sub-segment. Further improvements are required to the asset inventory to ensure that the estimated useful life assigned to assets is reflective of the true length of time that assets are typically in service.

14.3 Condition

The following sections and tables outline the condition breakdown for MLE and parking assets and the City's methods for assessing asset condition. Where available and feasible, the City follows industry-standard best practices and generally accepted good engineering practices in the approach to assessing asset condition. When condition assessments are unavailable, an age-based condition rating is used based on the relative age of the asset compared to its estimated useful life.

Table 106 summarizes the variety of techniques used to assess the condition of the MLE and parking assets on a regular frequency.

TABLE 106: Municipal Law Enforcement and Parking – Approach to Assessing Condition

Asset Sub-Segment	Condition Data Collection Techniques	Frequency of Data Collection	Year of Last Assessment
Parking Lots	Age-based and visual inspections by staff on an as-needed basis.	Every year and varies.	2023
Parking Meters and Payment Terminals	Age-based and visual inspections by staff on an as-needed basis.	Every year and varies.	2023

Parking lots are inspected annually (painted lines and asphalt surface) to identify defects that need to be addressed. However, the results of the inspections are not formalized into the condition rating system. Instead, an age-based estimate of condition is used.

Table 107 provides a summary of the condition rating systems for all sub-segments of MLE and parking assets. Based on the condition data and information provided by subject matter experts, the condition of assets is rated on a scale from Very Good to Very Poor.

TABLE 107: Municipal Law Enforcement and Parking – Condition Rating Scales

Rating	Rating Description	All MLE and Parking Assets (Five-Point Scale)
Very Good	Fit for Future	1.8 ≥ and ≥ 1
Good	Adequate for Now	2.6 ≥ and > 1.8
Fair	Requires Attention	3.4 ≥ and > 2.6
Poor	Increasing Potential of Affecting Service	4.2 ≥ and > 3.4
Very Poor	Unfit for Sustained Service	5.0 ≥ and > 4.2

Figure 117 illustrates the breakdown of condition ratings of the City's MLE and parking assets. 24.1% of these assets are in Very Good to Good condition with a large proportion, 18.6%, rated as Very Poor.

FIGURE 117: Municipal Law Enforcement and Parking – Condition Rating Summary

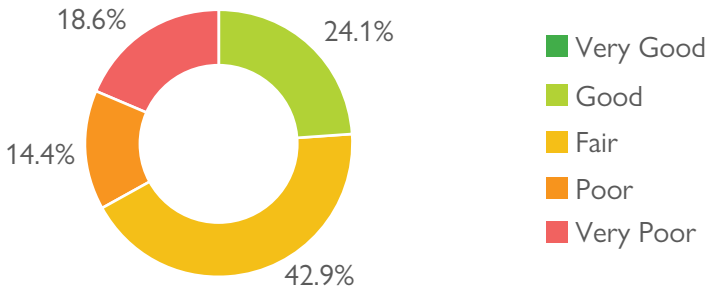


FIGURE 118: Municipal Law Enforcement and Parking – Breakdown of Condition Rating – Percentage of Cost

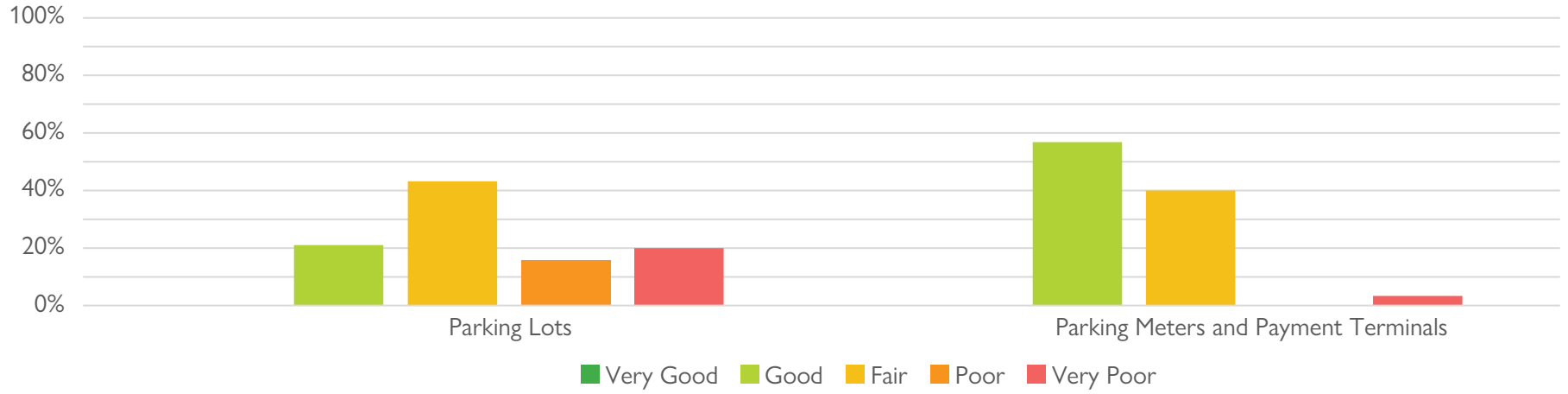
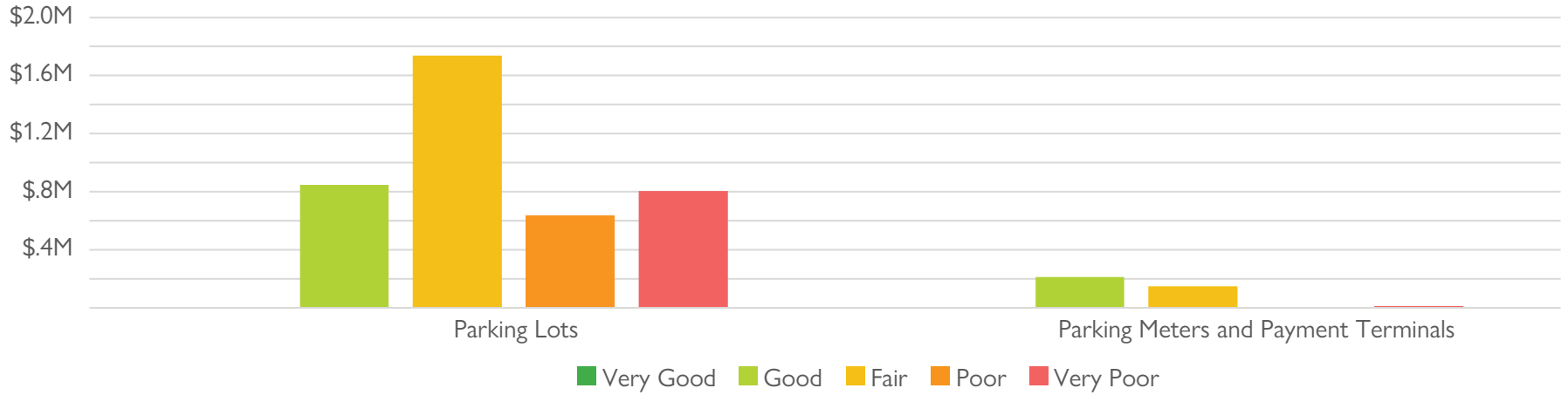


Figure 118 illustrates the breakdown of condition ratings for all MLE and parking assets in terms of the percentage of total replacement cost. A key point is that due to the differences in methodology for calculating condition between sub-segments, direct comparisons between sub-segments may not be consistent depending on which sub-segments are compared.

Figure 119 illustrates the same breakdown but in terms of the total replacement cost rather than the percentage of total replacement cost for each sub-segment.

FIGURE 119: Municipal Law Enforcement and Parking – Breakdown of Condition Rating – Cost



The overall average condition of MLE and parking assets is Fair. Assets are maintained by using the best treatment option to manage the current condition and anticipated future deterioration of the asset. More information is found in the lifecycle management strategy details in Section 14.5. Due to the use of primarily an age-based condition rating, this plan omits sections presenting the fully detailed condition information for each sub-segment or group of sub-segments of assets.

14.4 Levels of Service and Performance Measures

The City's assets exist to deliver services to its users. Levels of service are a measurement of the actual service provided so that decisions are made based on the nature and quality of that service, rather than only the condition of an asset. These are used to summarize the type of service being provided that reflects the values and desires of stakeholders in the community.

Tables 108 and 109 identify the City's historical and proposed level of service for the MLE and parking assets. These metrics include any technical and community level of service metrics that are required to comply with Ontario Regulation 588/17, as well as any additional metrics provided by the City.

14.4.1 Community Levels of Service

Table 108 identifies the qualitative descriptions that determine the community levels of service provided by the MLE and parking assets.

TABLE 108: Municipal Law Enforcement and Parking – Community Levels of Service

Service Attribute	Community Levels of Service	Related Assets
Capacity	The City ensures that parking spots are generally available where and when motorists want them.	Parking Lots
Accessibility	The City strives to ensure that everyone has access to parking options that meet their needs.	Parking Lots
Quality	The City inspects and maintains the MLE and parking inventory at a condition level to ensure that it functions as designed.	All

14.4.2 Technical Levels of Service

Table 109 identifies the quantitative metrics that determine the technical level of service provided by MLE and parking assets.

TABLE 109: Municipal Law Enforcement and Parking – Technical Levels of Service

Service Attribute	Description of What Performance Measure Captures	Performance Measure	2023	2024	Target	Related Assets
Capacity	Availability of parking.	Number of City-owned off street parking spaces per 1,000 residents.	15.5	15.1	11.2	Parking Lots
Capacity	Availability of parking.	Number of leased off street parking spaces per 1,000 residents.	13.2	13.2	7.3	N/A
Capacity	Availability of parking.	Number of City-owned on street parking spaces per 1,000 residents.	5.4	5.4	4.5	N/A
Accessibility	Availability of accessible parking spaces.	Number of accessible City-owned off street parking spaces as a percentage of the total number of City-owned off street parking spaces.	5.6%	5.8%	6.0%	Parking Lots
Accessibility	Availability of accessible parking spaces.	Number of accessible leased off street parking spaces as a percentage of the total number of leased off street parking spaces.	1.3%	1.3%	0.0%	N/A
Accessibility	Availability of accessible parking spaces.	Number of accessible City-owned on street parking spaces as a percentage of the total number of City-owned on street parking spaces.	4.3%	4.7%	4.7%	N/A
Quality	Condition of the MLE and parking inventory.	Percentage of MLE and parking assets in Poor or Very Poor condition.	33.0%	42.0%	91.8%	All

14.5 Lifecycle Management Strategy

It is important to proactively manage asset deterioration through a lifecycle management strategy that balances cost, risk, and the level of service. Table 110 describes the current lifecycle management activities completed and includes the risks associated with not completing these activities through using a do-nothing approach.

TABLE 110: **Municipal Law Enforcement and Parking – Lifecycle Management Strategy**

Activity Type	Description of Current Strategy	Risks Associated with Not Completing Activities
Operations and Maintenance	The City maintains an inventory of replacement and spare parts for the parking meters and pay-and-display machines to perform repairs on an as-needed basis.	▪ Deficiencies are not identified through inspections. ▪ Higher lifecycle costs if maintenance is delayed or completed incorrectly. ▪ Premature asset failure, health and safety risks, and service disruptions.
Renewal and Rehabilitation	The City maintains a 10-year capital plan for renewing or rehabilitating parking meters and pay-and-display machines. The City aims to resurface parking lots on average every 25 years.	▪ Renewal and rehabilitation activities may increase asset life less than anticipated, resulting in a need for repeated activities or premature asset failure. ▪ Higher lifecycle costs if work is delayed or completed incorrectly.
Replacement and Disposal	The City maintains a 10-year capital plan for replacing parking meters and pay-and-display machines. There is currently no formalized plan for redeveloping parking lots. The City aims to replace parking lots through redevelopment every 50 years.	▪ Delay in replacement and disposal projects may result in significantly higher costs, longer service disruptions, liability concerns, delays to emergency response times, and user dissatisfaction.
Growth-Related and Service Enhancements Lifecycle Needs	The City performs parking studies to determine if there is sufficient parking capacity.	▪ Delay or cancellation of growth-related activities causing the service to be unable to sufficiently accommodate growth. ▪ Studies may over or underestimate the required expansions to accommodate the impacts of growth.
Non-Infrastructure	Inspections and parking studies.	▪ Rate of asset deterioration is over or underestimated.
Identification of Short-Term Priorities	Parking lots are redeveloped if it is determined that the asphalt surface has deteriorated to a point where further rehabilitation of the surface is not cost effective.	▪ Decrease in service performance, higher lifecycle costs, and funding may not be prioritized in a way that ensures the best value for money option is picked to maintain the level of service.

14.6 Forecasted Capital Requirements

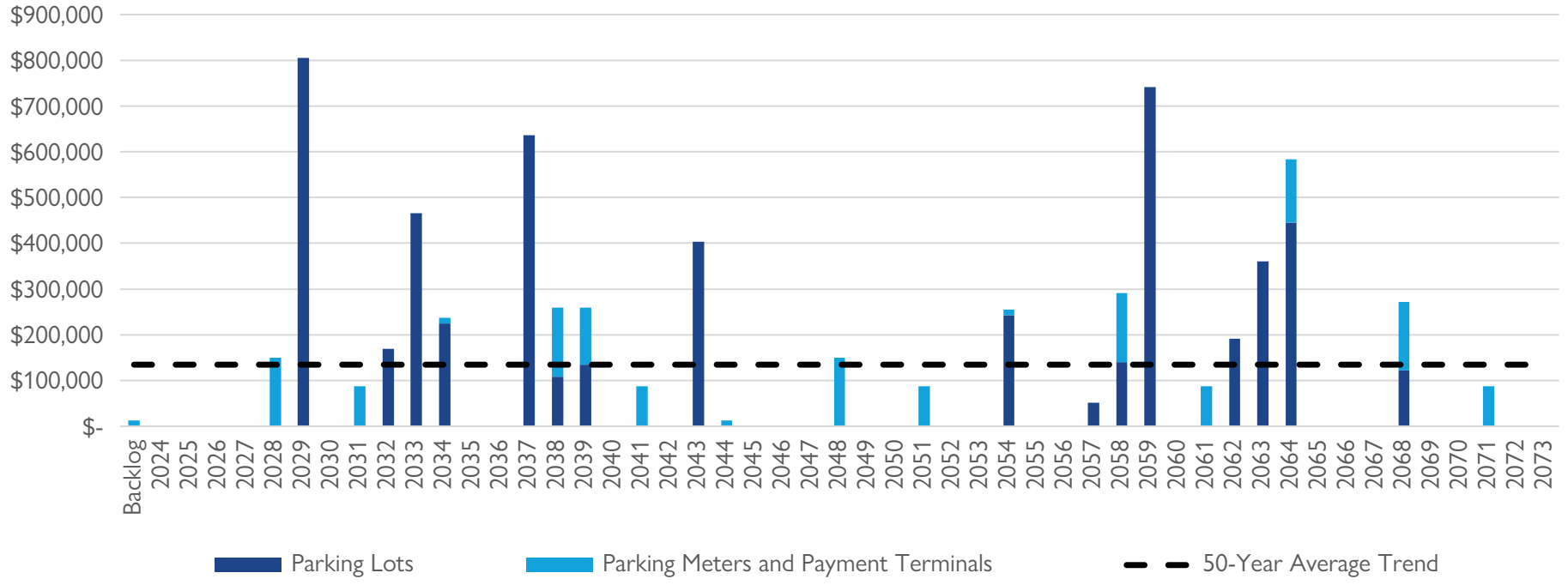
The City continuously invests in maintaining its assets and has been increasing budget amounts to more closely align with asset needs.

The annual capital requirement represents the average cost per year that the City is estimated to require to allocate towards funding asset needs. Based on the available data at the time of this plan, more information is required for this calculation. A more complete asset inventory would result in capturing more assets and more accurate lifecycle costs. When more assets are added to the portfolio, the average annual funding need would also increase and be better representative of the actual spending required to manage the City's assets.

Based on the best available current information, to maintain the current level of service and lifecycle management strategy, the annual sustainable capital funding requirement for existing MLE and parking assets is estimated to be $134,671.

The 2024 capital budget funding allocation was $0. This means that there exists a funding deficit, or funding shortfall, of $134,671 in 2024. To provide more parking than the capacity of the City-owned lots, the City also leases lots at an operating cost of $59,304 per year. If the leasing of lots was stopped, a large new capital expenditure would be required in addition to the $134,671 per year to maintain the current level of service. Figure 120 illustrates a 50-year forecast of the annual capital asset needs for MLE and parking assets, including the cost and asset lifecycle impacts of completing renewal and rehabilitation activities.

FIGURE 120: **Municipal Law Enforcement and Parking – Annual Capital Requirement – 50-Year Forecast**



Due to historical inconsistency in the timing of the various assets coming into service, a sawtooth pattern is present where in some years the total annual requirement is low followed by a spike that reaches well above the long-term average. The City's asset management program aims to smooth out this behaviour in favour of a more consistent amount of annual spending. However, due to the nature of the lifecycle of MLE and parking assets, it is anticipated that spending will have to remain less consistent over time to match the lifecycle management strategy needs of the assets.

The City has a backlog of $12,500. However, the assets comprising the backlog are inactive pay-and-display terminals that are spare terminals or used for parts for the active terminals. These inactive terminals do not require immediate replacement to maintain the current level of service.

For further details on capital requirements, please see the Financial Summary portion of this plan that details the funding needs for all categories of assets over the next 10 years, including discussion of impacts from growth.

14.7 Climate Change and Other Risks

Table 111 summarizes key trends, challenges, and risks that the City is currently facing in delivering the desired level of service.

TABLE 111: Municipal Law Enforcement and Parking – Climate Change and Other Risks

Trend, Challenge, or Risk	Summary
Climate Change and Extreme Weather Events	It is anticipated that there may be some challenges in managing the impacts of climate change, including: ▪ Potential increased damage to exterior mounted parking meters and pay-and-display terminals during more frequent severe wind events. ▪ Increased uncertainty in impacts of extreme weather events and what is the most cost-effective resiliency strategy or group of strategies. The City is considering the following adaptation and mitigation measures in response to the challenges: ▪ Incorporate new best practices and technology in the design, construction, and maintenance of assets to increase resiliency while managing affordability.

14.8 Recommendations and Improvement Plan

Asset Inventory

- Continue to review and refine the asset inventory to improve scope, accuracy, and update estimated useful life values.

Lifecycle Management Strategies

- Consider developing a long-term plan for eventual replacement or redevelopment of parking lots.

Levels of Service

- Continue to measure current levels of service in accordance with the metrics identified in Ontario Regulation 588/17 and the additional metrics included by the City.
- Track annual progress towards the City's proposed levels of service targets.

14.9 Updates For 2025 Compliance

To achieve compliance with the July 1, 2025, requirements under O. Reg. 588/17, updates were made to the following items in this chapter:

- Table 108: Municipal Law Enforcement and Parking – Community Levels of Service and Table 109: Municipal Law Enforcement and Parking – Technical Levels of Service were updated to contain the levels of service and performance measures for 2024, and to contain the levels and measures that the City proposes to achieve over the 10-year period of 2025-2034.
- Table 110: Municipal Law Enforcement and Parking – Lifecycle Management Strategy was updated to identify the lifecycle activities needed to provide the proposed levels of service for the 10-year period at the best value for money over the lifecycle of the assets, and to identify the risks associated with not completing lifecycle activities for each activity type.

In addition to the updates listed, various minor wording, layout, or graphical updates were made to the chapter to provide additional information or to improve clarity, visual appeal, or accessibility.

O. Reg. 588/17 further requires an explanation of why the proposed levels of service are appropriate for the City based on an assessment of four criteria. Table 112 contains the explanation available for the criteria.

TABLE 112: Municipal Law Enforcement and Parking – Proposed Levels of Service Appropriateness Assessment

O. Reg. 588/17 S.6(1) 2(i-iv) Criteria	Explanation of Appropriateness
i. The options for the proposed levels of service and the risks associated with those options to the long-term sustainability of the municipality.	Considering the impacts on operating costs and reliability of replacing assets before the asset reaches a Poor or Very Poor condition state. Assets in Poor or Very Poor condition typically have higher annual operations and maintenance costs. Out of service parking meters or payment terminals result in lower revenues and a less financially sustainable service. The percentage of accessible parking spaces may impact the total capacity of a parking lot because one type of wider accessible spaces takes up more parking surface area. Accessible spaces also result in a higher lifecycle cost due to higher signage and painting costs. A balanced approach is required to provide an appropriate number of accessible parking spaces of wider and normal widths that aligns with long-term demand for the spaces to avoid higher than appropriate lifecycle costs. The City's choice of the option to lease parking lots where the lease terms are typically 1-5 years could lead to instability in the amount of parking long-term. The risk of not doing lifecycle management activities includes the risks identified in Table 110: Municipal Law Enforcement and Parking – Lifecycle Management Strategy. Adopting a do-nothing approach would result in significantly higher lifecycle costs and risk, a rapid decline in levels of service, and would substantially reduce the long-term sustainability of the City's assets.
ii. How the proposed levels of service differ from the current levels of service.	Table 109: Municipal Law Enforcement and Parking – Technical Levels of Service identifies the difference in performance between the most current level of service performance value available and the 2034 target performance where determined. The City will continue to measure current levels of service over time to establish a historical baseline or trend, and work towards establishing additional future targets. Adjustments to levels of service and determining future targets is a forward looking and iterative process that will occur over time as the City improves and refines its integrated approach to asset management. For the levels of service measures with 2034 targets identified, the differences between current and targets levels of service include: ▪ The City is aiming to maintain the existing City-owned lots until a replacement or development plan is created for City-owned lots. Over the forecast period, this results in a lower level of service in the availability of parking as the population grows. ▪ Due to the forecasted Transit Hub project displacing one lot and the forecasted non-renewal of a leased lot, the 2034 forecasted availability of parking is further decreased for off-street parking and the availability of accessible off street parking in leased lots forecasted to be 0.0%. ▪ If directed by City Council, City staff will look for locations suitable for converting driving lanes to parking spaces resulting in less of a forecasted decrease in the levels of service. ▪ The percentage of municipal law enforcement and parking assets in Poor or Very Poor condition is forecast to increase from 33.0% to 91.8%. This is primarily due to a lack of funding allocated in the 2025-2034 10 Year Capital and Reserve Forecast for replacement or redevelopment of City-owned parking lots that are approaching the end of their estimated useful life.
iii. Whether the proposed levels of service are achievable.	From a City staff resources perspective, the forecasted list of projects is achievable and is dependent on future staffing levels. Whether the full project list moves forward is dependent on Council approving funding through future budget deliberations and the actual level of population and business growth that occurs.

O. Reg. 588/17 S.6(1) 2(i-iv) Criteria	Explanation of Appropriateness
iv. The municipality's ability to afford the proposed levels of service.	Over the 2025-2034 10-Year Capital and Reserve Forecast period, the municipal law enforcement and parking service area is funded by the following sources: ▪ Legislative Services Operating Budget; ▪ Parking Operating Budget; and ▪ Parking Asset Management Reserve Fund. The financial strategy chapter included in this plan contains the O. Reg. 588/17 requirements of: ▪ An estimate of the annual costs for the lifecycle activities required to provide the proposed level of service; ▪ The annual funding projected to be available; ▪ The options examined by the City to maximize projected funding; and ▪ The identification of any funding deficit or shortfall. As the City has a population above 25,000, the financial strategy chapter contains the details required under S.6(1) 6(i-ii) of O. Reg. 588/17 regarding the costs and funding available due to population and employment growth. To promote alignment and consistency between City documents and City Council decision making, the proposed levels of service input into this chapter and the financial strategy chapter are aligned with the outcomes of the 2025 budget process and resulting 2025-2034 10 Year Capital and Reserve Forecast. The 2025-2034 10 Year Capital and Reserve Forecast was presented during the 2025 Budget process and resulted in the City utilizing its self-imposed 10% debt limit as well as a negative total reserve and reserve fund shortfall by 2034 in the amount of -$214.4 million in 2025 dollars. The Financial Strategy chapter of this plan provides a detailed discussion of the sustainability of the City's financial position. If the City follows a path of financial unsustainability, eventually some lifecycle activities would become unaffordable and the City may not achieve its proposed levels of service targets. Which activities the City will not undertake due to a shortfall depends on which reserves contain the large negative balances. Maintaining the proposed levels of service targets for all categories would require significant increases in funding levels. Municipal law enforcement and parking staff are looking ahead at future asset lifecycle needs beyond the 2025-2034 forecast period to right-size reserve contribution requirements and are considering the possibility of additional long-term funding pressures due to: ▪ Future parking lot redevelopment costs for existing City-owned lots; and ▪ Cost of developing or leasing new off street parking lots to support maintaining the level of service for a growing population. An explanation of the options examined by the City to maximize the funding projected to be available to afford the proposed levels of service is included in Table 137: Financial Strategy – Funding Maximization Activities and Choices.

15.0
Information Technology

15.0 Information Technology

The City maintains a collection of information technology (IT) assets to deliver reliable and efficient software and hardware support, management of business applications, digital corporate services, business intelligence services, security, and training. IT also manages the City's corporate networking and telecommunications systems. IT is the smallest category of assets at a total replacement cost of $857,849 in 2023 dollars.

15.1 Asset Inventory and Replacement Cost

The City manages 123 networking assets, 35 server assets, 21 City-owned printers, 30 TEAMS phones, and 252 bundles of workstation assets. The inventory is up to date as of the end of February 2024. Software, audiovisual equipment managed by the Facilities service area, and leased printers are excluded from the scope of the IT inventory. The City is transitioning to leasing a portion of its printers as a portion of the existing printer inventory reaches the end of its useful life. Also excluded from the scope of the IT inventory are the specialty emergency response system used by Fire Services and the specialty monitoring systems used in the Water and Wastewater service areas.

The replacement cost is estimated using primarily historic purchase costs. Included in the cost of replacing each asset is a set of components that together comprise a typical asset. The full set of components for each sub-segment is identified in Appendix 20.2.11.

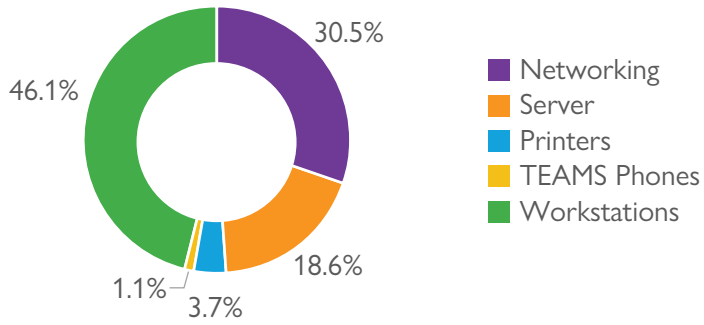
Table 113 includes the quantity, replacement cost method, and total replacement cost in 2023 dollars of each sub-segment of assets in the City's IT asset inventory.

TABLE 113: **Information Technology – Inventory and Replacement Cost**

Asset Sub-Segment	Quantity	Replacement Cost Method	Replacement Cost	Percentage of Total Replacement Cost
Networking	123	Asset-Specific Cost Estimation	$261,243	30.5%
Server	35	Asset-Specific Cost Estimation	$159,924	18.6%
Printers	21	Asset-Specific Cost Estimation	$31,817	3.7%
TEAMS Phones	30	Asset-Specific Cost Estimation	$9,050	1.1%
Workstations	252	Asset-Specific Cost Estimation	$395,815	46.1%

Figure 121 provides the data in table 113 visually with each sub-segment as a percentage of the total replacement cost.

FIGURE 121: **Information Technology – Total Replacement Cost**



15.2 Asset Age and Estimated Useful Life

The estimated useful life of IT assets is determined using a combination of staff knowledge, historical data, and industry standards. The average service life remaining is determined by the difference between the average estimated useful life and the average age, except when an asset has been assigned an assessed condition rating that may increase or decrease the average service life remaining.

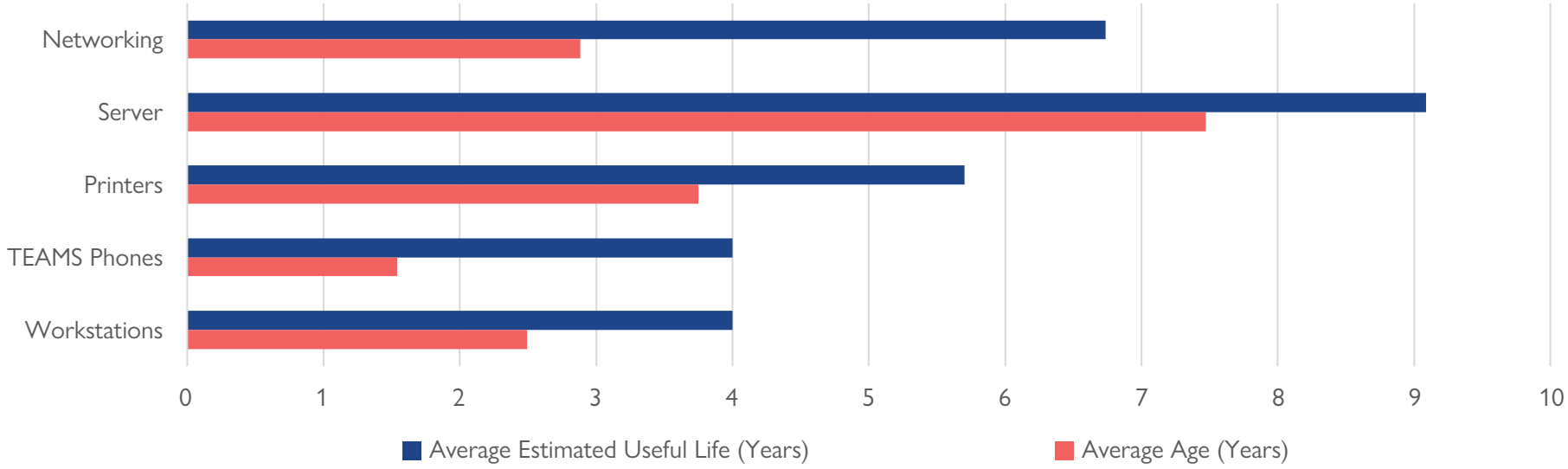
Table 114 summarizes the average age of each sub-segment based on the number of years that the assets have been in service.

TABLE 114: **Information Technology – Average Age and Estimated Useful Life**

Asset Sub-Segment	Average Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)	Percentage of Average Service Life Remaining
Networking	6.7	2.9	3.8	57%
Server	9.1	7.5	1.6	18%
Printers	5.7	3.8	1.9	34%
TEAMS Phones	4.0	1.5	2.5	62%
Workstations	4.0	2.5	1.5	38%

The age of an asset gives an indication of how close it is to the end of its estimated useful life and what lifecycle management strategies may be required. Figure 122 displays average asset age alongside the estimated useful life for each asset sub-segment.

FIGURE 122: **Information Technology – Average Age and Estimated Useful Life**



Average asset ages have not exceeded the average estimated useful life for any sub-segment.

15.3 Condition

The following sections and tables outline the condition breakdown for IT assets and the City's methods for assessing asset condition. Where available and feasible, the City follows industry-standard best practices and generally accepted good engineering practices in the approach to assessing asset condition. When condition assessments are unavailable, an age-based condition rating is used based on the relative age of the asset compared to its estimated useful life.

Table 115 summarizes the variety of techniques used to assess the condition of the IT assets on a regular frequency.

TABLE 115: **Information Technology – Approach to Assessing Condition**

Asset Sub-Segment	Condition Data Collection Techniques	Frequency of Data Collection	Year of Last Assessment
Networking	Age-based.	Every year.	2024
Server	Age-based.	Every year.	2024
Printers	Age-based.	Every year.	2024
TEAMS Phones	Age-based.	Every year.	2024
Workstations	Age-based.	Every year.	2024

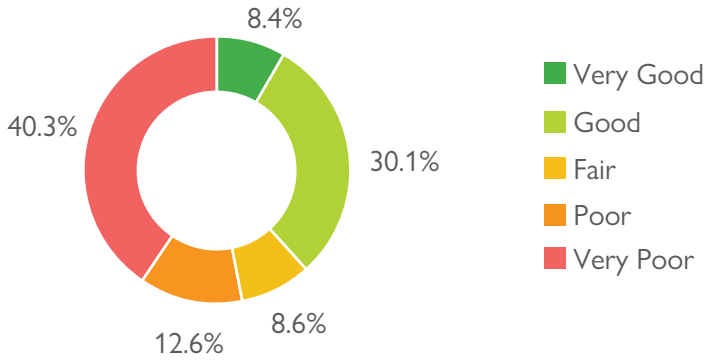
Table 116 provides a summary of the condition rating systems for all sub-segments of IT assets. Based on the condition data and supplemental information provided by subject matter experts, the condition of assets is rated on a scale from Very Good to Very Poor.

TABLE 116: **Information Technology – Condition Rating Scales**

Rating	Rating Description	All IT Assets (100-Point Scale)
Very Good	Fit for Future	100 ≥ and ≥ 80
Good	Adequate for Now	80 > and ≥ 60
Fair	Requires Attention	60 > and ≥ 40
Poor	Increasing Potential of Affecting Service	40 < and ≥ 20
Very Poor	Unfit for Sustained Service	20 > and ≥ 0

Figure 123 illustrates the breakdown of condition ratings of the City's IT assets. 38.5% of these assets are in Very Good to Good condition with a large proportion, 40.3%, rated as Very Poor.

FIGURE 123: **Information Technology – Condition Rating Summary**



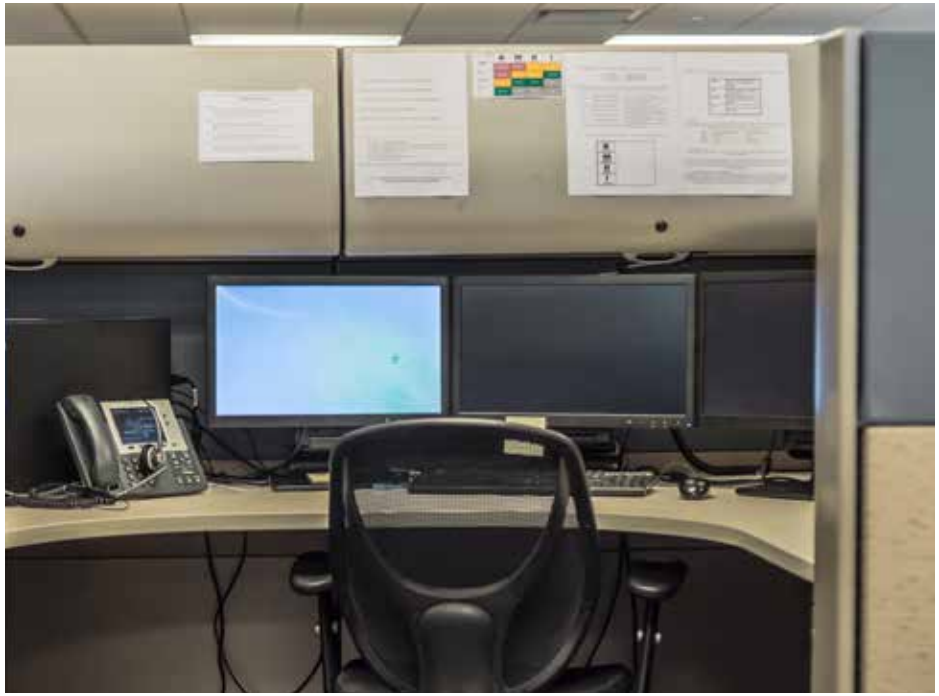


Figure 124 illustrates the breakdown of condition ratings for all IT assets in terms of the percentage of total replacement cost.

FIGURE 124: **Information Technology – Breakdown of Condition Rating – Percentage of Cost**

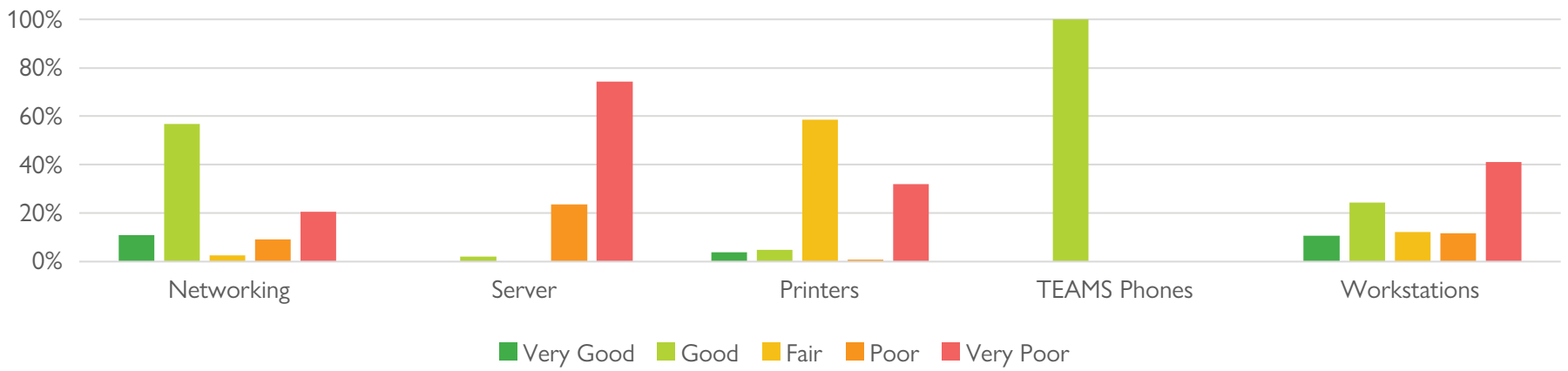
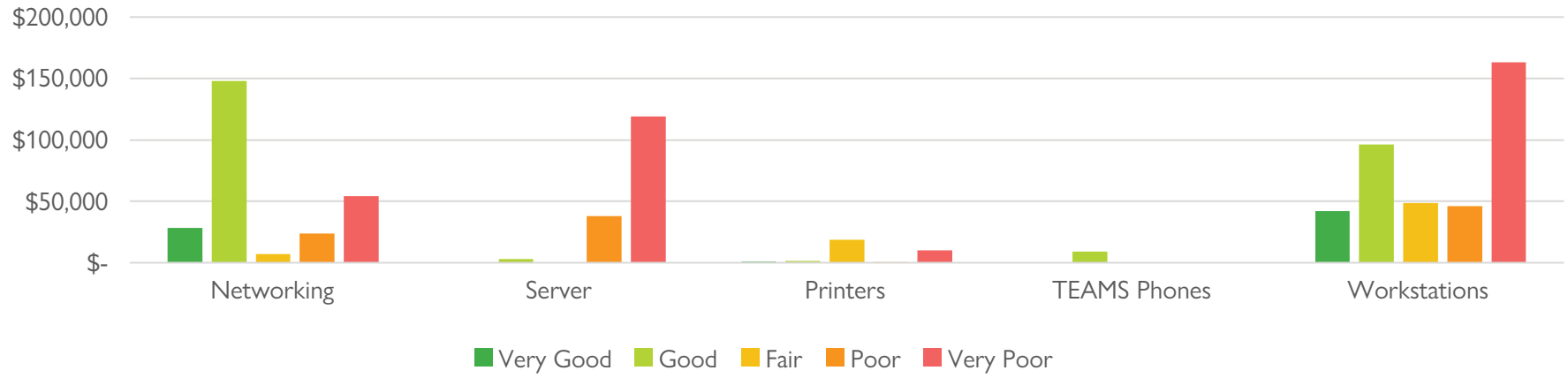


Figure 125 illustrates the same breakdown but in terms of the total replacement cost rather than the percentage of total replacement cost for each sub-segment. This illustrates the smaller cost implications of the printers and TEAMS phones assets compared to the larger value of the other sub-segments.

FIGURE 125: **Information Technology – Breakdown of Condition Rating – Cost**



The overall average condition of IT assets is Fair. However, it is important to note that the use of only an age-based approach misstates the true condition of many of the IT assets. The City currently does not assess condition on individual IT assets beyond the age-based approximation.

Assets are maintained by using the best treatment option to manage the current condition and anticipated future deterioration of the asset. More information is found in the lifecycle management strategy details in Section 15.5. Due to the low total replacement cost and use of only an age-based condition rating, this plan omits sections presenting the fully detailed condition information for each sub-segment or group of sub-segments of assets.

15.4 Levels of Service and Performance Measures

The City's assets exist to deliver services to its users. Levels of service are a measurement of the actual service provided so that decisions are made based on the nature and quality of that service, rather than only the condition of an asset. These are used to summarize the type of service being provided that reflects the values and desires of stakeholders in the community.

Tables 117 and 118 identify the City's historical and proposed level of service for the IT assets. These metrics include any technical and community level of service metrics that are required to comply with Ontario Regulation 588/17, as well as any additional metrics provided by the City.

15.4.1 Community Levels of Service

Table 117 identifies the qualitative descriptions that determine the community levels of service provided by the IT assets.

TABLE 117: **Information Technology – Community Levels of Service**

Service Attribute	Community Levels of Service	Related Assets
Quality	The City maintains the IT inventory at a condition level to operate as designed.	All

15.4.2 Technical Levels of Service

Table 118 identifies the quantitative metrics that determine the technical level of service provided by IT assets.

TABLE 118: **Information Technology – Technical Levels of Service**

Service Attribute	Description of What Performance Measure Captures	Performance Measure	2023	2024	2034 Target	Related Assets
Quality	Condition of the asset inventory.	Percentage of assets in Poor or Very Poor condition.	52.9%	N/A	≤50.0%	All

15.5 Lifecycle Management Strategy

It is important to proactively manage asset deterioration through a lifecycle management strategy that balances cost, risk, and the level of service. Table 119 describes the current lifecycle management activities completed and includes the risks associated with not completing these activities through using a do-nothing approach.

TABLE 119: **Information Technology – Lifecycle Management Strategy**

Activity Type	Description of Current Strategy	Risks Associated with Not Completing Activities
Operations and Maintenance	▪ IT staff and users of hardware and software provide concerns and submit requests through the City's IT Service Desk ticket management system. ▪ Routine monitoring and preventative maintenance, including continuous improvements to security and communication with vendors to ensure sufficient software support.	▪ Service requests may become backlogged if insufficient resources are allocated to managing the ticket management system. ▪ Unanticipated loss or gaps in vendor support may result in service disruptions.
Renewal and Rehabilitation	▪ End of useful life replacement is the primary strategy. ▪ Renewal options are considered for the larger or more difficult to replace assets, or assets where components are readily available and cost effective to replace.	▪ Higher lifecycle costs if assets are kept beyond their warranty period or the City is required to renew assets where spare parts are expensive or difficult to source. ▪ Increased service disruption to users through lower system reliability.
Replacement and Disposal	▪ Replacement schedules are established for assets. Assets are replaced when they are out of warranty, no longer supported by a vendor, no longer meeting operational requirements, or are technologically obsolete. ▪ Technologically obsolete hardware is disposed of at disposal or recycling facilities where feasible through authorized facility operators.	▪ Increased service disruption to users through lower system reliability.
Growth-Related and Service Enhancements Lifecycle Needs	▪ Adjustments due to increases in staffing levels, improvements in software capability through additional modules, or technological advancements.	▪ Delay or cancellation of growth-related activities causing the City to be unable to sufficiently accommodate growth through loss of productivity or increased disruption to users.
Non-Infrastructure	▪ Continuous focus on training staff to detect security risks, report suspected phishing and scam attempts, and prevent breaches.	▪ Increased likelihood of cybersecurity incidents.

15.6 Forecasted Capital Requirements

The City continuously invests in maintaining its assets and has been increasing budget amounts to more closely align with asset needs.

The annual capital requirement represents the average cost per year that the City is estimated to require to allocate towards funding asset needs. Based on the best available current information, to maintain the current level of service and lifecycle management strategy, the annual sustainable capital funding requirement for existing IT assets is estimated to be $161,559.

The 2024 capital budget funding allocation was $242,000. This means that there exists a funding surplus of $80,441 in 2024. Figure 126 illustrates a 50-year forecast of the annual capital asset needs for IT assets, including the cost and asset lifecycle impacts of completing renewal and rehabilitation activities.

Due to historical inconsistency in the timing of the various assets coming into service, a sawtooth pattern is present where in some years the total annual requirement is low followed by a spike that reaches well above the long-term average. The City's asset management program aims to smooth out this behaviour in favour of a more consistent amount of annual spending. The City has a small backlog of $15,370 that represents workstations that are beyond their estimated useful life of four years.

For further details on capital requirements, please see the Financial Summary portion of this plan that details the funding needs for all categories of assets over the next 10 years, including discussion of impacts from growth.

FIGURE 126: **Information Technology – Annual Capital Requirement – 50-Year Forecast**

15.7 Climate Change and Other Risks

Table 120 summarizes key trends, challenges, and risks that the City is currently facing in delivering the desired level of service.

TABLE 120: **Information Technology – Climate Change and Other Risks**

Trend, Challenge, or Risk	Summary
Climate Change and Extreme Weather Events	It is anticipated that there may be some challenges in managing the impacts of climate change, including: ▪ Potential increased damage to exterior mounted communications equipment during more frequent severe wind events. ▪ Potential increased frequency of power outages at City facilities causing assets to become offline. ▪ Increased uncertainty in impacts of extreme weather events and what is the most cost-effective resiliency strategy or group of strategies. The City is considering the following adaptation and mitigation measures in response to the challenges: ▪ Incorporate new best practices and technology in the design, construction, and maintenance of assets to increase resiliency while managing affordability.

15.8 Recommendations and Improvement Plan

Asset Inventory

- Continue to review and refine the asset inventory to improve scope, accuracy, and update estimated useful life values.

Levels of Service

- Continue to measure current levels of service in accordance with the metrics identified in Ontario Regulation 588/17 and the additional metrics included by the City.
- Track annual progress towards the City's proposed levels of service targets.

15.9 Updates For 2025 Compliance

To achieve compliance with the July 1, 2025, requirements under O. Reg. 588/17, updates were made to the following items in this chapter:

- Table 117: Information Technology – Community Levels of Service and Table 118: Information Technology – Technical Levels of Service were updated to contain the levels of service and performance measures for 2024, and to contain the levels and measures that the City proposes to achieve over the 10-year period of 2025-2034.

In addition to the updates listed, various minor wording, layout, or graphical updates were made to the chapter to provide additional information or to improve clarity, visual appeal, or accessibility.

O. Reg. 588/17 further requires an explanation of why the proposed levels of service are appropriate for the City based on an assessment of four criteria. Table 121 contains the explanation available for the criteria.

TABLE 121: Information Technology – Proposed Levels of Service Appropriateness Assessment

O. Reg. 588/17 S.6(1) 2(i-iv) Criteria	Explanation of Appropriateness
i. The options for the proposed levels of service and the risks associated with those options to the long-term sustainability of the municipality.	There is a standardized refresh cycle for firewalls, networking equipment, servers, and other important assets that are critical to mitigate against cybersecurity risks. The also City aims to achieve a four-year technology refresh cycle of staff workstation technology to maintain compatibility, security, and usability. The risk of not doing lifecycle management activities such as end of useful life replacement includes the risks identified in Table 119: Information Technology – Lifecycle Management Strategy. Adopting a do-nothing approach would result in significantly higher lifecycle costs and risk, a rapid decline in levels of service, and would substantially reduce the long-term sustainability of the City's assets. During the scoping of capital projects, anticipated future climate change impacts are considered. Table 120: Information Technology – Climate Change and Other Risks includes a summary of adaptation and mitigation measures that could be used in response to the challenges.
ii. How the proposed levels of service differ from the current levels of service.	Table 118: Information Technology – Technical Levels of Service identifies the difference in performance between the most current level of service performance value available and the 2034 target performance. The City will continue to measure current levels of service over time. The anticipated impacts of the differences between current and targets levels of service include: ▪ The percentage of information technology assets in Poor or Very Poor condition is forecast to decrease from 52.9% to an upper limit of 50.0%. This is primarily due to more information assets planned to be replaced over the 10-year period following an adjustment to the technology refresh cycle to smooth the number of workstations replaced each year.

O. Reg. 588/17 S.6(1) 2(i-iv) Criteria	Explanation of Appropriateness
iii. Whether the proposed levels of service are achievable.	From a City staff resources perspective, the forecasted list of projects is achievable and is dependent on future staffing levels. Whether the full project list moves forward is dependent on Council approving funding through future budget deliberations, change in market availability of replacement assets, and availability of external services.
iv. The municipality's ability to afford the proposed levels of service.	Over the 2025-2034 10-Year Capital and Reserve Forecast, the capital projects program for the information technology service area is funded by the following sources: ▪ Information Technology Operating Budget; ▪ IT and Innovation Reserve Fund; ▪ Capital Levy Reserve Fund; and ▪ Provincial Grants. The financial strategy chapter included in this plan contains the O. Reg. 588/17 requirements of: ▪ An estimate of the annual costs for the lifecycle activities required to provide the proposed level of service; ▪ The annual funding projected to be available; ▪ The options examined by the City to maximize projected funding; and ▪ The identification of any funding deficit or shortfall. As the City has a population above 25,000, the financial strategy chapter contains the details required under S.6(1) 6(i-ii) of O. Reg. 588/17 regarding the costs and funding available due to population and employment growth. To promote alignment and consistency between City documents and City Council decision making, the proposed levels of service input into this chapter and the financial strategy chapter are aligned with the outcomes of the 2025 budget process and resulting 2025-2034 10 Year Capital and Reserve Forecast. The 2025-2034 10 Year Capital and Reserve Forecast was presented during the 2025 Budget process and resulted in the City utilizing its self-imposed 10% debt limit as well as a negative total reserve and reserve fund shortfall by 2034 in the amount of -$214.4 million in 2025 dollars. The Financial Strategy chapter of this plan provides a detailed discussion of the sustainability of the City's financial position. If the City follows a path of financial unsustainability, eventually some lifecycle activities would become unaffordable and the City may not achieve its proposed levels of service targets. Which activities the City will not undertake due to a shortfall depends on which reserves contain the large negative balances. Maintaining the proposed levels of service targets for all categories would require significant increases in funding levels. An explanation of the options examined by the City to maximize the funding projected to be available to afford the proposed levels of service is included in Table 137: Financial Strategy – Funding Maximization Activities and Choices.

16.0
Natural Assets

16.0 Natural Assets

The City maintains a variety of natural assets supporting the provision of a wide range of benefits and ecosystem services. These include improved air quality, natural wildlife habitats, urban shading, water filtration, unique recreation opportunities, carbon dioxide sequestration, and erosion control. Natural Assets is the ninth largest category of assets at a total replacement cost of $12,610,500 in 2023 dollars.

16.1 Asset Inventory and Replacement Cost

The City's incomplete inventory of natural assets is under comprehensive review by staff with assistance from subject matter experts. The City completed a preliminary natural assets inventory project in 2021 that set a high-level foundation of the major types of natural assets in the City. This preliminary inventory is in the process of a major revision that will redefine the structure of the natural asset inventory and better link service objectives to each sub-segment of natural assets. Through this process, more comprehensive levels of service and lifecycle management strategies are in development.

Since all existing data is undergoing significant changes, the scope of this service area is limited to the City's inventory of 124.45 ha of forested areas and the 3,194 digitally tracked trees located primarily in parks or in downtown Orillia. There exist many more trees managed by the City; however, the location, diameter, species, or other information of these additional trees is not fully tracked in an inventory at this time and is not available to be included in the scope of this plan.

The replacement cost for trees is estimated using primarily historic construction project costs involving the removal, replacement, or addition of trees. The replacement cost for the forests is aligned with the Lake Simcoe Region Conservation Authority (LSRCA) 2021 offsetting fee for woodland replacement of approximately $50,000 per hectare. These estimates are high-level approximations and are under review. Included in the cost of replacing each asset is a set of components that together comprise a typical asset. The full set of components for each sub-segment is identified in Appendix 20.2.12.

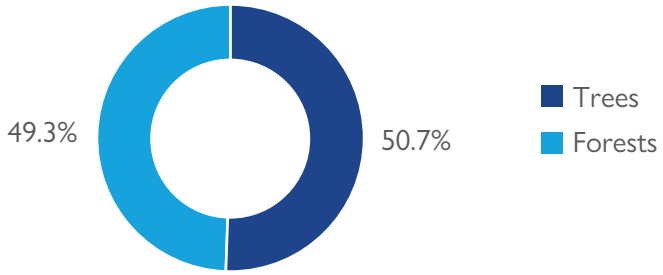
Table 122 includes the quantity, replacement cost method, and total replacement cost in 2023 dollars of each sub-segment of assets in the City's natural assets inventory.

TABLE 122: **Natural Assets – Inventory and Replacement Cost**

Asset Sub-Segment	Quantity	Replacement Cost Method	Replacement Cost	Percentage of Total Replacement Cost
Trees	3,194	Cost/Unit	$6,388,000	50.7%
Forests	124.45 ha	Cost/Unit	$6,222,500	49.3%

Figure 127 provides the data in table 122 visually with each sub-segment as a percentage of the total replacement cost.

FIGURE 127: **Natural Assets – Total Replacement Cost**



Assigning a monetary value to natural assets is a complex task as there can be different replacement costs for only the natural asset itself compared to the replacement cost of the ecosystem services provided by the asset. Standardized appraisal methods exist such as those found in i-Tree and other software; however, this is an evolving field in both the urban forestry and municipal asset management sectors. To avoid misrepresenting the benefits of ecosystem services, a simplified approach of only considering the replacement cost of the asset itself is used. A significant amount of time, effort, and funding would be required to accurately inventory the trees in parks, on streets, and in the forests to the level of detail required to accurately value ecosystem services.

In addition to trees and forests, the City is reviewing the following sub-segments of natural assets as potential additions to the inventory:

- Water courses
- Wetlands
- Riparian buffers
- Beaches
- Natural shoreline
- Parks – natural areas
- Parks – mowed areas
- Parks – horticultural and planted areas
- Remnant channels

Each sub-segment of natural assets will be linked to a variety of service objectives and benefits including:

- Absorption of greenhouse gases
- Cleaning of air
- Cooling during extreme heat
- Cleaning of rainwater
- Absorption of rainwater
- Recreation opportunities
- Stormwater conveyance
- Erosion protection
- Biodiversity enhancement

16.2 Asset Age and Estimated Useful Life

Data on the age of the tree inventory is widely unavailable since historical tree planting dates were not consistently recorded. The City is reviewing the available information on tree plantings and is recording planting dates, species, and replacement costs in ongoing projects. For the forests, data is similarly unavailable as some areas such as Scout Valley are naturalized forest where the City limits its impact on the natural cycle of a forest. Other forest areas are more actively managed by City staff; however, historical records of plantings and removals are limited. Due to the lack of data, a table summarizes the average age of each sub-segment and a figure illustrating the age data are omitted.

16.3 Condition

The following sections and tables outline the condition breakdown for natural assets and the City's methods for assessing asset condition. Where available and feasible, the City follows industry-standard best practices and generally accepted good engineering practices in the approach to assessing asset condition. When condition assessments are unavailable, an age-based condition rating is used based on the relative age of the asset compared to its estimated useful life.

As part of the 2021 preliminary inventory project, a desktop exercise condition assessment was undertaken for the forest sub-segment of assets. Neither sufficient age data nor condition data is available on the trees sub-segment and as a result, condition data on trees is omitted.

Table123 summarizes the variety of techniques used to assess the condition of natural assets.

TABLE 123: Natural Assets – Approach to Assessing Condition

Asset Sub-Segment	Condition Data Collection Techniques	Frequency of Data Collection	Year of Last Assessment
Forests	Desktop exercise condition assessment using GIS data that considers four factors each rated out of 10 possible points. i. Surface Permeability ii. Adjacent Land Use iii. Road Density iv. Relative Asset Size	No set frequency.	2021

Table 124 provides a summary of the condition rating system for natural assets. The condition of forests is rated on a scale from Good to Very Poor.

TABLE 124: Natural Assets – Condition Rating Scales

Rating	Rating Description	All Natural Assets (40-Point Scale)
Good	Adequate for Now	40 ≥ and > 30
Fair	Requires Attention	30 ≥ and > 20
Poor	Increasing Potential of Affecting Service	20 ≥ and > 10
Very Poor	Unfit for Sustained Service	10 ≥ and ≥ 0

Figure 128 illustrates the breakdown of condition ratings of the City's forests. 8.8% of the forests are in Good condition with none rated as Very Poor.

FIGURE 128: Natural Assets – Condition Rating Summary

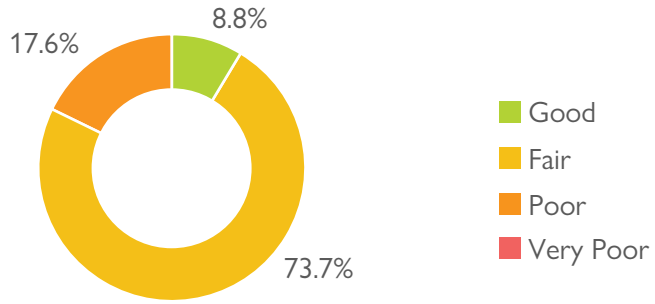
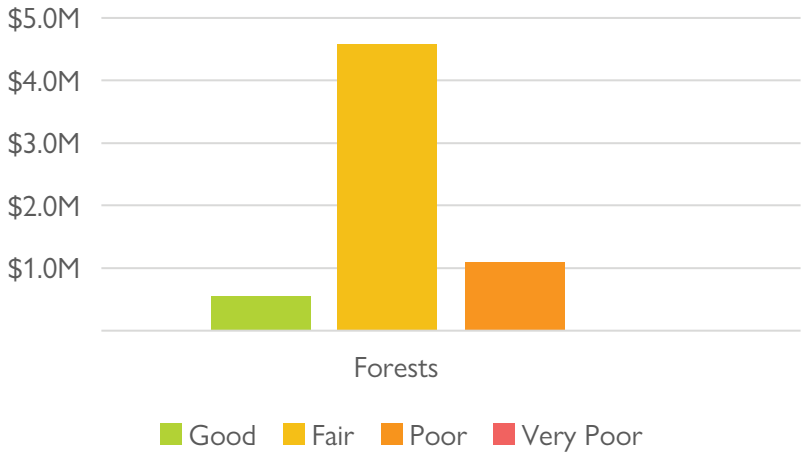


Figure 129 illustrates the same breakdown but in terms of the total replacement cost rather than the percentage of total replacement cost.

FIGURE 129: **Natural Assets – Breakdown of Condition Rating – Cost**



The overall average condition of forest assets is Fair.

Assets are maintained by using the best treatment option to manage the current condition and anticipated future deterioration of the asset. More information is found in the lifecycle management strategy details in Section 16.5.

16.4 Levels of Service and Performance Measures

The City's assets exist to deliver services to its users. Levels of service are a measurement of the actual service provided so that decisions are made based on the nature and quality of that service, rather than only the condition of an asset. These are used to summarize the type of service being provided that reflects the values and desires of stakeholders in the community.

Tables 125 and 126 identify the City's historical and proposed level of service for the natural assets. These metrics include any technical and community level of service metrics that are required to comply with Ontario Regulation 588/17, as well as any additional metrics provided by the City.

16.4.1 Community Levels of Service

Table 125 identifies the qualitative descriptions that determine the community levels of service provided by natural assets.

TABLE 125: **Natural Assets – Community Levels of Service**

Service Attribute	Community Levels of Service	Related Assets
Quality	The City maintains the natural asset inventory at a condition level to operate as designed.	All

16.4.2 Technical Levels of Service

Table 126 identifies the quantitative metrics that determine the technical level of service provided by natural assets.

TABLE 126: **Natural Assets – Technical Levels of Service**

Service Attribute	Description of What Performance Measure Captures	Performance Measure	2023	2024	Target	Related Assets
Quality	Condition of the asset inventory.	Percentage of assets in Poor or Very Poor condition.	17.6%	N/A	N/A	All

16.5 Lifecycle Management Strategy

It is important to proactively manage asset deterioration through a lifecycle management strategy that balances cost, risk, and the level of service. Table 127 describes the current lifecycle management activities completed and includes the risks associated with not completing these activities through a do-nothing approach.

TABLE 127: **Natural Assets – Lifecycle Management Strategy**

Activity Type	Description of Current Strategy	Risks Associated with Not Completing Activities
Operations and Maintenance	▪ Trees are inspected by a staff arborist, except for trees in wood lots. ▪ Trees that are determined to be safety hazards are trimmed or felled by the staff arborist. Trees felled in naturalized wood lots may be left to decompose naturally, providing nutrients and habitat back to the local ecosystem. ▪ In addition to the proactive operations and maintenance activities identified, staff respond to complaints as needed. Maintenance and operations activities are completed by City staff with external contractors brought in as needed.	▪ Deficiencies are not identified through inspections. ▪ Premature asset failure, health and safety risks, and service disruptions if fallen trees impact other assets.
Renewal and Rehabilitation	▪ Injection of a treatment to preserve ash trees against the invasive Emerald Ash Borer insect.	▪ Increased prevalence of Emerald Ash Borer and accelerated loss of ash trees. Dead ash trees are brittle and unstable, potentially increasing the likelihood in health and safety risks.
Replacement and Disposal	▪ Replacement of trees that are removed for safety concerns or due to conflicts with other infrastructure assets. ▪ Grinding or removal of tree stumps in areas of prior tree removal.	▪ Loss of urban forest if removed trees are not replaced.
Growth-Related and Service Enhancements Lifecycle Needs	▪ Plantings in new developments and during park redevelopments.	▪ Lack of urban forest in newly developed or redeveloped areas.
Non-Infrastructure	▪ Enforcement of the City Tree Conservation By-law.	▪ Loss of urban forest due to unnecessary removals. ▪ Insufficient replacement value of City-owned trees in the event of an unauthorized removal.

16.6 Forecasted Capital Requirements

The City continuously invests in maintaining its assets and has been increasing budget amounts to more closely align with asset needs.

The annual capital requirement represents the average cost per year that the City is estimated to require to allocate towards funding asset needs. Due to the widely incomplete inventory and lack of historical data, an accurate estimate of the long-term annual capital requirement of natural assets is unavailable. Once the comprehensive review of natural assets is complete, the City will revisit forecasting the capital needs of its natural assets to the same level of detail provided for the other categories of assets in this plan.

Although an annual capital requirement estimate is not available, the City is allocating funding to the lifecycle management strategies of natural assets.

The 2024 capital budget funding allocation was $135,000. Of the 2024 funding, $100,000 is for the cutting, removal and stumping of dead and diseased ash trees throughout the City, using contracted services. Restoration will also be provided in the areas affected, with City resources assigned as required. This highlights the ongoing costs of the managing the impacts of invasive species.

For further details on capital requirements, please see the Financial Summary portion of this plan that details the funding needs for all categories of assets over the next 10 years, including discussion of impacts from growth.

16.7 Climate Change and Other Risks

Table 128 summarizes key trends, challenges, and risks that the City is currently facing in delivering the desired level of service.

TABLE 128: **Natural Assets – Climate Change and Other Risks**

Trend, Challenge, or Risk	Summary
Climate Change and Extreme Weather Events	It is anticipated that there may be many challenges in managing the impacts of climate change, including: ▪ Potential increased damage to trees during more frequent severe wind events, droughts, and extreme heat events. ▪ Increased uncertainty in impacts of extreme weather events and what is the most cost-effective resiliency strategy or group of strategies. The City is considering the following adaptation and mitigation measures in response to the challenges: ▪ Incorporate new best practices and technology in the maintenance and replacement of assets to increase resiliency while managing affordability.
Other Risks	The 2021 preliminary inventory identifies a variety of other potential risks to the City's natural assets, including: ▪ Overuse of trails and illegal dumping ▪ Invasive species ▪ Flooding ▪ Forest fire ▪ Pollutant loading from urban, agricultural, or industrial sources

16.8 Recommendations and Improvement Plan

Asset Inventory

- Complete the comprehensive review of the natural asset inventory and fill in essential data gaps that prevent the development of long-term capital requirement forecasts.
- Continue to review and refine the asset inventory to improve scope, accuracy, and estimate age and useful life values.
- Continue to add asset information to GIS layers for improved staff efficiency.

Condition

- Reevaluate the condition assessment framework used during the 2021 preliminary inventory and update to better reflect the local context of and data available within the City of Orillia.
- Align the four-level condition rating system used for natural assets with the five-level system used for most other City assets.

Lifecycle Management Strategies

- Evaluate the efficacy of the City's lifecycle management strategies at regular intervals to determine the impact on cost, condition, and risk.
- Develop lifecycle management strategies for all other natural asset sub-segments once added to the inventory.
- Integrate maintenance and operations work order data into the tracking of individual natural assets.

Levels of Service

- Continue to measure current levels of service in accordance with the metrics identified in Ontario Regulation 588/17 and the additional metrics included by the City.
- Track annual progress towards the City's proposed levels of service targets once determined.

16.9 Updates For 2025 Compliance

To achieve compliance with the July 1, 2025, requirements under O. Reg. 588/17, updates were made to the following items in this chapter:

- Table 125: Natural Assets – Community Levels of Service and Table 126: Natural Assets – Technical Levels of Service were updated to contain the levels of service and performance measures for 2024, and to contain the levels and measures that the City proposes to achieve over the 10-year period of 2025-2034.

In addition to the updates listed, various minor wording, layout, or graphical updates were made to the chapter to provide additional information or to improve clarity, visual appeal, or accessibility.

O. Reg. 588/17 further requires an explanation of why the proposed levels of service are appropriate for the City based on an assessment of four criteria. Table 129 contains the explanation available for the criteria.

TABLE 129: Natural Assets – Proposed Levels of Service Appropriateness Assessment

O. Reg. 588/17 S.6(1) 2(i-iv) Criteria	Explanation of Appropriateness
i. The options for the proposed levels of service and the risks associated with those options to the long-term sustainability of the municipality.	Considering the impacts on operating costs and reliability of replacing assets before the asset reaches a Poor or Very Poor condition state. Assets in Poor or Very Poor condition typically have higher annual operations and maintenance costs. The risk of not doing lifecycle management activities includes the risks identified in Table 127: Natural Assets - Lifecycle Management Strategy. Adopting a do-nothing approach would result in significantly higher lifecycle costs and risk, a rapid decline in levels of service, and would substantially reduce the long-term sustainability of the City's assets. During the design stage of capital projects, anticipated future climate change impacts are considered. Table 128: Natural Assets – Climate Change and Other Risks includes a summary of adaptation and mitigation measures that could be used in response to the challenges.
ii. How the proposed levels of service differ from the current levels of service.	Table 126: Natural Assets – Technical Levels of Service identifies the difference in performance between the most current level of service performance value available and the 2034 target performance where determined. 2034 target performance has not been determined yet due to the extensive impacts of the Spring 2025 ice storm on the City's natural assets. The City will continue to measure current levels of service over time to establish a historical baseline or trend, and work towards establishing additional future targets. Adjustments to levels of service and determining future targets is a forward looking and iterative process that will occur over time as the City improves and refines its integrated approach to asset management. As the City moves towards integrating more work orders for operations and maintenance activities in the natural assets service area into the same platform that is used for asset management, the City will be better equipped to measure technical levels of service values over time and set future targets, including those currently listed as not available (N/A) in Table 126.
iii. Whether the proposed levels of service are achievable.	From a City staff resources perspective, the forecasted list of projects is achievable and is dependent on future staffing levels. Whether the full project list moves forward is dependent on receiving regulatory approvals, Council approving funding through future budget deliberations, environmental assessments, market availability and lead times, and impacts of future extreme weather events.

O. Reg. 588/17 S.6(1) 2(i-iv) Criteria	Explanation of Appropriateness
iv. The municipality's ability to afford the proposed levels of service.	Over the 2025-2034 10-Year Capital and Reserve Forecast period, the natural assets services area is funded by the following sources: ▪ Environmental and Infrastructure Services Operating Budgets ▪ General Asset Management Reserve Fund The financial strategy chapter included in this plan contains the O. Reg. 588/17 requirements of: ▪ An estimate of the annual costs for the lifecycle activities required to provide the proposed level of service ▪ The annual funding projected to be available ▪ The options examined by the City to maximize projected funding ▪ The identification of any funding deficit or shortfall. As the City has a population above 25,000, the financial strategy chapter contains the details required under S.6(1) 6(i-ii) of O. Reg. 588/17 regarding the costs and funding available due to population and employment growth. To promote alignment and consistency between City documents and City Council decision making, the proposed levels of service input into this chapter and the financial strategy chapter are aligned with the outcomes of the 2025 budget process and resulting 2025-2034 10 Year Capital and Reserve Forecast. The 2025-2034 10 Year Capital and Reserve Forecast was presented during the 2025 Budget process and resulted in the City utilizing its self-imposed 10% debt limit as well as a negative total reserve and reserve fund shortfall by 2034 in the amount of -$214.4 million in 2025 dollars. The Financial Strategy chapter of this plan provides a detailed discussion of the sustainability of the City's financial position. If the City follows a path of financial unsustainability, eventually some lifecycle activities would become unaffordable and the City may not achieve its proposed levels of service targets. Which activities the City will not undertake due to a shortfall depends on which reserves contain the large negative balances. Maintaining the proposed levels of service targets for all categories would require significant increases in funding levels. Natural assets staff are looking ahead at future asset lifecycle needs beyond the 2025-2034 forecast period to right-size reserve contribution requirements and are considering the possibility of additional long-term funding pressures due to: ▪ Anticipated future impacts of extreme weather events that cause widespread damage to natural assets. An explanation of the options examined by the City to maximize the funding projected to be available to afford the proposed levels of service is included in Table 137: Financial Strategy – Funding Maximization Activities and Choices

17.0
Impacts of Growth

17.0 Impacts of Growth

The demand for infrastructure and services will change over time based on a combination of internal and external factors. Understanding the key drivers of growth and demand will allow the City to plan for new infrastructure more effectively, and upgrades or disposals of existing infrastructure. Increases or decreases in demand can affect what assets are needed and what level of service meets the needs of the community.

The City's Official Plan indicates that the City is anticipated to accommodate a population of 41,000 people and 21,000 jobs by the year 2031. The Official Plan has not yet been brought into compliance with the August 2020 update to the Growth Plan for the Greater Golden Horseshoe, which extended the horizon for land use planning to 2051 and which requires that the City accommodate 49,000 people and 26,000 jobs by 2051. The City is currently in the process of updating its Official Plan through a Municipal Comprehensive Review. It is expected that the review will be completed for Council's consideration in 2025. Further information on the Municipal Comprehensive Review can be found on the City website or by contacting the Planning and Housing Division. The City's revised 2024 Housing Needs Assessment forecasts a revised 2031 population estimate of approximately 42,200.

Growth in the City of Orillia is expected to result in incremental increases in the demand for services that may impact the current level of service. The City's 2022 Development Charges Background Study details the growth-related long-term capital and operating costs for the 2022-2031 period. Managing the incremental growth will require an associated incremental increase in the total cost of funding the lifecycle management strategies to maintain the current level of service or achieve proposed levels of service targets.

In addition to the forecast included in the development charges background study, the City's 2025-2034 10 Year Capital and Reserve Forecast used in this plan to create the proposed levels of service and financial strategy includes a reserve forecast summary that forecasts the reserve balances to 2034. The City's Reserve and Reserve Funds Policy 4.4.1.1 organizes individual reserves and reserve funds into categories for ease of reference. Two reserve categories in the 2025-2034 10 Year Capital and Reserve Forecast directly related to growth are Development Charges and Development-Related. Together the total spending of these two categories identifies the known forecasted capital cost of supporting growth in the City. Spending from the Grant reserve category may also support growth-related needs where individual capital projects funded by grants have growth-related components.

To fund growth-related increases in the City's significant operating costs, the City's anticipates increased revenues as a result of serving a higher population and greater economic activity. Available sources of operating budget funding impacted by growth include the tax levy, rates for water, wastewater, and stormwater services, and user fees and service charges.

The Financial Strategy chapter of this plan summarizes the annual funding forecasted to be available that would be spent to achieve the proposed levels of service targets with separate rows of data identifying the funding projected to be available to fund growth-related needs.

18.0
Financial Summary

18.0 Financial Summary for 2024 Service Levels

Ontario Regulation 588/17 requires municipalities to report the costs of providing the lifecycle activities needed to maintain the current levels of service for all assets in each category for 10 years by July 1, 2024, including accommodating the expected growth.

To better understand the long-term requirements of City assets, a 50-year forecast of asset needs was developed using an inventory and lifecycle management strategies that maintain the current level of service. Due to fluctuations in the timing of needs for assets, a 50-year average forecast provides a consistent measure of long-term needs of assets. Assets can last from approximately one-to-170 years, and this forecast helps smooth out short-term fluctuations. This plan separates the core and non-core assets as defined by Ontario Regulation 588/17 into two separate forecasts.

Since the focus of this plan is on capital needs and funding sources differ between capital and operations budgets, the discussion of operations and maintenance funding requirements are reported separately. The available funding amounts are taken from the 2024 Capital Budget and 2024-2033 10-Year Capital Plan.

This Asset Management Plan (AMP) has been updated from its 2024 version to include a Financial Strategy compliant with the July 1, 2025, Ontario Regulation 588/17 requirements. Due to significant changes made in the 2025-2034 10 Year Capital and Reserve Forecast compared to the 2024-2033 forecast, the surplus or deficit identified in the Financial Summary chapter and summarized in this section represents an outdated snapshot in time. Any adjustments made to 10-year plans impact the level of surplus or deficit. A future revision of this plan will include an updated financial summary that aligns with the proposed levels of service targets.

18.1 Capital Requirements for Core Assets

Figure 130 illustrates a 50-year forecast of the annual capital asset needs of core assets, excluding growth, and summarizes the lifecycle needs detailed in previous sections of this plan for Transportation, Water, Wastewater, and Stormwater assets. The sustainable 50-year average annual requirement trend is $19,996,751.

FIGURE 130: **Core Assets – Annual Capital Requirement – 50-Year Forecast – Excluding Growth**

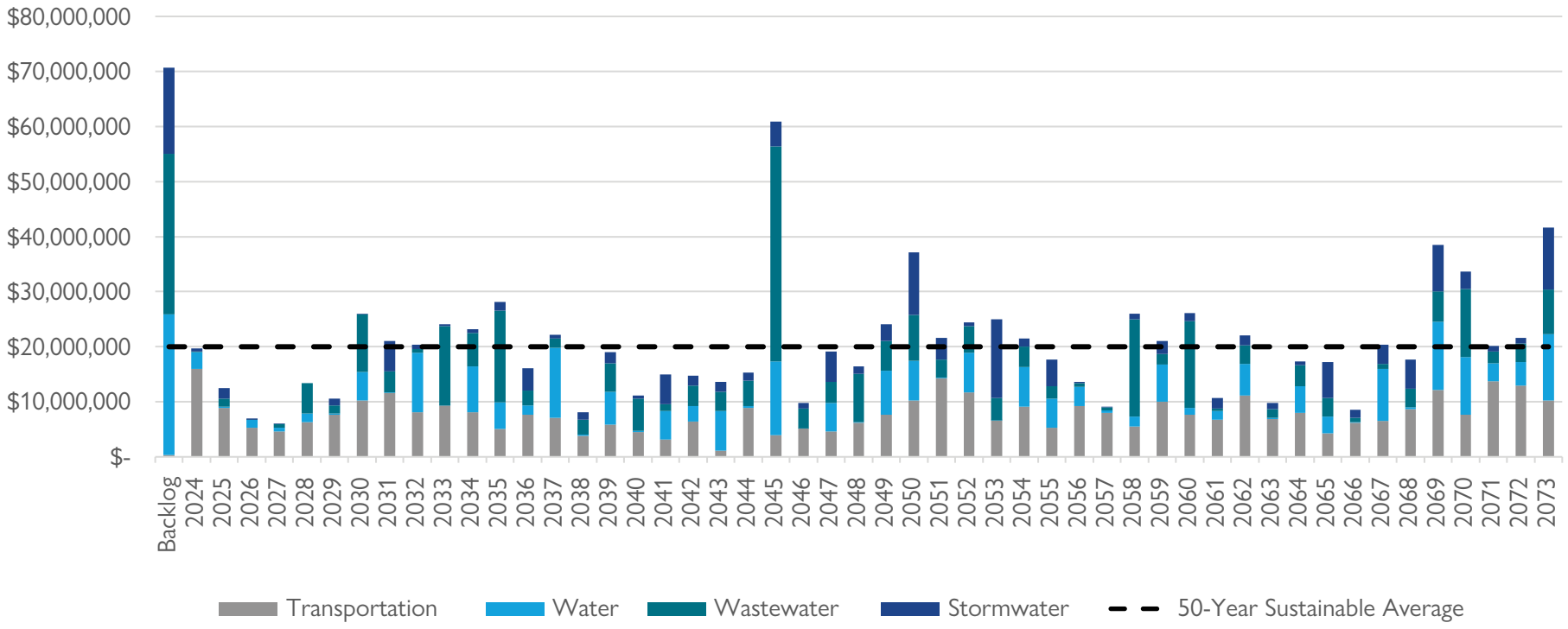
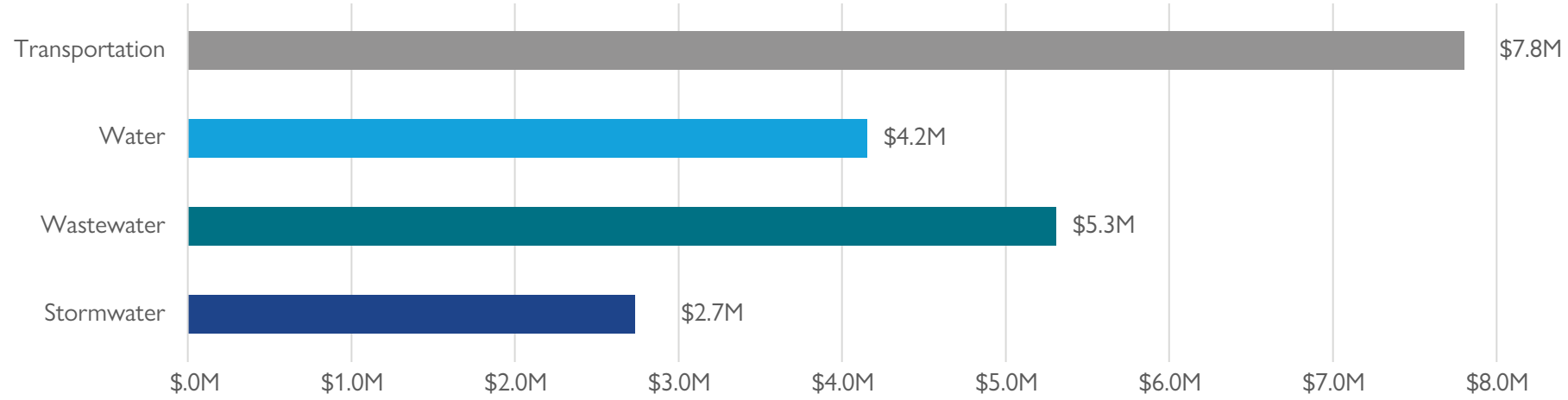


Figure 131 illustrates the 50-year average annual requirement trend by category of core asset with growth excluded.

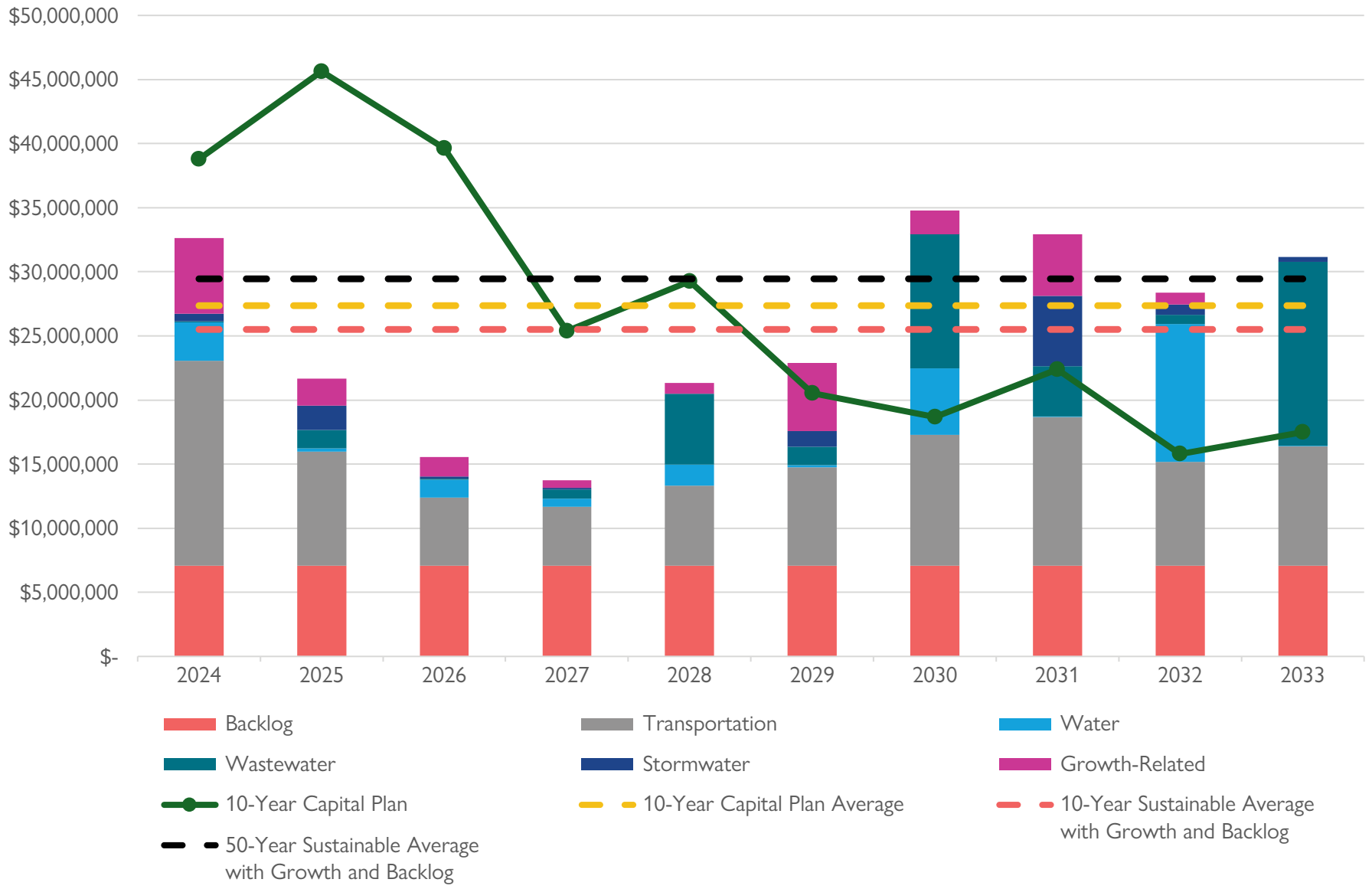
FIGURE 131: Core Assets – Average Capital Requirement – 50-Year Forecast – Excluding Growth



The City has a significant backlog of $70,695,412, primarily composed of watermains and wastewater and stormwater sewers beyond their estimated useful life of 75 years. This represents the assets that are past due for renewal or replacement based on the best available information. Calculating the backlog is useful to understand the short-term needs of assets. Many assets can remain in service beyond their estimated useful life or preferred condition; however, it may increase the risk of failure.

Figure 132 illustrates a 10-year forecast of the annual core asset needs, including clearing of the backlog across 10 years and anticipated growth impacts from 2024 to 2033. Since the scope of the 2022 Development Charges Background Study is limited to the 2022-2031 period, the growth needs over 2024-2033 are taken from the portion of projects funded by development charge-related funding sources in the 2024-2033 10-Year Capital Plan.

FIGURE 132: **Core Assets – Annual and Average Capital Requirement – 10-Year Forecast – Including Growth and Backlog**



Including growth from 2024-2033 and clearing the backlog, the sustainable 50-year average annual requirement is $29,453,417 and the sustainable 10-year average annual requirement is $25,505,551. The difference in these values represents that the 10-year forecasted sustainable asset needs are, on average, less than the forecasted 50-year asset needs.

The 10-year average funding allocated in the 2024-2033 10-Year Capital Plan of $27,362,772 exceeds the 10-year average annual requirement but falls short of the 50-year average annual requirement. As a result, no funding deficit exists over the medium-term 2024-2033 period; however, a funding deficit exists over the longer-term 2024-2073 period. This outcome is partially driven by higher-cost projects during 2024-2028, including the Harvie Hill Reservoir project; the reconstruction of Laclie Street, Jarvis Street and, West Street; and the Downtown Streetscape project.

A key point to note is that this funding surplus is solely based on the funding allocated in the 2024-2033 10-Year Capital Plan. Any changes to the 10-Year Capital Plan will change the level of the surplus.

Table 130 summarizes these annual requirement and funding allocations per year for core assets for both forecast periods.

TABLE 130: **Core Assets – Average Capital Requirement – 10-Year and 50-Year Forecasts – Including Growth and Backlog**

Annual Value	10-Year Forecast	50-Year Forecast
Required Funding		
Average Requirement to Clear Backlog Over 10 Years	$7,069,541	$7,069,541
Sustainable Average with Growth	$18,436,010	$22,383,876
Sustainable Average with Growth and Backlog	$25,505,551	$29,453,417
Funding Based on 2024-2033 10-Year Capital Plan		
10-Year Capital Plan Average	$27,405,222	$27,405,222

18.2 Capital Requirements for Non-Core Assets

Figure 133 illustrates a 50-year forecast of the annual capital asset needs of non-core assets, excluding growth, and summarizes the lifecycle needs detailed in previous sections of this plan for Fire, Fleet and Transit, Facilities, Solid Waste, Parks, Recreation, Culture, and Tourism, Municipal Law Enforcement and Parking, Information Technology, and Natural Assets. Excluding growth, the sustainable 50-year average annual requirement trend is $10,697,363.

FIGURE 133: **Non-Core Assets – Annual Capital Requirement – 50-Year Forecast – Excluding Growth**

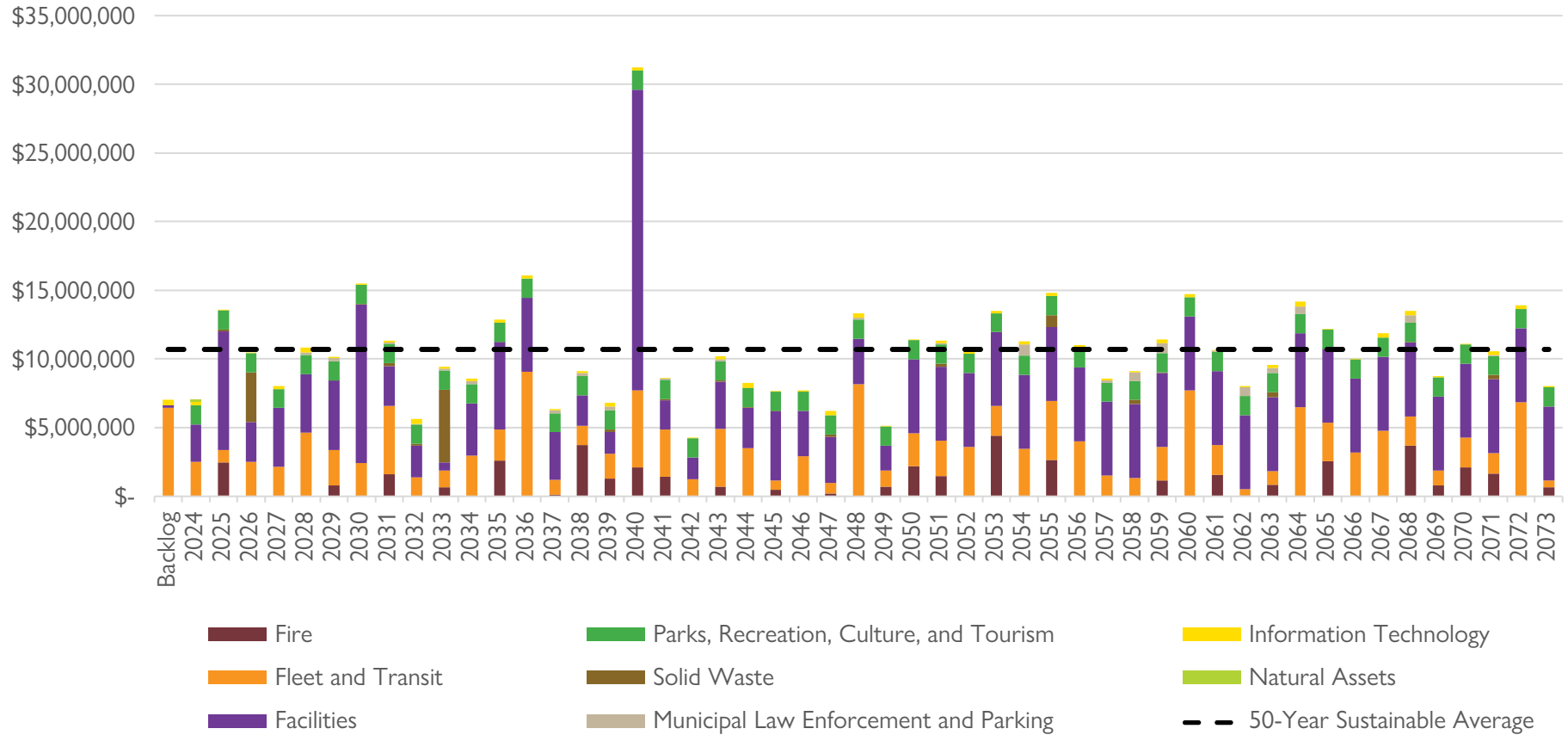
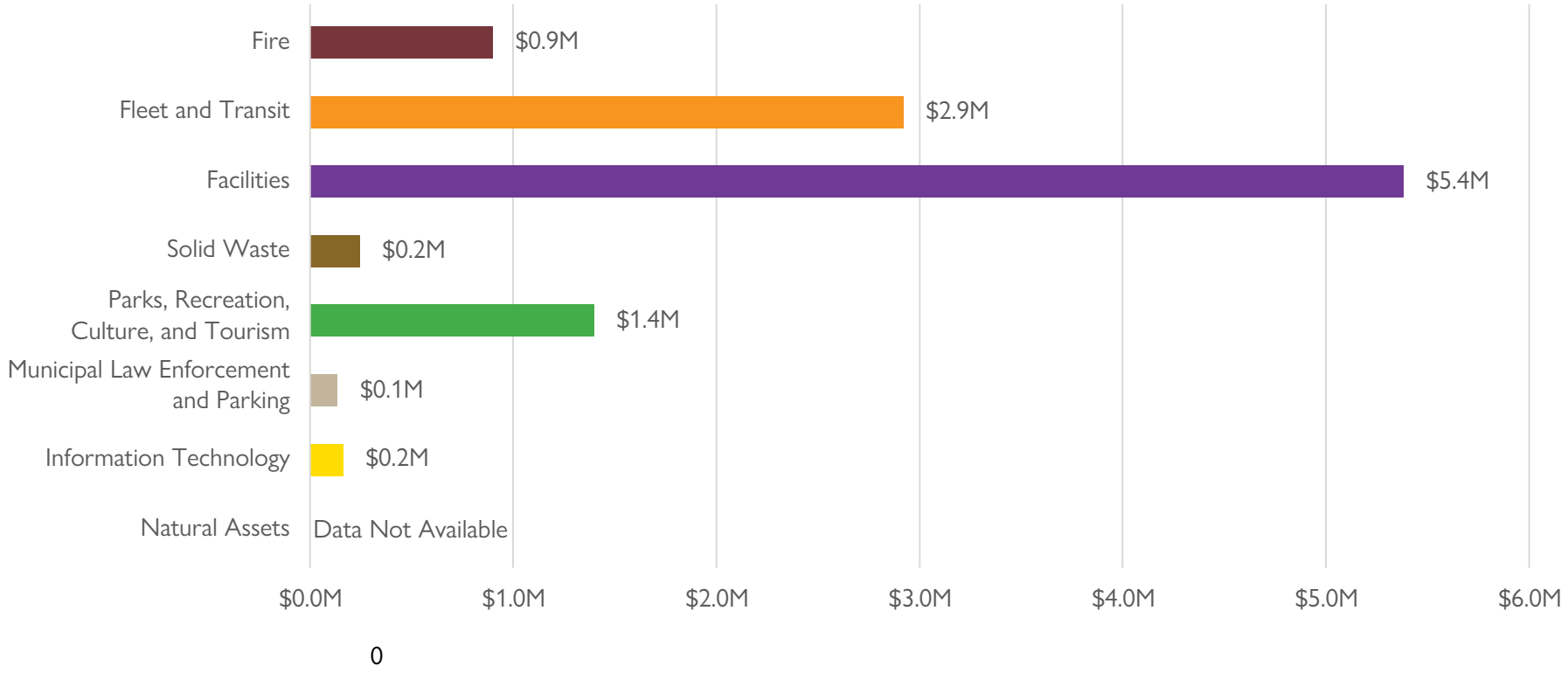


Figure 134 illustrates the 50-year average annual requirement trend by category of non-core asset with growth excluded.

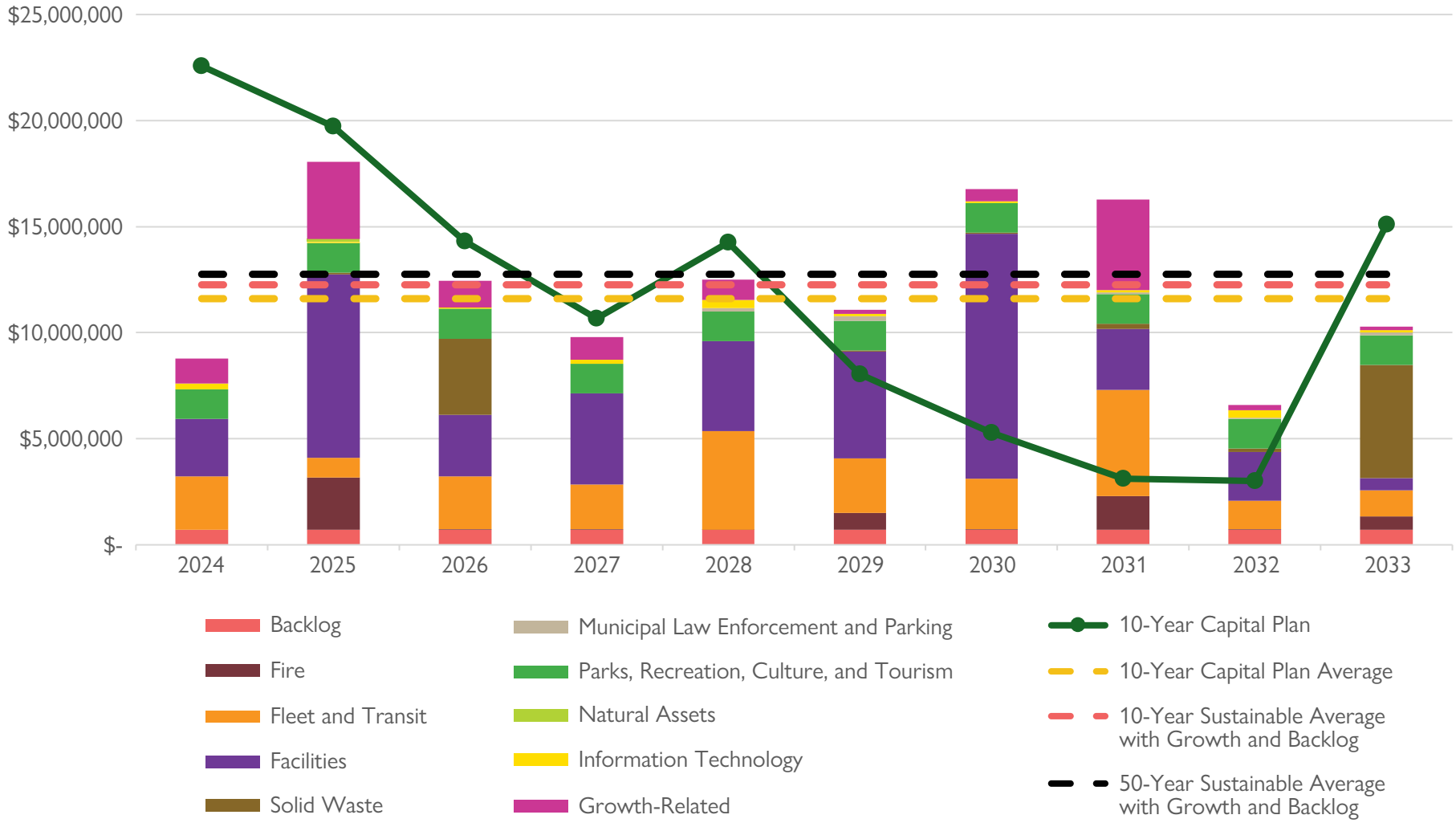
FIGURE 134: Non-Core Assets – Average Capital Requirement – 50-Year Forecast – Excluding Growth



The City has a significant backlog of $7,033,147 primarily composed of transit assets beyond their estimated useful life. This represents the assets that are past due for renewal or replacement based on the best available information. Calculating the backlog is useful to understand the short-term needs of assets. Many assets can remain in service beyond their estimated useful life or preferred condition; however, it may increase the risk of failure.

Figure 135 illustrates a 10-year forecast of the annual asset needs of non-core assets, including clearing of the backlog across 10 years and anticipated growth impacts from 2024 to 2033. Since the scope of the 2022 Development Charges Background Study is limited to the 2022-2031 period, the growth needs over 2024-2033 are taken from the portion of projects funded by development charge related funding sources in the 2024-2033 10-Year Capital Plan.

FIGURE 135: **Non-Core Assets – Annual and Average Capital Requirement – 10-Year Forecast – Including Growth and Backlog**



Including growth from 2024-2033 and clearing the backlog, the sustainable 50-year average annual requirement is $12,754,500. The sustainable 10-year average annual requirement is $12,258,545. The difference in these values represents that the 10-year forecasted sustainable asset needs are, on average, less than the forecasted 50-year asset needs.

The 10-year average funding allocated in the 2024-2033 10-Year Capital Plan of $11,604,558 is below both the 10-year and 50-year average annual requirements. As a result, a funding deficit exists over both forecast periods. This outcome is partially driven by higher-cost projects, including the Brian Orser Arena reconstruction, Municipal Operations Centre expansion or addition, and the construction of Fire Station 3.

A key point to note is that this funding deficit is solely based on the funding allocated in the 2024-2033 10-Year Capital Plan. Any changes to the 10-Year Capital Plan will change the level of the deficit.

Table 131 summarizes these annual requirement and funding allocations per year for non-core assets for both forecast periods.

TABLE 131: **Non-Core Assets – Average Capital Requirement – 10-Year and 50-Year Forecasts – Including Growth and Backlog**

Annual Value	10-Year Forecast	50-Year Forecast
Required Funding		
Average Requirement to Clear Backlog	$703,315	$703,315
Sustainable Average with Growth	$11,555,231	$12,051,185
Sustainable Average with Growth and Backlog	$12,258,545	$12,754,500
Funding Based on 2024-2033 10-Year Capital Plan		
10-Year Capital Plan Average	$11,604,558	$11,604,558

18.3 Operations and Maintenance Lifecycle Activities Requirements of All Assets

Growth in the City of Orillia is expected to result in incremental increases in the demand for services and the number of assets. Managing more assets will require an increase in the total cost of operations and maintenance lifecycle management strategies to maintain the current level of service. Table 132 summarizes the 10-year forecast of operations and maintenance costs for all assets over the 2024-2033 period, including impacts of growth.

TABLE 132: **Core and Non-Core Assets – Operations and Maintenance Lifecycle Costs**

Set of Assets	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
All Assets	$31.6M	$32.2M	$32.8M	$33.5M	$34.1M	$34.7M	$35.4M	$36.1M	$36.8M	$37.5M

19.0
Financial Strategy

19.0 Financial Strategy

O. Reg. 588/17 requires municipalities to include a financial strategy that forecasts the annual costs and annual funding projected to be available to fund the lifecycle activities required to provide the proposed levels of service for a 10-year period. This includes:

- The capital and significant operating expenditures required to provide the proposed levels of service at current population and employment levels at the lowest overall cost, and to accommodate future demand from growth;
- An explanation of the options examined by the municipality to maximize the funding projected to be available;
- The funding projected to be available as a result of increased population and economic activity; and
- If a funding shortfall exists over the 10-year period, an explanation of which lifecycle management activities the City cannot afford and how the City will manage the risks of not undertaking those unaffordable activities.

This plan outlines an O. Reg. 588/17 compliant financial strategy by detailing the required information and provides potential options for future changes in the City's approach to managing its assets.

19.1 Financial Strategy Overview

This financial strategy examines how the City could fund the lifecycle activities required to achieve the proposed levels of service targets. The annual sustainable lifecycle funding target identifies the level of funding that is required each year to, on average, fully fund the City's lifecycle management strategy over the long term. If this sustainable funding level is achieved, the City would on average have the revenues required to fully fund an average amount of lifecycle activity spending each year.

Considering balancing revenue and spending beyond a single year is also needed given that the level of spending required and amount of funding received fluctuates year-to-year. The use of debt or reserves may provide short to medium-term flexibility to accommodate an imbalance between spending requirements and funding received. In the long term, by achieving the annual sustainable lifecycle funding target, lower than average periods of spending would allow the City to build up reserves or pay off debt that could be drawn upon during years of higher-than-average spending requirements.

It is important to note that the information presented in this plan reflects a snapshot in time and should be re-evaluated in future revisions to reflect changes in the sustainability of the City's financial position over time.

To promote alignment and consistency between City documents and City Council decision making, the proposed levels of service used to create this financial strategy are aligned with the outcomes of the 2025 budget process and related 2025-2034 10 Year Capital and Reserve Forecast.

This financial strategy also adjusts the 50-year forecast of asset needs summarized in the financial summary chapter of this plan to:

- Inflate the values from 2023 dollars to 2025 dollars;
- Distinguish between the asset categories that are primarily funded by the tax levy from the asset categories that are primarily funded by rates; and
- Consider the funding available to each asset category separately if required.

19.2 Components of Spending and Funding

Multiple funding options are considered in this financial strategy including taxes, rates, user fees, use of debt, reserve funds, funds from senior levels of government, and growth-related funding. Each asset category has unique opportunities and limitations on what funding sources may be feasible and are described in more detail in the following sections. The City aims to maximize the funding projected to be available while keeping funding at a level that supports growth, prosperity, and community investment.

For an asset management plan financial strategy to be effective, the funding scenarios developed must consider multiple components and provide alternative options. This financial strategy considers combinations of the following components:

1. The lifecycle management strategy spending requirements for:
   - Current assets;
   - Future assets;
   - Future growth-related assets;
   - Current service levels; and
   - Proposed service levels.

2. The available sources of funding:
   - Tax Levy;
   - Rates (water, wastewater, and stormwater);
   - User Fees and Service Charges (licenses, permits, fines, and penalties);
   - Debt;
   - Reserve Funds;
   - Senior Government Funds; and
   - Development Charges and Development Related Charges.

Each activity type of the lifecycle management strategy typically aligns with specific funding sources. Operations and maintenance activities are primarily funded through taxation, rates, user fees, and service charges. Non-growth-related capital projects including renewal, rehabilitation, replacement, and disposal activities are typically funded through reserves built up through transfers from the other funding sources, use of debt, or by funding from senior levels of government. Growth-related projects identified in development charge background studies receive a portion of funding from development charge reserves. It is important to note that growth-related funding sources can only be used to fund the growth-related portion of a project.

Through the annual budget process, the City works to align the various funding sources with the scope of each project or lifecycle activity. Some assumptions were made to align funding sources to asset categories because the structure of budget funding sources does not always match the asset management hierarchy of asset categories.

To avoid overestimating the impact of senior government funds, this financial strategy initially only includes secure, consistent, or high-probability grants in the available sources of funding. One-time or infrequent senior government funds such as project-specific, application-based grants are initially excluded as sources of funding, except where the City has a firm commitment to receive to the funds. This approach aligns the City with the 2016 Ontario Building Together Guide which details that loans and senior government grants should be excluded from yearly revenues unless an agreement has been executed. However, to ensure realistic scenarios and options are presented, this financial strategy considers the impact of assuming that a historically average level of application-based grant funding will be provided for a limited number of capital projects.

19.3 Updated Financial Summary Values

The tables in this section update the values included in the financial summary chapter of this plan from 2023 dollars to 2025 dollars using a combined 2-year inflation rate of 8.46%. Updating the values to 2025 dollars accounts for recent inflation levels and allows for better alignment with the 2025-2034 10 Year Capital and Reserve Forecast.

Table 133 summarizes in 2025 dollars the backlog and 50-year average annual requirement trend of capital needs for each category of assets, excluding growth.

TABLE 133: Financial Strategy – Financial Summary Update – Backlog and 50-Year Average Annual Requirements in 2025 Dollars

Category	Backlog	50-Year Average Annual Requirement
Transportation	$0.4M	$8.5M
Water	$21.7M	$4.5M
Wastewater	$31.6M	$5.8M
Stormwater	$17.0M	$3.0M
Fire	$0.0M	$1.0M
Fleet and Transit	$7.0M	$3.2M
Facilities	$0.2M	$5.8M
Solid Waste	$0.0M	$0.3M
Parks, Recreation, Culture, and Tourism	$0.0M	$1.5M
Municipal Law Enforcement and Parking	$0.0M	$0.1M
Information Technology	$0.4M	$0.2M
Natural Assets	$0.0M	Not Available
Core Assets	$70.7M	$21.7M
Non-Core Assets	$7.6M	$12.1M
Total	$78.3M	$33.8M












Table 134 summarizes in 2025 dollars the annual capital requirements for existing assets and any growth-related capital requirements over the 2024-2033 period for each category of assets.

TABLE 134: Financial Strategy – Financial Summary Update – Annual Capital Requirements in 2025 Dollars

Category	Existing or Growth	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Transportation	Existing	$17.36M	$9.67M	$5.77M	$5.01M	$6.78M	$8.35M	$11.06M	$12.61M	$8.77M	$10.13M
Transportation	Growth	$0.24M	$1.24M	$0.11M	$0.00M	$0.11M	$0.11M	$0.13M	$0.00M	$0.11M	$0.00M
Water	Existing	$3.21M	$0.27M	$1.50M	$0.68M	$1.79M	$0.17M	$5.66M	$0.04M	$11.70M	$0.03M
Water	Growth	$5.97M	$0.60M	$1.33M	$0.20M	$0.00M	$0.00M	$1.79M	$4.34M	$0.20M	$0.00M
Wastewater	Existing	$0.13M	$1.55M	$0.09M	$0.76M	$6.00M	$1.57M	$11.32M	$4.25M	$0.78M	$15.57M
Wastewater	Growth	$0.00M	$0.00M	$0.00M	$0.28M	$0.54M	$3.58M	$0.00M	$0.00M	$0.20M	$0.00M
Stormwater	Existing	$0.61M	$2.04M	$0.21M	$0.14M	$0.00M	$1.33M	$0.01M	$5.93M	$0.83M	$0.38M
Stormwater	Growth	$0.23M	$0.47M	$0.20M	$0.15M	$0.23M	$2.04M	$0.11M	$0.88M	$0.51M	$0.00M
Fire	Existing	$0.00M	$2.68M	$0.03M	$0.03M	$0.00M	$0.86M	$0.03M	$1.74M	$0.03M	$0.69M
Fire	Growth	$0.00M	$0.00M	$0.00M	$0.00M	$0.00M	$0.00M	$0.00M	$4.34M	$0.00M	$0.00M
Fleet and Transit	Existing	$2.74M	$1.00M	$2.71M	$2.31M	$5.04M	$2.79M	$2.60M	$5.42M	$1.47M	$1.32M
Fleet and Transit	Growth	$0.33M	$0.09M	$0.09M	$0.17M	$0.24M	$0.18M	$0.49M	$0.07M	$0.27M	$0.16M
Facilities	Existing	$2.93M	$9.37M	$3.14M	$4.64M	$4.61M	$5.49M	$12.52M	$3.13M	$2.49M	$0.64M
Facilities	Growth	$0.78M	$3.25M	$0.00M	$0.00M	$0.00M	$0.00M	$0.00M	$0.00M	$0.00M	$0.00M
Solid Waste	Existing	$0.00M	$0.11M	$3.90M	$0.00M	$0.00M	$0.03M	$0.06M	$0.25M	$0.16M	$5.76M
Solid Waste	Growth	$0.02M	$0.15M	$0.25M	$0.01M	$0.01M	$0.05M	$0.02M	$0.00M	$0.00M	$0.00M
Parks, Recreation, Culture, and Tourism	Existing	$1.51M	$1.51M	$1.51M	$1.51M	$1.51M	$1.51M	$1.51M	$1.51M	$1.51M	$1.51M
Parks, Recreation, Culture, and Tourism	Growth	$0.13M	$0.44M	$1.04M	$0.98M	$0.79M	$0.00M	$0.11M	$0.22M	$0.00M	$0.00M
Municipal Law Enforcement and Parking	Existing	$0.00M	$0.00M	$0.00M	$0.00M	$0.16M	$0.26M	$0.00M	$0.10M	$0.06M	$0.15M
Municipal Law Enforcement and Parking	Growth	$0.00M	$0.00M	$0.00M	$0.00M	$0.00M	$0.00M	$0.00M	$0.00M	$0.00M	$0.00M
Information Technology	Existing	$0.31M	$0.06M	$0.06M	$0.21M	$0.43M	$0.09M	$0.08M	$0.13M	$0.39M	$0.14M
Information Technology	Growth	$0.00M	$0.00M	$0.00M	$0.00M	$0.00M	$0.00M	$0.00M	$0.00M	$0.00M	$0.00M

Category	Existing or Growth	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Natural Assets	Existing	$0.15M	$0.00M	$0.00M	$0.00M	$0.00M	$0.00M	$0.00M	$0.00M	$0.00M	$0.00M
Natural Assets	Growth	$0.00M	$0.00M	$0.00M	$0.00M	$0.00M	$0.00M	$0.00M	$0.00M	$0.00M	$0.00M
Total	Existing	$28.95M	$28.27M	$18.93M	$15.29M	$26.33M	$22.45M	$44.85M	$35.10M	$28.20M	$36.34M
Total	Growth	$7.69M	$6.25M	$3.01M	$1.80M	$1.93M	$5.96M	$2.64M	$9.84M	$1.30M	$0.16M
Total	Existing and Growth	$36.65M	$34.51M	$21.94M	$17.08M	$28.26M	$28.41M	$47.50M	$44.94M	$29.50M	$36.50M

Table 135 summarizes in 2025 dollars the annual operations and maintenance requirements for all assets. Significant adjustments have occurred to the new 2025-2034 forecast and are included in Table 139 of this plan.

TABLE 135: **Financial Strategy – Financial Summary Update – Operations and Maintenance Requirements in 2025 Dollars**

Category	Existing or Growth	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Total	Existing and Growth	$34.3M	$35.0M	$35.6M	$36.3M	$37.0M	$37.7M	$38.4M	$39.1M	$39.9M	$40.6M

19.4 Tax Funded vs Rate Funded Assets and Key Assumptions

By distinguishing between the asset categories that are primarily funded by rates from categories that are primarily funded by the tax levy, this financial strategy considers differences in how asset lifecycle needs are funded across varying categories. Some of the categories such as Transportation, Facilities, and Parks, Recreation, Culture, and Tourism have a mix of funding sources identified in each annual budget. As a simplification, this financial strategy groups the asset categories based on what the majority source of capital project funding is between the two options. Most categories of assets are also partially funded by user fees.

The primarily tax levy funded assets include:

- Transportation;
- Fire Services;
- Fleet and Transit;
- Facilities;
- Solid Waste;
- Parks, Recreation, Culture, and Tourism;
- Municipal Law Enforcement and Parking;
- Information Technology; and
- Natural Assets.

The primarily rate funded assets include:

- Water
- Wastewater
- Stormwater

Table 136 summarizes the important assumptions made on funding sources and any key inputs used in calculations. The assumptions used in this plan may be different than the assumptions made during the development of the 2025 Budgets and 2025-2034 10 Year Capital and Reserve Forecast.

TABLE 136: Financial Strategy – Key Assumptions

Funding Source or Model Input	Assumptions
Tax Levy for Operations and Maintenance Activities	▪ Funding from taxes will fully fund operations and maintenance activities given that Ontario municipalities are not permitted to run a deficit in their operating budgets. ▪ Excess funds will be returned to reserves. ▪ Due to the costs of some asset categories being shared across multiple operating budgets, some assumptions may have been made to align asset category costs across the operating budgets.
Tax Levy for Capital Activities	▪ Funding from taxes will partially fund all capital related lifecycle management strategy activities, be transferred to reserves, or be used to pay down debt. ▪ Excess funds will be returned to reserves.
Rates	▪ Funding from rates will fund activities directly related to the asset category associated with the rates. ▪ Rate revenues received and not spent in the same year will be transferred to reserves. ▪ The assessment of potential funding deficits in the water, wastewater, and stormwater service areas may be reviewed as part of regular master plan and rate study updates.
User Fees, Service Charges, Licenses, and Permits	▪ Where available, forecasts of user fees and other operating budget revenues directly associated to lifecycle management activities are included in the values summarized in Table 139: Financial Strategy – Forecasted Operations and Maintenance Funding Available. ▪ Some asset categories do not have growth-related forecasts of operating budget revenues. This strategy assumes that the tax levy will cover any missing growth-related operating budget revenues not included in the data presented in this plan. ▪ User fees and other operating budget revenues received and not spent in the same year will be transferred to reserves. ▪ Fire Services operating budget revenues fluctuate year-to-year based on call volumes and mix of types of calls that require varying response levels in terms of number of available apparatus, firefighters, and equipment. This strategy assumes that future call volumes and the mix of types of calls will match the forecasted 2025 volume and mix.
Debt	▪ The usage of debt is aligned with the City's 2025-2034 10 Year Capital & Reserve Forecast and the City's reserve and debt policy.
Reserve Funds	▪ The availability of reserve funds is aligned with the City's 2025-2034 10 Year Capital and Reserve Forecast and the City's reserve and debt policy.

Funding Source or Model Input	Assumptions
Senior Government Funds	▪ One-time or infrequent senior government funds such as project-specific, application-based grants are initially excluded except where the City has a firm funding commitment. An option to include an assumed average amount of $1,000,000 per year of future funding is considered as part of a potential path to help manage the City's financial position. ▪ In 2022, the Province of Ontario doubled it annual funding to OCIF for five years. The City's OCIF funding is assumed to be $2,800,000 per year until 2026, then halving to $1,400,000 per year to align with the end date of the Province's doubling of its funding. ▪ In 2024, the Government of Canada committed to providing $4.7 billion over five years across Ontario through the Canada Community Building Fund (CCBF, formerly named the Gas Tax), distributed through the province to individual municipalities. The CCBF has been a stable and long-term source of funding for the City. The City's CCBF funding is assumed to be $2.0M per year based on the City's 2023 funding allocation.
Development Charges	▪ Development charge rates are assumed to follow the most recent background study.
Funding for Growth-Related Project	▪ The amount of a project's cost associated to growth-related asset needs is captured by the portion of the cost that is funded by reserve funds in the reserve categories of Development Charges or Development Related.
New Funding from Assessment Growth	▪ New annual funding from assessment growth is assumed to be $1.0M per year. ▪ Assumed to fund operations and maintenance costs for existing and growth assets.
Inflation	▪ All values in this financial strategy are in constant 2025 dollars unless described otherwise.
International Trade Tariffs	▪ This financial strategy does not consider the impact on the costs of the identified lifecycle management strategy that would occur if significant trade tariffs were imposed on assets and materials used in completing the lifecycle activities.
Potential Future Boundary Expansion	▪ This financial strategy does not consider the impacts of a potential City boundary expansion in the future.
Existing Backlog	▪ When updated data was available, the existing backlog values were updated when calculating levels of service targets to reflect projects completed in 2024 and assets entering the backlog in 2024.

19.5 Projected Funding Maximization Considerations

The City seeks to achieve a property tax levy and rates that funds the balance of the organization's expenses while keeping property taxes and rates at a level that supports growth, prosperity, and community investment. In determining changes to revenue options, the City considers the long-term impacts of such decisions and the varying willingness to pay of different groups in the City. The City also considers intergenerational equity.

Through the annual budget process, City Council reviews the balance of funding sources and the City's expenses. Master plans, development charge background studies, condition studies, rate studies, user fee review reports, and other City documents examine funding options in detail for some service areas. These master plans, studies, and reports typically occur infrequently on cycles of up to 10 years, meaning that the consideration of funding maximization options partially relies on infrequently updated information.

As a result of all these considerations, the process of funding maximization is an ongoing, iterative process as updated information is received over time. The City will continue to examine its funding sources throughout this process to maximize the funding projected to be available to support asset needs.

The City actively pursues opportunities of receiving senior government funds through both application-based and allocation-based programs. The City is also considering adjusting funding through adding new or modifying existing user fees to better match the costs of providing services.

Table 137 summarizes recent activities or choices the City has undertaken to maximize the funding projected to be available for each category of assets.

TABLE 137: Financial Strategy – Funding Maximization Activities and Choices

Category	Activities and Choices
Transportation	▪ The City considers applications for external funding sources such as upper-tier government grants when these opportunities are available. ▪ Implementing an automated speed enforcement camera program that is designed to be self-funding to encourage drivers to abide by speed limits in community safety zones.
Water	▪ The City considers applications for external funding sources such as upper-tier government grants when these opportunities are available. ▪ The City's water rate structure is typically updated every four years and schedule of user fees is reviewed annually. ▪ The City operates the West Orillia Well Bulk Water Dispensing Facility to serve businesses that use tank trucks for large volume water purposes to fill their vehicles at any time. Adjustments to the rate charged per cubic metre of bulk water dispensed is determined as part of determining the schedule of user fees.
Wastewater	▪ The City considers applications for external funding sources such as upper-tier government grants when these opportunities are available. ▪ The City's wastewater rate structure is typically updated every four years and schedule of user fees is reviewed annually.
Stormwater	▪ The City considers applications for external funding sources such as upper-tier government grants when these opportunities are available. ▪ The City reviews it stormwater rates annually, or as part of the development of a future rate study. ▪ In 2020, City Council approved moving the City from flat stormwater rates for multi-residential (four or more residential units) or non-residential (industrial, commercial, institutional or multi-use) properties to a tiered system of rates based on calculated impervious areas, in order to provide a more equitable application of rates. ▪ The City is in the process of reviewing its property data to ensure that the appropriate stormwater rates are being applied to each property. Historically, less revenue has been collected than could have been collected due to inaccurate property data leading to an undercharging of some properties.

Category	Activities and Choices
Fire	▪ The City receives revenues through the filling of breathing air cylinders using its self-contained breathing apparatus (SCBA) filling system for a neighbouring fire department. ▪ Chapter 453 of the City's Municipal Code details the schedule of user fees. ▪ As of January 1, 2024, Bylaw 2023-124 allows the City fire department to recover costs from residents for vehicle accidents and collisions, and structure fires.
Fleet and Transit	▪ The City considers applications for external funding sources such as upper-tier government grants when these opportunities are available. ▪ 2024 fare increase for the City transit system and the introduction of a free teen pass pilot program to encourage long-term ridership leading to a projected future increase in fare revenue. ▪ Revamped fleet recovery costs to align actual fleet usage in each service area to the overall fleet operating costs.
Facilities	▪ The City considers applications for external funding sources such as upper-tier government grants when these opportunities are available. ▪ Seeking expressions of interest for leasing naming rights of City-owned facilities.
Solid Waste	▪ The City considers applications for external funding sources such as upper-tier government grants when these opportunities are available. ▪ The City reviews its solid waste user and tipping fees annually to ensure that the user pays the costs associated with operating and maintaining the Site, through individual usage charges. This review aims to ensure that general taxpayers are not subsidizing individual site users. ▪ The City has decreased its distribution of garbage tags over the years to minimize the amount of garbage requiring disposal in our landfill while also incentivizing the use of the available recycling and green bin diversion programs. Additional garbage bag tags can be purchased for a fee to offset the costs of landfilling the additional garbage. ▪ Changing the hours of operations of the Waste Diversion Site to better align site availability to user demand.
Parks, Recreation, Culture, and Tourism	▪ The City considers applications for external funding sources such as upper-tier government grants when these opportunities are available. ▪ Significant increases to the Recreation, Youth and Culture User Fee policy 2023-2026 user fees following consideration of the recommendations provided in the 2023 Recreation Fee Review Report. ▪ The City's recreation and culture user fee policy is reviewed every 3 years and aims to set users fees at a level at covers a portion of operating expenditure while balancing affordability to users.
Municipal Law Enforcement and Parking	▪ The City considers applications for external funding sources such as upper-tier government grants when these opportunities are available. ▪ Parking fees are reviewed annually with the aim to balance affordability with the cost of providing the level of service. ▪ Demand based pricing was implemented in 2023 to charge varying rates for different parking lots or groups of spaces in parking lanes.
Information Technology	▪ The City considers applications for external funding sources such as upper-tier government grants when these opportunities are available.
Natural Assets	▪ Dredging the Port of Orillia to support full usage of boat parking spots by addressing weed growth and sediment build-up.

The City is also considering alternative procurement strategies such as group purchasing in some service areas to lower costs. Related to growth management, the City has undertaken several actions such as:

- Leveraging frontend funding and debt sources for prebuilding growth-related infrastructure to support growth-related development to free up development charge fund revenue;
- Ending the City's moratorium on industrial development charges; and
- Updating the Development Charge Background Study to reflect current construction costs and levels of service needs.

19.6 Summary of Forecasted Spending and Funding Available

The 2025-2034 10 Year Capital and Reserve Forecast was presented during the 2025 Budget process and resulted in the City utilizing its self-imposed 10% debt limit as well as a negative total reserve and reserve fund shortfall by 2034 in the amount of -$214.4 million in 2025 dollars.

Table 138 summarizes in 2025 dollars the annual funding available that would be spent to meet the proposed levels of service for each asset category. Each category is separated by existing and growth rows to identify the funding projected to be available as a result of increased population and economic activity. Additional debenture category rows are included to account for projects that are funded by debt where the project's funding is not broken down into each asset category's share of the funding.

TABLE 138: Financial Strategy – Forecasted Capital Spending and Funding Available

Asset Category	Existing or Growth	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	10-Year Average
Transportation	Existing	$7.2M	$7.7M	$4.6M	$13.7M	$16.8M	$13.5M	$23.5M	$17.4M	$36.4M	$31.1M	$17.2M
Transportation	Growth	$0.5M	$3.1M	$0.2M	$2.9M	$0.3M	$0.2M	$19.9M	$8.2M	$4.3M	$0.2M	$4.0M
Water	Existing	$2.0M	$8.4M	$7.1M	$3.3M	$4.3M	$3.0M	$9.0M	$8.9M	$12.2M	$14.5M	$7.3M
Water	Growth	$0.9M	$1.0M	$2.6M	$0.6M	$0.00M	$1.6M	$0.3M	$15.1M	$0.6M	$0.0M	$2.3M
Wastewater	Existing	$2.0M	$2.2M	$11.5M	$10.1M	$7.6M	$2.2M	$7.6M	$9.1M	$13.7M	$30.6M	$9.7M
Wastewater	Growth	$0.1M	$0.1M	$5.1M	$3.9M	$2.1M	$0.1M	$0.4M	$0.1M	$1.6M	$0.1M	$1.4M
Stormwater	Existing	$0.9M	$3.0M	$1.4M	$1.6M	$1.5M	$17.6M	$1.9M	$8.1M	$7.0M	$5.9M	$3.9M
Stormwater	Growth	$0.2M	$0.1M	$0.5M	$0.3M	$0.4M	$0.2M	$0.12M	$0.6M	$0.8M	$2.8M	$0.6M
Debenture	Existing	$11.2M	$5.1M	$6.8M	$7.6M	$0.0M	$0.0M	$6.9M	$2.3M	$0.0M	$0.0M	$4.0M
Debenture	Growth	$0.0M	$0.0M	$0.8M	$0.0M	$8.3M	$8.3M	$0.0M	$0.0M	$0.0M	$0.0M	$0.7M
Fire Services	Existing	$0.7M	$2.8M	$0.2M	$0.1M	$1.2M	$0.1M	$0.1M	$1.72M	$3.3M	$0.9M	$1.1M
Fire Services	Growth	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M	$3.3M	$0.0M	$0.3M
Fleet and Transit	Existing	$2.0M	$2.7M	$3.0M	$6.4M	$4.9M	$2.6M	$2.3M	$2.0M	$1.9M	$2.3M	$3.0M
Fleet and Transit	Growth	$0.0M	$0.2M	$0.1M	$0.2M	$0.2M	$0.0M	$0.1M	$0.1M	$0.1M	$0.1M	$0.1M
Facilities	Existing	$11.3M	$9.8M	$5.1M	$2.9M	$10.8M	$7.0M	$6.6M	$5.4M	$5.5M	$5.0M	$6.9M

Asset Category	Existing or Growth	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	10-Year Average
Facilities	Growth	$0.0M	$0.3M	$11.3M	$0.0M	$5.4M	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M	$1.7M
Solid Waste	Existing	$0.6M	$2.3M	$1.8M	$0.0M	$0.1M	$0.3M	$0.3M	$0.1M	$2.9M	$0.0M	$0.8M
Solid Waste	Growth	$0.2M	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M	$0.01M	$0.0M	$0.0M	$0.0M
Parks, Recreation, Culture, and Tourism	Existing	$2.9M	$3.4M	$2.8M	$5.1M	$0.6M	$2.4M	$0.5M	$3.4M	$0.2M	$0.1M	$2.2M
Parks, Recreation, Culture, and Tourism	Growth	$0.5M	$1.5M	$1.5M	$1.5M	$0.8M	$0.5M	$0.0M	$0.0M	$0.0M	$0.0M	$0.6M
Municipal Law Enforcement and Parking	Existing	$0.0M	$0.0M	$0.1M	$0.2M	$0.1M	$0.1M	$0.1M	$0.1M	$0.0M	$0.1M	$0.1M
Municipal Law Enforcement and Parking	Growth	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M
Information Technology	Existing	$0.3M	$0.4M	$0.1M	$0.4M	$0.3M	$0.4M	$0.1M	$0.4M	$0.3M	$0.5M	$0.3M
Information Technology	Growth	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M
Natural Assets	Existing	$0.1M	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M
Natural Assets	Growth	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M	$0.0M
Total	Existing	$41.2M	$47.7M	$44.4M	$51.6M	$48.2M	$39.2M	$58.7M	$58.4M	$83.3M	$91.0M	$56.4M
Total	Growth	$2.5M	$6.3M	$22.2M	$9.4M	$17.5M	$10.8M	$21.0M	$24.2M	$10.6M	$3.2M	$12.8M
Total	Existing and Growth	$43.7M	$54.1M	$66.6M	$60.9M	$65.7M	$50.0M	$79.7M	$82.6M	$94.0M	$94.1M	$69.1M

Table 139 summarizes in 2025 dollars the annual operations and maintenance funding for all categories of assets and identifies any funding related to growth needs.

TABLE 139: Financial Strategy – Forecasted Operations and Maintenance Spending and Funding Available

Category	Existing or Growth	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Total	Existing	$56.1M	$56.2M	$56.4M	$56.5M	$56.6M	$56.8M	$56.9M	$57.0M	$57.2M	$57.3M
Total	Growth	$0.1M	$1.4M	$2.8M	$4.3M	$6.2M	$7.8M	$9.3M	$10.9M	$15.6M	$17.3M
Total	Existing and Growth	$56.2M	$57.7M	$59.2M	$60.8M	$62.9M	$64.5M	$66.2M	$68.0M	$72.8M	$74.6M

Table 140 summarizes the forecasted funding available using debt as a percentage of the City's annual repayment limit based on the information available in the City's Approved Annual 2025 Capital Budget. At the end of the forecast period, the City is close to its self-imposed limit of 10% and remains well below the provincial limit of 25%.

TABLE 140: Financial Strategy – Forecasted Debt Funding Compared to Repayment Limit

Debt Repayment Measure	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Total Funding as a Percentage of Annual Repayment Limit	3.82%	5.09%	5.80%	7.10%	7.71%	9.02%	9.53%	9.71%	9.98%	9.77%
City Annual Repayment Limit Maximum	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%

Table 141 summarizes in 2025 dollars the forecasted 2034 balances of the reserve funds used to fund the 2025-2034 10 Year Capital and Reserve Forecast based on the information available in the City's June 1, 2024, revision of the forecast. The negative balances represent a forecasted shortfall.

Following the presentation of the 2025-2034 forecast, during 2025 Budget deliberations a financial strategy was put forward, illustrating the need for a $4.0M incremental asset management contribution with the funding split between the tax levy and rate-funded services to cover the shortfall. This approach was adopted by Council in 2025 and is being layered into 10-year forecast revisions and future budgets for Council consideration along with suggestions on minimizing or deferring capital investments.

Council approved the funding of the first year of the strategy in 2025. However, the funding strategy calls for tax levy increases ranging between 2.69% and 1.68%, water and wastewater rate increases averaging 5.65%, and stormwater rate increases averaging 16% per year for the duration of the forecast. Should Council not pursue the strategy for the entire 10-year forecast period or not adjust the projects within the forecast as a result of a need to balance community affordability, large negative reserve balances will exist resulting in a shortfall, and the forecast will not be sustainable.

These forecasted balances may include spending on assets not currently included in this plan. The forecasted 2034 balances summarized should be considered as a starting point subject to change due to increases in forecasted project costs and changes in project timings that took place after the June 1, 2024, revision of the forecast was published. The changes are associated to multiple projects across multiple asset categories. An updated total balance value may include up to an additional $25.0 million in the negative for a new forecasted total negative balance of up to $239.4 million.

TABLE 141: Forecasted Reserve Balances in 2034

Reserve Name	Balance
General Asset Management Reserve Fund	-$84.9M
Capital Levy Reserve	-$0.4M
Roads and Related Obligatory Reserve Fund	-$17.3M
Gas Tax Obligatory Reserve Fund	$0.8M
OCIF Obligatory Reserve Fund	$0.9M
Water Asset Management Reserve Fund	-$23.2M
Water Obligatory Reserve Fund	-$12.7M
Wastewater Asset Management Reserve Fund	-$34.7M
Sanitary Sewer Obligatory Reserve Fund	-$12.8M
Stormwater Asset Management Reserve Fund	-$28.2M
Stormwater Obligatory Reserve Fund	-$3.7M
Debenture Reserve Fund	$0.1M
Fire Obligatory Reserve Fund	-$1.8M
Fleet and Equipment Asset Management Reserve Fund	-$14.1M
Land Reserve Fund	$1.0M
Opera House Asset Management Reserve Fund	-$2.9M
Environmental Obligatory Reserve Fund	$0.3M
Landfill Site Asset Management Reserve Fund	$2.8M
Solid Waste Obligatory Reserve Fund	$1.8M
Tourism Municipal Accommodation Tax Reserve Fund	-$0.2M
Indoor Recreation Obligatory Reserve Fund	-$4.2M
Youth Opportunities Reserve Fund	$0.1M
Cash In Lieu Recreation Land/Community Benefit Charge Obligatory Reserve Fund	$5.8M
Parks Obligatory Reserve Fund	$8.0M
Parking Asset Management Reserve Fund	$0.3M
Transit Asset Management Reserve Fund	$0.8M
Transit Services Obligatory Reserve Fund	$4.6M
IT and Innovation Reserve Fund	-$0.6M
Total	-$214.4M

19.7 Discussion of Financial Sustainability

As discussed in the introduction to this chapter, a key part of achieving a sustainable level of funding for lifecycle activities involves the building up of reserves and paying off debt to have those funds available for years of higher-than-average spending. Maintaining large negative reserve balances without a strategy to eventually return them to positive balances is not sustainable long-term. The forecasted shortfall may prevent the City from having the financial resources required in the future for asset needs beyond the 10-year and future forecasts. Further, this situation will reduce the City's flexibility to managed unexpected needs.

If the City follows a path of financial unsustainability, eventually some lifecycle activities would become unaffordable. Which activities the City will not undertake due to a shortfall depends on which reserves contain the large negative balances. To provide a comprehensive view of potential impacts a shortfall could have on the City's lifecycle activities, within the chapter of each asset category is a lifecycle management strategy table that summarizes the risks associated with not completing lifecycle activities for each activity type.

Bringing reserves in large negative positions to a zero balance over the forecast would move the City into a significantly more financially sustainable position. In the long-term, allocating enough revenues to match the annual sustainable lifecycle funding target would allow the City to afford the proposed levels of service indefinitely.

Table 142 summarizes in 2025 dollars the combined balances of the reserves with forecasted negative balances in 2034 based on what the primary funding source is and identifies existing and growth-related total balances separately. It is important to note that growth-related funding sources can only be used to fund the growth-related portion of a project. A balance value of zero indicates that none of the reserves aligned with that primary reserve funding source have a forecasted negative balance in 2034.

TABLE 142: Financial Strategy - Forecasted 2034 Negative Reserve Balance Summary by Funding Source

Primary Reserve Funding Source	Balance
Tax Levy	-$103.1M
Water Rates	-$23.2M
Wastewater Rates	-$34.7M
Stormwater Rates	-$28.2M
Grants	$0.0M
Total (Existing)	-$189.2M
Development Charges	-$52.6M
Development Related Programs	$0.0M
Total (Growth)	-$52.6M

Avoiding a future shortfall in these combined balances will require increases in the funding allocated to the reserves through increases in the tax levy, user fees, service charges, development charges revenue received, or the rates for each of the water, wastewater, and stormwater asset categories.

This financial strategy leaves the discussion of future development charge rates and forecasting future development charge revenues to the scope of the next development charge background study. The calculation of development charges is a complex process that must comply with the 1997 Development Charge Act. An update of project cost estimates is required for development charge rates to reflect current construction costs and levels of service needs.

In addition to the large negative reserve balances presented, there is a significant increase in funding forecasted to be required over the 10-year forecast to fund the operations and maintenance requirement summarized in Table 139. One source of this increase is an increase in the number of City staff required to manage the larger quantity of assets owned in 2034 and to sustain the new target levels of service with those assets. As the City grows, new assets are added that require funding lifecycle management activities. To fund these requirements, a combination of significant increases in the tax levy, rates, user fees, or service charges will be required. A future revision of this plan will include more detailed forecasts of operating and maintenance spending needs required to support the target levels of service.

Despite the potential financial constraints, the City remains dedicated to maintaining assets to meet regulatory requirements. This commitment extends to upholding standards related to public health, water quality, road safety, and environmental protection. Regulatory compliance remains a top priority, underscoring the City's ongoing commitment to essential public services and safety. As a result, the City would focus on funding the lifecycle activities directly related to meeting regulatory requirements. Activities not directly related to regulatory requirements may be deferred or not completed. The City would utilize a risk-based approach to adjust service levels at the direction of City Council to bring service levels within the financial limit of what the City can afford and would consider potential options for increasing the amount of funding available.

It is important to note that this analysis is a simplification of how the City may fund all the projects during future annual budgets. Assigning each category as primarily tax funded or primarily rate funded is a significant simplification. As discussed in prior sections of this financial strategy, some categories of assets use a mix of funding sources including user fees. This strategy assumes that the tax levy will cover the user fee revenues missing from the analysis.

Although simplified through assumptions, the analysis presented in this financial strategy remains useful to highlight the extent of the financially unsustainable path the City is on. More detailed analysis in future revisions of this plan will consider all reserves and mixes of funding sources in each asset category to better align with the contents of future annual budgets. Developing or improving robust user fee forecasts is an important future improvement to this strategy that will be considered for the next major revision.

19.8 Discussion of Backlog

In addition to the increases in the tax levy, rates, user fees, or service charges required to fund the proposed levels of service and avoid a funding shortfall by 2034, there is a further funding requirement to manage the existing backlog of assets not replaced during the 2025-2034 forecast and any additional assets falling into the backlog over 2025-2034.

Although the funding requirement to manage a backlog was not identified separately in the cost of achieving the proposed levels of service, the size of any backlog is an important consideration when analyzing the long-term sustainability of the City's levels of service. If not rehabilitated or replaced, eventually backlogged assets will fail leading to a forced reduction in the level of service and higher lifecycle costs. For backlogged assets with a high consequence of failure such as transmission watermains, the negative financial impact on the City and the community could far exceed the replacement cost of the asset. Ignoring a growing backlog of assets is not a financially sustainable long-term asset management strategy.

A future revision of this plan will include an additional detailed analysis confirming the size of the existing backlog and better quantify the impacts the backlog may have on the proposed levels of service targets.

19.9 Climate Change Action Plan

The City's forecasted progress towards its Climate Change Action Plan goals is captured within the 2025-2034 10 Year Capital and Reserve Forecast and some of the proposed levels of service targets identified in this plan. As part of this transition, the City is replacing older and less efficient assets with modern assets that have lower energy usage that will result in lower energy costs over the lifecycle of the assets.

A future revision of this plan will consider in more detail the forecasted impacts of various Climate Change Action Plan options. Additional detail is required in future revisions of this plan to more directly connect Climate Change Action Plan activities to levels of service measures.

Projects in the 2025-2034 forecast directly related to the City's climate change action plan objectives include:

- 24414 - Climate Change Action - Orillia City Centre Retrofits;
- 24415 - Climate Change Action - Rotary Place Retrofits;
- 25459 - Climate Change Action Plan - Implementation;
- 26451 - Climate Change Action Plan - Implementation Program;
- 28430 - Climate Change Action - Fleet Optimization & Net Zero Strategy;
- 29452 - Climate Change Action - WWTC Retrofits; and
- 31454 - Climate Change Action - Rotary Place.

19.10 Potential Options for Mitigating Tax Levy, Rate, User Fee, and Service Charge Increases

It is important to note that there is not an easy single solution or best single strategy to solve the long-term funding challenge. Finding a balance between asset needs, managing a backlog, affordability of tax levy and rate increases, risk, and levels of service goals is a complex and ongoing process. Adjustments to lifecycle management strategies, risk tolerance, levels of service, and funding sources must be a forward looking and iterative process.

The following options for mitigating tax levy and rate increases are not all-encompassing. During the annual budget process, hundreds of project-specific decisions are made regarding project scope, timing, cost, risk, and other factors that are beyond the scope of this financial strategy. The goal of the options presented is to provide broad options that can act as a guide for future decisions. Each category of assets has unique needs, wants, and challenges that require unique attention and consideration.

Option 1: Continue increased reserve contributions.

- The City's 2025 Budget includes increased levy based reserve contributions by $2,033,000 and rate-based contributions by $1,700,000, which would need to continue on an incremental and annual basis to address the forecasted negative reserve balance in 2034. If the increase to reserve contributions was not continued, the City is forecasted to reach a large unsustainable financial position sooner.

Option 2: Consider delaying or changing scope of future level of service increases.

- Some projects listed in the 2025-2034 10 Year Capital and Reserve Forecast include increases in the level of service. Given the unsustainable financial position the City may reach in 2034, consideration should be given to delaying these projects or adjusting project scope.

Option 3: Incorporate potential funding from Federal and Provincial governments.

- Historically the City has relied on funding from senior levels of government to fund capital related asset needs. The City has a history of success in receiving funding through competitive, application-based opportunities. With the recent focus on housing affordability from senior levels of government, a large allocation of funding has been made available to fund housing-enabling municipal projects through application-based opportunities. City staff reviewed historic funding application performance and identified that $1,000,000 is a reasonable amount of funding to assume could be relied upon to fund capital expenditures for core assets that enable growth in housing.
- A potential complimentary approach is for the City to continue the approach where the approval of some projects in future capital forecasts is made conditional on the City receiving senior government funds.
- As this plan is a snapshot in time, any change in the funding amounts from senior levels of government may significantly impact the level of funding the City would receive for future housing-enabling projects. Consideration must be given to the possibility of significant changes occurring in funding levels and allowed uses of senior government funds over the next 10 years. If senior government funds are not received at the forecasted level, then financial shortfalls may occur.

Option 4: Prioritize renewal and rehabilitation projects that extend the life of existing assets at an appropriate state of repair and current service levels.

- Opportunities may exist to expand the use renewal or rehabilitation technologies and processes at a lower annual lifecycle cost instead of the replacement of assets.
- An initial increased level of spending on condition assessments may be required to identify assets that may be suitable for renewal or rehabilitation activities.

Option 5: Consider increasing preventative maintenance activities to maintain assets at an appropriate state of repair to reduce the frequency of early asset failures.

- An increased level of spending on preventative maintenance activities could reduce the number of assets that fail prior to their estimated useful life where early failures result in higher renewal, rehabilitation, or replacement costs.

Option 6: Allow the backlog of assets to grow with an increased frequency of inspections or condition assessments to manage the higher risk.

- The 2025-2034 forecast of projects results in a growing backlog of assets. As assets age further and further beyond their estimated useful life, the likelihood of the asset failing increases leading to an increased in the risk of the asset.
- To help manage that increased level of risk, a more frequent asset inspection program or additional of asset failure monitoring equipment could be considered to keep a closer eye on these assets that are more likely to fail.
- By keeping a closer eye on these assets, the City will be better equipped to separate what backlogged assets have more immediate lifecycle needs from the backlogged assets that have less immediate lifecycle needs.
- These inspections could align with the actions detailed in Option 4 for cost efficiency.

Option 7: Consider level of service adjustments through the disposal of assets at the end of their useful life without replacement where possible or consider a change of use.

- Some assets in the inventory provide a level of service that is beyond what Council has directed through existing policies. Not replacing these assets once they reach end of life would result in avoiding the lifecycle costs associated with the new lifespan of the assets if they were replaced.
- Opportunities may exist where the primary use of assets could be changed once they reach end of life

These options may be considered in the future budget processes and development of 10-year capital and reserve forecasts as options to address the long-term funding challenge.

A future revision of this plan will include more detailed analysis of the potential impacts of implementing some of or all options and expanding the analysis of potential funding shortfalls beyond the 10-year forecast period required by O. Reg. 588/17.

20.0
Appendices

20.0 Appendices

20.1 Key Assumptions and Exclusions

- The forecasts of capital needs are not constrained by budgetary limits. This is done to show the funding required to complete the capital-funded lifecycle activities as planned in the lifecycle management strategies. This is an important assumption to note as it results in all assets being replaced when required based on the lifecycle management strategies. These forecasts assume that all the funding requested would be provided. The annual budget process aims to smooth out the timing of asset needs with the direction of City Council. The forecasts in this plan may not align with the 10-year capital forecasts developed annually by each City department through the budget process. Any changes to the 10-Year Capital Plan will change the level of funding available to manage forecasted asset needs.
- The Financial Summary in this plan does not distinguish between what portion of available funding will reduce the backlog versus what portion will not reduce the backlog. How much of the backlog is cleared by 2033 is dependent on what specific projects are funded, and the detailed breakdown of those projects is outside of the scope of this plan.
- Unless specified otherwise, all currency-related values in this plan are in 2023 dollars and all forecasts are not adjusted for inflation.
- Unless specified otherwise, all averaged values are weighted averages that use the annual requirement of an asset as the weighting factor to account for large differences in the replacement cost and estimated useful life of the wide variety of assets in the City's portfolio.
- Contributions to reserves are not captured as capital spending in this plan. A future revision of this plan will consider contributions to reserves as part of an overall financial strategy.
- Growth rate in the number of households is assumed to reach 42,000 by 2034. If the actual growth in the number of households differs from the 42,000 assumption, the growth-related funding needs of assets per year will also differ.
- Assets managed by the Orillia Public Library Board are excluded from this plan. The Library Board manages these assets separately from the rest of the inventory captured in this plan. The City's asset management inventory system does not track quantity, age, condition, estimated useful life, replacement cost, nor levels of service for assets under the management of the Library Board.
- City-owned land is excluded from this plan due to land not having a well-defined estimated useful life.
- The threshold for inclusion of an asset in this plan is determined by considering the asset's importance to the delivering the level of service. This plan diverges from the capitalization thresholds set in the City's Tangible Capital Asset Policy for both core and non-core service areas.
- Table 136 summarizes additional key assumptions made on funding sources and any key inputs used in calculations to develop the Financial Strategy chapter of this plan.

20.2 Detailed Replacement Cost Components

20.2.1 Transportation

Bridges and Structural Culverts

- Materials comprising the structure, including foundations, abutments, barriers, girders, piles, piers, deck, guiderails, and drainage.
- Earthworks and landscaping to accommodate the approaches, create embankments, and direct waterways.

Roads

- The base material, asphalt layers.
- Curb and gutter, islands, attached bike lanes.
- Guardrails, signage, and paint markings.

Sidewalks

- Base material, surface material.
- Tactile plates.

Retaining Walls

- Wall material, foundation, fencing, and engineered backfill.

Streetlights and Decorative Lighting

- The light luminaire, bracket and pole where City owned.
- All associated electrical devices, cabling, and wiring.

Traffic Control and Safety

- Traffic signals, pedestrian crossings.
- All associated electrical devices, cabling, and wiring.
- Due to data constraints, Streetlights, Decorative Lighting, Traffic Control, and Safety assets are not separated from the overall road assets in the current asset inventory.

20.2.2 Water

Watermains

- All lengths of underground pipe and connections, and automatic flushing stations.

Fire Hydrants

- Above-ground hydrant assembly, lateral service connection to the watermain, and lateral service connection shutoff valve.

Booster Station, Reservoirs and Wells, and the Water Filtration Plant

- All electrical devices, mechanical equipment, piping, storage tanks, lab equipment, pumps, instrumentation, and structures not managed by the Facilities group at the City.

20.2.3 Wastewater

Sewermains and Forcemains

- All lengths of underground pipe and connections, and maintenance holes.

Pump Stations and Wastewater Treatment Centre

- All electrical devices, mechanical equipment, piping, pumps, instrumentation, lagoons, and structures.

20.2.4 Stormwater

Stormwater Sewers

- All lengths of underground pipe and connections.

Maintenance Holes

- Structures and lids.

Pump Stations

- All electrical devices, mechanical equipment, piping, pumps, instrumentation, and structures.

Stormwater Management Ponds

- All inlets, outlets, banks, fencing, signage, and the landscaped pond structure.

Oil and Grit Separators

- All separator structures and components.

Ditches
- All lengths of ditch.

Catch Basins and Leads
- All lengths of underground pipe, catch basin structure, and surface grates or lids.

Road and Driveway Culverts
- All lengths of underground culvert with a diameter under three m.

20.2.5 Fire Services

Communications Equipment
- All communications equipment within the two fire halls.

Other Equipment in Stations
- All assets, excluding communications equipment, within the two fire halls, including equipment, tools, personal protective equipment, furniture, appliances, fitness equipment, medals and memorabilia, and the two historical fire vehicles.

Apparatus and Equipment
- All fire apparatus vehicles with all equipment, tools, personal protective equipment, and communications equipment stored on the vehicles.

Admin Vehicles and Equipment
- All fire passenger vehicles with all equipment, tools, personal protective equipment, and communications equipment stored on the vehicles.

20.2.6 Fleet and Transit

Roads
- Plow truck, half-ton to one-ton truck, sidewalk machine, loader, tractor, backhoe, street sweeper, flusher, trailer, chipper, grader, and bucket truck assets.

Solid Waste
- A loader, dump truck, grader, and half-ton truck.

Parks
- Half-ton to three-ton truck, SUV, tractor, fertilizer spreader, rototiller, mower, and trailer assets.

Recreation Facilities
- Half-ton truck, ice resurfacer, manlift, and bobcat assets.

Water, Wastewater, and Stormwater
- Half-ton to one-ton truck, SUV, minivan, dump truck, backhoe, valve machine, steamer, vacuum truck, and trailer assets.

Transit
- Buses.

All Other Service Areas
- Half-ton to three-quarter-ton truck, car, SUV, floor scrubber, and bucket truck assets.

New vehicle categorization system:

Vehicle Categorization	Vehicle Classification Standard (Class 1-8)
Light-Duty Vehicles (LDV)	Class 1: <6,000 lbs. (<2,721kgs) ▪ Example vehicle: Sedan or sport-utility vehicle (SUV) Class 2: 6,001 – 10,000 lbs. (2,722kgs – 4,535kgs) ▪ Example vehicle: Utility van, Standard pick-up truck
Medium-Duty Vehicles (MDV)	Class 3: 10,001 – 14,000 lbs. (4,536kgs – 6,350kgs) ▪ Example vehicle: Mini bus Class 4: 14,001 – 16,000 lbs. (6,351kgs – 7,257kgs) ▪ Example vehicle: Step van Class 5: 16,001 – 19,500 lbs. (7,258kgs – 8,845kgs) ▪ Example vehicle: Bucket truck Class 6: 19,501 – 26,000 lbs. (8,846kgs – 11,793kgs) ▪ Example vehicle: School bus
Heavy-Duty Vehicles (HDV)	Class 7: 26,001 – 33,000 lbs. (11,794kgs – 14,968kgs) ▪ Example vehicle: City transit bus Class 8: >33,000 lbs. (>14,969kgs) ▪ Example vehicle: Refuse truck
Non-Motorized Vehicle (NMV)	Any unit that is intended to be towed by a motorized vehicle and does not have its own power source. ▪ All standard trailers that are not specially manufactured for specialized use fall into this category. ▪ All units in this category must follow *Highway Traffic Act* rules as deemed applicable. ▪ Example unit: Open or enclosed trailers
Motorized Special Equipment (MSE)	Any unit that falls outside of the vehicle classification standard listed above. Requirements of inclusion in MSE: ▪ Must not fall into any of the LDV, MDV, HDV, NMV or NMSE categories. ▪ Must have a motor, engine, or energized power unit. ▪ May have GVWR but is not classed in LDV, MDV or HDV. ▪ Units in this category may be subject to *Highway Traffic Act* rules as deemed applicable. ▪ Units in this category may be subject to Transport Canada regulations. ▪ Example unit: Wachs Valve Turning Trailer Kit, zero-turn mowers, boats, ATVs
Non-Motorized Special Equipment (NMSE)	Any unit that falls outside of the vehicle classification standard listed above. Requirements of inclusion in NMSE: ▪ Must not fall into any of the LDV, MDV, HDV, NMV or MSE categories. ▪ Example Unit: Plow accessories (blades, salters), vehicle caps, etc.

20.2.7 Facilities

Each sub-segment in the facilities category asset inventory follows the ASTM UNIFORMAT II classification for building elements standard up to the Level 3 Individual Elements scope of detail.

20.2.8 Solid Waste

Cells
- Six active cells, two inactive cells, and two alternate covers.

Cell Final Caps
- Caps on cells 1, 2, 3, and 4.

Composting
- A composting pad with attached swale, two pumps for dewatering the swale, and a forcemain to connect the pumps to the sanitary sewer system.

Roads, Fencing, Structures, Depot and Drop-Off Areas
- All paved asphalt driving surfaces, a perimeter roadway around cells 1 to 4, perimeter fencing around the site, the reuse depot and weighscale, steel roll-off bins, and the push-wall system with concrete pad.

Monitoring
- All monitoring wells, gas probes, and a gas barrier and venting system at the Kitchener Park Landfill.

20.2.9 Parks, Recreation, Culture, and Tourism

Parks and Trails
- All amenities within parks, including playgrounds, pathways, picnic tables, benches, playsets, garbage cans, bike racks, drinking fountains, splash pads, lighting, courts, fencing, and signage.
- All lengths of trail.

Outdoor Public Art
- 14 permanent installations of public art owned by the City.

Fitness Equipment
- 90 pieces of fitness equipment including indoor bikes, ellipticals, rowers, treadmills, racks, and a variety of other pieces of equipment.

Port of Orillia Slips
- 206 boat docking slips in the Port of Orillia.

Docks and Boat Launches
- All lengths of City-owned dock associated with the two City-owned public access boat launches.

Boardwalk and Fishing Piers
- All lengths of City-owned boardwalk and fishing pier extending out from the boardwalk.

20.2.10 Municipal Law Enforcement and Parking

Parking Lots
- All parking lot surfaces and line painting.

Payment Meters and Payment Terminals
- All components of parking meters and pay-and-display terminals, including mechanical units, yokes, housing, posts, foundations, and backup batteries.

20.2.11 Information Technology

Networking
- Access points, firewalls, switches, and wireless radios.

Server
- KVMs, servers, storage devices, and uninterruptible power supplies.

Printers
- Various types and formats of printers and scanners.

TEAMS Phones
- Desk phones.

Workstations
- Desktop computers, laptops, keyboards, monitors, tablets, and port replicators.

20.2.12 Natural Assets

Trees
- Individual trees tracked separately.

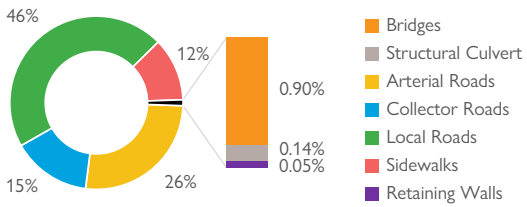
Forests
- Areas of trees and other vegetation located in a forest or woodlot that are tracked as a group.

20.3 Information at a Glance

20.3.1 Transportation at a Glance - 2024

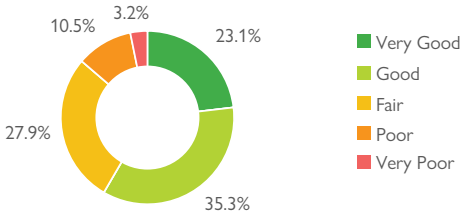
$475.5M Replacement Cost Breakdown

Figure 11

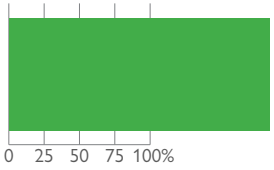


Condition Rating Summary

Figure 13



2024 Capital Funding



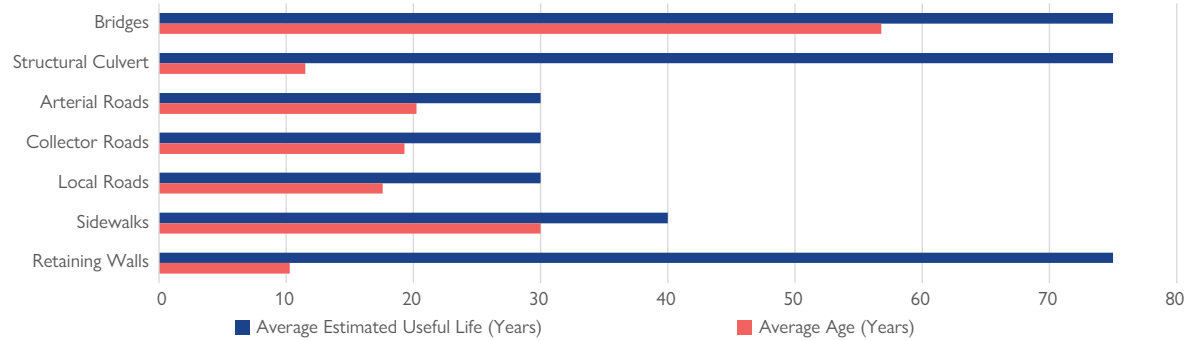
50yr Need: $7.8M

186%
Funded

2024: $14.6M

Average Age and Estimated Useful Life

Figure 12



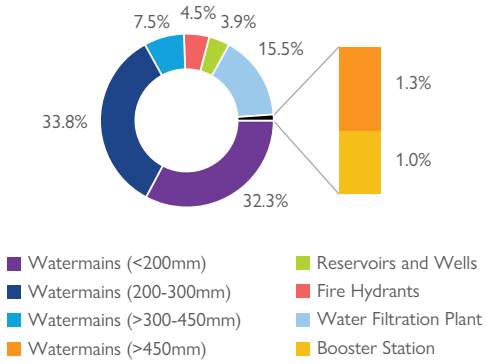
Breakdown of Condition Rating – Percentage of Cost

Figure 14

20.3.2 Water at a Glance - 2024

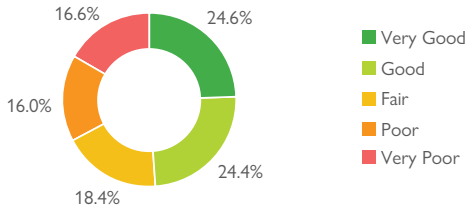
$313.6M Replacement Cost Breakdown

Figure 27

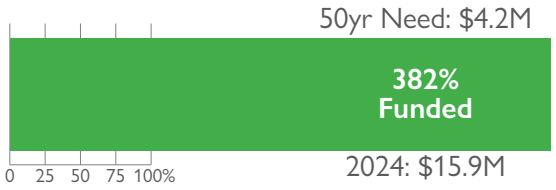


Condition Rating Summary

Figure 29

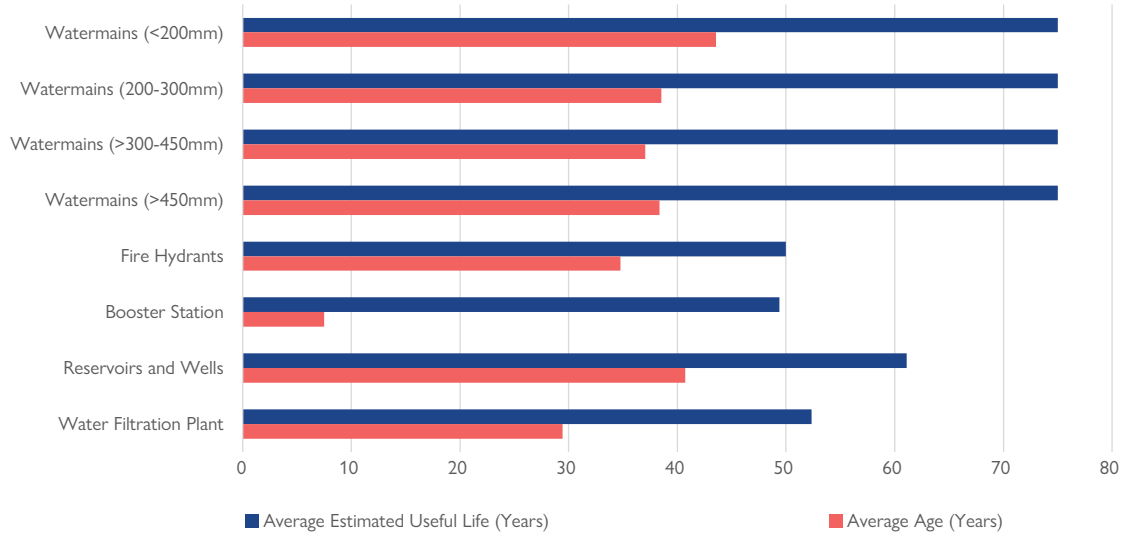


2024 Capital Funding



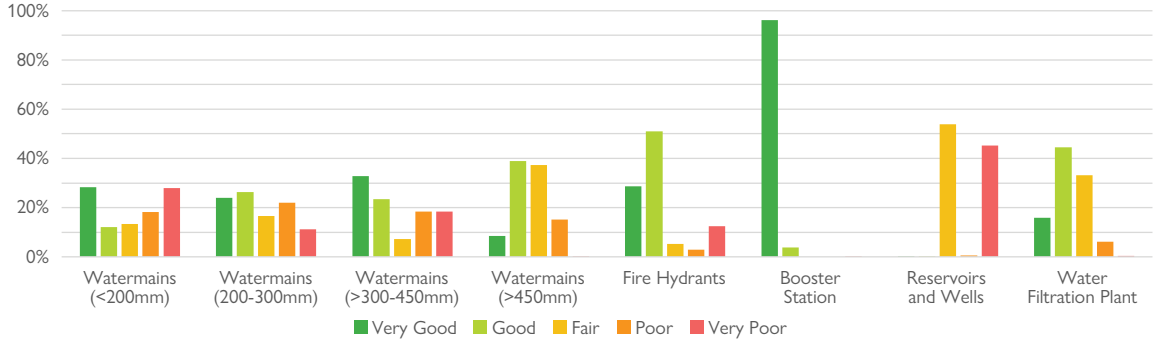
Average Age and Estimated Useful Life

Figure 28



Breakdown of Condition Rating – Percentage of Cost

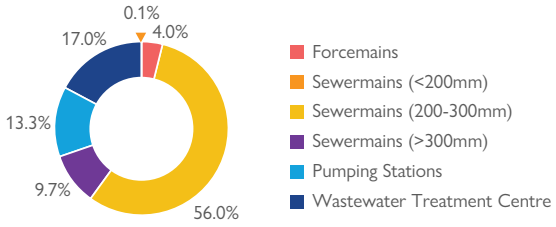
Figure 30



20.3.3 Wastewater at a Glance - 2024

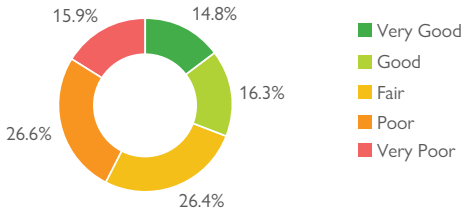
$480.4M Replacement Cost Breakdown

Figure 44

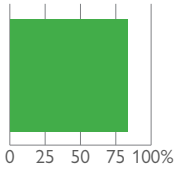


Condition Rating Summary

Figure 46



2024 Capital Funding



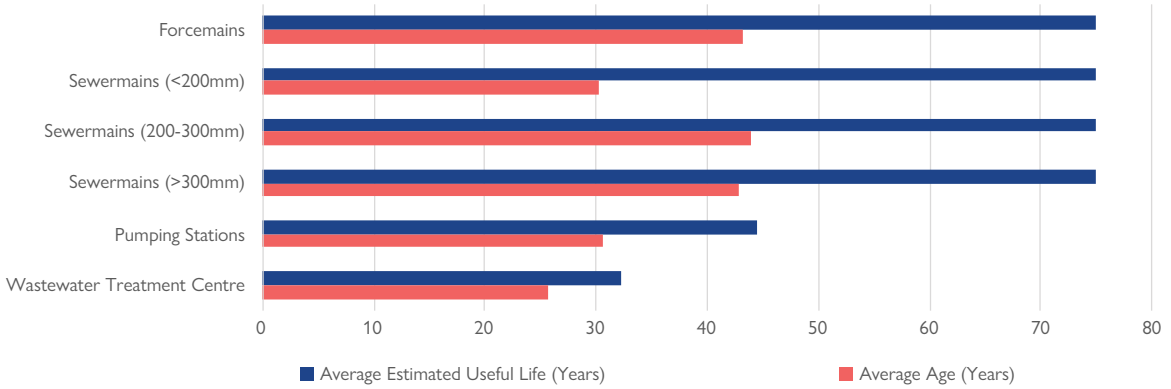
50yr Need: $5.3M

84%
Funded

2024: $4.5M

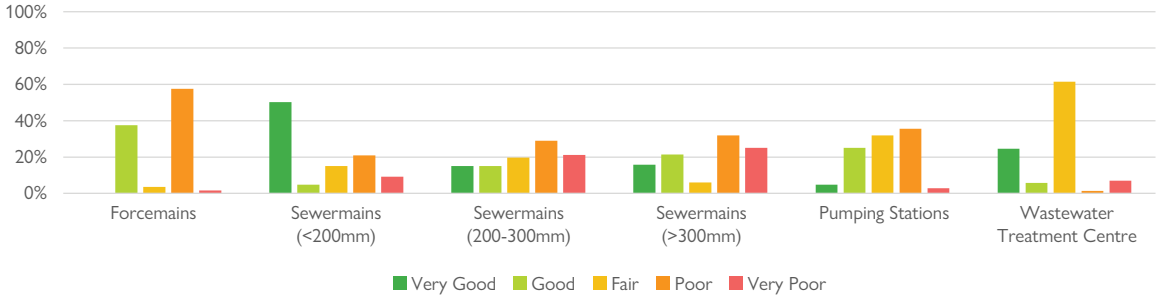
Average Age and Estimated Useful Life

Figure 45



Breakdown of Condition Rating – Percentage of Cost

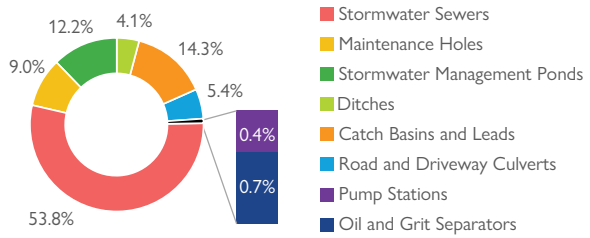
Figure 47



20.3.4 Stormwater at a Glance - 2024

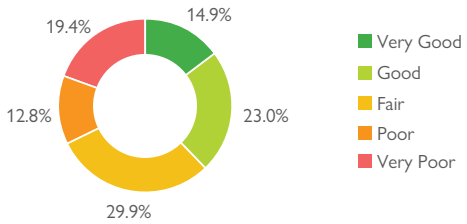
$238.5M Replacement Cost Breakdown

Figure 59

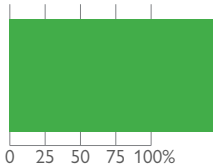


Condition Rating Summary

Figure 61



2024 Capital Funding



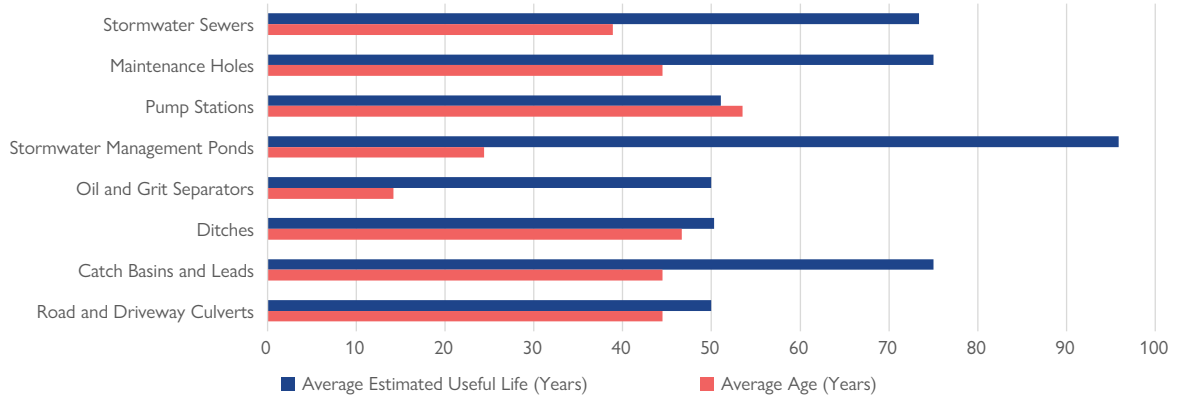
50yr Need: $2.7M

145%
Funded

2024: $4.0M

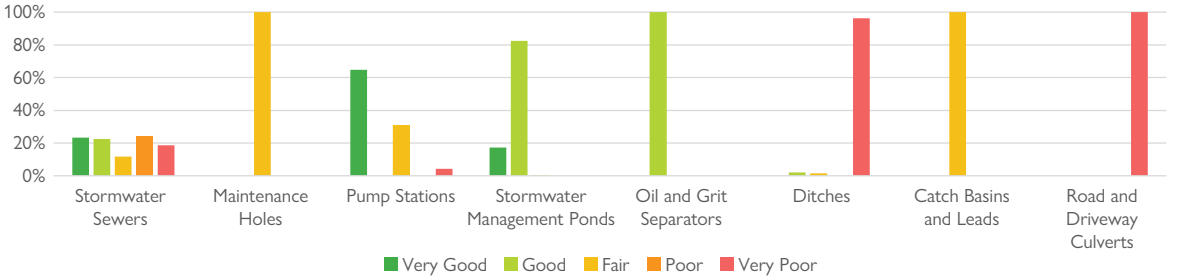
Average Age and Estimated Useful Life

Figure 60



Breakdown of Condition Rating – Percentage of Cost

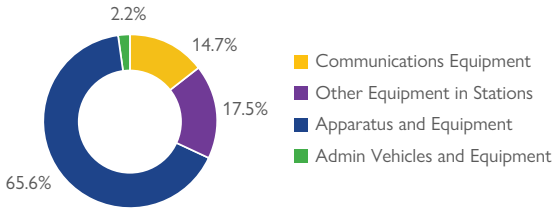
Figure 62



20.3.5 Fire Services at a Glance - 2024

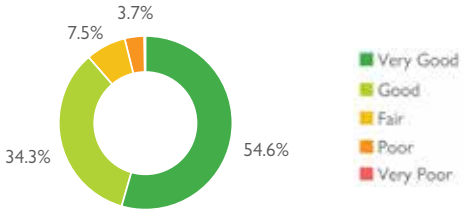
$12.2M Replacement Cost Breakdown

Figure 77

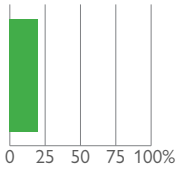


Condition Rating Summary

Figure 79



2024 Capital Funding



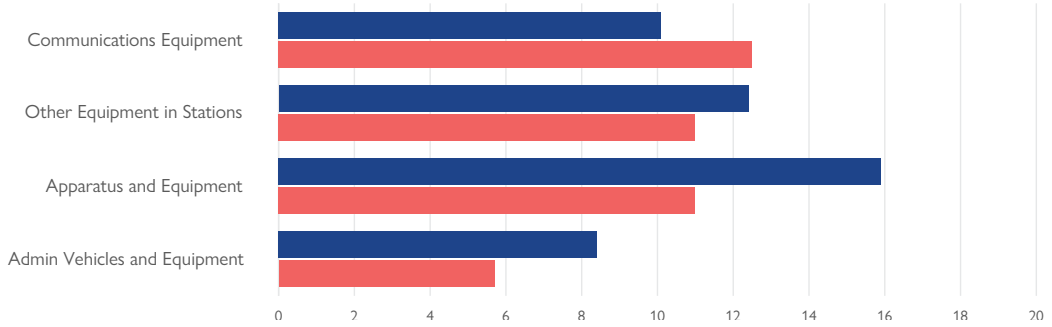
50yr Need: $0.90M

20%
Funded

2024: $0.18M

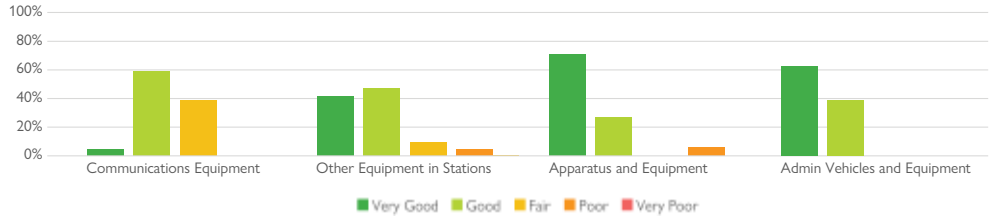
Average Age and Estimated Useful Life

Figure 78



Breakdown of Condition Rating – Percentage of Cost

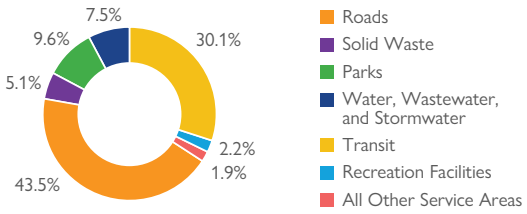
Figure 80



20.3.6 Fleet and Transit at a Glance - 2024

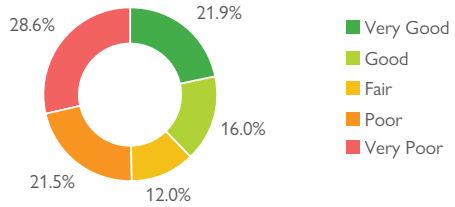
$33.5M Replacement Cost Breakdown

Figure 83

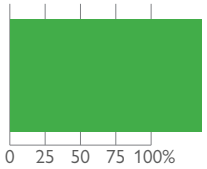


Condition Rating Summary

Figure 85



2024 Capital Funding



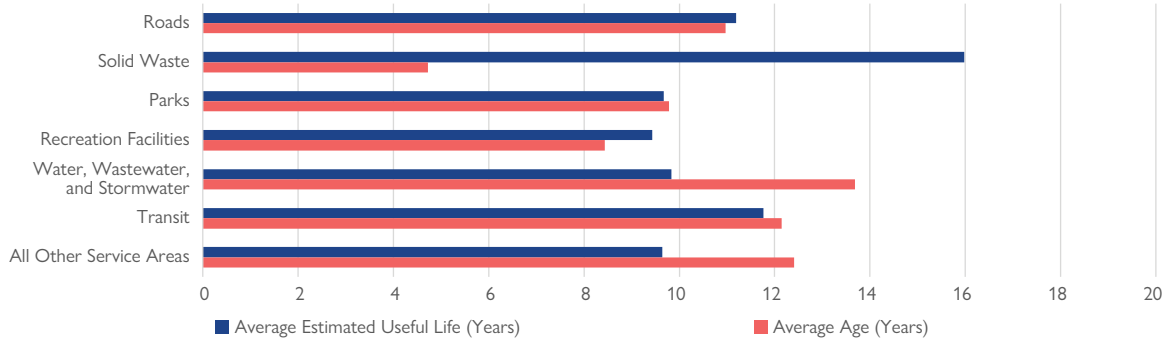
50yr Need: $2.9M

137% Funded

2024: $4.0M

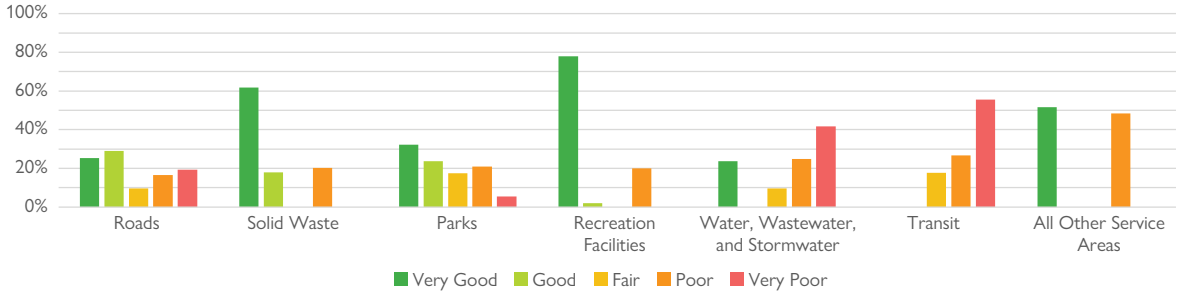
Average Age and Estimated Useful Life

Figure 84



Breakdown of Condition Rating – Percentage of Cost

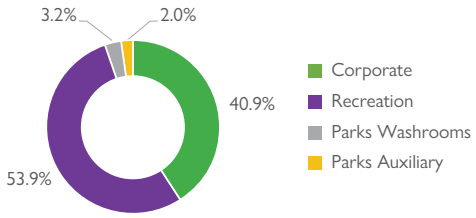
Figure 86



20.3.7 Facilities at a Glance - 2024

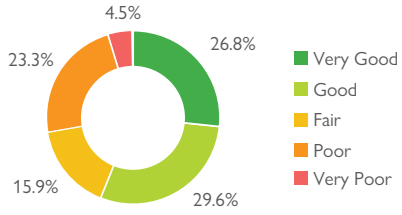
$354.0M Replacement Cost Breakdown

Figure 90

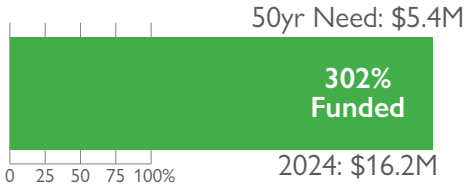


Condition Rating Summary

Figure 92

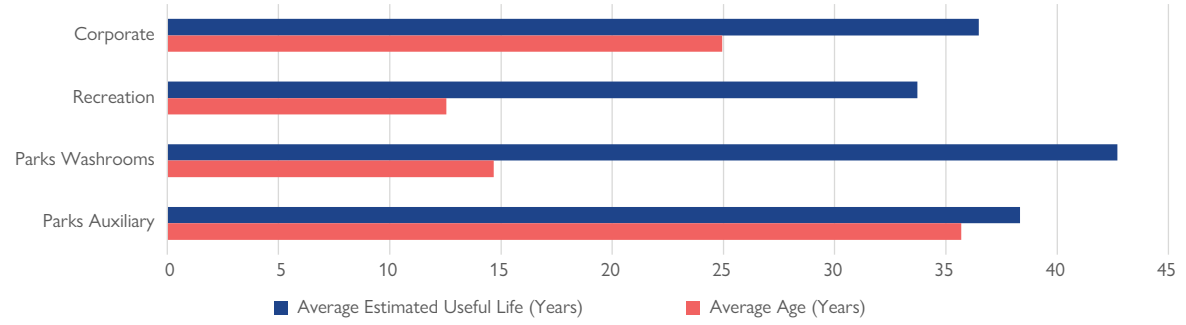


2024 Capital Funding



Average Age and Estimated Useful Life

Figure 91



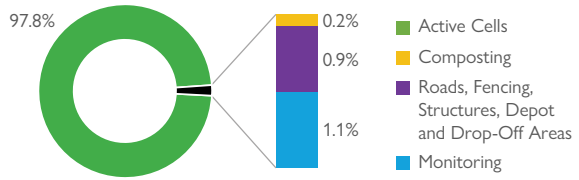
Breakdown of Condition Rating – Percentage of Cost

Figure 93

20.3.8 Solid Waste at a Glance - 2024

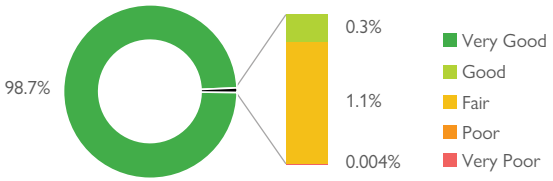
$103.4M Replacement Cost Breakdown

Figure 97

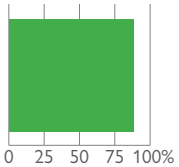


Condition Rating Summary

Figure 99



2024 Capital Funding



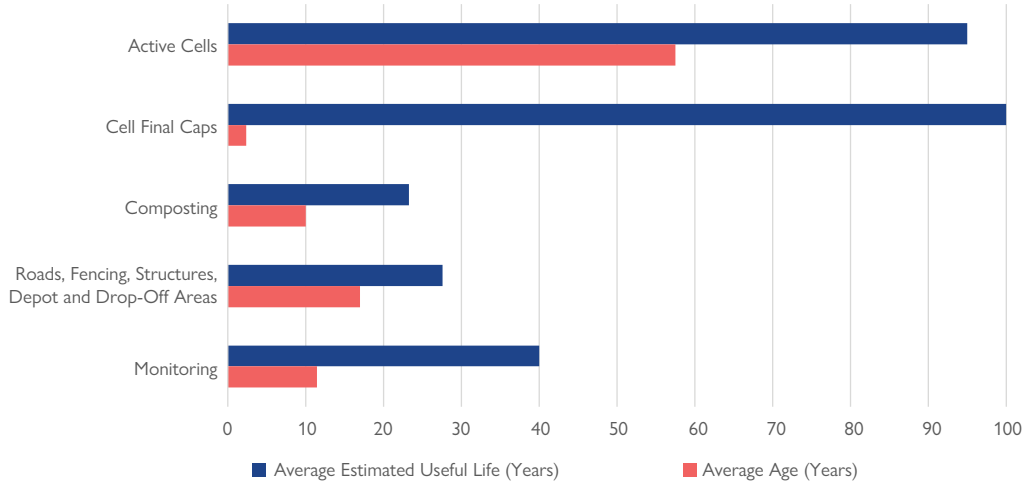
50yr Need: $0.067M

89%
Funded

2024: $0.060M

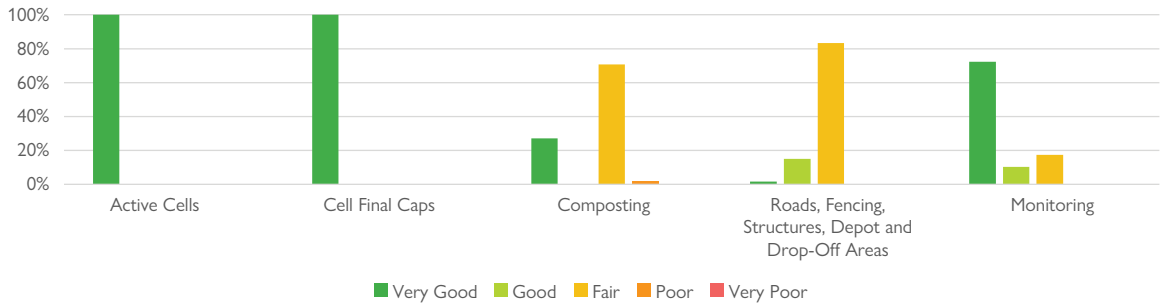
Average Age and Estimated Useful Life

Figure 98



Breakdown of Condition Rating – Percentage of Cost

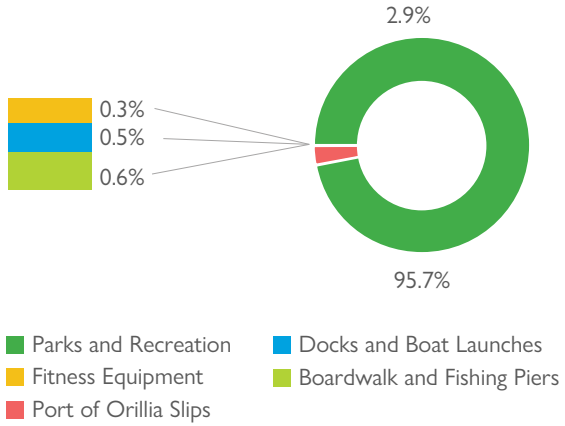
Figure 100



20.3.9 Parks, Recreation, Culture, and Tourism at a Glance - 2024

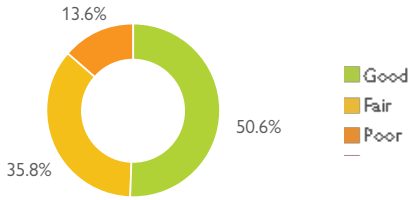
$34.9M Replacement Cost Breakdown

Figure 111

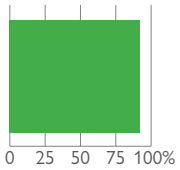


Condition Rating Summary

Figure 113



2024 Capital Funding



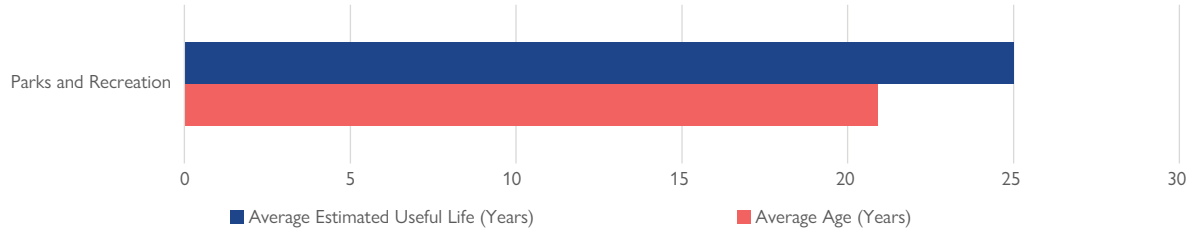
50yr Need: $1.4M

93%
Funded

2024: $1.3M

Average Age and Estimated Useful Life

Figure 112



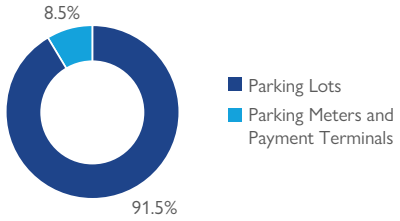
Breakdown of Condition Rating – Percentage of Cost

Figure omitted since there is currently only one sub-segment of assets.

20.3.10 Municipal Law Enforcement and Parking at a Glance - 2024

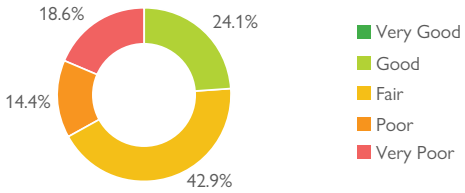
$4.4M Replacement Cost Breakdown

Figure 115

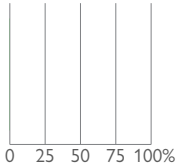


Condition Rating Summary

Figure 117



2024 Capital Funding



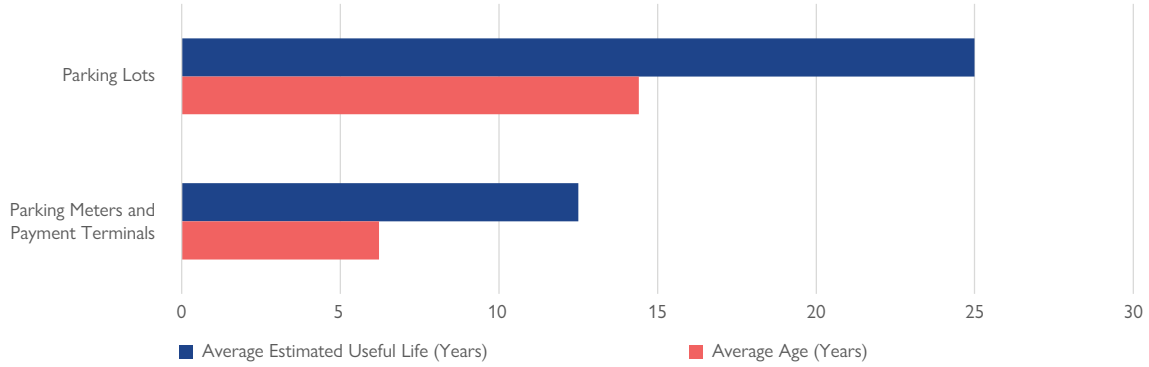
50yr Need: $0.13M

0%
Funded

2024: $0.0M

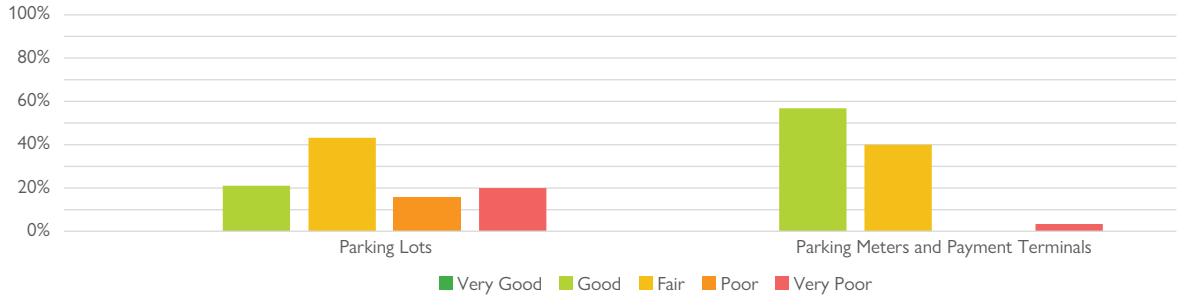
Average Age and Estimated Useful Life

Figure 116



Breakdown of Condition Rating – Percentage of Cost

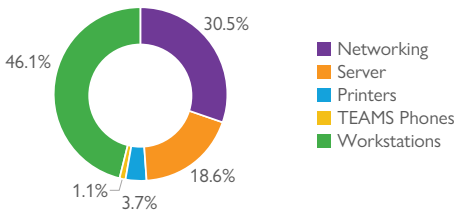
Figure 118



20.3.11 Information Technology at a Glance - 2024

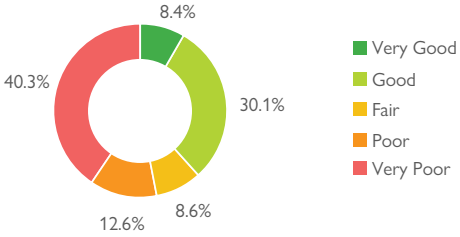
$0.9M Replacement Cost Breakdown

Figure 121

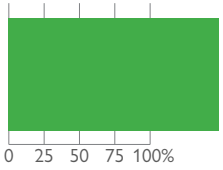


Condition Rating Summary

Figure 123



2024 Capital Funding



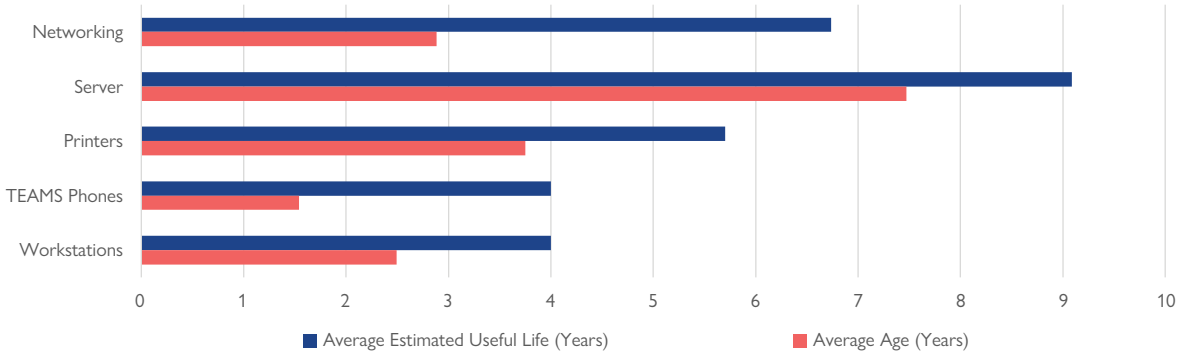
50yr Need: $0.16M

150%
Funded

2024: $0.24M

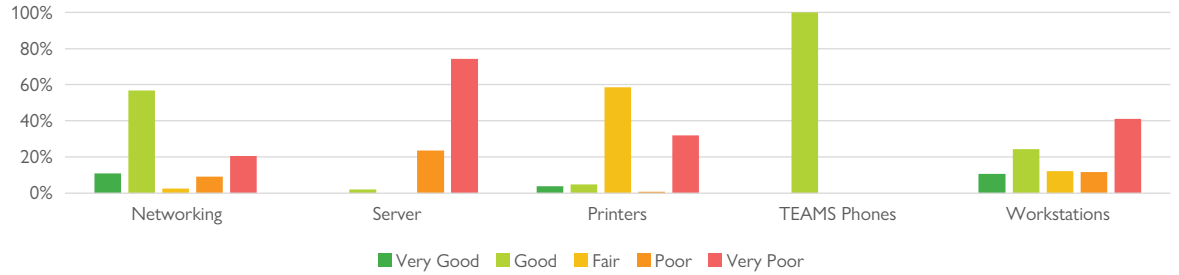
Average Age and Estimated Useful Life

Figure 122



Breakdown of Condition Rating – Percentage of Cost

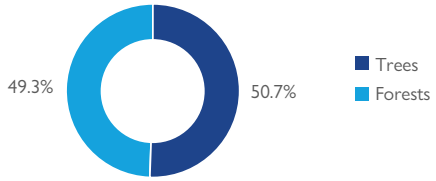
Figure 124



20.3.12 Natural Assets at a Glance - 2024

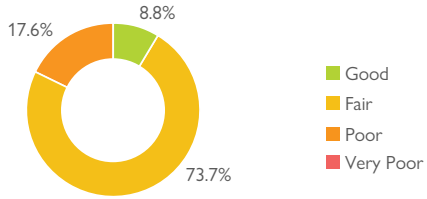
$12.6M Replacement Cost Breakdown

Figure 127

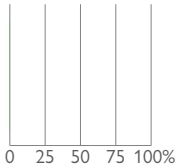


Condition Rating Summary

Figure 128



2024 Capital Funding



50yr Need: Unknown

Unknown% Funded

2024: $0.14M

Average Age and Estimated Useful Life

Figure omitted due to insufficient data.

Breakdown of Condition Rating – Percentage of Cost

Figure omitted since there is currently only one sub-segment of assets.

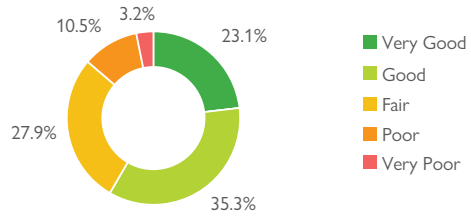
20.3.13 Transportation at a Glance - 2024

$475.5M Replacement Cost Breakdown

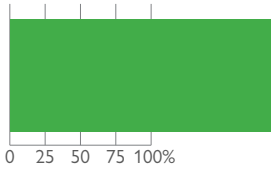
Figure 11

Condition Rating Summary

Figure 13



2024 Capital Funding



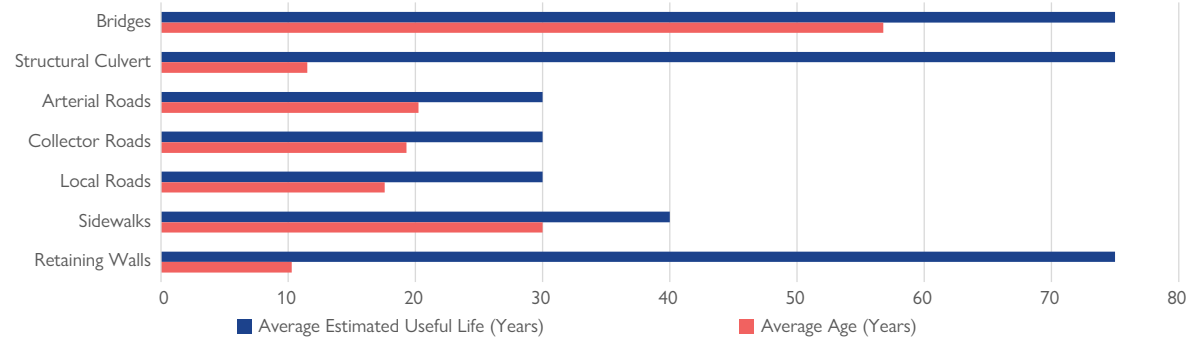
50yr Need: $7.8M

186%
Funded

2024: $14.6M

Average Age and Estimated Useful Life

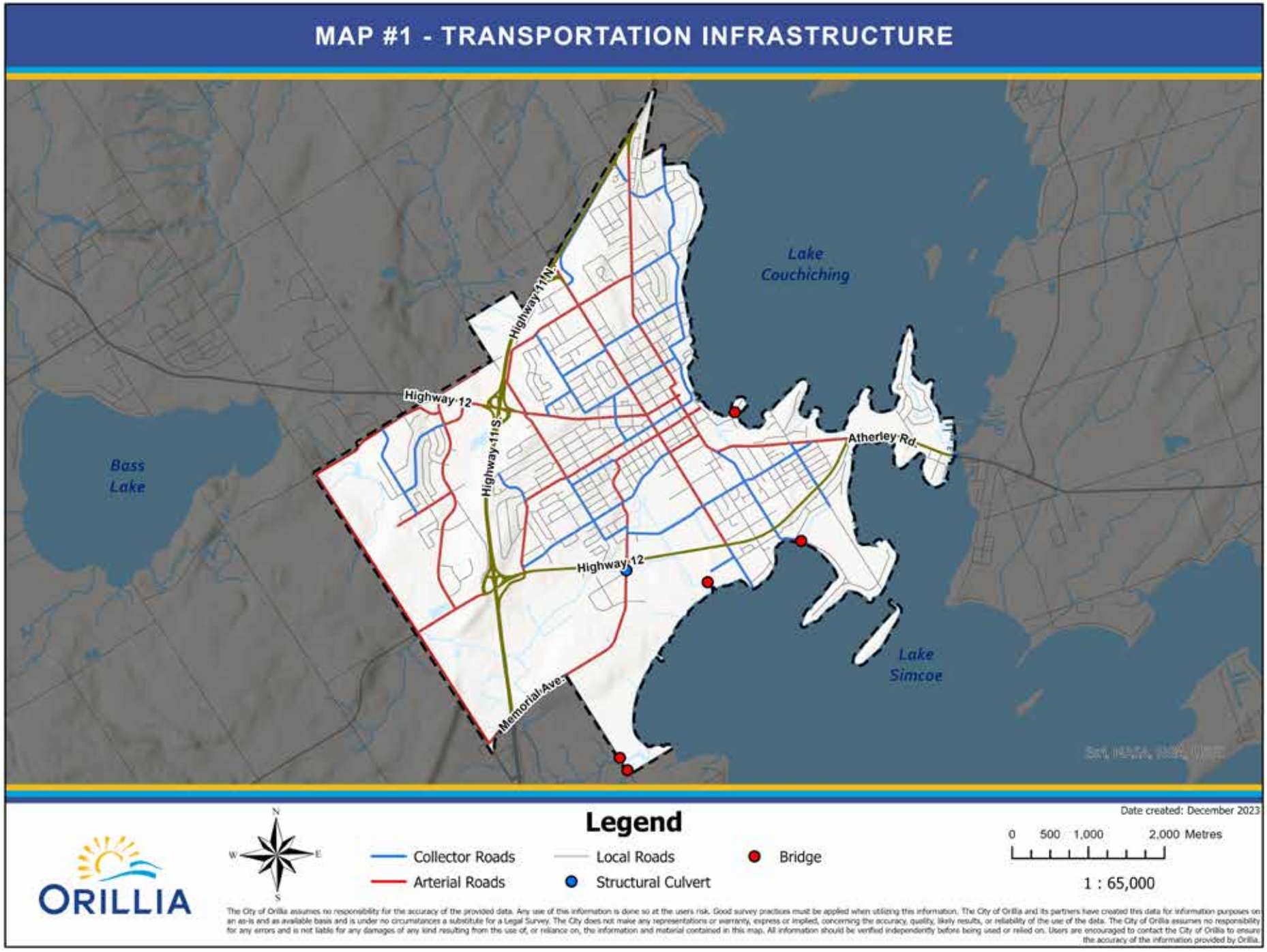
Figure 12



Breakdown of Condition Rating – Percentage of Cost

Figure 14

20.4 Mapping


MAP #1 - TRANSPORTATION INFRASTRUCTURE
Lake Couchiching
Bass Lake
Lake Simcoe
Highway 11 N
Highway 12
Highway 11 S
Atherley Rd
Highway 12
Memorial Ave
ORILLIA
N
W
E
S
Legend
Collector Roads
Arterial Roads
Local Roads
Structural Culvert
Bridge
Date created: December 2023
0 500 1,000 2,000 Metres
1 : 65,000
The City of Orillia assumes no responsibility for the accuracy of the provided data. Any use of this information is done so at the users risk. Good survey practices must be applied when utilizing this information. The City of Orillia and its partners have created this data for information purposes on an as-is and as available basis and is under no circumstances a substitute for a Legal Survey. The City does not make any representations or warranty, express or implied, concerning the accuracy, quality, likely results, or reliability of the use of the data. The City of Orillia assumes no responsibility for any errors and is not liable for any damages of any kind resulting from the use of, or reliance on, the information and material contained in this map. All information should be verified independently before being used or relied on. Users are encouraged to contact the City of Orillia to ensure the accuracy of the information provided by Orillia.

MAP #2 - SIDEWALK INFRASTRUCTURE

ORILLIA

N
W
E
S

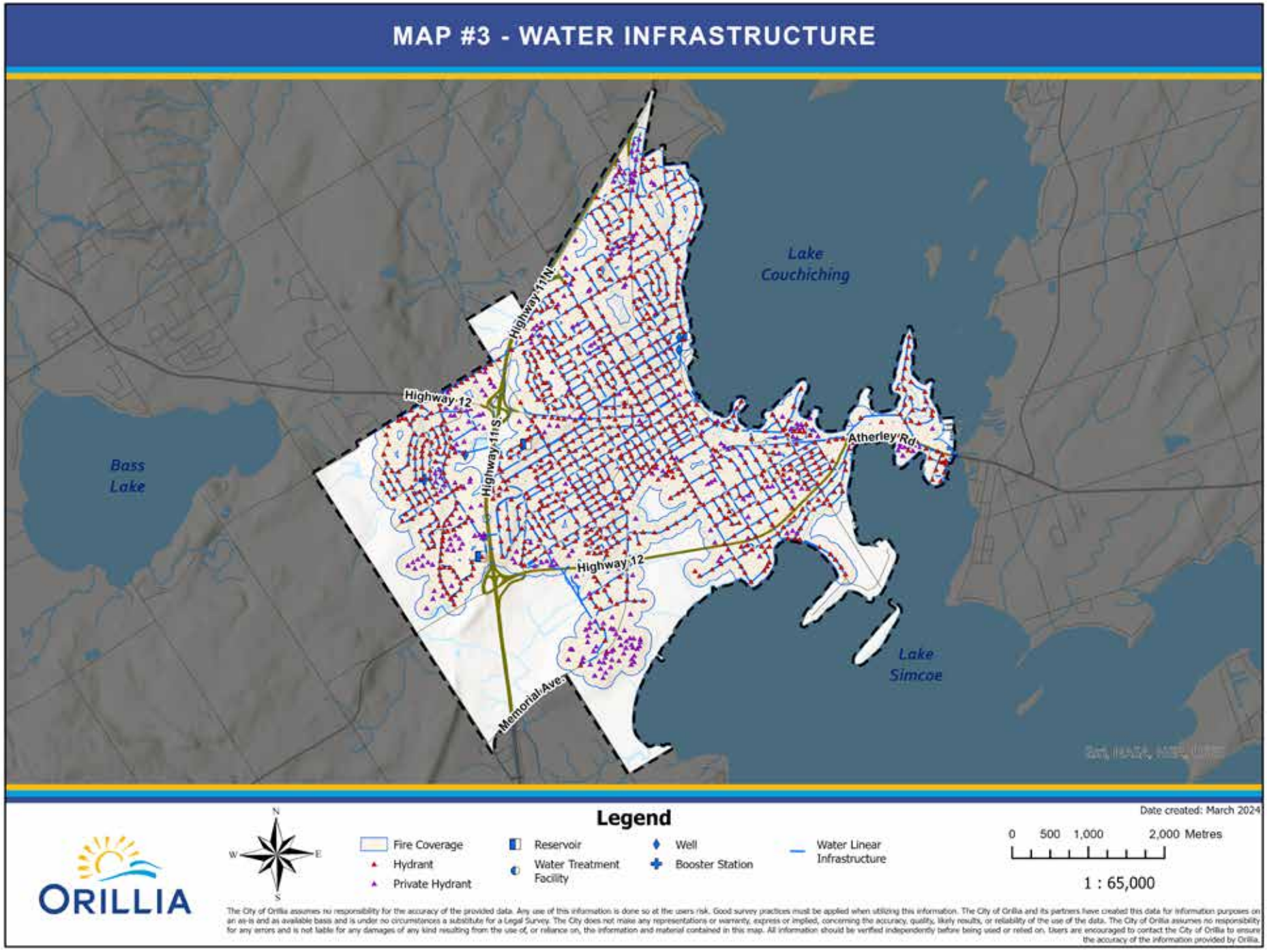
Legend

Sidewalk Infrastructure

Date created: December 2023

0 500 1,000 2,000 Metres

1 : 65,000


MAP #3 - WATER INFRASTRUCTURE
Lake Couchiching
Bass Lake
Lake Simcoe
Highway 11N
Highway 11S
Highway 12
Highway 12
Atherley Rd
Memorial Ave
Legend
Fire Coverage
Hydrant
Private Hydrant
Reservoir
Water Treatment Facility
Well
Booster Station
Water Linear Infrastructure
N
S
E
W
0 500 1,000 2,000 Metres
1 : 65,000
Date created: March 2024
ORILLIA
The City of Orillia assumes no responsibility for the accuracy of the provided data. Any use of this information is done so at the users risk. Good survey practices must be applied when utilizing this information. The City of Orillia and its partners have created this data for information purposes on an as-is and as available basis and is under no circumstances a substitute for a Legal Survey. The City does not make any representations or warranty, express or implied, concerning the accuracy, quality, likely results, or reliability of the use of the data. The City of Orillia assumes no responsibility for any errors and is not liable for any damages of any kind resulting from the use of, or reliance on, the information and material contained in this map. All information should be verified independently before being used or relied on. Users are encouraged to contact the City of Orillia to ensure the accuracy of the information provided by Orillia.

MAP #4 - WASTEWATER INFRASTRUCTURE

ORILLIA

N
W E
S

Legend

- Wastewater Linear Infrastructure
- Wastewater Treatment Facility
- Wastewater Pump Station

Date created: December 2023

0 500 1,000 2,000 Metres

1 : 65,000

MAP #5 - STORMWATER INFRASTRUCTURE

ORILLIA

N
W
E
S

Legend

- Oil Grit Seperator
- Stormwater Pump Station
- Stormwater Management Pond
- Stormwater Linear Infrastructure

Date created: December 2023

0 500 1,000 2,000 Metres

1 : 65,000

20.5 Implementation Risks and Response Actions

Ontario Regulation 588/17 requires municipalities with a population of 25,000 or more to provide an overview of the risks associated with implementation of an asset management plan and any actions that would be proposed in response to those risks. Table 143 summarizes the risks the City has identified and potential proposed actions in response to the risks.

TABLE 143: Implementation Risks and Proposed Response Actions

Implementation Risk	Explanation and Proposed Response Actions
Misalignment between 2025 AMP and other City plans, studies, or policy documents.	There remains a large variety of approaches and competing standards for estimating replacement costs, assessing condition and risk, and determining other asset management related data in the industries related to each asset category. A risk exists that future plans, studies, or policies could be developed that do not align with the approaches summarized in this asset management plan. As well, there is a risk that the City does not adapt its asset management approaches to match advancements in technology and industry best practices over time. Potential response actions include: ▪ Incorporating asset management plan definitions and data requirements into the procurement process and project scope to set a firm requirement for a specific approach or standard. ▪ Further adoption of industry standard approaches. ▪ Adjusting the City's approaches over time with a focus on continuous improvement.
Regulatory and legislative changes regarding housing and growth.	This plan reflects a snapshot in time as of the end of 2024 and reflects the 2025-2034 10-year forecast of projects. During the update of this plan from its 2024 revision, multiple significant legislative changes occurred or are anticipated to occur regarding a municipality's ability to plan for and fund growth. Particular attention and effort have been placed at all levels of government regarding increasing the supply of housing. A risk exists in implementing the recommendations developed in this plan revision as the snapshot in time may no longer adequately reflect the rapidly evolving legislative environment. Potential response actions include: ▪ More frequent updates to asset management plan revisions than required by Ontario Regulation 588/17. ▪ More complex analysis of proposed levels of service targets that consider a range of growth scenarios and the associated range of lifecycle management costs. ▪ Conduct annual internal needs assessments across the service areas most impacted by the changes and compare the forecasted needs with actual annual increases in growth experienced.

50 Andrew Street South, Suite 300
Orillia, Ontario L3V 7T5

www.orillia.ca

705-325-1311

ORILLIA