



Staff Report for Council Meeting

Date of Meeting: June 9, 2021

Report Number: SRPI.21.075

Department: Planning and Infrastructure
Division: Infrastructure and Engineering Services

Subject: 2021 Asset Management Plan

Purpose:

To obtain approval of the City's 2021 Asset Management Plan (AMP), which establishes compliance with Ontario Regulation 588/17, Asset Management Planning for Municipal Infrastructure (O. Reg. 588/17), one-year ahead of the next specified regulatory deadline of July 1, 2022.

The purpose is also to provide an overview of the AMP that summarizes the City's state of the infrastructure, service levels, asset management strategies, and financial investment needs for its Core+ assets. This will inform the ongoing work of the Capital Sustainability Steering Committee as part of the development of the 2022 Capital Budget and Forecast. This AMP is the result of recent advancements in the City's asset management planning capabilities.

Recommendation(s):

- a) That Staff Report SRPI.21.075 regarding the 2021 Asset Management Plan be received; and
- b) That the City's 2021 Asset Management Plan be approved (Attachment A).

Contact Person:

Steve Tsenis, Manager, Corporate Asset Management

Bob Levesque, Director, Infrastructure Delivery

Paolo Masaro, Executive Director, Infrastructure and Engineering Services

Report Approval:

Submitted by: Kelvin Kwan, Commissioner of Planning and Infrastructure Department

Approved by: Mary-Anne Dempster, City Manager

All reports are electronically reviewed and/or approved by the Division Director, Treasurer (as required), City Solicitor (as required), Commissioner, and City Manager. Details of the reports approval are attached.

Page 2

Background:

The 2021 AMP and Enterprise Asset Management System (EAM) for Core+ Assets is completed

Richmond Hill's Asset Management planning process plays a key part in moving the City's Strategic Priorities forward. Implementing and sustaining the City's vision requires a thoughtful and long-term process and plan to manage the City's infrastructure assets and the services that they deliver. This AMP is the result of the City's robust asset management planning process that has come about through recent improvements as part of best business practice. It provides a set of practical tools to understand, analyze, plan, and communicate how the investments in assets that we are making today and in the future will support a balance between growth and the environment, a strong sense of belonging, getting around the City, and fiscal responsibility.

The recent improvements that have advanced the City's asset management planning capabilities include the completion of the following key foundational components:

- The Asset Management Policy, which outlines the City's principles and commitments to asset management planning (May 2019);
- The Asset Management Strategy, which outlines specific business processes and practices required to implement the Policy and deliver sound asset management planning (May 2019);
- The Asset Management Governance Framework, an internal document which identifies the roles and responsibilities of City Staff within the City's Asset Management System;
- The Asset Registry and State of Infrastructure data for its Core+ assets;
- Three technical strategies; Levels of Service, Lifecycle and Risk Management Strategies; and
- The Enterprise Asset Management System (EAM).

Page 3

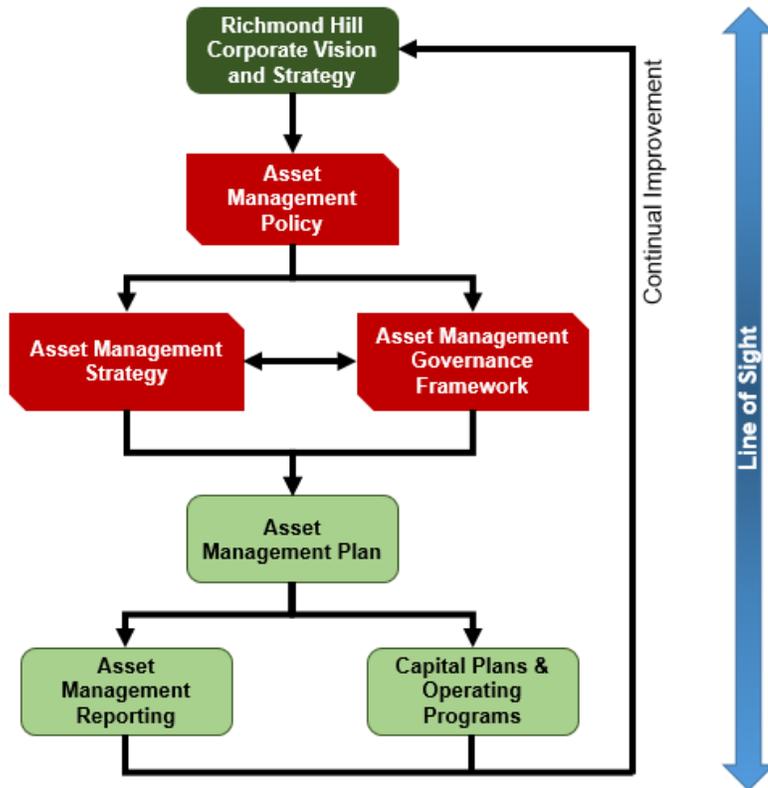


Figure 1: City of Richmond Hill Asset Management System and Line of Sight

EAM is advancing asset management and can forecast investment needs

The EAM is the latest advancement in the City's Asset Management journey. The EAM is an internally hosted web-based software application that uses models developed as part of the City's technical strategies (Levels of Service, Lifecycle, and Risk strategies) and provides current and forecasted information to support asset investment decision-making. It can analyze multiple budget scenarios to determine the associated impact on asset condition over time and identify prioritized investment needs using the Risk Management Strategy.

The outputs generated by the EAM system assist in determining if current funding is adequate to maintain or improve asset performance in the future and supports the development of financial strategies that make the most efficient use of available funding while minimizing risk. The City's EAM system is highlighted in the figure below.

Page 4

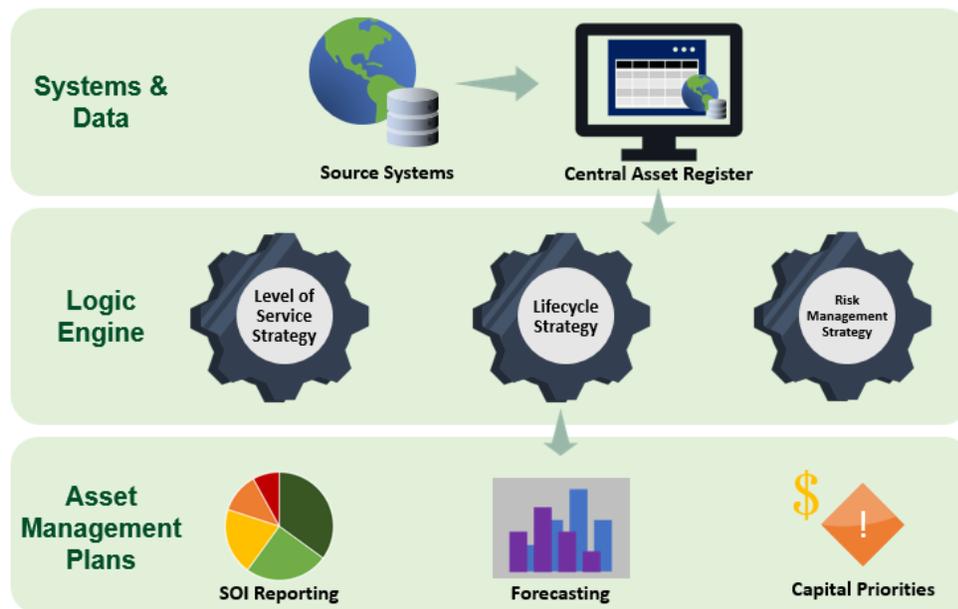


Figure 2: City of Richmond Hill Enterprise Asset Management System

AMP combines state of the assets, service levels, risk, life cycle strategies and investment needs

The 2021 AMP is structured in that it provides a detailed analysis of the City's State of Infrastructure, Levels of Service, Asset Management Strategies and Investment Strategy. The State of Infrastructure summarizes the condition, replacement cost, and age of the City's Core+ infrastructure. The Levels of Service section in the AMP provides an overview of defined service levels and the current performance that assets are delivering to enable the City to provide services to the community that are aligned with higher level strategic corporate priorities. The AMP also describes the Asset Management Strategies that the City needs to do to maintain its assets in a condition that meets the needs of the community. The Investment and Financing Strategy identifies asset investment needs by combining the State of the Infrastructure, Level of Service, and Asset Management Strategy with financial planning and budgeting scenarios to assess the long-term management of the City's assets. The figure below highlights the structure of the AMP with the details and results from each of these sections summarized later in this report.

Page 5

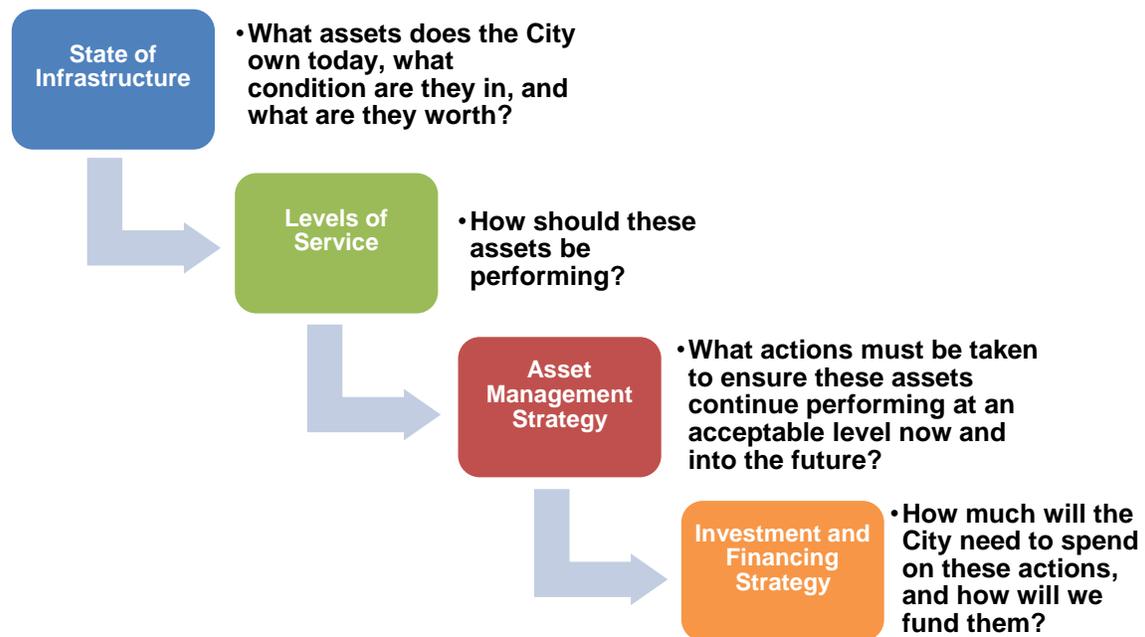


Figure 3: Structure of the AMP

AMP has exceeded July 1, 2022 O. Reg. 588/17 Requirement With Additional Assets included

The Provincial O. Reg. 588/17 requires municipalities to report on “core municipal infrastructure assets” by July 1, 2022, which are defined as Road, Bridge, Culvert, Water, Wastewater and Stormwater Management.

The scope of this AMP includes assets that the City classifies as Core+. Core+ encompasses the definition of “core municipal infrastructure assets” as outlined in O. Reg. 588/17 plus the addition of the City’s Active Transportation (within Right-of-Way) and Recreation Facilities (community centres and arenas). The addition of these assets means this AMP exceeds the requirement for reporting only core assets by July 1, 2022. These assets are categorized in the AMP into the following Sub-Services that the City of Richmond Hill provides:

- Roadway System (Core)
- Water Distribution System (Core)
- Wastewater Collection System (Core)
- Stormwater Management (Core)
- + Recreation Facilities
- + Active Transportation

AMP has met and in some instances exceeded July 1, 2022 O. Reg. 588/17 Requirements one year ahead

O. Reg. 588/17 defines the legislative requirements and reporting deadlines for municipalities in asset management, which are to be phased in over four stages. In March 2021, the Province extended the reporting timelines by one year to assist

Page 6

municipalities with challenges meeting the original deadline associated with the COVID-19 Pandemic. Over the past few years, the City has undertaken significant efforts and has rapidly improved asset management planning in-line with industry best practices. This approach has allowed the City to produce this AMP to fully comply with Phase 2 of the regulation, one year ahead of the year 2022 requirement. In addition to covering a broader scope of assets (Core +), this AMP also identifies investment needs, impacts on levels of service and supports long term financial sustainability planning, including identifying potential funding gaps well in advance of the 2025 regulatory timeline. The AMP also ensures the City continues to remain compliant with Federal Gas Tax Municipal Funding Agreement requirements.

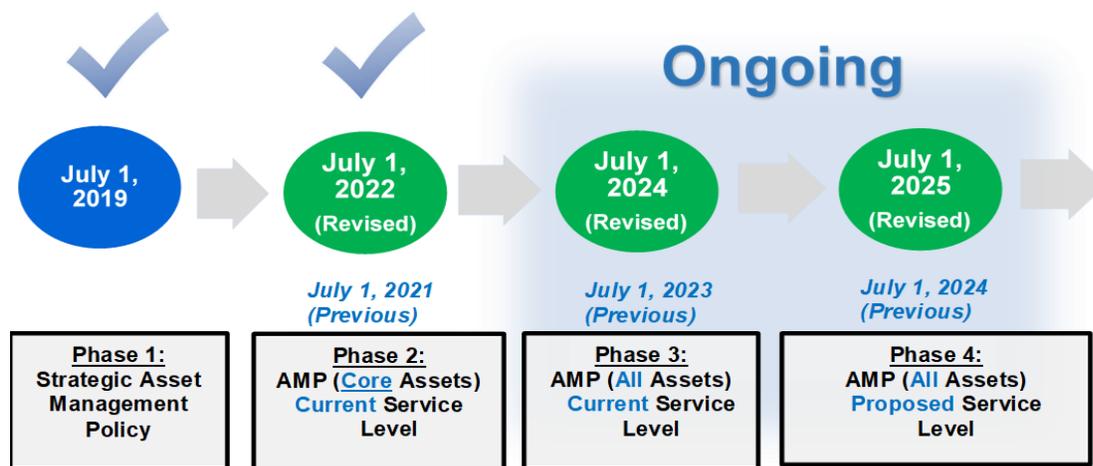


Figure 4: O. Reg. 588/17 Asset Management Planning Requirements

City's Core+ Infrastructure has a total valuation of \$7.2B and is in Very Good condition

The City's Core+ infrastructure has an estimated current replacement value of \$7.2 billion, summarized by Sub-Service in Figure 5:

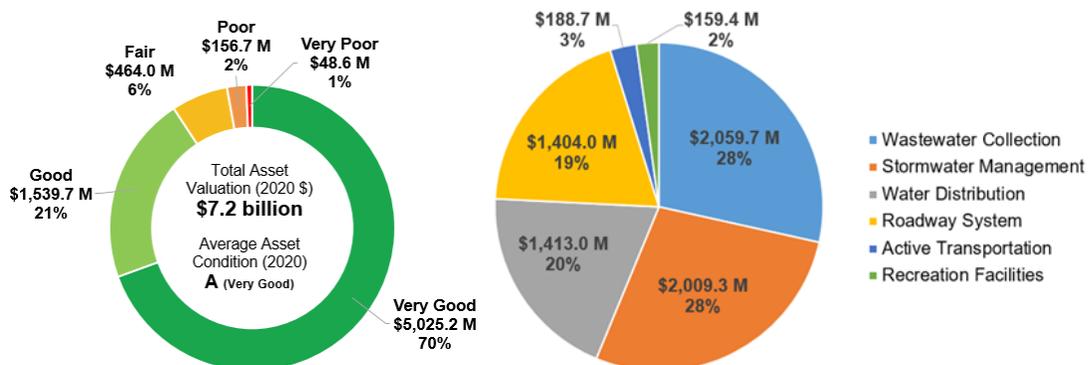


Figure 5: Asset Value and Condition Profile for Core+

Page 7

The majority of Richmond Hill’s assets have been constructed over the last four decades, and the average condition of the City’s assets is Very Good (Letter Grade A). The City has on-going initiatives to enhance its condition assessment approaches to improve the quality of data, and this improved data will be included in the next AMP update.

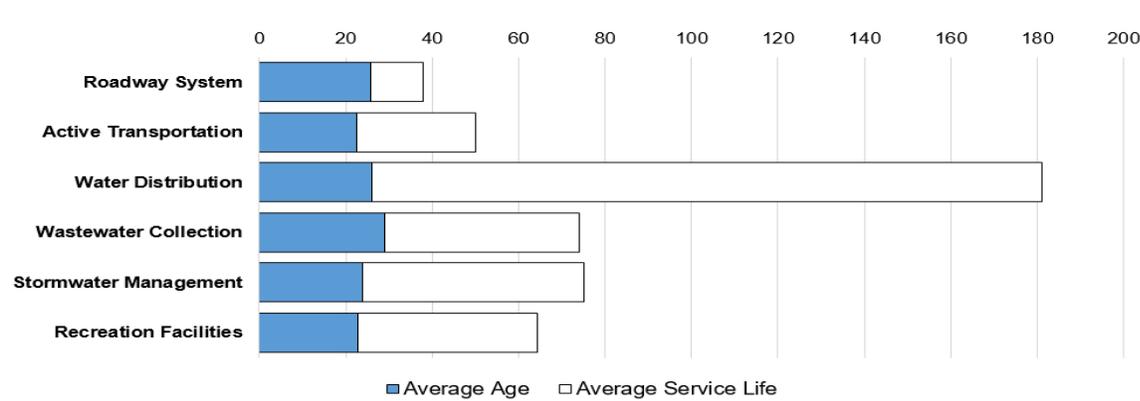


Figure 6: Asset Average Age and Remaining Service Life for Core+ Assets

Though the City’s assets are relatively new and in good condition from an overall perspective, expenditures are required to address Poor and Very Poor assets, prevent other assets from reaching Poor condition over the coming years, and maintain service levels.

Levels of Service (LOS) aligned with corporate objectives and exceed O. Reg. 588/17 Requirements

Levels of Service (LOS) are key business drivers which influence all asset management decisions. They are used to inform the lifecycle investment strategies for infrastructure to deliver the required service levels to the community. They provide a Line of Sight by aligning higher level corporate objectives identified through strategic and master plans with the services provided by the City’s infrastructure systems and the technical details and performance measures of managing that infrastructure.

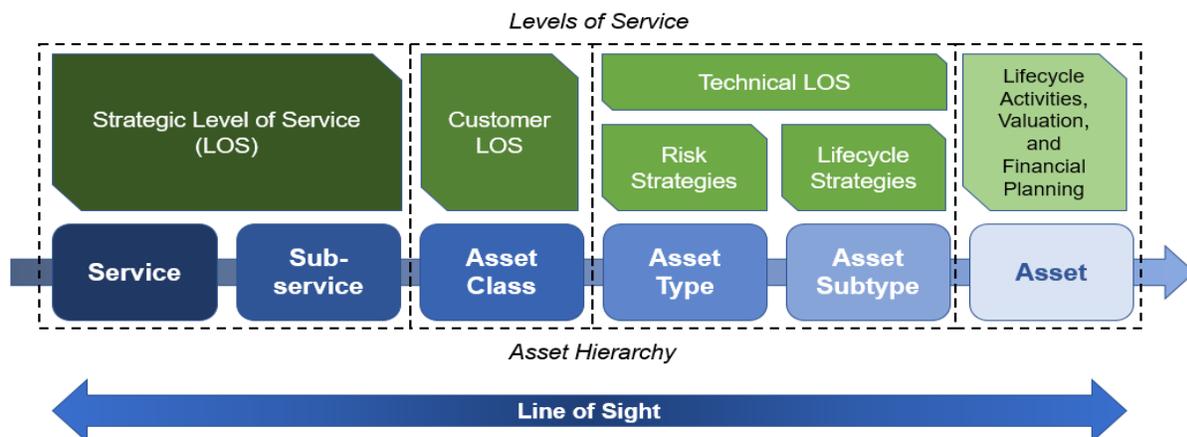


Figure 7: Levels of Service

Page 8

In addition to the service levels and performance measures required by O. Reg. 588/17, the City has developed other foundational measures that are included in this AMP. These will assist the City in asset management planning by understanding performance levels and identifying areas of improvement.

The AMP summarizes the City's current service levels and performance, which establishes a benchmark for setting future performance targets that are appropriate and financially sustainable for the City. The service levels and performance reporting in this AMP are compliant with O. Reg. 588/17 and in some instances, exceed the regulation through the inclusion of additional foundational service levels.

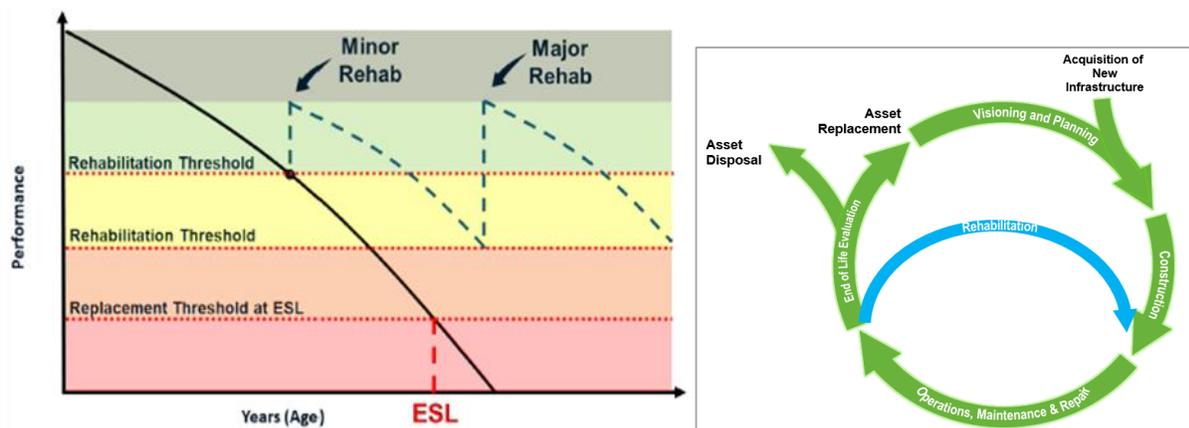
Documents that guide the City's Levels of Service include the Strategic Priorities, Official Plan, Development Charges Background Study, and service-specific master plans.

The City is currently updating its Official Plan to guide land use and development to 2041. This update implements changes to provincial policies, conforms with policies in the York Region Official Plan, responds to current urban issues and conditions, and considers new opportunities for shaping the City. Several of the City's master plans and Development Charges Background Study are also currently being updated, and future updates of the AMP will align with these documents.

Through each update of the AMP, the City will continue to develop and improve its reporting on service levels and performance measurements and targets. It will also consider impacts of external factors affecting Levels of Service, such as changing regulations, population growth, demographic changes, and climate change impacts.

Lifecycle Strategies have been defined to assist with infrastructure investment decisions

Asset management strategies are the planned lifecycle-based actions that the City uses to manage its infrastructure to meet service levels. There are thousands of different scheduled inspections, maintenance actions, and repair responses that occur every year to ensure that Richmond Hill's infrastructure performs reliably. Lifecycle activities also include rehabilitation and replacement of assets which are funded through the City's Capital Budget. These actions help to maintain infrastructure so they do not fail prematurely and continue to perform well throughout their estimated life.



Page 9

Figure 8: Lifecycle Management Strategies

The City has developed lifecycle models and strategies to describe the behavior and deterioration of assets over time and the ability to forecast capital interventions and their impacts on levels of service, performance and risk. The City's Risk Management Strategy is a framework for quantifying the criticality and risk exposure of the City's assets and enables the prioritization of projects across asset classes. This strategy allows the City to minimize its risk exposure by focusing the given available funding on critical assets that have high financial, social, and/or environmental consequences.

The AMP reports the current asset lifecycle strategies that reflect timely and strategic investment needs that lower lifecycle costs, while ensuring services are provided and risk minimized. This satisfies the reporting requirements of O. Reg. 588/17.

The AMP informs capital investment needs

The AMP forecasts the capital rehabilitation and replacement (R&R) investments needs for existing assets, and then compares them under varying scenarios, as applicable to each Sub-Service. The objective of the scenario analysis is to identify the impact of varying unconstrained and constrained R&R budgets and identify a level of funding suitable to maintain current LOS.

The Unconstrained Scenario forecasts how much the City would need to invest each year in order to complete all projects when they are required and clear the infrastructure backlog without any financial or practical constraints. Backlog consists of current year needs as well as overdue rehabilitations or replacements.

The Unconstrained Scenario typically improves condition service levels over time because the infrastructure backlog is cleared immediately while also meeting upcoming R&R needs. Given the substantial amount of funding to clear the significant backlog, an evaluation of constrained funding scenarios was completed to determine an appropriate level of funding that balances cost, service levels, and the risk associated with deferring projects.

The AMP considered three constrained funding scenarios, as described in the following table:

Summary of R&R Constrained Scenarios

Page 10

Scenario	Description
Scenario 1: Status Quo	This scenario applies budget constraints according to the status quo – the recently approved budgets with nominal increases in the future years. It does not consider reserve fund balances, utilization of debt, or the higher increases identified in the Financial Sustainability Strategy (refer to Scenario 2).
Scenario 2: Financial Sustainability Strategy	Scenario 2 is based on the Financial Sustainability Strategy and the associated Ten Year Capital Forecast. This scenario assumes that the increased contributions for the Tax-Supported Capital Program from the Financial Sustainability Strategy (1.5% annual Capital Asset Sustainability Levy increase), presented to Council in October 2020, are implemented, as well as assumptions for increased Water Quality Protection Reserve contributions based on a new stormwater rate structure by 2022. As in Scenario 1, this scenario does not include the consideration of reserve fund balances and utilization of debt that were presented as part of the Financial Sustainability Strategy as additional tools to fund the tax-supported program of the Ten Year Capital Forecast.
Scenario 3: Maintain Current LOS	The previous scenarios will show that for some Sub-Services, the City’s ability to meet its condition service levels decreases over time. This third and final scenario uses the insights gained from the previous scenarios to identify a level of investment required to maintain or return to the current LOS (asset condition) over the next 10 and 25 years, assessed at the overall Service or Sub-Service level.

The R&R funding gap is identified as the difference between the average annual expenditure for Scenario 3 (Maintain Current LOS) and Scenario 1 (Status Quo), and is discussed in the next section.

The Capital Budget also funds growth and service improvement activities required to extend services to new areas or expand existing services to meet growth demands. Documents which guide the City’s growth such as the Council’s Strategic Priorities 2020-2022, Official Plan, Development Charges Background Study, and service-specific master plans are developed and updated through the lens of options analysis and risk mitigation to best serve the residents of Richmond Hill currently and into the future. This AMP provides a preliminary growth expenditure forecast of approximately \$230 million for Core+ assets over the next 10 years based on currently available studies and plans. As previously indicated, several of the City’s master plans, Official Plan, and Development Charges Background Study are currently being updated, and future

Page 11

updates of the AMP will align with these documents, including any growth related capital forecasts.

Financial/Staffing/Other Implications:

A summary of the identified R&R capital investment needs and financing scenarios from the AMP are highlighted below.

The City has well-established financial processes to manage infrastructure including the annual Operating and Capital Budgets, Capital Forecast, and Financial Sustainability Strategy.

Through the ongoing work of the Capital Sustainability Steering Committee, prioritization of these capital investment needs and potential funding strategies to address these needs will be further considered as part of the development of capital budgets, forecasts and the update to the Financial Sustainability Strategy, starting with the 2022 Budget.

Roadway and Active Transportation Investment Needs to Maintain Service Levels

As shown in Figure 9 for Roadway and Active Transportation assets, an estimated average funding shortfall of \$12.5 million per year has been identified in this AMP to maintain current service levels (Scenario 3). The gap increases significantly when looking at the 25-year outlook, and is a consequence of increasing needs as well as deferring intermediate treatments resulting in a more expensive lifecycle cost.

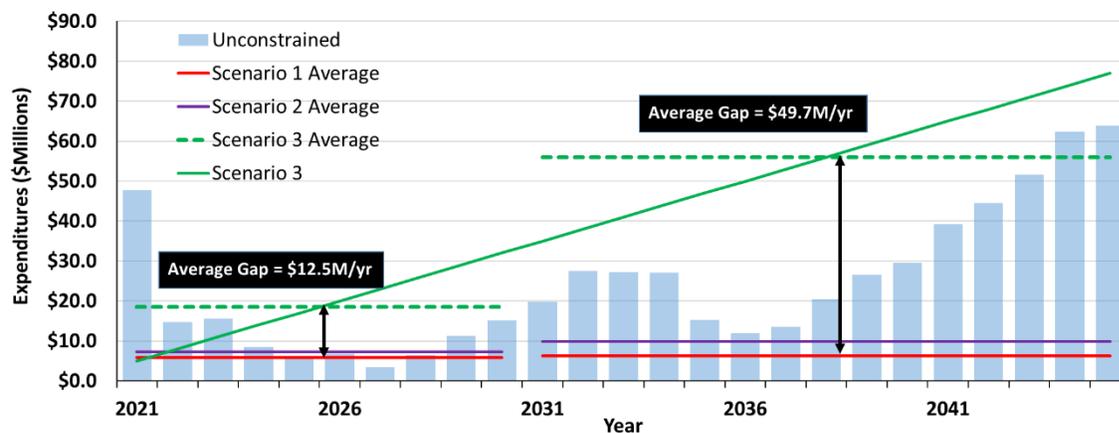


Figure 9: Roadway System and Active Transportation Scenario Summary and Funding Gap

Water Distribution and Wastewater Collection

The City's Water and Wastewater Financial Plan balances capital needs with user rates to maintain full cost recovery solely from the Water and Wastewater rate. The analysis in the AMP supports that the Water and Wastewater rate-supported assets are financially sustainable over the next ten years.

Page 12

Stormwater Management Investment Needs to Maintain Service Levels

The Scenario 1 Status Quo funding for stormwater R&R funding is not sufficient to maintain service levels, resulting in an estimated average funding gap of \$2.7 million annually over the next 10 years, with an increasing gap over the 25-year outlook to maintain service levels. The increases to the Water Quality Protection Reserve contributions assumed in the Ten Year Capital Forecast for the Financial Sustainability Strategy (Scenario 2) would address this funding gap. These increased contributions are based on a new stormwater rate structure being implemented by 2022.

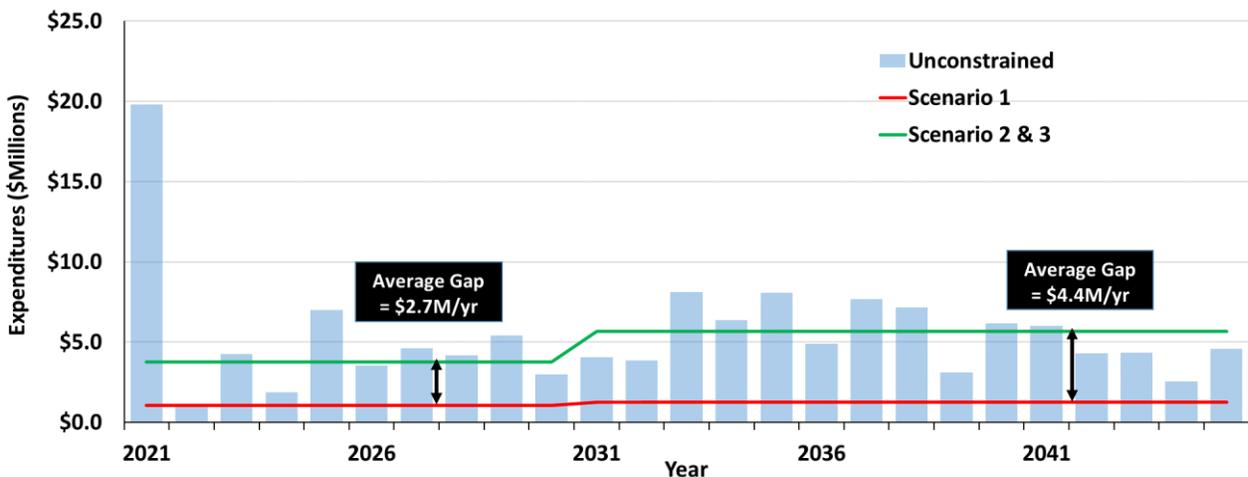


Figure 10: Stormwater Management Scenario Summary and Funding Gap

Recreation Facilities Funding Gap to be developed in future AMPs

For Recreation Facilities, the available funding will be more accurately defined as part of the overall facilities budget with the addition of non-Core+ assets (libraries, cultural facilities, municipal offices, etc.) in the next AMP. Therefore, an estimate of a 10-year funding shortfall for Recreation Facilities is not provided in this AMP. This AMP identifies average funding levels close to the unconstrained scenario to maintain service levels, and supports the need for the \$7.6 million of projects currently approved for R&R for Recreation Facilities in the 2021 Capital Budget.

Asset Management Planning and AMP informing the 2022 Capital Budget and Forecast

The 2022 Capital Budget process will be the first year of leveraging the City's newly developed EAM system to better prioritize the City's Capital investments. The EAM system leverages the City's asset management strategies and risk framework to forecast investment needs and the resultant impacts on the state of the assets. The resulting outputs deliver critical asset lifecycle information to assist staff in better prioritizing infrastructure projects and supports the development of asset management and financial strategies that make the most efficient use of available funding. The process of utilizing EAM information will build on a stronger alignment between the City's capital investments through the 2022 Capital Budget and the City's AMP

Page 13

Relationship to Council’s Strategic Priorities 2020-2022:

The AMP is a key component of the third Strategic Priority Area, Fiscal Responsibility, by supporting continued and sustained asset and infrastructure health through long-term financial sustainability planning.

Climate Change Considerations:

Climate change is expected to continue to impact City operations and asset lifecycle activities. Climate change conditions such as intense rainfalls, heat waves, ice-storms and freeze-thaw cycles represent significant implications for the City’s infrastructure. An increase in extreme weather events will likely accelerate the deterioration of certain assets, necessitating more time and resources to be invested in maintaining, repairing, and replacing them.

The AMP discusses the impacts of climate change on the condition and lifecycle strategies for managing assets, and discusses the City’s current initiatives that both mitigate and adapt to climate change.

The lifecycle strategies in this AMP will continue to be improved as climate change impacts are better understood, such as through the development of the City’s Stormwater Network Model that will assess the City’s resiliency to extreme storm events. In alignment with the City’s Climate Change Framework, the City will be determining the possible climate events and impacts for each infrastructure asset type and will incorporate possible improvements to the City’s asset management processes and the future updates of the AMP.

Conclusion:

The City’s 2021 AMP is being presented for Council’s information and approval to achieve compliance with O. Reg. 588/17, Asset Management Planning for Municipal Infrastructure. The analysis contained in this report will be used to inform the ongoing work of the Capital Sustainability Steering Committee in the prioritization of capital investment needs and potential funding strategies as part of the development of capital budgets, forecasts and update to the Financial Sustainability Strategy, starting with the 2022 Budget. Moving forward, City staff have a work plan to continue to advance its asset management processes in line with best practices. As the City implements non-Core+ assets for the next AMP and refines the overall funding gap analysis, Corporate Asset Management and Finance Department Staff will continue to work collaboratively to develop long-term financial sustainability strategies that balance service levels, costs, and risks.

Attachments:

The following attached documents may include scanned images of appendixes, maps and photographs. All attachments have been reviewed and made accessible. If you require an alternative format please call the contact person listed in this document.

- Appendix A: 2021 Asset Management Plan

Page 14

Report Approval Details

Document Title:	SRPI.21.075 2021 Asset Management Plan.docx
Attachments:	- SRPI.21.075- Appendix A-2021 Asset Management Plan.pdf
Final Approval Date:	May 25, 2021

This report and all of its attachments were approved and signed as outlined below:

Steve Tsenis - May 21, 2021 - 12:06 PM

Bob Levesque - May 21, 2021 - 1:32 PM

Paolo Masaro - May 25, 2021 - 8:53 AM

Kelvin Kwan - May 25, 2021 - 10:57 AM

MaryAnne Dempster - May 25, 2021 - 1:43 PM