

Date: 2022-05-31

Subject: **2022 Stormwater Asset Management Plan**

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Report Number: Public Works & Engineering-2022-606

Recommendations:

1. THAT the report titled: **2022 Brampton Stormwater Asset Management Plan** to the Committee of Council Meeting of June 08, 2022, be received; and
2. THAT Council approve the **2022 Brampton Stormwater Asset Management Plan** attached as Appendix A; and
3. THAT the **2022 Brampton Stormwater Asset Management Plan** be posted on the City's web site to comply with Ontario Regulation 588/17

Overview:

- The Province of Ontario's Regulation 588/17: Asset Management Planning for Municipal Infrastructure requires all municipalities to develop comprehensive Asset Management Plans for core assets by July 1st 2022, with all remaining assets to have such plans in place by 2024. Compliance with this legislation also ensures the City's eligibility for future potential funding support from higher orders of government.
- In 2019, Council approved the "Strategic Asset Management Policy" that sets out its commitment towards establishing sound Asset Management practices

and instilling transparent evidence-based decision-making processes aligned with the City's strategic objectives.

- Stormwater assets are the third largest asset class in the City. In June 2020, the City implemented a Stormwater Charge to provide dedicated, sustainable funding for the maintenance, operation, rehabilitation and renewal of the City's \$1.34B in stormwater assets. A financing strategy is a required component for an asset management plan.
- The 2022 Stormwater Asset Management Plan incorporates the financing structure and many of the asset management analyses developed for the stormwater charge, and provides a comprehensive framework for identifying, developing and delivering the planning, operational and maintenance programs to meet required levels of service for the residents, businesses and communities of Brampton in a financially sustainable manner.
- The Stormwater Asset Management Plan is aligned with the City's Strategic Asset Management Policy and meets the requirements outlined in the O.Reg. 588/17 for Current Levels of Service.
- Based on the 2021 Corporate Asset Management Plan (Phase 1), the City's total replacement cost for stormwater assets is estimated at \$1.34 billion. The majority of stormwater assets are considered in "Good" or better condition based on age. Given the hidden nature of the majority of stormwater infrastructure, the City will continue inspecting and collecting condition data over the next few years that will refine both the replacement cost estimate and condition rating. Asset data collection programs include CCTV inspections for underground assets, bathymetric surveys for stormwater ponds, and physical inspections of ditches and outfalls.
- The Stormwater Asset Management Plan assessed the forecasted needs for provision of stormwater services over the next 10 years to identify program delivery needs and funding gaps. The Plan is not currently recommending any adjustments to the stormwater charge rate, but anticipates future periodic increases may be required to mitigate any funding gaps once complete asset condition data is collected and assessed to quantify the cost of life cycle activities.
- Staff will continue to engage and inform Council as part of the legislated requirements, and will provide updates to the Stormwater Asset Management Plan with the proposed levels of services by July 1st, 2025.

Background:

Brampton is the fourth largest City in Ontario, one of the fastest growing, and currently home to over 600,000 people. Quality infrastructure services are key to enabling and supporting this growth. Stormwater management is a core municipal service, and is delivered by means of an extensive network of storm sewers, stormwater ponds, ditches and watercourses that serves to enhance public safety by protecting people and property from flooding, maintain business and community continuity, and protect the environment. The stormwater drainage system consists of:

- 1800+ kilometres of storm sewers
- 38000 catchbasins
- 25,000+ manholes
- 184 stormwater ponds
- 418 km of watercourses

The stormwater asset base is the third largest in the City, behind Transportation and Facilities in terms of replacement cost and is currently valued at \$1.34B.

In 2010, the City prepared a Stormwater Management Master Plan that identified funding gaps that would need to be mitigated to maintain minimum and acceptable levels of service for stormwater management. The 2010 Master Plan recommended the implementation of a Stormwater Charge to provide a sustainable and dedicated source of funding for stormwater services and asset management. Beginning in 2017, the City explored various approaches to fund the stormwater system which culminated in the approval and implementation of a Stormwater Charge in June 2020.

While this was not a full-fledged asset management plan, the Stormwater Management Financing Study (2020) was required to consider many of the components of an asset management plan such as current and proposed levels of service, existing and future program costs under a variety of Level of Service (LOS) scenarios, and approaches to funding stormwater services.

Province of Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure which came into effect on January 1, 2018, provides standard requirements for municipal asset management planning, and requires all municipalities to develop comprehensive Asset Management Plans for core assets by July 1st 2022 and all other assets by July 1st 2024.

As a requirement under Ontario Regulation 588/17, Council approved the Strategic Asset Management Policy in 2019 that sets out its commitment towards establishing sound Asset Management practices and evidence-based decision making aligned with the City's strategic objectives.

The City engaged the services of SLBC Inc., one of the leaders in asset management in Ontario, to prepare the Stormwater Asset Management Plan to formally address the requirements of Ontario Regulation 588/17 while ensuring alignment with the City's Strategic Asset Management Policy. Development of the Asset Management Plan was supported by the Corporate Asset Management Office and the study team worked with staff from other City divisions involved in delivery of stormwater services.

The 2022 Stormwater Asset Management Plan meets the regulatory requirements and provides a comprehensive framework for identifying, developing and delivering the planning, operational and maintenance programs to meet required levels of service for the residents, businesses and communities of Brampton in a financially sustainable manner.

Current Situation:

The City proactively and responsibly manages its infrastructure portfolio, and as infrastructure ages and demands increase, so does the challenge of ensuring the needs of the community are effectively met with the limited resources available. The 2022 Stormwater Asset Management Plan provides a comprehensive framework for delivering the life-cycle management activities for the City's \$1.34B of stormwater infrastructure to ensure priorities, goals and objectives for service delivery are met with the optimal allocation of resources. The complete Stormwater Asset Management Plan is included as Appendix A.

While many of the programs and activities identified in the Plan were already in place at the City, they were driven by short term operations and maintenance needs. For instance, stormwater pond cleaning activities were typically adjusted to respond to available budgets. In other instances, programs and activities identified in the Plan were unfunded, such as stormwater pond retrofits and comprehensive ditch maintenance program. The Stormwater Asset Management Plan recommends a series of life-cycle programs and activities that will deliver a level of service that meets technical, regulatory and customer levels of service.

The Stormwater Asset Management Plan addresses the key requirements under Ontario Regulation 588/17 by providing information, analyses, and program development and delivery recommendations in the following areas:

- **Infrastructure Asset Inventory** – number and type of assets, replacement costs, asset age and asset condition.

- **Levels of Service** - describes what people and regulations expect from the municipality's infrastructure.
- **Asset Management Strategies** – what activities are required to be undertaken for the assets to deliver the Levels of Service.
- **Financing Strategy** - how will those activities be funded.
- **Monitoring and Improvement** – tracking the progress of asset management strategies and activities, and identifying what improvements are required to improve data and asset maturity.

Infrastructure Asset Inventory:

Asset Data

The City has 1850 km of storm sewer pipes, 38,000 catch basins, 25,000 manholes, 184 stormwater ponds, 92 water-quality treatment units and 130 km of ditches. There are also 418 km of watercourses within the City under a mix of public and private ownership.

Replacement Cost

Based on the City's 2021 Corporate Asset Management Plan (Phase 1), the current estimated replacement value for the stormwater management system is \$1.34B. These costs were developed using recent manufacturer data and contract dollar values for replacement of stormwater system components.

Asset Condition

The overall stormwater asset portfolio, based on age, is in **GOOD** condition, with 94% of assets in good or very good condition, reflecting the recent installation of the majority of infrastructure.

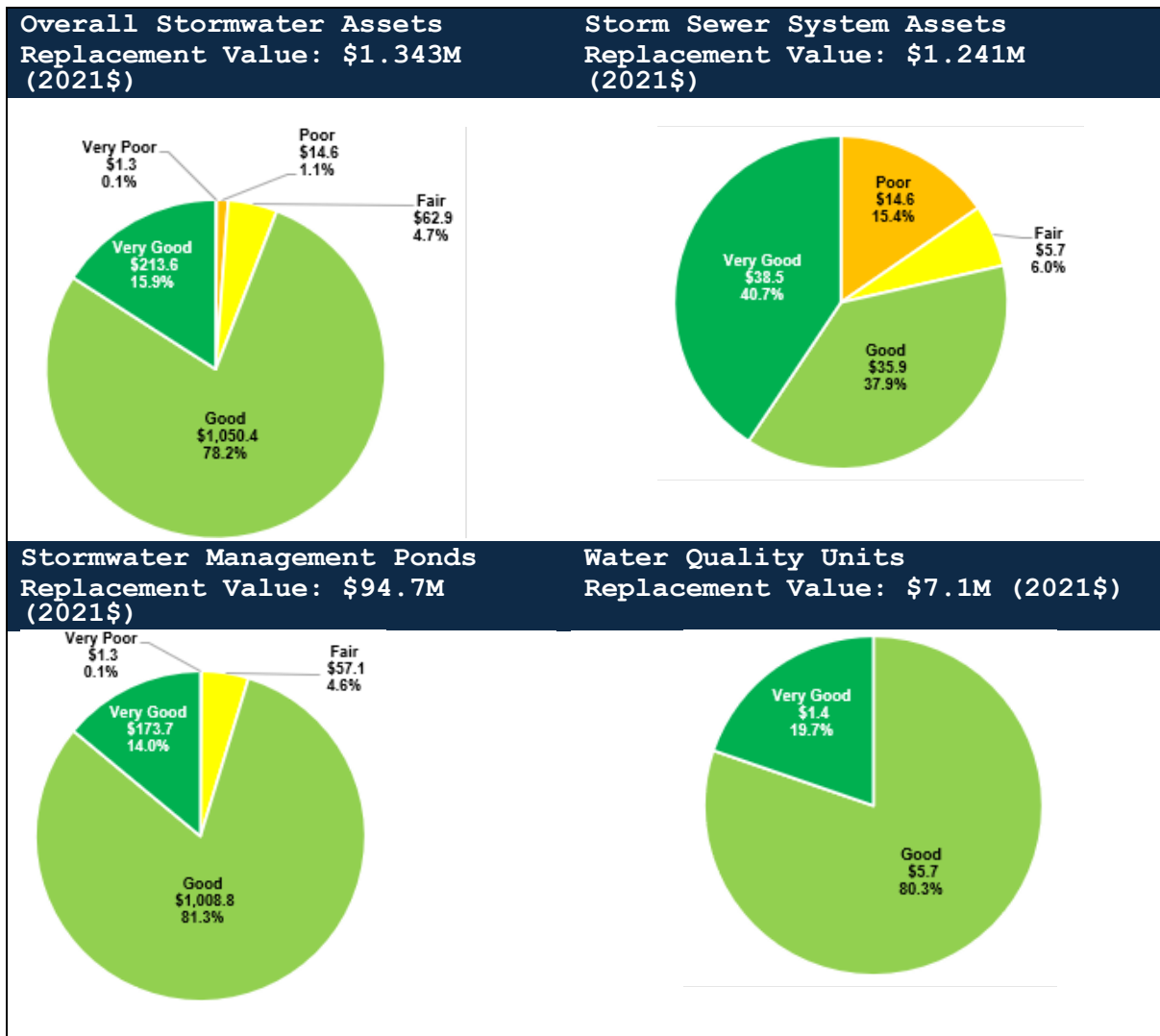


Figure 1 Asset Condition

Asset Age

The majority of the stormwater infrastructure has been installed in the period of rapid growth Brampton has been experiencing for the last 30+ years. The stormwater management system still has about 75% of useful life remaining. With some components such as water quality units and stormwater ponds having a shorter service life, life-cycle activities for those will be planned accordingly.

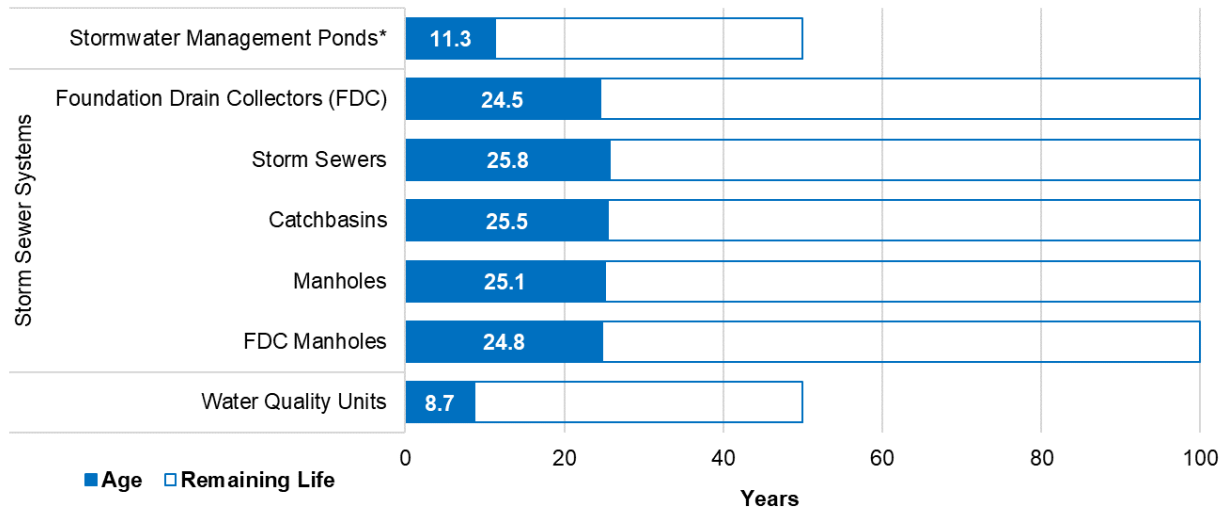


Figure 2 Average Asset Condition

*Stormwater Management Ponds are based on 102 assumed ponds and Estimated Useful Life of 50 years

Levels of Service:

Stormwater management levels of service are primarily driven by legislation and regulations focused on public safety outcomes and protection of people and property from flooding. Building on the levels of service assessment underlying the development of the stormwater charge, staff have undertaken a comprehensive assessment of levels of service, current performance, and identified and set targets as detailed in Chapter 3 of the Stormwater Asset Management Plan. The asset management strategies and life-cycle activities outlined in the Stormwater Asset Management Plan will allow the City to provide these expected levels of service in a financially sustainable manner.

Ontario Regulation 588/17 requires the City to report on key Technical Levels of Service. Table 1 reports these required LOS, as well as additional LOS identified through development of the Stormwater Asset Management Plan, and fulfils the compliance requirements for O.Reg. 588/17 Current Levels of Service.

Table 1 Stormwater Technical Levels of Service

Technical Level of Service Measure	Current 2021 Performance
Percentage of properties in municipality resilient to a 100-year storm (O.Reg. 588/17)	96%
Percentage of the municipal stormwater management system resilient to a 5-year storm (O.Reg. 588/17)	>80%
Average weighted condition assessment of storm sewers	Good
Average weighted condition assessment of water quality treatment units	Good

Technical Level of Service Measure	Current 2021 Performance
Average weighted condition assessment of stormwater ponds	Good
Average weighted condition assessment of watercourses	Good

Asset Management Strategy:

Asset lifecycle management strategies are planned actions that enable assets to provide the defined levels of service in a sustainable way, while managing risk, at the lowest lifecycle cost. The Stormwater Asset Management Plan formalizes many of the operational, maintenance, renewal and rehabilitation activities that were already occurring to varying extents at the City and proposes new activities required to meet asset management goals. The Stormwater Asset Management Plan organizes lifecycle management strategies into the following categories which include both current and proposed life-cycle management activities:

- **Operations & Maintenance activities** – regular scheduled inspections and maintenance, repair activities associated with unexpected events.
- **Renewal activities** – significant rehabilitation designed to extend the life of the asset and replacement activities that are expected to occur once an asset has reached the end of its useful life and rehabilitation is no longer an option.
- **Expansion activities** – planned activities required to extend services to previously unserved areas or expand services to meet growth demands. Also includes redevelopment activities.
- **Disposal activities** – the activities associated with disposing of an asset once it has reached the end of its useful life, or is otherwise no longer needed by the municipality.
- **Non-asset solutions** – actions or policies that can lower costs, lower demands, or extend asset life (such as better integrated infrastructure and land use planning, education and outreach).

Some of the key life-cycle management activities include CCTV inspections and condition grading program for underground assets, ditch inspection and maintenance program, stormwater pond bathymetric surveys, stormwater pond cleanout, catchbasin cleanout, storm sewer repairs, street sweeping, watercourse stabilization and erosion mitigation, stormwater pond retrofits in unserved areas, and stormwater public outreach and education initiatives (school and community outreach, signage at stormwater assets, public-facing information portals, and development and delivery of information resources such as brochures and handbooks).

Financing Strategy:

The City is in the fortunate position of having already taken steps to develop and implement a financing strategy as a prudent and forward-looking action to ensure stormwater services can be assured of dedicated and stable funding. As a result, the life cycle activities defined in the Stormwater Asset Management Plan are wholly funded from stormwater charges.

The Stormwater Asset Management Plan is coordinated with the Stormwater Financing Study (2020), and incorporates and refines level of service data, asset valuation, cost of life cycle activities, and assesses financial sustainability. The Plan estimates that cost of providing stormwater services is estimated at \$243 million for the period 2021-2030 for an average of \$24.3 million per year, while projected revenues over the 10-year period are estimated to be \$24.3 million on average per year.

However, the Plan does identify that contributions for long-term pipe replacement currently sit at 50% of full system replacement costs. The pipe replacement reserves are a variable component of the stormwater charge and allows for the flexibility the City needs to balance the amount of the stormwater charge while keeping the program sustainably funded. Increases in the replacement valuation of the stormwater system affects the pipe reserve ratio, and it is anticipated that complete asset condition data and lifecycle assessments will allow for a refinement of the optimal pipe reserve ratio as infrastructure can typically last well beyond their typically assumed service life. If required, there may be periodic increases to the Stormwater Charge in the future to ensure the financial health of the pipe reserve fund.

Future Improvements

The 2022 Stormwater Asset Management Plan meets the requirements of Ontario Regulation 588/17 for reporting on Current Levels of Service by July 1st 2022. However, development of Asset Management Plans is an iterative process that includes improving data, processes, systems, staff skills, and organizational culture over time.

Chapter 7 of the Stormwater Asset Management Plan includes recommendations to improve data confidence and asset management program maturity over time, and to optimize the planning and delivery of stormwater services and programs. Key recommendations are:

- Continue development of asset management systems, processes and tools that track the full lifecycle of an asset in the City's software systems.
- Continue to refine the costs for asset replacement.

- Continue to collect asset condition data for stormwater assets to improve asset registry and inform process development, program planning and delivery, and financial forecasting.
- Continue to develop detailed computer hydrodynamic models of the City's stormwater system to further quantify levels of service and resiliency to climate change and identify critical areas for attention.
- Develop asset-by-asset risk assessments based on complete condition and level of service data.

Next Steps:

Staff will continue to develop and deliver the operational programs and lifecycle activities identified in the Stormwater Asset Management Plan and funded by the Stormwater Charge. Staff will engage and inform Council appropriately as we move to the next legislative milestone to report on Proposed Levels of Service by July 1st, 2025.

Corporate Implications:

The life-cycle activities detailed in the Stormwater Asset Management Plan requires the support of multiple Divisions within the City to deliver programs and services. Environment & Development Engineering, Road Maintenance, Operations & Fleet, Parks Maintenance and Forestry, Capital Works, Information Technology, and Finance are some of the City Divisions relied upon in the delivery of stormwater programs and services.

Financial Implications:

There are no current financial implications arising from the Stormwater Asset Management Plan as the Stormwater Charge implemented in June 2020 is in place to provide funding for stormwater management programs and life-cycle activities.

Other Implications:

The Province of Ontario's O.Reg. 588/17: Asset Management Planning for Municipal Infrastructure requires all municipalities to develop comprehensive Asset Management Plans for core assets by July 1st 2022. Council approval of this plan allows the City to meet this regulatory requirement for stormwater assets.

Term of Council Priorities:

This report fulfils the Council Priority of a Well-Run City through strict adherence to effective financial management policies and supports Brampton 2040 Vision by ensuring sustainable financial operations.

Conclusion:

Staff are seeking approval of the 2022 Stormwater Asset Management Plan prepared in accordance with O.Reg. 588/17, and to post the plan on the City’s website following approval. Staff will continue to engage and inform Council as part of the legislated requirements with the next legislative milestone being July 1st, 2025 to report on Proposed Levels of Service.

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Attachments:

2022 Stormwater Asset Management Plan