Asset Management at the City of Clarence-Rockland

Asset Management Plan 2024

Contents

Executive Summary

This asset management plan (AMP) for the City of Clarence-Rockland was developed in accordance with Ontario Regulation 588/17 (O. Reg 588/17). It offers a comprehensive overview of the City's existing non-core infrastructure assets, namely Buildings, Land Improvements, Machinery and Equipment, and Fleet.

The City's current asset base across these four asset categories has a total replacement cost of $214.7 million, and includes assets that provide essential and recreational services to the Clarence-Rockland community and support effective daily operations. With a current replacement cost of $169.3 million, buildings comprise 79% of the overall non-core asset portfolio.

Based on condition and age analysis, 85% of the City's non-core infrastructure and capital assets are in fair or better condition. The remaining 15%, with a current replacement cost of $31.9 million, are in poor or worse condition, potentially requiring immediate rehabilitation or replacement. However, this data may be skewed due to a reliance on age-based condition estimates. Field condition assessments, preferred over age-based estimates, were available only for buildings, and accounted for 79% of the non-core asset portfolio by replacement cost.

Annually, approximately $6.4 million is needed to remain current with capital replacements across the City's non-core asset base. However, average annual funding available stands at $1.7 million, resulting in a $4.7 million annual funding deficit. Eliminating this deficit would require a 17.5% increase in current property tax revenues, which are forecasted to be $27.1 million in 2024. This increase, while substantial, may be introduced gradually, typically over a 5-, 10-, 15-, or 20-year phase-in period.

The City is implementing a 1.5% annual increase in property taxes to address its infrastructure needs. Under this scenario, the annual infrastructure deficit associated with these asset categories can be gradually eliminated within the next 12 years. This assumes that the additional annual revenue generated from this rate increase is fully allocated to the asset categories outlined in this AMP.

This would allow the City to meet 100% of it average annual requirements within 12 years. Lower funding level targets can be established, which would reduce annual funding needs, decrease the recommended annual increase in taxation, and condense phase-in periods. This approach may, however, also lower service levels.

As the City is expected to establish proposed service levels in 2025, any adjustments to service levels should be factored in prior to implementing any tax increases. Service level targets, supported by risk frameworks, help make annual funding needs more precise. They also serve to prioritize projects, including those required to address the backlog, and select appropriate lifecycle interventions, including replacements or full reconstructions.

This AMP provides the City's current performance levels for these four asset categories. The 2025 iteration, as required by O. Reg 588/17, will pivot to identifying and delivering proposed or target levels of service. Although further data improvements are needed, staff have made important advancements in the City's infrastructure database. The City is well-positioned to meet all reporting requirements, and to develop a practical and feasible asset management plan.

About this document

This asset management plan (AMP) for the City of Clarence-Rockland was developed in accordance with Ontario Regulation 588/17 (“O. Reg 588/17”). It contains a comprehensive analysis of Clarence-Rockland’s non-core asset portfolio. The AMP is a living document that should be updated regularly as additional asset and financial data becomes available.

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. Along with creating better performing organizations, more livable 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.

Table 1 Ontario Regulation 588/17 Requirements and Reporting Deadlines

Requirement	2019	2022	2024	2025
Asset Management Policy	●		●	
Asset Management Plans		●	●	●
State of infrastructure for core assets		●		
State of infrastructure for all assets			●	●
Current levels of service for core assets		●		
Current levels of service for all assets			●	
Proposed levels of service for all assets				●
Lifecycle costs associated with current levels of service		●	●	
Lifecycle costs associated with proposed levels of service				●
Growth impacts		●	●	●
Financial strategy				●

Scope

The scope of this AMP includes all requirements for the 2024 O. Reg 588/17 requirements as applied to non-core assets. It includes the City's existing assets across four asset categories, namely:

1. Buildings
2. Land Improvements
3. Machinery and Equipment
4. Fleet

Overview of Asset Management

Municipalities are responsible for managing and maintaining a broad portfolio of infrastructure assets to deliver services to the community. The goal of asset management is to minimize the lifecycle costs of delivering infrastructure services, manage the associated risks, while maximizing the value and levels of service ratepayers receive from the asset portfolio.

Lifecycle costs can span decades, requiring planning and foresight to ensure financial responsibility is spread equitably across generations. An asset management plan is critical to this planning, and an essential element of broader asset management program. The industry-standard approach and sequence to developing a practical asset management program begins with a Strategic Plan, followed by an Asset Management Policy and an Asset Management Strategy, and concluding with an Asset Management Plan.

This industry standard, defined by the Institute of Asset Management (IAM), emphasizes the alignment between the corporate strategic plan and various asset management documents. The strategic plan has a direct, and cascading impact on asset management planning and reporting.

Key Technical Concepts in Asset Management

Effective asset management integrates several key components, including lifecycle management, risk management, and levels of service. These concepts are applied throughout this asset management plan and are described below in greater detail. We note that although these elements and concepts are integral to asset management, they also require additional resources for implementation and monitoring.

Lifecycle Management Strategies

The condition or performance of most assets will deteriorate over time. This process is affected by a range of factors including an asset's characteristics, location, utilization, maintenance history and environment. Asset deterioration has a negative effect on the ability of an asset to fulfill its intended function, and may be characterized by increased cost, risk and even service disruption.

To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

There are several field intervention activities that are available to extend the life of an asset. These activities can be generally placed into one of three categories: maintenance, rehabilitation, and replacement.

Depending on initial lifecycle management strategies, asset performance can be sustained through a combination of maintenance and rehabilitation, but at some point, replacement is required. Understanding what effect these activities will have on the lifecycle of an asset, and their cost, will enable staff to make better recommendations. Table 2 provides a description of each type of activity, the general difference in cost, and typical risks associated with each.

Table 2 Lifecycle Management: Typical Lifecycle Interventions

Lifecycle Activity	Description	Cost	Typical Associated Risks
Maintenance	Activities that prevent defects or deteriorations from occurring	$	• Balancing limited resources between planned maintenance and reactive, emergency repairs and interventions; • Diminishing returns associated with excessive maintenance activities, despite added costs; • Intervention selected may not be optimal and may not extend the useful life as expected, leading to lower payoff and potential premature asset failure;
Rehabilitation/ Renewal	Activities that rectify defects or deficiencies that are already present and may be affecting asset performance	$$$$	• Useful life may not be extended as expected; • May be costlier in the long run when assessed against full reconstruction or replacement; • Loss or disruption of service, particularly for underground assets;
Replacement/ Reconstruction	Asset end-of-life activities that often involve the complete replacement of assets	$$$$$$	• Incorrect or unsafe disposal of existing asset; • Costs associated with asset retirement obligations; • Substantial exposure to high inflation and cost overruns; • Replacements may not meet capacity needs for a larger population; • Loss or disruption of service, particularly for underground assets;

Levels of Service

A level of service (LOS) is a measure of the services that the City is providing to the community and the nature and quality of those services, with a focus on infrastructure programs.

Current and Proposed Levels of Service

This AMP focuses on measuring the current level of service provided to the community. Once current levels of service have been measured, the City plans to establish proposed levels of service over a 10-year period, in accordance with O. Reg. 588/17.

Proposed levels of service should be realistic and achievable within the timeframe outlined by the City. They should also be determined with consideration of a variety of community expectations, fiscal capacity, regulatory requirements, corporate goals and long-term sustainability.

Reinvestment Rate

As assets age and deteriorate, they require additional investment to maintain a state of good repair. The reinvestment of capital funds, through asset renewal or replacement, is necessary to sustain an adequate level of service. The reinvestment rate is a measurement of available or required funding relative to the total replacement cost of assets. By comparing the actual vs. target reinvestment rate, the City can determine the extent of any existing funding gap.

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 and costly rehabilitation or replacement and ensures that lifecycle activities occur at the right time to maximize asset value and useful life.

A condition assessment rating system provides a standardized descriptive framework that allows comparative benchmarking across the City's asset portfolio. The table below outlines the condition rating system used in this AMP 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. When assessed condition data is not available, service life remaining is used to approximate asset condition.

Table 3 Standard Condition Rating Scale

Condition	Condition Rating (0-100)	Age-based (Service Life Remaining%)	Broad Description
Very Good	80-100	80-100%	**Fit for the future** Well maintained, good condition, new or recently rehabilitated; no defects or minor defects
Good	60-80	60-80%	**Adequate for now** Acceptable, signs of minor to defects and deterioration
Fair	40-60	40-60%	**Requires attention** Signs of moderate deterioration and defects, some elements exhibit significant deficiencies
Poor	20-40	20-40%	**Increasing potential of affecting service** Approaching end of service life, condition below standard, large portion of system exhibits significant deterioration; significant defects overall
Very Poor	0-20	0-20%	**Unfit for sustained service** Near or beyond expected service life, widespread signs of advanced deterioration, some assets may be unusable

Limitations and Constraints

This AMP required substantial effort by staff. It was developed based on best-available data, and was subject to the following broad limitations, constrains, and assumptions:

- In the absence of condition assessment data, age was used to estimate asset condition ratings. This approach can result in an over- or understatement of asset needs. As a result, financial requirements generated through this approach can differ from those identified by staff. For this AMP, condition data was available only for buildings assets.

- The validity and reliability of all analysis in this AMP hinges critically on accurate and current replacement costs. User-defined and unit cost estimates, based typically on staff judgment, recent projects, or established through completion of technical studies, offer the most precise approximations of current replacement costs. When this isn't possible due to data gaps, historical costs incurred at the time of asset acquisition or construction can be inflated to present day. This approach, while sometimes necessary, and deployed in this AMP for some assets, can produce highly inaccurate estimates.

- Limited availability of asset attribute data restricted the development of detailed risk models. As additional attribution information is developed, it can be integrated with the City's asset inventory in Citywide to generate more accurate risk matrices.

- Buildings were not fully componentized, limiting the reliability of long-term forecasts.

These limitations have a direct impact on the analysis presented in this AMP, including condition summaries, age profiles, long-term replacement and rehabilitation forecasts, and shorter term, 10-year forecasts that are generated from Citywide, the City's primary asset management system. These challenges are also common among municipalities. Overcoming them requires time, long-term commitment, dedicated resources, and sustained effort by staff.

State of the Infrastructure

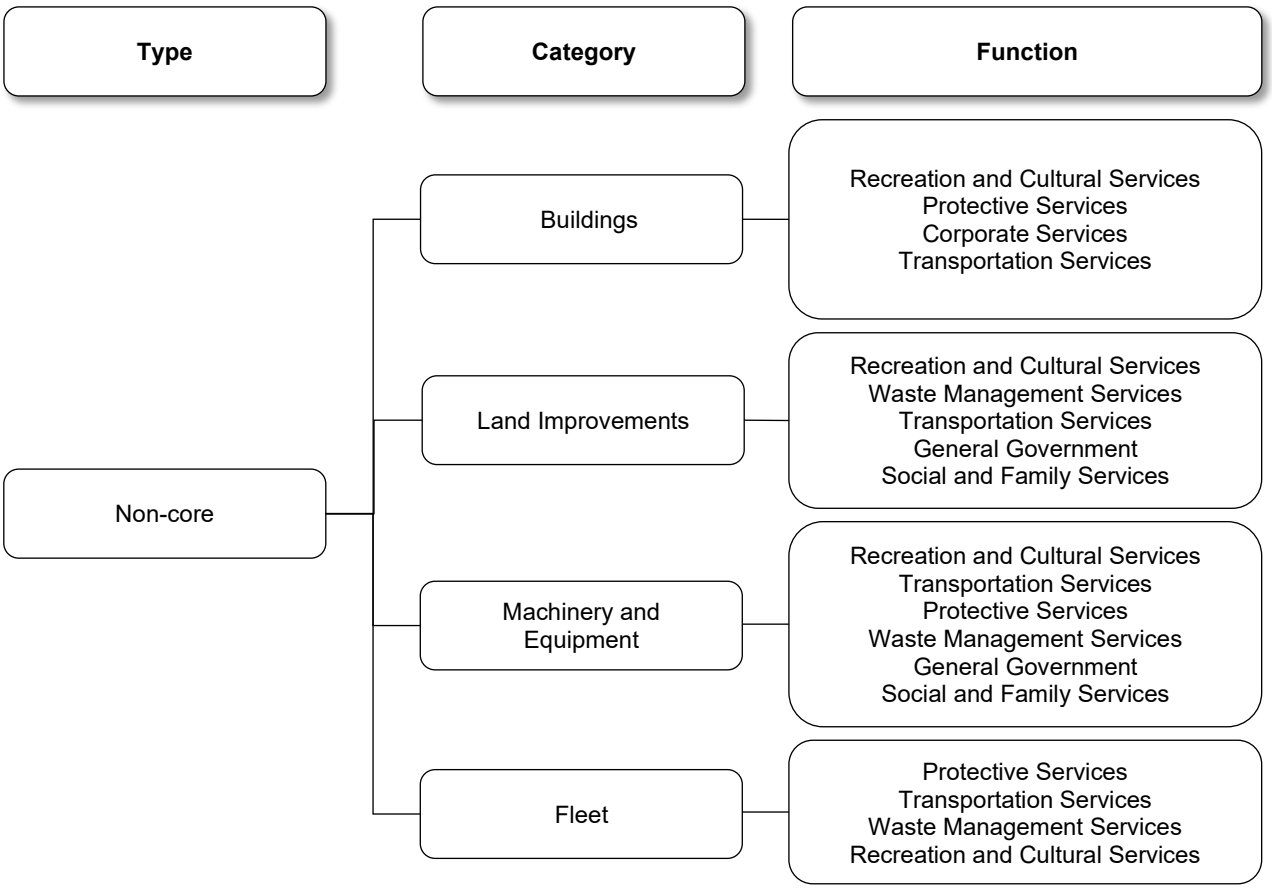
The state of the infrastructure (SOTI) summarizes the inventory, condition, age profiles, and other key performance indicators for the City's infrastructure portfolio across the four non-core asset categories, current as of 2023.

Figure 1 illustrates how assets were classified within the infrastructure data hierarchy. Most reporting and analysis is presented at the category and function levels.

Asset Hierarchy and Data Classification

Asset hierarchy explains the relationship between individual assets and their components, and a wider, more expansive network and system. Key category details are summarized at the function (or service area) level.

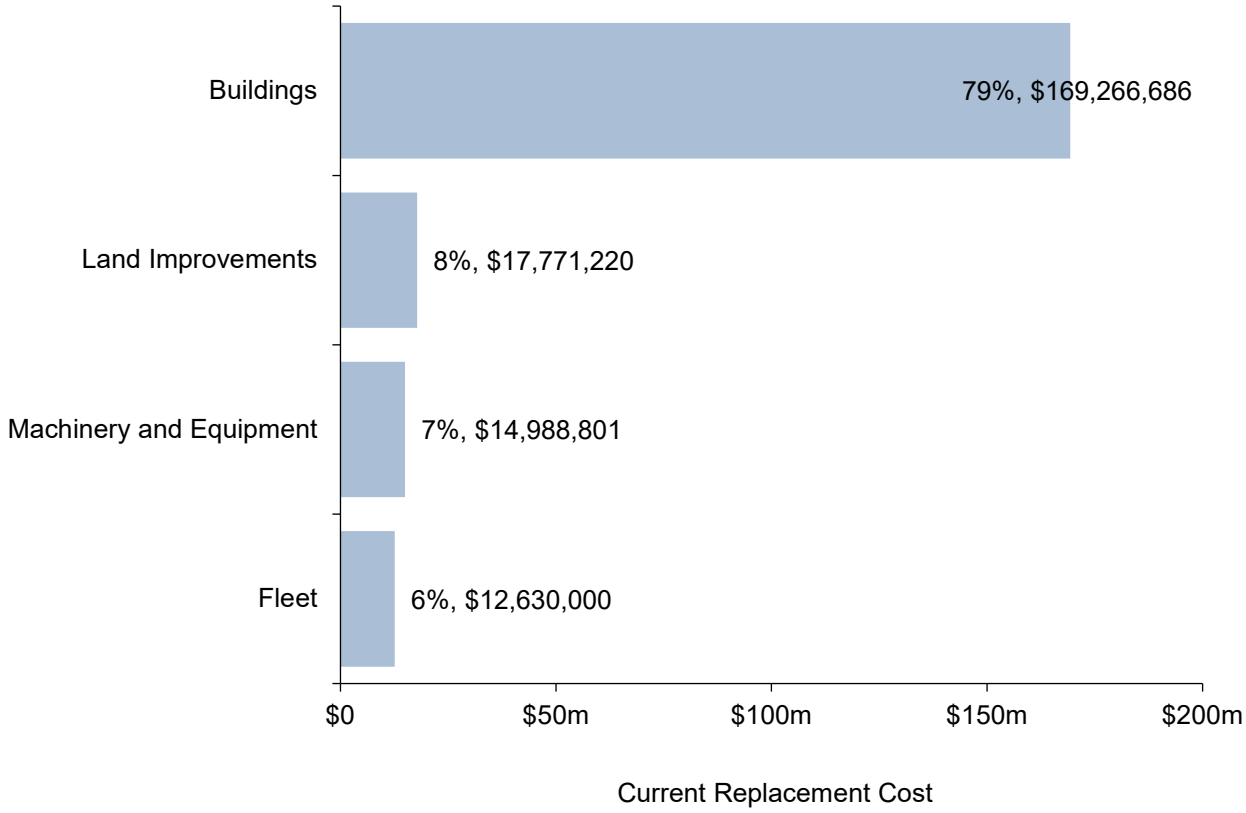
Figure 1 Asset Hierarchy and Data Classification



Portfolio Overview

The four asset categories analyzed in this asset management plan have a total current replacement cost of $214.7 million. This estimate was calculated using user-defined costing, as well as inflation of historical or original costs to current date. Figure 2 illustrates the replacement cost of each asset category; at 79% of the total portfolio, the City's buildings make up the majority of its non-core infrastructure and have a current replacement cost of $169.3 million.

Figure 2 Current Replacement Cost by Asset Category



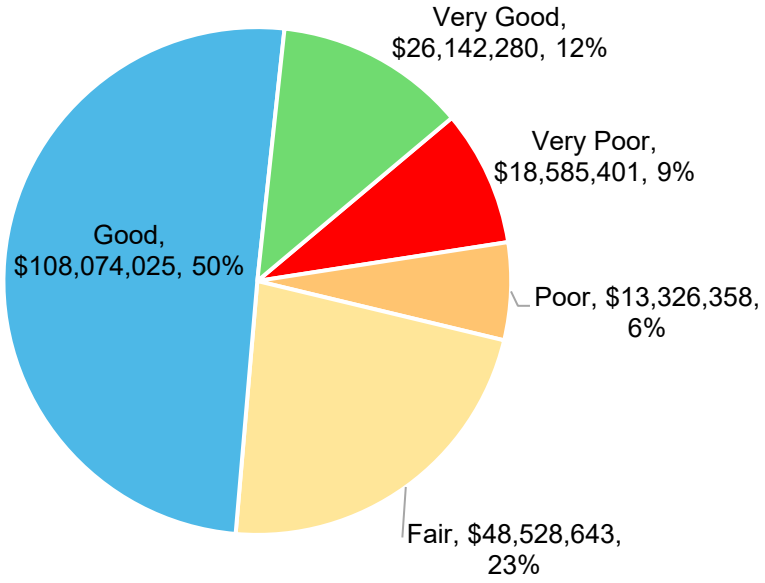
Condition Data

Figure 3 and Figure 4 summarize asset condition at the portfolio and category levels, respectively. Based on both assessed condition and age-based analysis, 85% of the City's non-core infrastructure portfolio is in fair or better condition, with the remaining 15% in poor or worse condition. These assets have a current replacement cost of $31.9 million, concentrated primarily in land improvements and machinery and equipment.

Typically, assets in poor or worse condition may require replacement or major rehabilitation in the immediate or short-term. Targeted condition assessments may help further refine the list of assets that may be candidates for immediate intervention, including potential replacement or reconstruction.

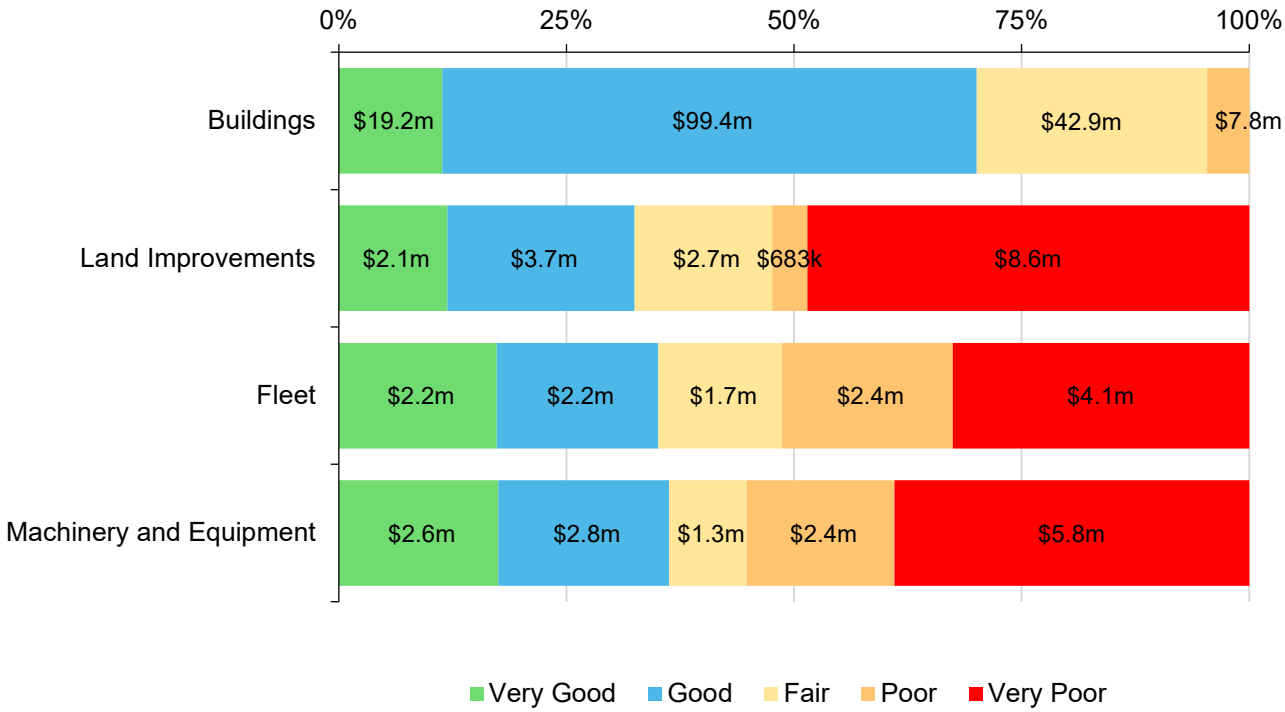
Similarly, assets in fair condition should be monitored for disrepair over the medium term. Keeping assets in fair or better condition is typically more cost-effective than addressing assets needs when they enter the latter stages of their lifecycle or decline to a lower condition rating, e.g., poor or worse.

Figure 3 Asset Condition – Portfolio Overview



As further illustrated in Figure 4 at the category level, the majority of buildings assets are in fair or better condition, based on in-field condition assessment data. However, substantial portions of fleet, machinery and equipment, and land improvement assets are in poor or worse condition, based only on age data. See Table 4 Source of Condition Data for details on how condition data was derived for each asset category.

Figure 4 Asset Condition – By Asset Category



Although the majority of land improvement assets were classified as poor or worse, these assets are operationally minor, and include fencing, parking lots, and outdoor sports fields. Further, no in-field condition data was available for these assets, nor fleet or machinery and equipment, necessitating the use of age to estimate condition ratings.

In reality, these assets may continue to be operationally sound, and able to deliver their intended services safely and effectively. Only condition assessments can precisely identify actual asset condition ratings.

Source of Condition Data

This asset management plan relies on assessed condition for 79% of assets, based on and weighted by replacement cost. This data was limited to buildings. For the remaining assets, aged is used as an approximation of condition. Assessed condition data is invaluable in asset management planning as it reflects the true condition of the asset and its ability to perform its functions. The table below identifies the source of condition data used throughout this AMP.

Table 4 Source of Condition Data

Category	% of Assets With Assessed Condition Available
Buildings	100%
Land Improvements	0%
Fleet	0%
Machinery and Equipment	0%
Total	**79%**

Age Profile

An asset's age profile comprises two key values: estimated useful life (EUL), or design life; and the percentage of EUL consumed. The EUL is the serviceable lifespan of an asset during which it can continue to fulfil its intended purpose and provide value to users, safely and efficiently. As assets age, their performance diminishes, often more rapidly as they approach the end of their design life.

In conjunction with condition data, an asset's age profile provides a more complete summary of the state of infrastructure. It can help identify assets that may be candidates for further review through condition assessment programs; inform the selection of optimal lifecycle strategies; and improve planning for potential long-term replacement spikes.

This AMP includes a comparison of asset EULs and their current age, presented for each asset category at the function level. Both values are weighted by replacement costs.

Buildings

The City of Clarence-Rockland owns and manages many buildings and facilities, housing essential operations and community activities. They serve as the physical infrastructure for administrative functions, emergency services, recreational programs, and public gatherings. Combined, the City's buildings portfolio has a current replacement cost of $169.3 million.

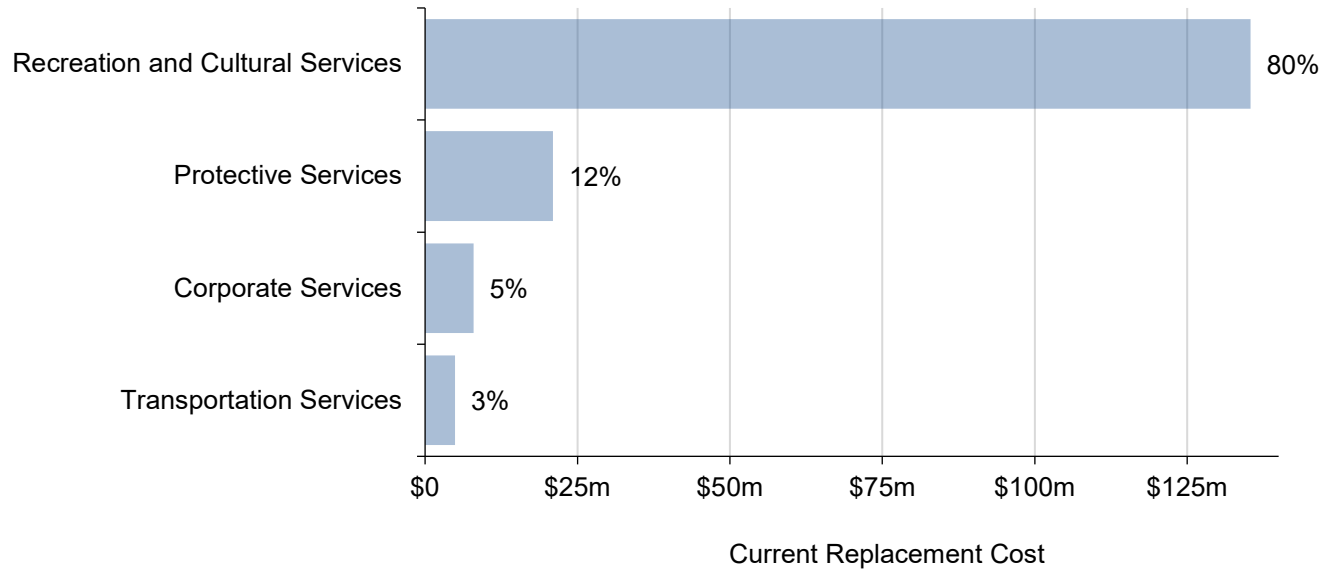
Inventory and Valuation

Table 5 summarizes the quantity and current replacement cost of the City's buildings assets as managed in its primary asset management register, Citywide. Recreation and Cultural Services buildings make up 80% of the City's buildings portfolio.

Table 5 Detailed Asset Inventory – Buildings

Segment	Quantity	Unit of Measure	Replacement Cost
Recreation and Cultural Services	13	Assets	$135,401,386
Protective Services	3	Assets	$20,972,645
Corporate Services	3	Assets	$7,974,074
Transportation Services	3	Assets	$4,918,581
Total			**$169,266,686**

Figure 5 Portfolio Valuation – Buildings

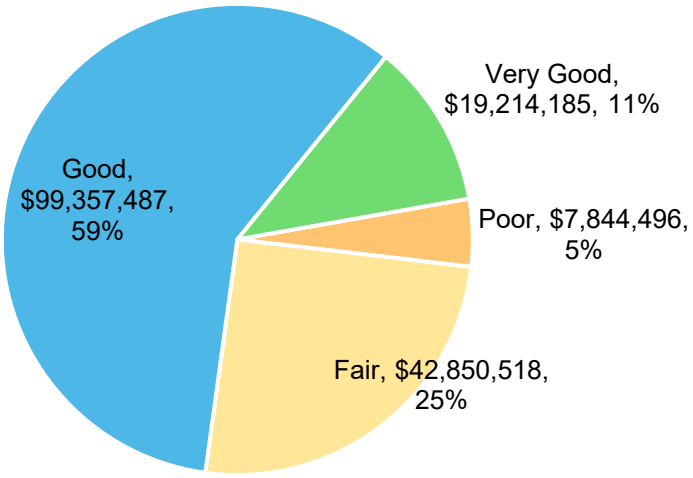


Asset Condition

Figure 6 summarizes the replacement cost-weighted condition of the City's buildings. Based on field inspection data from 2023, 95% of assets are in fair or better condition. The remaining 5% of assets, with a current replacement cost of $7.8 million, are in poor condition.

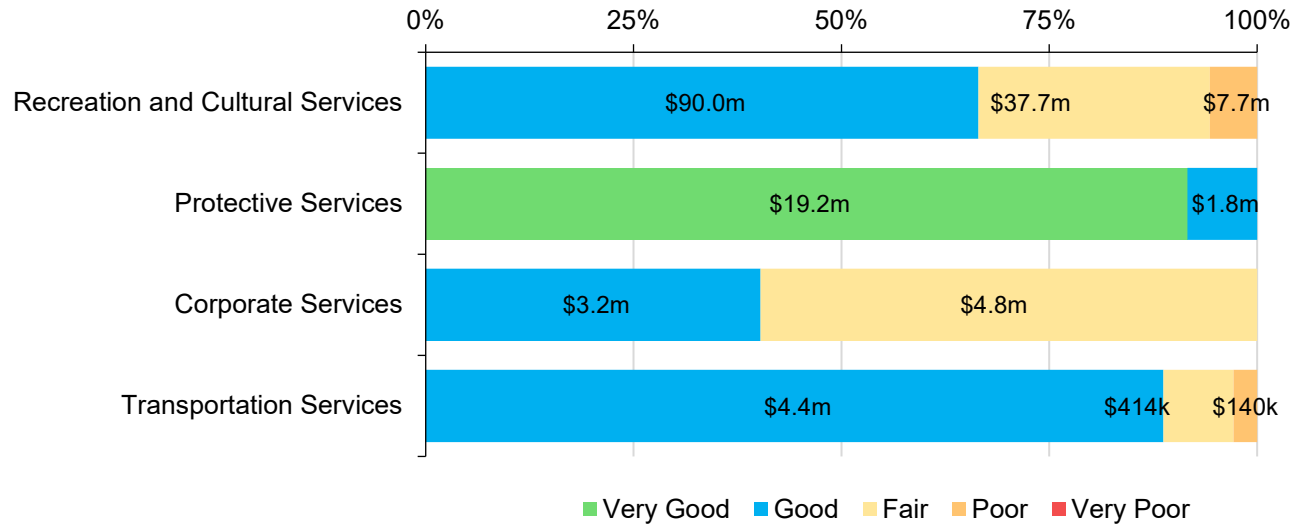
Assets in poor or worse condition may be candidates for replacement in the short term; similarly, assets in fair condition may require rehabilitation or replacement in the medium term and should be monitored for further degradation in condition. As illustrated in Figure 6, the majority of the City's buildings assets are in fair or better condition.

Figure 6 Asset Condition – Buildings: Overall



Condition assessments, which were available all building assets based on replacement costs, reveal that the overwhelming majority of the City's buildings components in each function are in fair or better condition. By replacement cost, the largest share of assets in poor condition was found in Recreational and Cultural Services

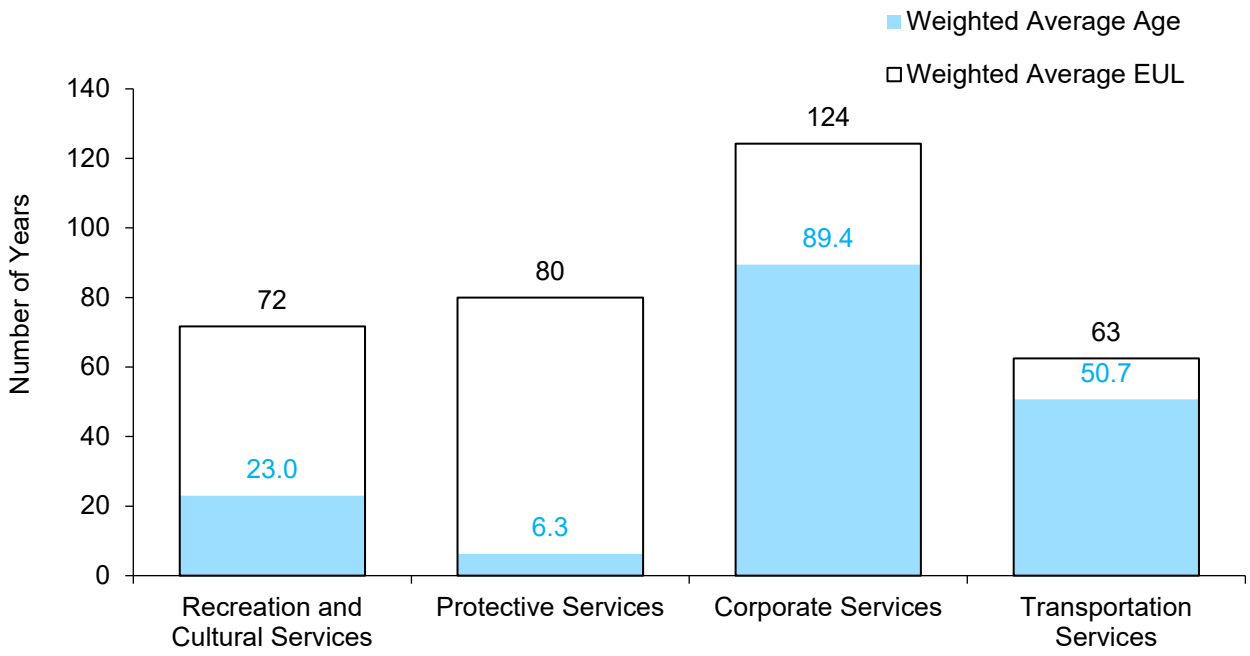
Figure 7 Asset Condition – Buildings: By Service Area



Age Profile

Figure 8 illustrates the average current age of each asset type and its estimated useful life. Both values are weighted by the replacement cost of individual assets.

Figure 8 Estimated Useful Life vs. Asset Age – Buildings



Age analysis indicates that most building components in each service area are well within their estimated lifespans. Exceptions are found in Corporate Services and Transportation Services, with average age of components exceeding 50% of their design-life. These assets were not considered critical.

Current Approach to Lifecycle Management

The City’s most recent building condition assessment was conducted in 2023. Building condition assessments are crucial for managing the lifecycle of facilities. These assessments provide detailed insights into the current state of a building's components, identifying areas that require immediate repair or maintenance.

By regularly evaluating the condition of structural elements, HVAC systems, electrical setups, and other critical components, the City’s facility managers can plan proactive maintenance, prioritize resource allocation, and avoid unexpected failures. This systematic approach helps extend the building’s lifespan, optimize operational efficiency, and reduce long-term costs by addressing issues early and strategically planning for future capital investments.

10-Year Replacement Needs

The table below summarizes the projected asset replacement needs that may be undertaken over the next 10 years to support current levels of service.

Table 6 System-generated 10-Year Capital Replacement Forecast – Buildings

Segment	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Recreation and Cultural Services	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Protective Services	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Corporate Services	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Transportation Services	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

These projections are generated in Citywide and rely on the data available in the asset register. Assessed condition data and replacement costs were used to assist in forecasting replacement needs. This forecasts reflects buildings data that is not fully componentized. Componentization of buildings and facilities into smaller assets and elements is likely to reveal asset needs more reliably.

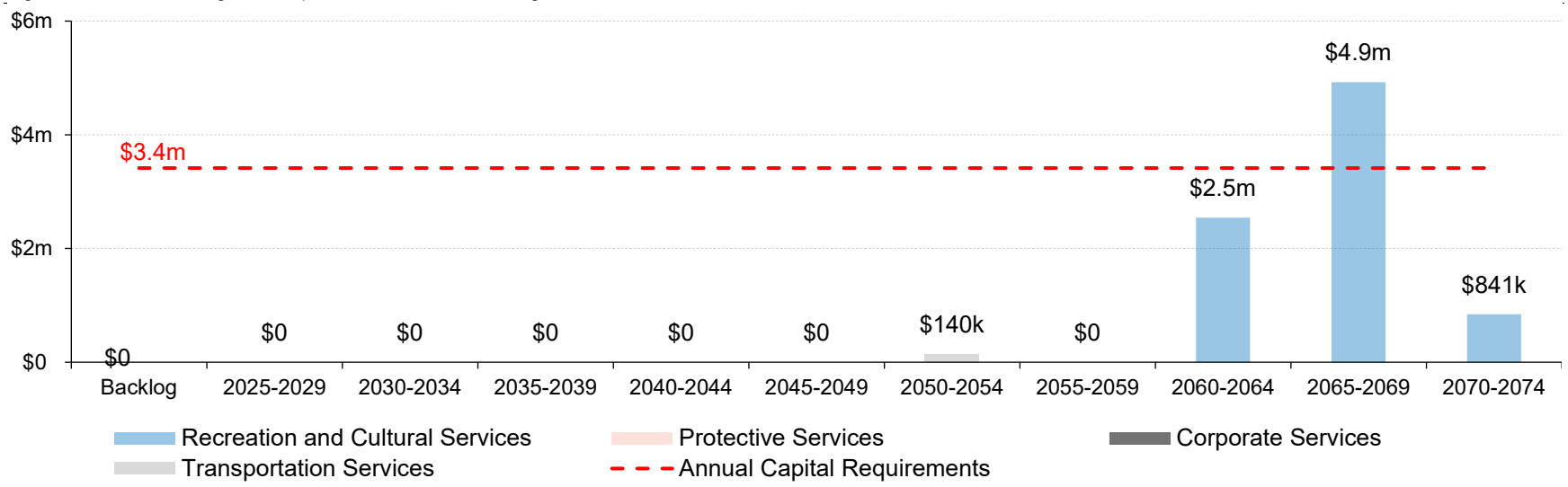
The projections can be different from actual capital forecasts. Consistent data updates, particularly condition, and replacement costs, will improve the alignment between the system generated expenditure requirements, and the City's capital expenditure forecasts. Although the City's system-generated capital plan does not identify any replacement needs, recent condition assessments identified 10-year capital needs totaling $11,017,401.

Long-term Replacement Needs

Figure 9 illustrates the cyclical short-, medium- and long-term replacement requirements for buildings assets over the coming decades. The City's average annual requirements for buildings total $3.4 million (red dotted line). This figure includes both the long-term requirements associated with the City's asset register totaling $2.3 million per year, and the average of the 10-year capital plan for all buildings. The capital plan identifies $11.0 million in total project needs over the next decade, in present day dollars, averaging $1.1 million per year. Although actual spending may fluctuate substantially from year to year, this combined figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

The chart reveals no substantial replacement for the next four decades. However, this forecasts relies on minimal componentization of buildings and is likely to change substantially with additional detail.

Figure 9 Forecasted Long-term Replacement Needs – Buildings



Land Improvements

Clarence-Rockland's land improvements portfolio includes parking lots, various sports fields and courts, fencing, and other secondary assets. The total current replacement of land improvements is estimated at $17.8 million.

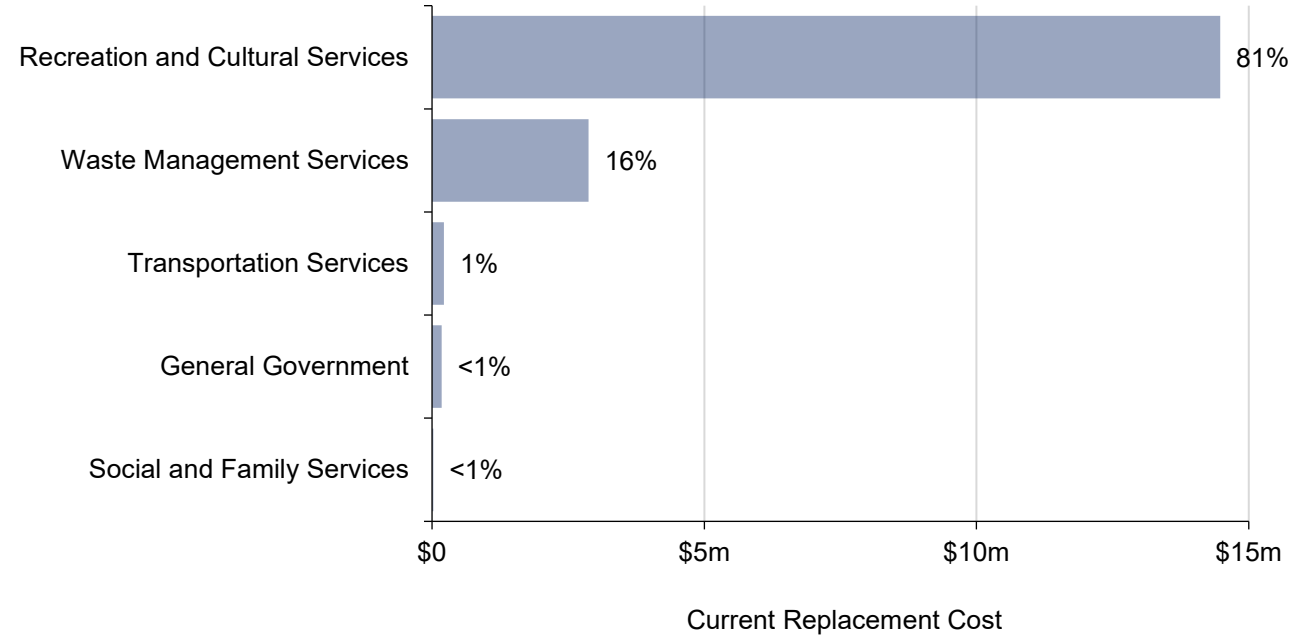
Inventory and Valuation

Table 7 summarizes the quantity and current replacement cost of the 106 land improvements assets available in the City's asset register. Recreation and Cultural Services assets account for the largest share of this asset group.

Table 7 Detailed Asset Inventory – Land Improvements

Segment	Quantity	Unit of Measure	Replacement Cost
Recreation and Cultural Services	86	Assets	$14,475,033
Waste Management Services	7	Assets	$2,876,236
Transportation Services	5	Assets	$220,282
General Government	7	Assets	$176,202
Social and Family Services	1	Assets	$23,467
Total	**106**		**$17,771,220**

Figure 10 Portfolio Valuation – Land Improvements



Asset Condition

Figure 11 summarizes the replacement cost-weighted condition of the City's land improvements portfolio. Based on age data only, 48% of assets are in fair or better condition, the remaining 52%, with a replacement cost of $9.3 million, are in poor or worse condition. These assets may be candidates for replacement in the short term; similarly, assets in fair condition may require rehabilitation or replacement in the medium term and should be monitored for further degradation in condition.

Figure 11 Asset Condition – Land Improvements: Overall

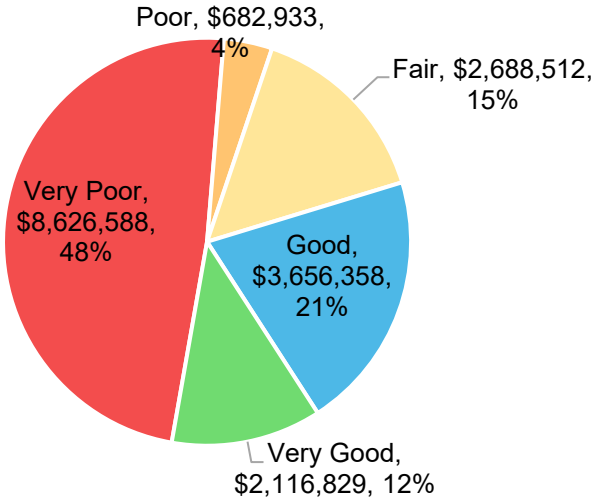
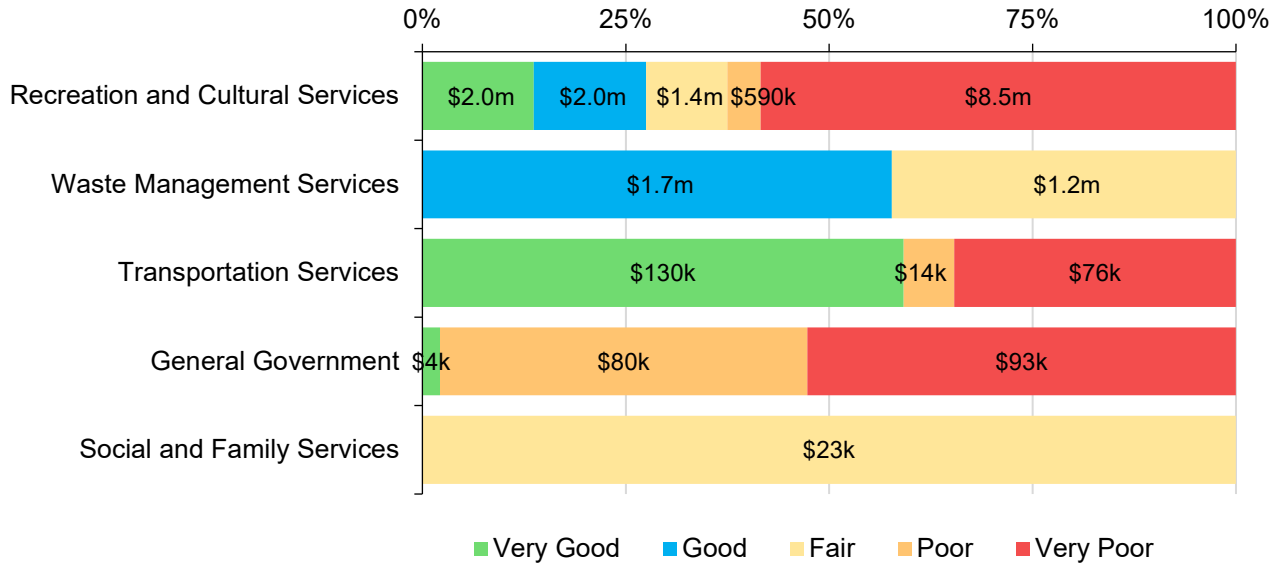


Figure 12 summarizes the age-based condition of land improvements by each service area. By share and replacement cost, Recreation and Cultural Services contain the largest value of assets in poor or worse condition.

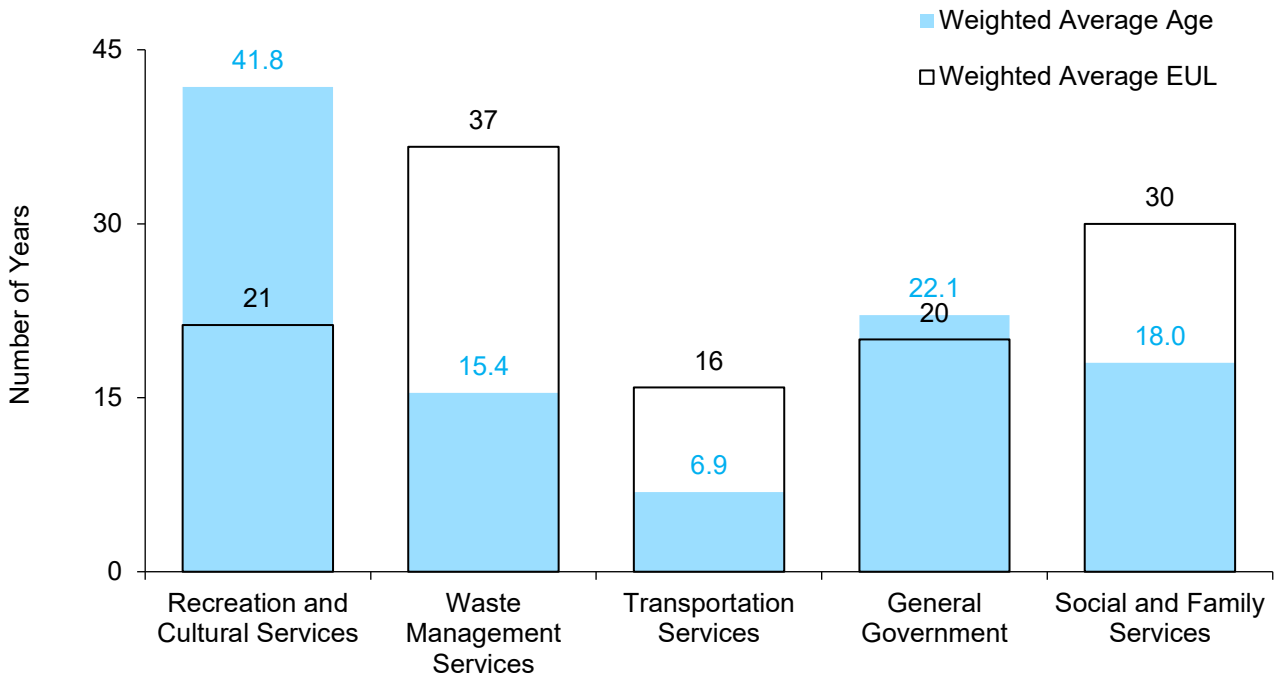
Figure 12 Asset Condition – Land Improvements: By Service Area



Age Profile

Figure 13 illustrates the average current age of each asset type and its estimated useful life. Both values are weighted by the replacement cost of individual assets.

Figure 13 Estimated Useful Life vs. Asset Age – Land Improvements



Age analysis reveals that, on average, most assets in Recreation and Cultural Services, and General Government, are in the latter stages of their expected life, with an average weighted age that exceeds the expected lifespan of all assets. In addition, most assets within Waste Management Services and Social and Family Services are also in the latter stages of their lifecycles.

Current Approach to Lifecycle Management

Land improvement assets are not assessed in a detailed manner; asset age is used to guide planning and long-term investments and lifecycle treatments. Most land improvement assets are not critical infrastructure; their condition assessments can be conducted as part of other more involved inspections, e.g., building condition assessments. A more formal approach to the completion of assessments and the cataloguing of outcomes related to condition assessment should be integrated with the City's asset management system for greater program effectiveness.

10-Year Replacement Forecast

The table below summarizes the projected cost of lifecycle activities (capital replacement only) that will need to be undertaken over the next 10 years to support current levels of service.

Table 8 System-generated 10-Year Replacement Forecast – Land Improvements

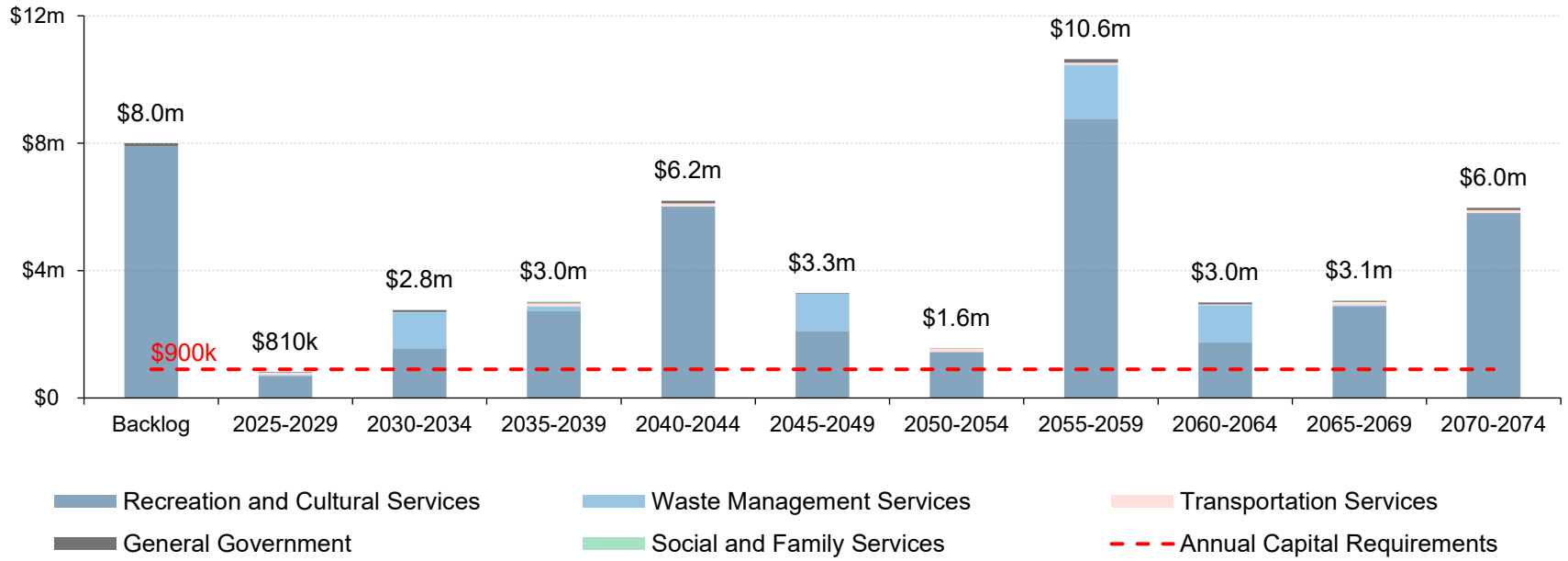
Segment	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Recreation and Cultural Services	$213k	$187k	$150k	$116k	$11k	$19k	$90k	$512k	$166k	$755k
Waste Management Services	$0	$0	$0	$44k	$0	$0	$409k	$733k	$0	$0
Transportation Services	$76k	$0	$0	$0	$0	$14k	$0	$0	$0	$0
General Government	$0	$0	$0	$13k	$0	$0	$28k	$0	$39k	$0
Recreation and Cultural Services	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Social and Family Services	$213k	$187k	$150k	$116k	$11k	$19k	$90k	$512k	$166k	$755k
Total	**$289k**	**$187k**	**$150k**	**$173k**	**$11k**	**$33k**	**$527k**	**$1.2m**	**$205k**	**$755k**

These projections are generated in Citywide and rely on the data available in the asset register. For land improvements, no condition information was available. As a result, this system-generated 10-year forecast relies only on asset age and replacement cost. These projections can be different from actual capital forecasts. Consistent data updates, especially condition, will improve the alignment between the system generated expenditure requirements, and the City's capital expenditure forecasts.

Long-term Replacement Needs

Figure 14 illustrates the cyclical short-, medium- and long-term replacement requirements for land improvements assets over the coming decades. The City's average annual requirements for land improvements total $900 thousand (red dotted line). Although actual spending may vary significantly each year, this benchmark is valuable for setting annual capital expenditure targets or reserve allocations to ensure timely project completion and replacement needs. As illustrated, replacement needs are expected to rise gradually from 2025 to 2044, peaking at $6.2 million between 2040 and 2044. The largest investment needs will occur in the early 2050s, totaling $10.6 million.

Figure 14 Forecasted Long-term Replacement Needs – Land Improvements



The chart also shows an age-based backlog of $8.0 million, comprising assets that have reached the end of their estimated useful life. The magnitude of capital needs typically far exceeds what most agencies can afford to fund. A risk-based approach can be used to strategically address age- and condition-based backlogs.

Machinery and Equipment

Clarence-Rockland's machinery and equipment are important parts of City services, helping to carry out maintenance, construction, and operational tasks, and supports delivery of other municipal services. The total current replacement of machinery and equipment is estimated at approximately $15 million.

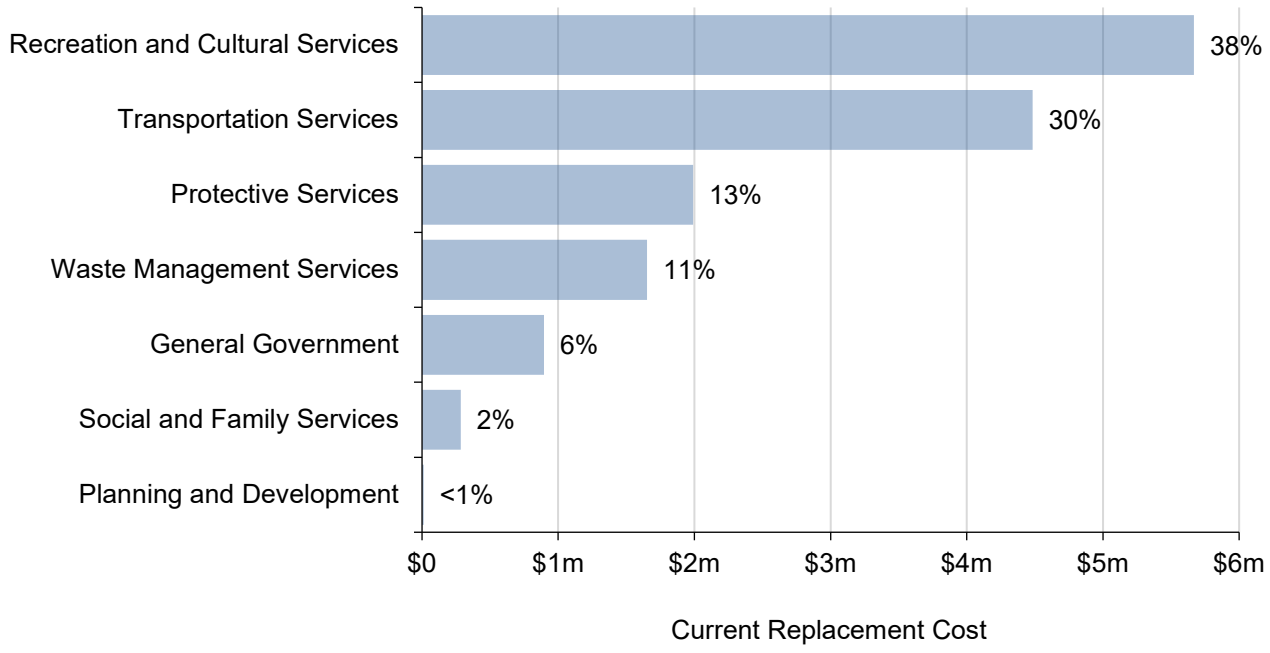
Inventory and Valuation

Table 9 summarizes the quantity and current replacement cost of all machinery and equipment assets available in the City's asset register. Recreation and Cultural Services assets comprise the largest share of all machinery and equipment, at 38% of the overall replacement cost, followed by Transportation Services at 30%.

Table 9 Detailed Asset Inventory – Machinery and Equipment

Segment	Quantity	Unit of Measure	Replacement Cost
Recreation and Cultural Services	118	Assets	$5,668,017
Transportation Services	41	Assets	$4,484,632
Protective Services	40	Assets	$1,990,317
Waste Management Services	9	Assets	$1,651,309
General Government	22	Assets	$896,384
Social and Family Services	9	Assets	$285,208
Planning and Development	1	Assets	$12,935
Total	**240**		**$14,988,801**

Figure 15 Portfolio Valuation – Machinery and Equipment



Asset Condition

Figure 16 summarizes the replacement cost-weighted condition of the City's machinery and equipment portfolio. Based on age data, 55% of assets, with a replacement cost of $8.3 million, are in poor or worse condition. These assets may be candidates for replacement in the short term; similarly, assets in fair condition may require rehabilitation or replacement in the medium term and should be monitored for further degradation in condition.

Figure 16 Asset Condition – Machinery and Equipment: Overall

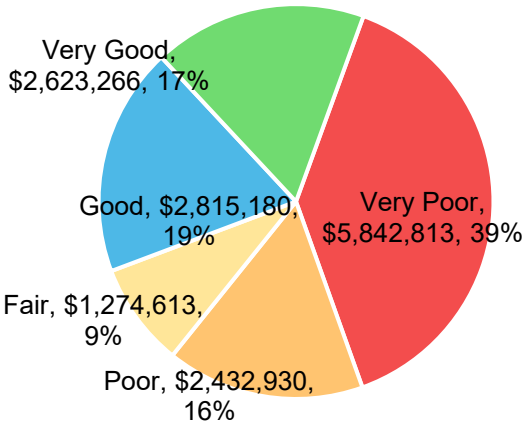
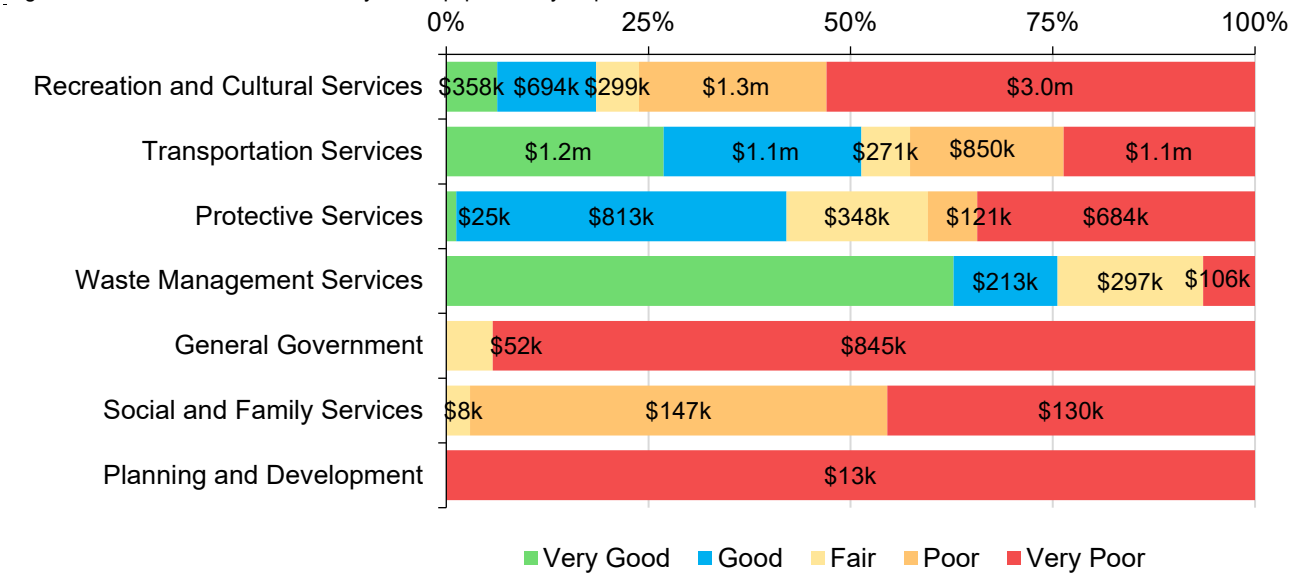


Figure 17 summarizes the condition of the City's machinery and equipment by each service area. The majority of assets that support fire services are in fair or better condition. Although age estimates suggest that machinery and equipment assets may be in service beyond their functional lifespan, it is likely that these assets remain capable of performing their intended function safely and effectively. Condition assessments are needed to verify this data.

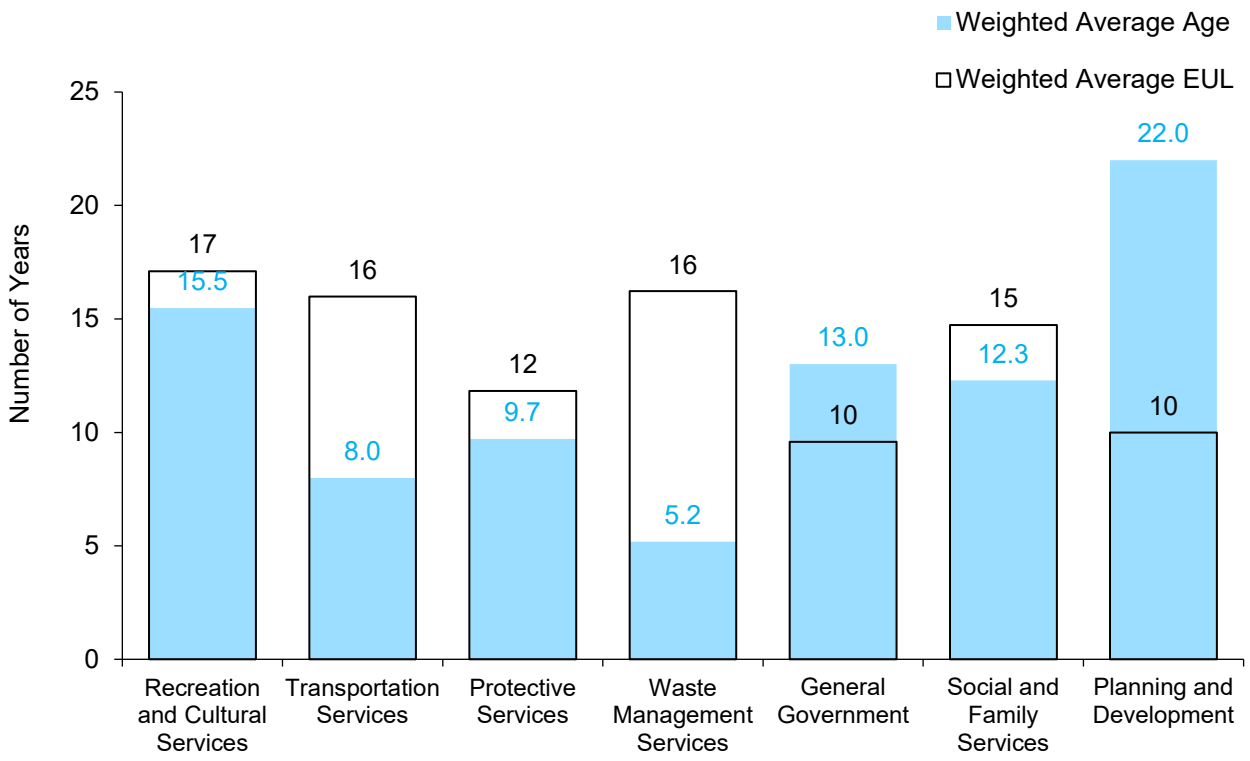
Figure 17 Asset Condition – Machinery and Equipment: By Department



Age Profile

Figure 18 illustrates the average current age of each asset type and its estimated useful life. Both values are weighted by the replacement cost of individual assets.

Figure 18 Estimated Useful Life vs. Asset Age – Machinery and Equipment



Age analysis reveals that, on average, most machinery and equipment assets are in the latter stages of their expected life, with some exceeding their design-life while continuing to remain in operation.

Current Approach to Lifecycle Management

As with vehicles, the City endeavours to meet all safety and regulatory requirements associated with critical services, such as fire. Inspections are used to determine appropriate repair or replacement priorities for fire equipment.

10-Year Replacement Forecast

The table below summarizes the projected cost of lifecycle activities (capital replacement only) that will need to be undertaken over the next 10 years to support current levels of service.

Table 10 System-generated 10-Year Replacement Forecast – Machinery and Equipment

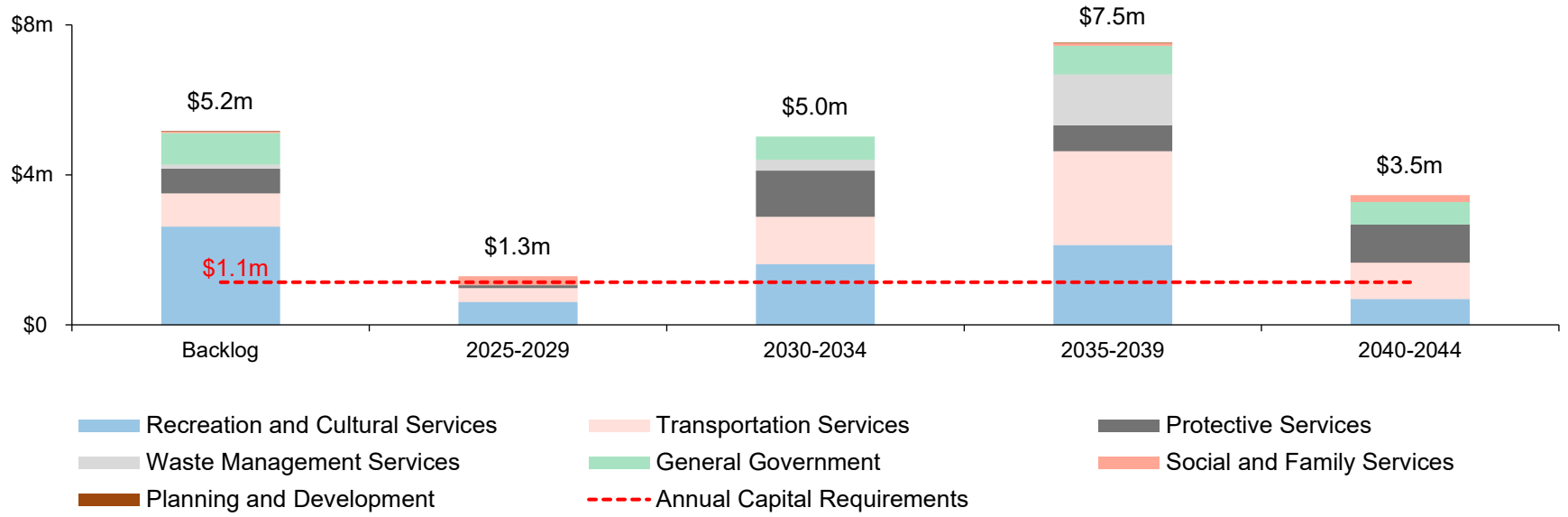
Segment	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Recreation and Cultural Services	$79k	$81k	$57k	$226k	$165k	$870k	$423k	$49k	$178k	$101k
Transportation Services	$166k	$13k	$0	$0	$188k	$867k	$238k	$106k	$0	$46k
Protective Services	$0	$19k	$0	$32k	$29k	$153k	$902k	$0	$179k	$0
Waste Management Services	$0	$0	$0	$0	$0	$0	$0	$0	$297k	$0
General Government	$0	$0	$0	$0	$0	$577k	$0	$36k	$0	$0
Social and Family Services	$32k	$63k	$0	$147k	$0	$0	$0	$0	$0	$0
Planning and Development	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$277k**	**$176k**	**$57k**	**$406k**	**$382k**	**$2.5m**	**$1.6m**	**$191k**	**$654k**	**$148k**

These projections are generated in Citywide and rely on the data available in the asset register. For some machinery and equipment, no condition information was available. As a result, this system-generated 10-year forecast relies only on asset age and replacement cost. These projections can be different from actual capital forecasts. Consistent data updates, especially condition, and asset acquisitions and disposals will improve the alignment between the system generated expenditure requirements, and the City's capital expenditure forecasts.

Long-term Replacement Needs

Figure 19 illustrates the cyclical short-, medium- and long-term replacement requirements for machinery and equipment assets over the coming decades. The City's average annual requirements total $1.1 million (red dotted line). Although actual spending may vary significantly each year, this benchmark is valuable for setting annual capital expenditure targets or reserve allocations to ensure timely project completion and replacement needs. Given the short lifespans of machinery and equipment assets, the forecast period has been condensed from 50 years to 20. Replacement needs are expected to peak in the early 2030s, totaling $7.5 million.

Figure 19 Forecasted Long-term Replacement Needs – Machinery and Equipment



The chart also shows a backlog of $5.2 million, comprising assets that have reached the end of their estimated useful life. The magnitude of capital needs typically far exceeds what most agencies can afford to fund. A risk-based approach can be used to strategically address age- and condition-based backlogs.

Fleet

Clarence-Rockland's fleet portfolio consists of 66 fleet assets that provide a range of general and essential services, such as public works, administration, and protective services. The estimated total current replacement value of these fleet is $12.6 million.

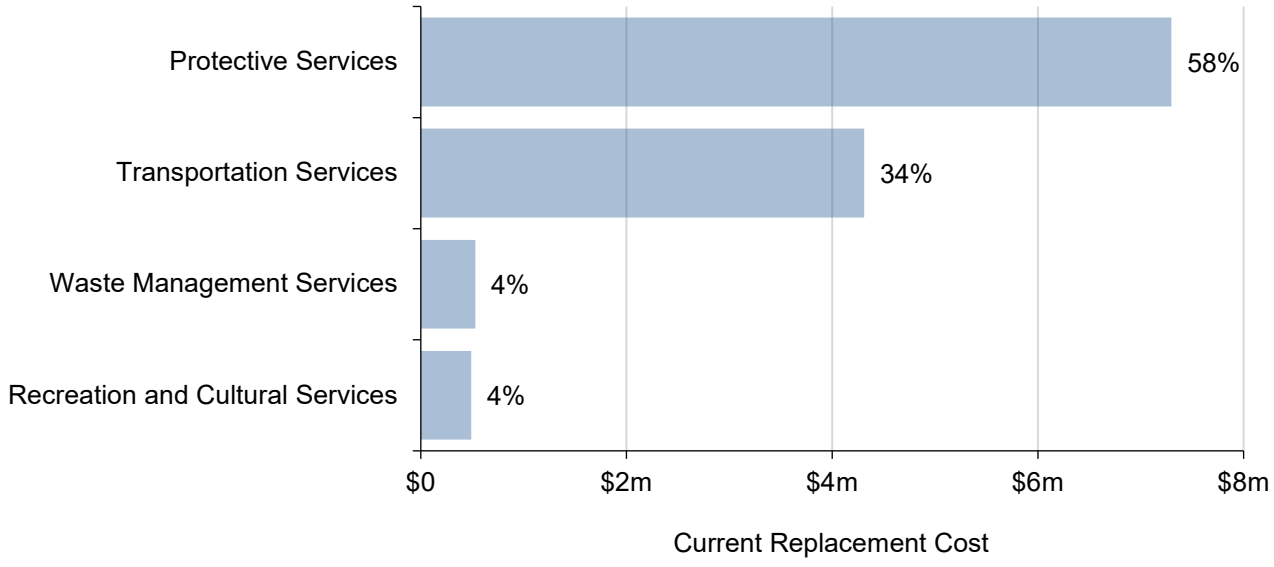
Inventory and Valuation

Table 11 summarizes the quantity and current replacement cost of all vehicle assets available in the City's asset register. Protective Services account for the largest share of the fleet portfolio, making up 58% of the overall replacement cost.

Table 11 Detailed Asset Inventory – Fleet

Segment	Quantity	Unit of Measure	Replacement Cost
Protective Services	20	Assets	$7,299,000
Transportation Services	33	Assets	$4,311,000
Waste Management Services	4	Assets	$530,000
Recreation and Cultural Services	9	Assets	$490,000
Total	**66**		**$12,630,000**

Figure 20 Portfolio Valuation – Fleet



Asset Condition

Figure 21 summarizes the replacement cost-weighted condition of the City's fleet portfolio. Based only on age data, 51% of fleet assets are in poor or worse condition. These assets may be candidates for replacement in the short term; similarly, assets in fair condition may require rehabilitation or replacement in the medium term and should be monitored for further degradation in condition.

Figure 21 Asset Condition – Fleet: Overall

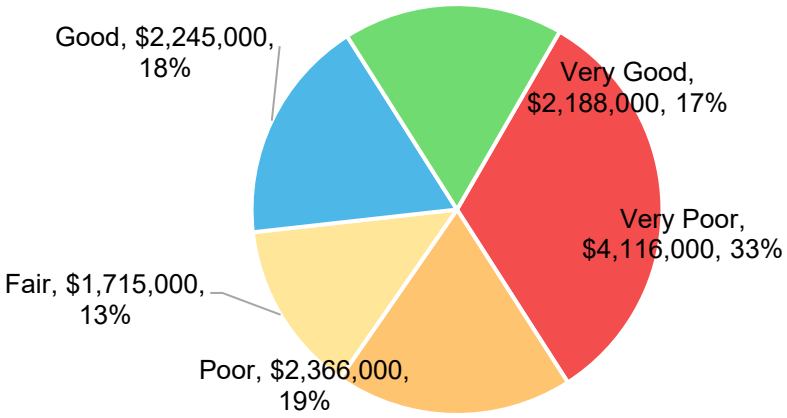
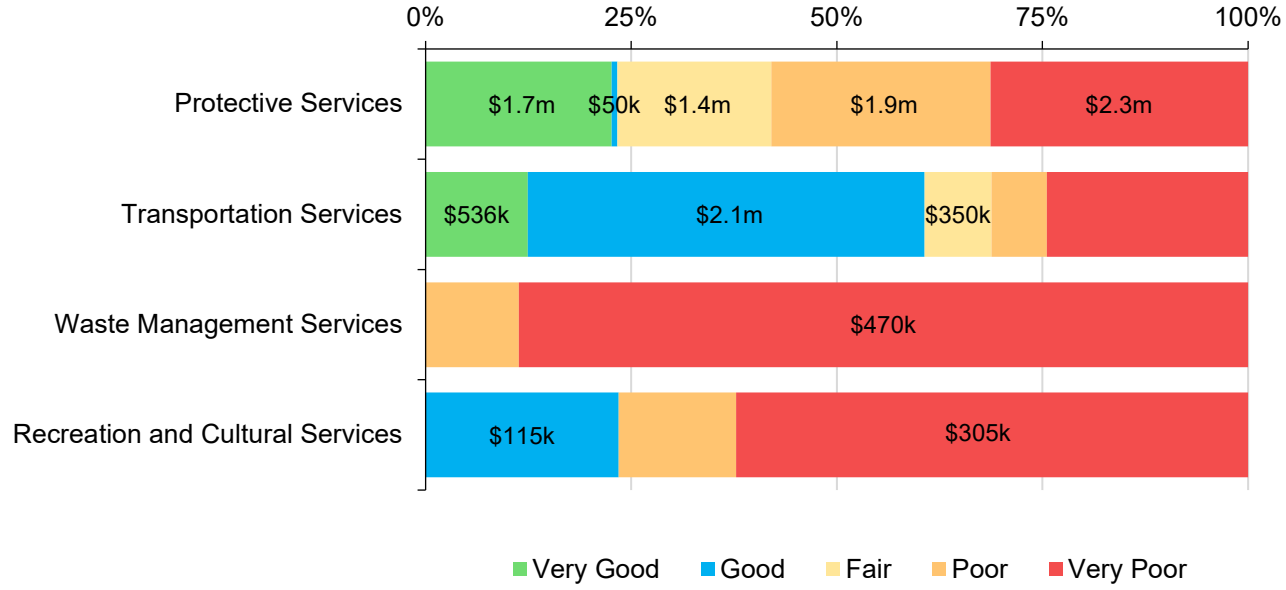


Figure 22 summarizes the condition of fleet by each service area.

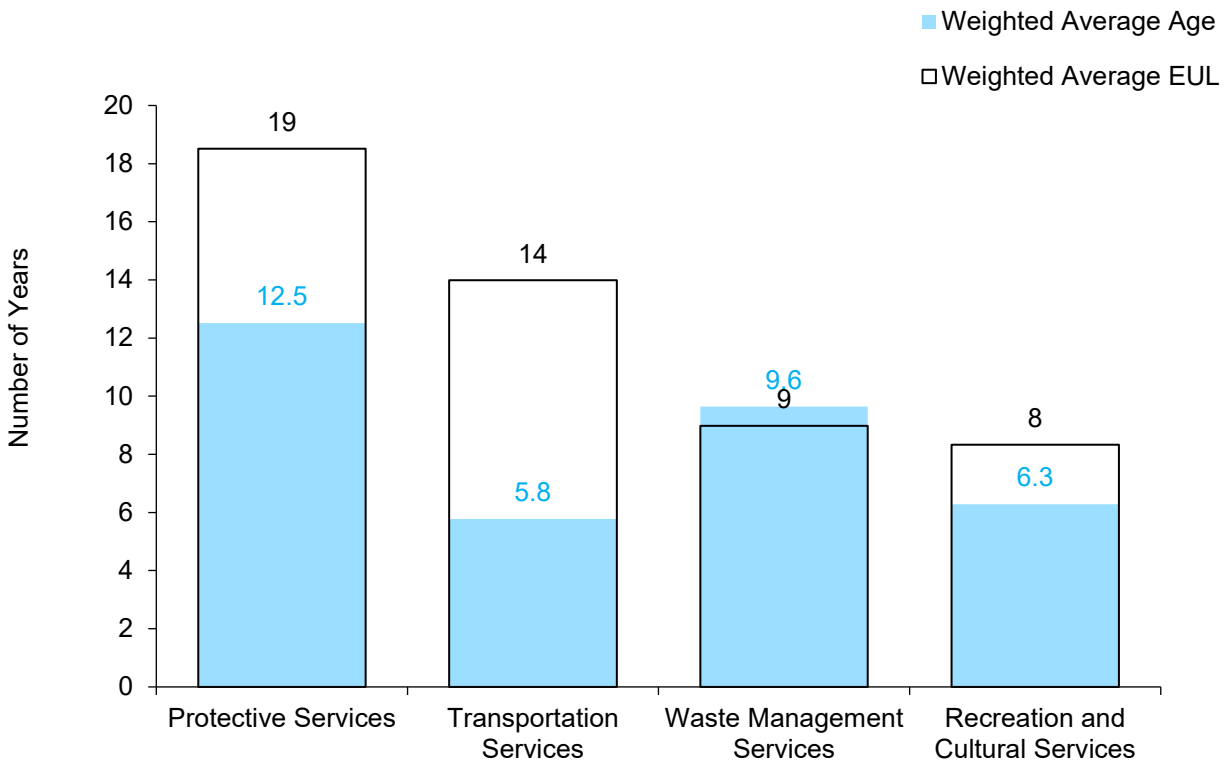
Figure 22 Asset Condition – Fleet: By Department



Age Profile

Figure 23 illustrates the average current age of each asset type and its estimated useful life. Both values are weighted by the replacement cost of individual assets.

Figure 23 Estimated Useful Life vs. Asset Age – Fleet



Age analysis reveals that, on average, most fleet assets are in the latter stages of their expected life. Fleet assets in Waste Management Services remain in service beyond their established useful life.

Current Approach to Lifecycle Management

The City endeavours to meet all regulatory requirement for fleet supporting critical services, e.g., fire. Age remains the driving factor for asset replacement. The City contracts with Enterprise Fleet Management (EFM) for the maintenance and repair of its vehicles.

10-Year Replacement Forecast

The table below summarizes the projected cost of lifecycle activities (capital replacement only) that will need to be undertaken over the next 10 years to support current levels of service. This forecast relies on available condition data, which is then projected to end of current year.

Table 12 System-generated 10-Year Replacement Forecast – Fleet

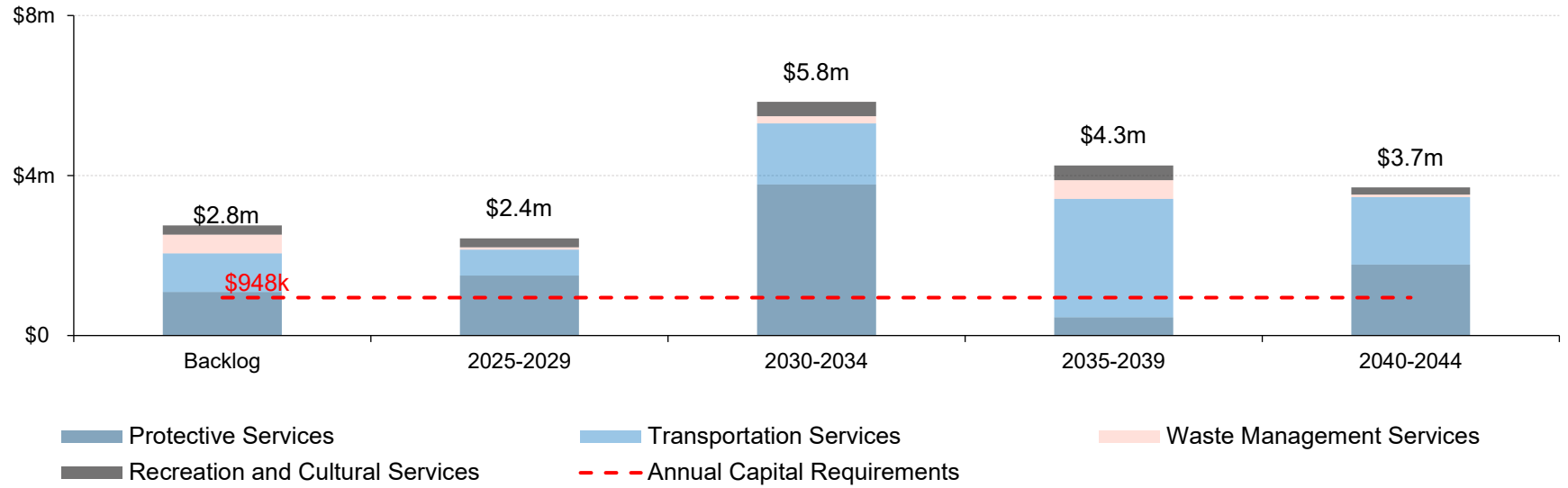
Segment	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Protective Services	$0	$0	$1.4m	$0	$50k	$850k	$1.0m	$216k	$1.4m	$246k
Transportation Services	$90k	$140k	$150k	$0	$270k	$0	$241k	$995k	$140k	$150k
Waste Management Services	$0	$0	$60k	$0	$0	$0	$0	$120k	$0	$60k
Recreation and Cultural Services	$60k	$0	$70k	$15k	$80k	$0	$0	$290k	$0	$70k
Total	**$150k**	**$140k**	**$1.7m**	**$15k**	**$400k**	**$850k**	**$1.3m**	**$1.6m**	**$1.6m**	**$526k**

These projections are generated in Citywide and rely on the data available in the asset register. For some fleet, no condition information was available. As a result, this system-generated 10-year forecast relies only on asset age and replacement cost for these assets. These projections can be different from actual capital forecasts. Consistent data updates, especially condition, and asset acquisitions and disposals will improve the alignment between the system generated expenditure requirements, and the City's capital expenditure forecasts.

Long-term Replacement Needs

Figure 24 illustrates the cyclical short-, medium- and long-term replacement requirements for fleet assets over the coming decades. The City's average annual requirements for fleet total $948 thousand (red dotted line). Although actual spending may vary significantly each year, this benchmark is valuable for setting annual capital expenditure targets or reserve allocations to ensure timely project completion and replacement needs. Similar to machinery and equipment, the forecast period for fleet assets has been condensed to 20 years given shorter lifespans. Replacement needs will total $2.4 million in the current 5-year period, and rise to $5.8 million between 2030 and 2034.

Figure 24 Forecasted Long-term Replacement Needs – Fleet



The chart also shows a backlog of $2.8 million, comprising assets that have reached the end of their estimated useful life. The magnitude of capital needs typically far exceeds what most agencies can afford to fund. A risk-based approach can be used to strategically address age- and condition-based backlogs.

Levels of Services

Levels of service (LOS) measure the quality and quantity of service provided, and offer direction for infrastructure investments. They are necessary for performance tracking and reporting. Many agencies attempt to deliver levels of service that cannot be sustainably funded by the existing tax base. This can lead to an eventual drop in quality of service, or increases to tax and utility rates to fund higher service levels.

LOS should be affordable and aligned with the community's long-term vision for itself and the service attributes it most values for different infrastructure programs.

This AMP focuses on providing the City's current performance levels. For non-core assets, recommended KPIs are included, along with the City's current performance.

Non-core Assets

The table below summarize Clarence-Rockland's current levels of service with respect its non-core assets. O. Reg 588/17 does not include any prescribed metrics that must be reported on for non-core assets.

Table 13 Levels of Service KPIs for Non-core Assets

Asset Category	Service Attribute	KPI	Current Performance
Buildings	Quality	Percentage of buildings in fair or better condition	95%
Land Improvements	Quality	Percentage of land improvement assets in fair or better condition	48%
Fleet	Quality	Percentage of vehicles in fair or better condition	49%
Fleet	Fiscal Sustainability	Average cost of maintenance per kilometre	$0.16
Machinery and Equipment	Quality	Percentage of machinery and equipment assets in fair or better condition	55%
All Non-core Assets	Fiscal Sustainability	Combined capital reinvestment rate	0.8%
All Non-core Assets	Fiscal Sustainability	Current capital funding level as a percentage of average annual requirements	31%

To support improved reporting and support development of proposed service levels, additional KPIs are recommended, particularly for buildings. These can include utilization rates, energy cost per square foot, compliance with safety inspections, and response times to maintenance or service requests.

Similarly, KPIs that measure performance of fleet assets are also recommended. These can include fuel efficiency, annual operating costs per vehicle, cost per mile, and response time to vehicle breakdowns.

Risk Analysis

The level of risk an asset carries determines how closely it is monitored and maintained, including the frequency of various lifecycle activities, and the investments it requires on an ongoing basis.

Some assets are also more important to the community than others, based on their financial and economic significance, their role in delivering essential services, the impact of their failure on public health and safety, and the extent to which they support a high quality of life for community stakeholders.

A risk-based approach to infrastructure spending can help prioritize capital projects to channel funds where they are needed most. Rather than taking the worst-first approach, a risk-based approach ranks assets based on their condition/performance as well as their criticality—providing a more complete rationale for project selection.

Asset-level Risk

Asset-level risk ratings attempt to rank assets based on their criticality and likelihood of failure. This risk rating is a product of two variables: the probability that an asset will fail, and the variety of consequences of that failure event. It can be a qualitative or a quantitative measurement that can be used to rank assets and projects, identify appropriate lifecycle strategies, optimize short- and long-term budgets, minimize service disruptions, and maintain public health and safety.

Approach to Risk

The approach used in this asset management plan produces a quantitative measurement of risk associated for each asset. The probability and consequence of failure are each scored from 1 to 5, producing a minimum risk rating of 1 for the lowest risk assets, and a maximum risk index of 25 for the highest risk assets.

These calculations incorporate available asset attribute data to produce a risk matrix. For assets lacking detailed attribute information, a more general risk model has been created and applied to all such assets, drawing on common practices employed by municipalities to estimate the probability and consequences of failure.

Table 14 Risk Ratings

Risk Rating	Description
Very Low (1-4)	Assets in excellent condition with minimal risk of failure; failure event may have negligible financial, economic, or social impact.
Low (5-7)	Assets in good condition with low risk of failure; failure event may result in minor financial, economic, or social impact.
Moderate (8-9)	Assets showing moderate wear with moderate risk of failure; asset failure may result in noticeable, adverse financial, economic, or social consequences.
High (10-14)	Assets needing significant repairs soon with high risk of failure; failure may result in substantial, critical financial, economic, or social consequences.
Very High (15-25)	Assets in poor condition with the highest risk of failure; failure consequences are severe or catastrophic, causing significant financial, economic, or social disruptions, requiring urgent action.

Probability of Failure

Several factors can help decision-makers estimate the probability or likelihood of an asset's failure. For the City's current and provisional risk models, only condition was used to estimate and explain asset failure.

Consequence of Failure

The consequence of failure describes the overall, aggregate effect that an asset's failure will have on an organization's asset management goals. Consequences of failure can range from non-eventful to severe. Failure of critical components in a water treatment plant may pose significant operational and public health and safety challenges, whereas an out of service vehicle may cause only minor inconvenience.

Given the limited asset attributes available in the City's asset registry, only two data fields were used for the four asset categories: replacement cost and function (or service area). These two fields were used to estimate the direct financial, social, and public health and safety consequences of failure of an asset's failure.

Risk Models

The models used in this AMP have been developed in Citywide Assets, the City's asset register application, and applied to the existing asset base. These models are provisional and intended as a foundational framework. They are expected to evolve over time as new information regarding asset attributes becomes available and is integrated into the analytical process.

It is important to note that these models are not designed to guide annual capital expenditures at this time. Rather, they serve as an initial step in understanding and managing asset-level risk, providing a basis upon which further refinements and enhancements can be built.

For probability, since condition was the only input used in the probability of failure, it received a weighting of 100%. In the consequence of failure variable, three consequence types were selected, with the direct financial consequence of asset failure receiving the heighted weighting.

Table 15 Probability of Asset Failure

Attribute	Weighting	Range	Probability of Failure
Condition (0-100%)	100%	80 – 100%	1 – Rare
		60 – 80%	2 – Unlikely
		40 – 60%	3 – Possible
		20 – 40%	4 – Likely
		0 – 20%	5 – Almost Certain

Table 16 Consequence of Asset Failure

Consequence Type	Weighting	Attribute Used	Range/Value	Consequence of Failure
Direct Financial	50%	Replacement Cost	<$5,000	1 – Insignificant
			$5,000 – $25,000	2 – Minor
			$25,000 – $100,000	3 – Moderate
			$100,000 – $500,00	4 – Major
			>$500,000	5 – Severe
Social	30%	Function	Planning and Development	1 – Insignificant
			General Government, Social and Family Services	2 – Minor
			Recreation and Cultural Services, Transportation Services	3 – Moderate
			Waste Management Services, Protective Services	5 – Severe
Health and Safety	20%	Function	All Other Functions	1 – Insignificant
			Protective Services, Waste Management Services	5 – Severe

Risk Matrix

The risk matrices below classify the City's assets based on their respective risk ratings, as determined by the risk models. The analysis shows that 74 assets, with a combined replacement cost of approximately $57.7 million, carried a very high risk rating, based on both their probability and consequence of failure.

Figure 25 Risk Matrix - Buildings

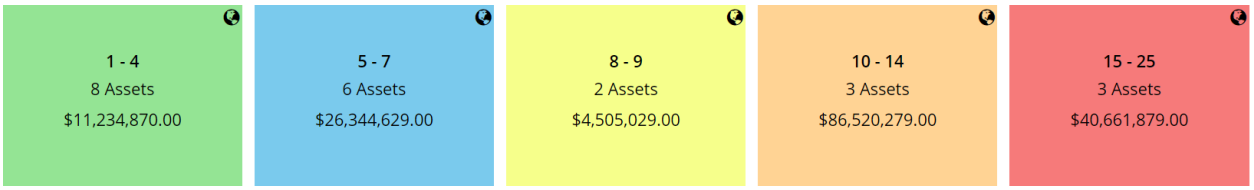


Figure 26 Risk Matrix – Land Improvements

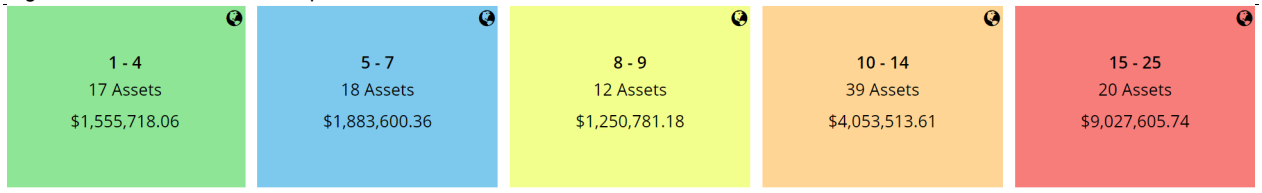


Figure 27 Risk Matrix – Machinery and Equipment

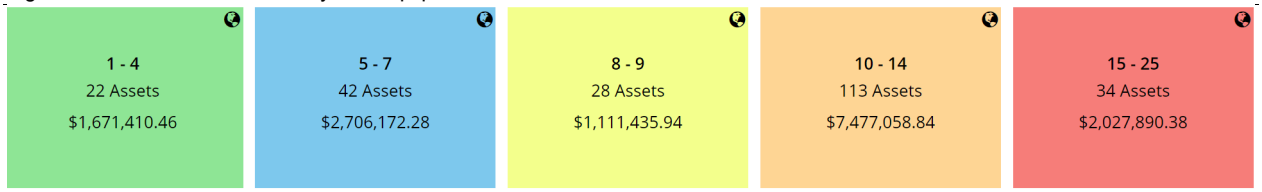


Figure 28 Risk Matrix – Fleet

Assets in the left-most box, with the lowest risk rating ranging from 1-4, require minimal immediate attention, allowing for routine maintenance and monitoring. Conversely, assets in the right-most box, with the highest risk rating ranging from 15-25, should be prioritized for intervention, including preventive measures, repairs, or replacements to mitigate potential impacts.

By systematically addressing assets according to their risk ratings, infrastructure and asset management activities can be effectively prioritized, ensuring resources are allocated to maintain safety, reliability, and performance.

General and Corporate Risks

In addition to asset-level risk, the City may also face risk associated with not executing key lifecycle activities, including repairs, rehabilitation, and replacement of critical assets. These are summarized in Table 17 below. Given the minor nature of land improvement assets, they are not included in the table.

Table 17 General Corporate Risks

Asset Category	Risks of not completing lifecycle activities
Buildings	**Safety and Operational Risks**: Deterioration of building structures leading to safety hazards for occupants and visitors. **Operational Efficiency**: Decreased efficiency due to equipment failures, energy inefficiencies, and operational disruptions. **Compliance Issues**: Potential violations of building codes, accessibility standards, and workplace safety regulations, resulting in fines and legal liabilities.
Fleet	**Vehicle Breakdowns**: Increased risk of breakdowns, downtime, and service disruptions affecting public safety and emergency response capabilities. **Costs**: Higher repair expenses, reduced vehicle lifespan, and increased operational costs due to inefficient fleet management. **Safety Concerns**: Potential safety risks for emergency responders and the public from poorly maintained vehicles and equipment. **Operational Disruptions**: Reduced readiness and response effectiveness during emergencies due to equipment failures. **Regulatory Compliance**: Potential violations of safety standards and regulations, impacting the ability to provide timely and effective emergency services.
Machinery and Equipment	**Operational Disruptions**: Equipment breakdowns causing service interruptions, and reduced operational capacity. **Costs**: Increased repair and replacement costs, inefficient use of resources, and decreased asset lifespan. **Safety and Compliance**: Safety hazards, regulatory non-compliance, and potential fines for failing to meet operational and safety standards.

Key Considerations

- Since risk ratings rely on many factors beyond an asset's physical condition or age, assets in a state of disrepair can sometimes be classified as low risk, despite their poor condition rating. In such cases, although the probability of failure for these assets may be high, their consequence of failure ratings was determined to be low based on the attributes used and the data available.

- Similarly, assets in very good condition can receive a moderate to high risk rating despite a low probability of failure. These assets may be deemed as highly critical to the City based on their costs, economic importance, social significance, and other factors.

- Continued calibration of an asset's criticality and regular data updates are needed to ensure these models more accurately reflect an asset's actual risk profile. As these models are further calibrated with additional contextual data, their alignment with capital planning will improve, allowing for a risk-based approach to prioritizing maintenance and capital expenditures.

- Asset-level risk assessments and documented awareness of corporate and strategic risk provide essential information to help staff prioritize annual maintenance workplans and capital projects. Both approaches supplement the more detailed studies and processes undertaken by all program areas to ensure assets can continue to provide safe and effective service levels to Clarence-Rockland residents and visitors.

Growth

Community Profile

Clarence-Rockland is located on the Ottawa River, 30km east of downtown Ottawa, in Eastern Ontario. It is a part of the United Counties of Prescott and Russell (UPCR). It offers a unique blend of rural and urban living. The City is made up of several hamlets: Bourget, Cheney, Clarence, Clarence Creek, Hammond, Rockland, and Saint-Pascal-Baylon.

Table 18 Census Data: Clarence Rockland, United Counties of Prescott & Russell, and Ontario

Census Characteristic	Clarence-Rockland	United Counties of Prescott and Russell	Ontario
Population 2021	26,505	95,639	14,223,942
Population Change 2016-2021	+8.1%	+7.1%	+5.8%
Total Private Dwellings	10,316	39,616	5,929,250
Population Density	89.1/ km^2	47.7/ km^2	15.9/km^2
Land Area	297.47 km^2	2004.27 km^2	892,411.76 km^2

Drivers of Growth and Future Demands

The City's growth and development are governed by three official plans.

- The official plan of the United Counties of Prescott and Russell, which directs the development of all areas of Clarence-Rockland and is the only official plan in effect for the rural and agricultural areas of the City, and the villages of Clarence Creek, Hammond, Cheney, Clarence Point and St-Pascal. The latest plan was adopted in 2022 and will guide the County's growth and development to 2046.
- The Official Plan of the Urban Area of the City of Clarence-Rockland, which directs the development of Rockland, consolidated in 2021.
- The Bourget Official Plan, which directs the future development of the village of Bourget and was adopted in 2014.

Official Plan: The United Counties of Prescott and Russell, 2022

The counties are currently witnessing a surge in growth and are positioned for swift expansion in the upcoming decade. While growth is expected to slow down between 2031 and 2046 due to an aging population, it is anticipated to remain consistent until it reaches a permanent resident population of 125,000 and approximately 36,000 job positions by 2046. The primary driver of this growth will be migration from the City of Ottawa and its surrounding regions, particularly from young families seeking reasonably priced single-family homes.

Growth Forecasts

The Growth Management Strategy document of the UPCR provides a long-range growth outlook of the municipalities within the county, and projects the population, housing, and employment forecasts over a planning horizon to 2046.

Table 19 Population Forecasts for municipalities within the UPCR

Census Year	2021	2026	2031	2036	2041	2046	2021-2046 Compound Annual Growth Rate
Alfred and Plantagenet	10,190	10,430	10,650	10,890	11,120	11,400	0.40%
Casselman	4,070	4,390	4,770	5,150	5,490	5,820	1.40%
Champlain	8,860	9,170	9,310	9,500	9,690	9,930	0.50%
Clarence-Rockland	27,270	28,990	30,760	32,230	33,600	34,930	1.00%
East Hawkesbury	3,500	3,580	3,650	3,720	3,790	3,880	0.40%
Hawkesbury	10,380	10,950	11,100	11,260	11,420	11,620	0.50%
Russell	20,160	22,890	25,060	27,110	28,960	30,740	1.70%
The Nation/ La Nation	13,750	14,430	14,870	15,500	16,060	16,680	0.80%
UCPR (Total)	**98,180**	**104,830**	**110,170**	**115,360**	**120,130**	**125,000**	**1.00%**

Table 20 Employment Forecasts for municipalities within the UPCR

Census Year	2021	2026	2031	2036	2041	2046	2021-2046 Compound Annual Growth Rate
Alfred and Plantagenet	2,190	2,270	2,360	2,460	2,570	2,670	0.80%
Casselman	1,930	1,970	2,040	2,100	2,160	2,220	0.60%
Champlain	3,310	3,350	3,400	3,470	3,530	3,590	0.30%
Clarence-Rockland	6,200	6,360	6,590	6,800	7,010	7,220	0.60%
East Hawkesbury	880	920	980	1,060	1,120	1,170	1.10%
Hawkesbury	6,780	6,830	6,900	6,980	7,060	7,140	0.20%
Russell	5,020	5,550	6,110	6,680	7,320	7,960	1.90%
The Nation/La Nation	3,140	3,290	3,440	3,630	3,820	4,020	1.00%
UCPR (Total)	**29,450**	**30,540**	**31,820**	**33,180**	**34,590**	**35,990**	**0.80%**

Table 21 Housing Forecasts for municipalities within the UPCR

Census Year	2021	2026	2031	2036	2041	2046	2021-2046 Compound Annual Growth Rate
Alfred and Plantagenet	4,080	4,250	4,390	4,530	4,660	4,780	0.60%
Casselman	1,580	1,790	1,980	2,150	2,310	2,450	1.80%
Champlain	3,750	3,880	3,990	4,110	4,220	4,330	0.60%
Clarence- Rockland	10,100	11,120	11,990	12,710	13,350	13,930	1.30%
East Hawkesbury	1,430	1,480	1,530	1,570	1,610	1,650	0.60%
Hawkesbury	5,080	5,220	5,340	5,460	5,560	5,650	0.40%
Russell	7,230	8,280	9,210	10,080	10,850	11,550	1.90%
The Nation/ La Nation	5,100	5,390	5,630	5,890	6,110	6,360	0.90%
UCPR (Total)	**38,350**	**41,410**	**44,060**	**46,500**	**48,670**	**50,700**	**1.10%**

Financial Strategy

Each year, the City of Clarence-Rockland makes important investments in its infrastructure's maintenance, renewal, rehabilitation, and replacement to ensure assets remain in a state of good repair. However, needs typically exceed capacity. In fact, most municipalities continue to struggle with annual infrastructure deficits. Achieving full-funding for infrastructure programs will take many years, and should be phased-in gradually to reduce burden on taxpayers.

This financial strategy is designed for the City's existing asset portfolio, and is premised on two key inputs: the average annual capital requirements and the average annual funding typically available for capital purposes. The annual requirements are based on the replacement cost of assets and their serviceable life. This figure is calculated for each individual asset, and aggregated to develop category-level values.

The annual funding typically available is determined by averaging historical capital expenditures on infrastructure, inclusive of any allocations to reserves for capital purposes. For Clarence-Rockland, actuals from 2022 and 2023, and budgeted amounts for 2024 were used to determine average annual funding levels. Only reliable and predictable sources of funding are used to benchmark funds that may be available on any given year.

For non-core asset categories, only transfers to reserves from property taxation were integrated into the financial strategy to develop baseline funding levels. Other sources, such as the Canada Community-Building Fund (CCBF), and the Ontario Community Infrastructure Fund (OCIF), are typically used to fund core infrastructure projects.

Annual Capital Requirements

Table 19 outlines the total average annual capital requirements for existing assets in each asset category. Based on a replacement cost of $214.7 million, annual capital requirements total approximately $6.4 million for the four asset categories analyzed in this document. For buildings, the figure includes $1.1 million in average annual needs identified in the 10-year capital plan, in addition to the $2.3 million in average annual requirements calculated for buildings in Citywide. The capital plan identifies $11.0 million in capital expenditures over the next decade to address repair and rehabilitation needs across the City's buildings portfolio.

The table also illustrates the equivalent target reinvestment rate, calculated by dividing the annual capital requirements by the total replacement cost of each asset category. The analysis suggests that the City's target reinvestment rate is 3.0%.

Table 22 Average Annual Capital Requirements

Asset Category	Replacement Cost	Annual Capital Requirements	Equivalent Target Reinvestment Rate
Buildings & Facilities	$169,266,686	3,415,923	2.0%
Land Improvements	$17,803,959	$899,531	5.1%
Machinery and Equipment	$15,007,550	$1,137,055	7.6%
Fleet	$12,630,000	$947,963	7.5%
Total	**$214,675,455**	**$6,400,471**	**3.0%**

Although there is no industry standard guide on optimal annual investment in infrastructure, the ERRs above provide a useful benchmark for organizations. In 2016, the Canadian Infrastructure Report Card (CIRC) produced an assessment of the health of municipal infrastructure as reported by cities and communities across Canada. The report card also contained recommended reinvestment rates that can also serve as benchmarks for municipalities.

Table 20 provides the CIRC lower and upper reinvestment rate targets for relevant asset groups; no data was available for machinery and fleet assets. The table shows that, on average, municipalities are well below the recommended target reinvestment rates.

Table 23 Canadian Infrastructure Report Card (CIRC) Reinvestment Rate Targets

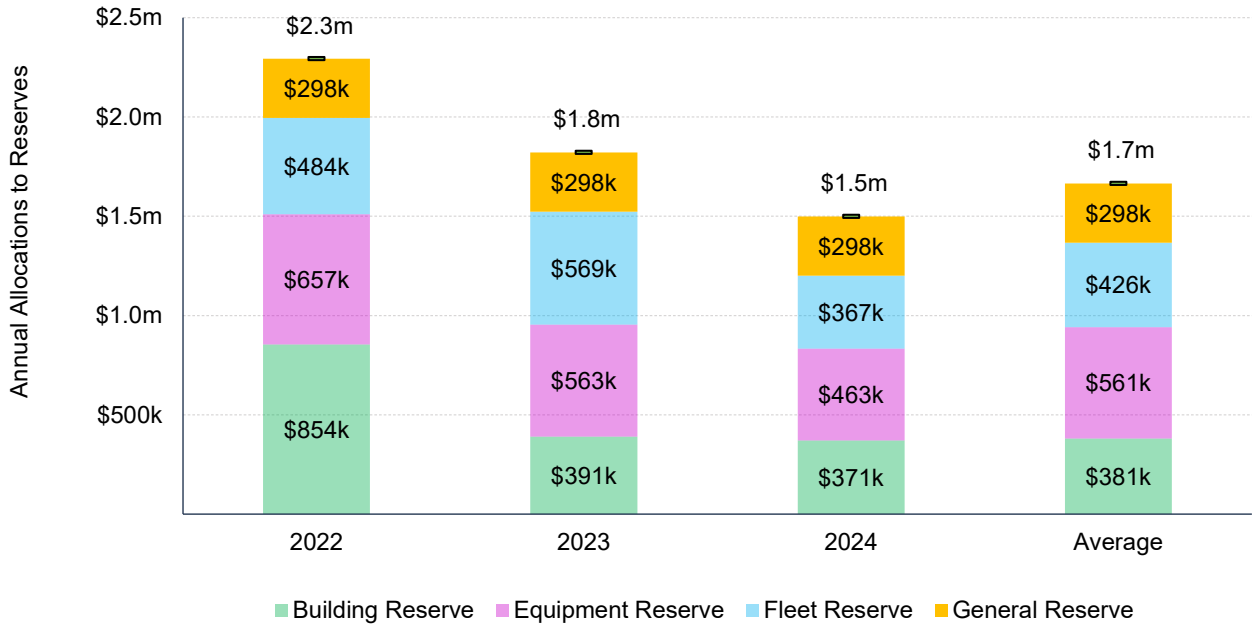
Asset Category	Lower Target	Upper Target	Municipal Average in 2016
Buildings and Facilities	1.7%	2.5%	1.3%

Machinery, equipment, and fleet often have short lifespans and high replacement costs. This produces target reinvestment rates that can be much higher than an industry standard of 1-3%. This is illustrated in Table 19 above which shows reinvestment rates for machinery, equipment, and fleet approaching 8% of the replacement cost of these assets.

Current Infrastructure Funding Framework

Figure 26 shows the City's historical transfers to various reserves, as funded through property taxation revenues, to fund capital needs associated with its non-core assets. The figure shows that on average, $1.7 million is allocated across these four reserves. For the Fleet Reserve, 2023 allocations were excluded from the average; similarly, 2022 allocations were excluded from calculating the average allocations for the Building Reserve. Further, the General Reserve is available to be used for all non-core assets. Similarly, the Fleet Reserve can also be used to fund land improvement projects.

Figure 29 Historical Funding Available for Infrastructure Purposes



Annual Infrastructure Deficits

The table below shows that based on the current funding level of $1.7 million as outlined above, the City is funding 26% of its annual capital needs associated with its non-core asset, or an actual reinvestment rate of 0.8% against a target reinvestment rate of 3.0%. This creates an annual infrastructure deficit of $4.7 million.

Table 24 Annual Infrastructure Deficit

Financial Metric	Amount
Average Annual Funding Required	$6,400,471
Average Annual Funding Available	$1,665,096
Annual Deficit	$4,735,375
Current Funding Levels	$1,665,096
Current Reinvestment Rate	0.8%

Closing Funding Gaps

Eliminating annual infrastructure funding shortfalls and achieving full-funding is a difficult and long-term endeavour for municipalities. Considering the City's current funding position, it will require many years to reach full funding for current assets. This section outlines how Clarence-Rockland can close annual funding deficits using own-source revenue, i.e., property taxation, and without the use of debt for existing assets.

For 2024, the City of Clarence-Rockland's budgeted property tax revenue was estimated at $27,120,973. To close the annual infrastructure deficit and achieve 100% of the annual capital requirements, an additional $4.7 million in annual revenue will need to be raised purely for the four non-core asset categories analyzed in this AMP, representing an increase of 17.5%. This will allow the City to meet its average annual requirements of $6.4 million.

Table 25 Increase Needed in Property Taxation Revenue to Meet Annual Infrastructure Needs

2024 Property Taxation Revenue	Additional Revenue Needed for Infrastructure	% Increase Needed
$27,120,973	$4,735,375	17.5%

To achieve this increase, several scenarios have been developed using phase-in periods ranging from five to 20 years. Shorter phase-in periods may place too high a burden on taxpayers, whereas a phase-in period beyond 20 years may see a continued deterioration of infrastructure, leading to larger backlogs.

Table 26 Increase Needed in Property Taxation Revenue to Meet 100% of Average Annual Capital Requirements

Total % Increase Needed in Annual Property Taxation Revenues	Equivalent Increase Over 5 Years	Equivalent Increase Over 10 Years	Equivalent Increase Over 15 Years	Equivalent Increase Over 20 Years
17.5%	3.3%	1.6%	1.1%	0.8%

Funding 100% of annual capital requirements ensures that all major capital events, including replacements, are completed as required. Under this scenario, no projects are deferred for future years. This delivers the highest asset performance and customer levels of service. However, funding level targets may be reduced if existing service levels are considered adequate.

In this light, Table 24 provides the tax increases required if funding levels targets are reduced to 75% and 50% of the average annual capital requirements.

Table 27 Increases Needed In Property Taxation Revenue to Meet Reduced Funding Targets

Funding Level Target	Annual Tax Increase Over 5 Years	Annual Tax Increase Over 10 Years	Annual Tax Increase Over 15 Years	Annual Tax Increase Over 20 Years
75% of average annual requirements	2.2%	1.1%	0.7%	0.5%
50% of average annual requirements	1.1%	0.6%	0.4%	0.3%

Tax Increases vs. Phase-in Periods

Striking a balance between funding timelines and tax burdens is a complex challenge. Extended timelines for full infrastructure funding might reduce immediate tax hikes for residents but risk unmet annual needs and ongoing project deferrals. Conversely, shorter funding periods can reduce deferred infrastructure needs, but impose a higher yearly financial burden.

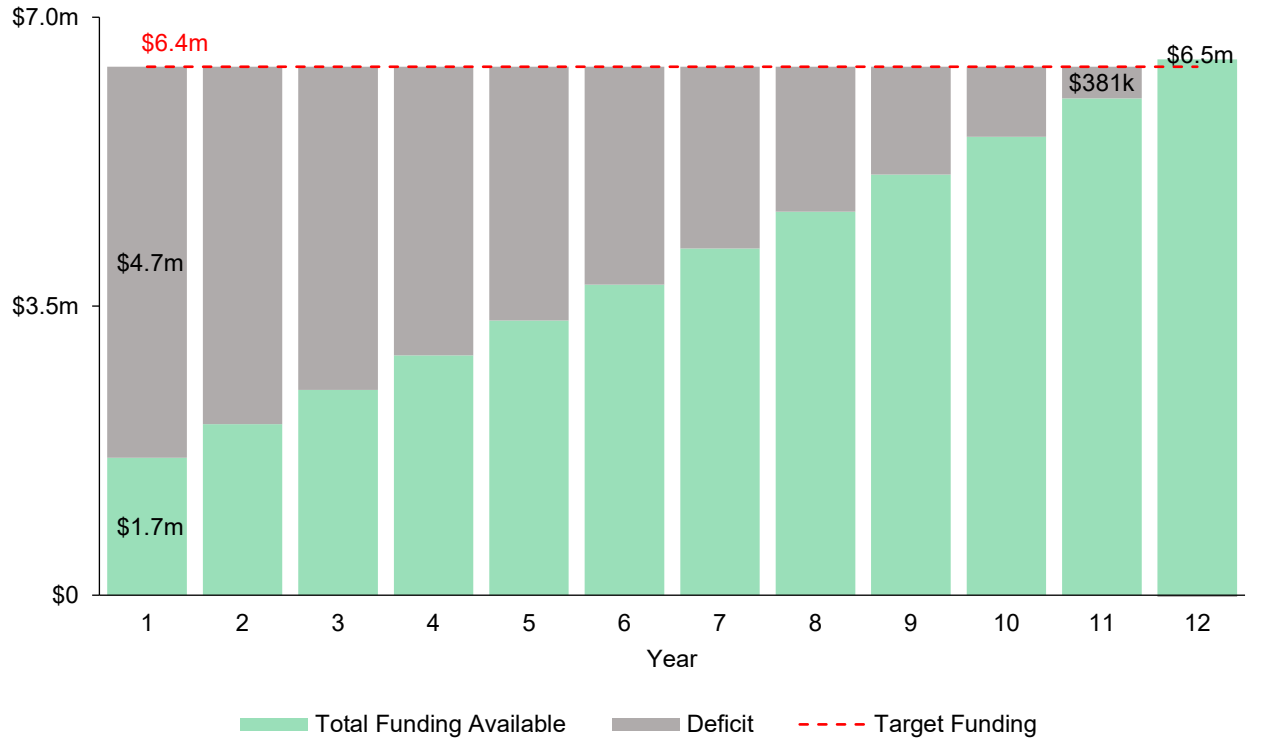
There is no singular solution, or optimal strategy. Rather, levels of service goals, transparent communication with residents on opportunities and constraints, and ongoing dialogue among key stakeholders and decision-makers are necessary in developing flexible short- and long-term strategies.

Adopting a Financial Strategy

To address the infrastructure deficits identified in this AMP, the City has adopted a dedicated 1.5% annual property tax increase, specifically earmarked for infrastructure needs associated with its non-core asset portfolio. The chart below illustrates how a 1.5% annual property tax increase allows the City to gradually reduce its infrastructure funding deficit over a 12-year period, starting with a significant shortfall of $4.7 million.

By year 11, the available funding nearly meets the target, with only a minimal deficit of $381k remaining. By year 12, the City achieves full funding at the required $6.4 million level, generating a small surplus. This gradual approach allows the City to reach its long-term financial goals for infrastructure funding sustainably.

Figure 30 Closing Annual Deficits With a 1.5% Annual Property Tax Increase



Costs and Benefits of Reduced Funding Targets

Similar to managing the pace of tax increases, setting appropriate funding level targets also requires careful consideration. Each model has risks and benefits, as outlined below. The right model balances the burden placed between generations of residents while realizing the highest value from infrastructure assets.

Table 28: Risks and Benefits of Funding Models

Funding Target	Potential Risks	Potential Benefits
100% of average annual requirements	– Higher financial impact on taxpayers – Limited financial flexibility for other programs and services	– Avoid further accumulation of backlog – Potential long-term costs savings – High economic and social benefits, including ability to attract more investments and businesses – Less vulnerability to evolving provincial and federal policy and funding programs
75% of average annual requirements	– Further accumulation of existing infrastructure backlog – Lower, overall levels of service – Potential safety implications – Higher indirect economic, social, and reputational risks resulting from infrastructure disrepair – Higher vulnerability to evolving provincial and federal policy and funding programs	– Lower impact on taxpayers – More budget flexibility for other programs and service
50% of average annual requirements	– Further, more rapid accumulation of existing backlogs – Potentially high safety implications – Low service levels – Lower quality of life and potential loss of local economic activity – Higher reputational damage – High dependence on other sources of funding – High vulnerability to unexpected asset failures	– Lowest impact on taxpayers

Growth Projects and Impact on Annual Lifecycle Requirements

Across the four non-core asset categories analyzed in this asset management plan, the City's 2021 Development Charges (DC) Background Study identifies several key projects that will result in an expanded asset base, and additional annual requirements once these assets are assumed. Projects that are slated for completion between 2025 and 2030 have a gross project cost of $11.2 million. This estimate reflects only those projects that would generate assets.

Services	Gross Project Cost	Timeline	Average Target Reinvestment Rate	Additional Annual Requirements
Library				
Branch Expansion - Rockland	$1,050,000	2026	3.7%	$38,850
Furniture and Equipment	$84,000	2026	3.7%	$3,108
Parking Spaces	$25,000	2026	3.7%	$925
Collections	$237,100	Various	3.7%	$8,773
Book Mobile	$60,000	2025	3.7%	$2,220
Branch Expansion - Bourget	$700,000	2028	3.7%	$25,900
Parks and Recreation			3.7%	
Soccer Dome	$4,000,000	2025	3.7%	$148,000
Waterfront Development	$2,000,000	2025	3.7%	$74,000
Brigil Park Development	$300,000	2026	3.7%	$11,100
Bike Trails and Network	$400,000	Various	3.7%	$14,800
Bourget Skate Park	$200,000	2025	3.7%	$7,400
Baseball Hub	$1,192,000	2030	3.7%	$44,104
Rockland Splash Pad	$220,000	2028	3.7%	$8,140
Cheney Playground	$100,000	2025	3.7%	$3,700
Hammond Skate Park	$300,000	2027	3.7%	$11,100
Trillium Project - Park Development	$200,000	2025	3.7%	$7,400
By-law Services			3.7%	
Dog Pound Facility	$60,000	2025	3.7%	$2,220
Service Patrol Car	$50,000	2024	3.7%	$1,850
Total	**$11,178,100**		**3.7%**	**$413,590**

These projects span a variety of asset categories. Although the initial construction or acquisition of these assets can be funded through development charges—either fully or partially—the City would be responsible for their ongoing management and eventual replacement.

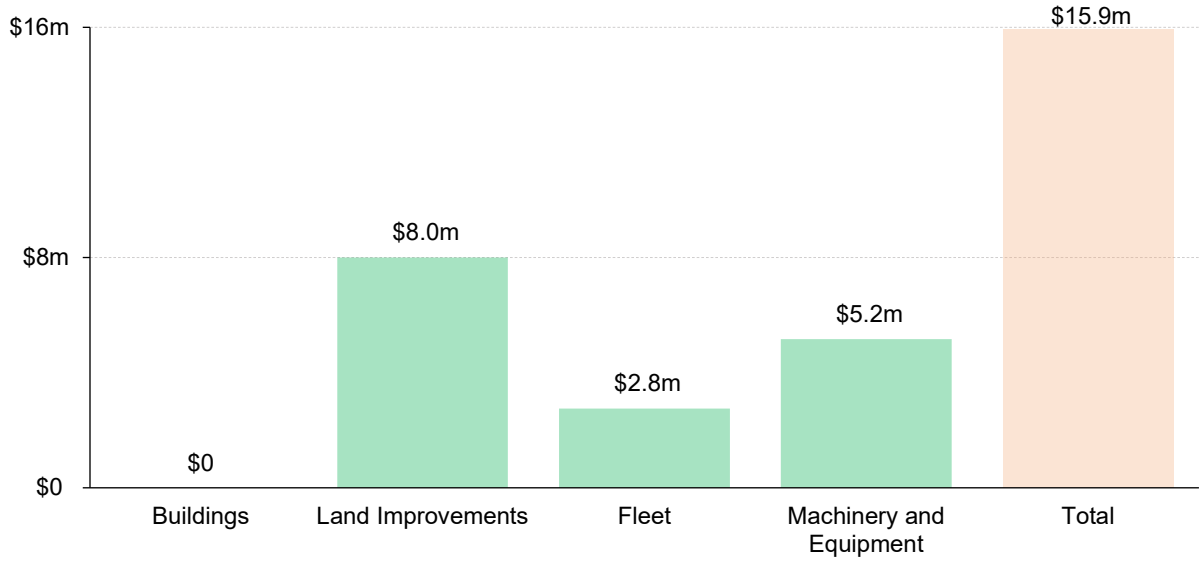
To estimate their annual impact on lifecycle requirements, an average overall target reinvestment rate of 3.7% is used. This target suggests that as these assets are assumed, the City would need to account for an additional $414 thousand in annual investment needs.

Infrastructure Backlogs

The annual tax increases proposed are designed to eliminate annual infrastructure deficits. However, they do not address existing backlogs. Figure 27 shows that the current infrastructure backlog totals $15.9 million across the four non-core asset categories analyzed in this AMP.

However, as some assets did not have condition assessment data available, age was used to estimate backlog figures. As a result, the figure below may be an under- or overstatement of actual asset needs. Condition assessment data will be essential in developing more accurate and credible estimates.

Figure 31 Current Infrastructure Backlog by Asset Category



Eliminating backlogs will require prioritizing projects, ideally through continuous improvements and application of the City's risk models. This risk-based approach will ensure that project selection is objective, supports delivery of the City's service level targets, and is in line with long-term strategic objectives.

Reserve Levels and Use of Debt

Table 25 summarizes the size of current infrastructure reserves. Across the four non-core asset categories, infrastructure reserves total $3.7 million, or 1.7% of the total current replacement value of assets. These reserves are available for use for various infrastructure-related expenditures as needed.

Table 29 Infrastructure Reserve Levels

Reserve	Closing Balance at December 31, 2023
Building Reserve	$1,411,851
Equipment Reserve	$795,261
Fleet Reserve	$591,566
General Reserve	$658,944
Complexe Sportif	$253,411
Total	**$3,711,033**

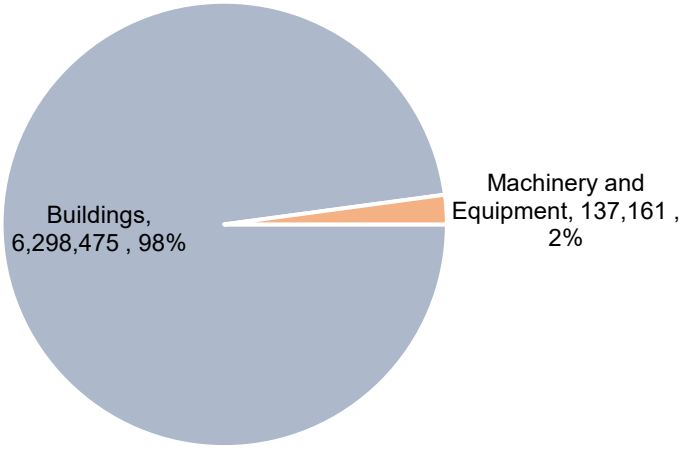
Although there is no consensus in the municipal sector on the levels of reserves for infrastructure sustainability, this funding allows the City to better prepare for unforeseen project expenditures and reduce fluctuations in tax rates. The reserves can also be used to address existing infrastructure backlogs.

Debt

Although this strategy avoids the use of further debt to meet annual average capital needs, the City can leverage debt as a strategic tool to support infrastructure investments, particularly for large-scale projects, without the immediately raising taxes or cutting other programs and services.

The City currently has $6.4 million in outstanding debt, attributed largely to buildings. Principal and interest payments (P&I) are expected to remain relatively constant over the next 20 years.

Figure 32 Debt at December 31, 2023



Total: $6,435,636

Although reduction in debt repayments can theoretically be used to reduce tax rates, it is typically more prudent to maintain existing rates, capture these savings, and reallocate them to fund infrastructure programs and reduce annual deficits at a faster pace. At this time, no reductions in P&I payments are forecasted.

Improvement and Monitoring

Financial Strategy

- Review feasibility of adopting a full-funding scenario that achieve 100% of average annual requirements for the asset categories analyzed in this AMP. This involves:
  - implementation of a 1.5% annual tax increase, and allocating the full annual net increase in revenue toward these asset categories;
  - using risk frameworks and staff judgement to prioritize projects, particularly to aid in elimination of existing infrastructure backlogs;
- Although difficult to capture, inflation costs, supply chain issues, and fluctuations in commodity prices will also influence funding needs and true cost of capital expenditures. The above recommendations do not include inflation, which may further escalate recommended tax increases to achieve full funding.

Ongoing Program Management

- Continuous improvement in datasets to remain current with the City's evolving asset base, including maintaining an accurate inventory with current replacement costs;
- Integrating new condition and inspection data as it becomes available to adjust forecasted asset needs;
- Calibration of, and refinements to, provisional risk models using additional attribute data to better reflect staff judgement and improve alignment with capital planning;

  Levels of service targets should be aligned with strategic objectives, and reflect the City's forecasted fiscal capacity and anticipated changes to community needs;

  Adjustments to current performance levels should be supported by strong rationale. Although not required by the regulation, community input and feedback can provide useful insight into how Clarence-Rockland residents prioritize various infrastructure services, including core and non-core assets.
- After 2025, O. Reg requires municipalities to produce annual updates that identify progress in implementing asset management plans, factors that may have impeded progress, and the municipality's response strategy to these obstacles. In addition, the City's asset management policy and plan will require updates on, at minimum, a 5-year cycle, covering all asset classes and/or service areas.