



# Stormwater

2021-2024 Business Plan  
& 2021 Budget

# Foreword

## Our Vision for the Future

Mississauga will inspire the world as a dynamic and beautiful global city for creativity and innovation, with vibrant, safe and connected communities; where we celebrate the rich diversity of our cultures, historic villages, Lake Ontario and the Credit River Valley. A place where people choose to be.

Mississauga City Council approved Our Future Mississauga; a Strategic Plan to achieve this vision over a 40-year timeframe. The City engaged over 100,000 people to develop this Vision Statement. To achieve this vision the City has identified five Strategic Pillars for Change: **move**, **belong**, **connect**, **prosper**, and **green**. Each year the City proposes various initiatives that are aligned with the Strategic Pillars and are intended to bring us closer to fulfilling our vision for the future. The City delivers over 300 services which are consolidated into 16 Service Areas (including the Stormwater Program) that are outlined in this Plan. The 2021-2024 Business Plan and 2021 Budget document details how and where the City plans to allocate resources to deliver programs and services.

The City is committed to providing programs and services cost effectively. In this Plan we have outlined measures that will help assess the quality, efficiency and customer satisfaction that our services achieve. The results help inform decisions on resource allocations and direct program offerings, and improve service delivery to ensure our vision is efficiently realized.

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## Executive Summary of Stormwater

**Mission:** The Stormwater Service Area plans, develops, constructs, maintains and renews a stormwater system which protects property, infrastructure and the natural environment from erosion and flooding and enhances water quality.

### Services we provide:

- Storm sewer, pond and watercourse inspections and maintenance
- Dredging and rehabilitation of Stormwater Management (SWM) facilities to maintain water quality and quantity control
- Watercourse erosion control and restoration
- Stormwater asset management, capital programming and project delivery
- Storm Sewer By-law enforcement
- Outreach and education program

### Interesting facts about this service:

- The City has over 1,911 kilometres of storm sewer pipes and over 200 kilometres of lateral pipes in its drainage system. If laid out end-to-end these pipes would connect the City of Mississauga to the City of Winnipeg
- The stormwater drainage system also includes over 52,000 catchbasins, 270 kilometres of ditches, 150 kilometres of creeks, and 80 SWM facilities that help to collect, drain and clean the city's rainwater runoff before it enters Lake Ontario
- At an estimated 2020 replacement value of over \$4.8 billion, the stormwater drainage system is one of the largest assets owned and operated by the City of Mississauga

### Highlights of the Business Plan include:

- Continuation of the dedicated Stormwater Charge, which funds the City's increasing stormwater management needs including infrastructure renewal and pressures due to flooding
- The proposed 2021 Stormwater Charge Rate, effective April 1, 2021, is \$110.40 per stormwater billing unit, a \$2.20 increase over the 2020 rate
- Continued growth in the Stormwater Capital Program for state of good repair projects and construction of new infrastructure as well as increased contributions to the Pipe Reserve Fund
- Ongoing development of an Asset Management Plan
- Continued preparation of flood mitigation studies and master drainage plans, including the City's Stormwater Master Plan
- Continued design and implementation of watercourse erosion control and restoration projects in various creeks
- Advancement on Cooksville Creek flood relief projects and continued implementation of basement water infiltration mitigation measures in the Lisgar community
- Planning of flood mitigation work to provide flood relief to homes and businesses in the Dixie-Dundas neighbourhood

Net Investment (\$000s)	2021	2022	2023	2024
Operating	11,793	12,094	12,231	12,323
Capital	28,845	40,698	49,827	46,567
Full Time Equivalents	24.1	29.1	29.1	26.1

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## Focus of the Business Plan

The Business Plan for the Stormwater Service Area focuses on improving stormwater conveyance, quality and flow control to adapt to extreme storm events and address the pressures of aging infrastructure.

The Stormwater Service Area was established as a standalone Service Area in 2016 with the introduction of the Stormwater Charge. The impetus for the Stormwater Charge was the need to increase the City's investment in its stormwater infrastructure and supporting programs with a fair and dedicated source of funding. During the development of the Stormwater Charge program, it was recognized that the Charge would initially be set at a point to fund an interim service level and that over time, the Charge would increase to attain a sustainable service level that would allow for all Stormwater program needs to be fully funded. The 2021-2024 Business Plan continues this transition from an interim to a sustainable service level.



*The Stormwater Asset Management Plan includes managing the city's network of storm sewers effectively and efficiently*

The transition continues with a growing Capital Program, increased contributions to the storm Pipe Reserve Fund and the

ongoing development of a comprehensive and integrated Asset Management Plan. This plan will ensure that cost-effective and service-efficient decisions are made to meet the Service Area's infrastructure needs and to plan for future demand. This plan will include the development of inventories and assessment programs for storm sewers and technology to effectively manage all stormwater infrastructure.

In 2021, the Stormwater Service Area will continue improving business practices to meet the legislated asset management requirements and focus on business improvements to the administration of the Stormwater Charge. Staff will also continue several capital project designs, capital project construction and master drainage plans. Master drainage plans are essential for the identification and prioritization of infrastructure needs and the recommendation of future capital projects. Over the coming years, the Service Area will deliver several flood relief and improvement projects, such as storm sewer renewal, erosion control and water quality enhancements.



*Erosion control projects improve the condition of City watercourses*

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The 2021-2024 Business Plan includes the implementation of several key infrastructure projects and the development of the Stormwater Master Plan. The Cooksville Creek flood relief and improvement projects continue to progress, including the construction of several underground stormwater management facilities. The assessment, rehabilitation and renewal of numerous storm sewer pipes will occur as well as erosion control works along various watercourses across the city. Several projects and initiatives are also included in the Stormwater capital program to address basement water infiltration issues in the Lisgar community, and flood-susceptibility of homes and businesses in the Dixie-Dundas neighbourhood.

## Core Services

### Vision, Mission, Goals of Service and Service Delivery Model

#### Vision

To deliver world-class stormwater networks while upholding community standards and enhancing quality of life.

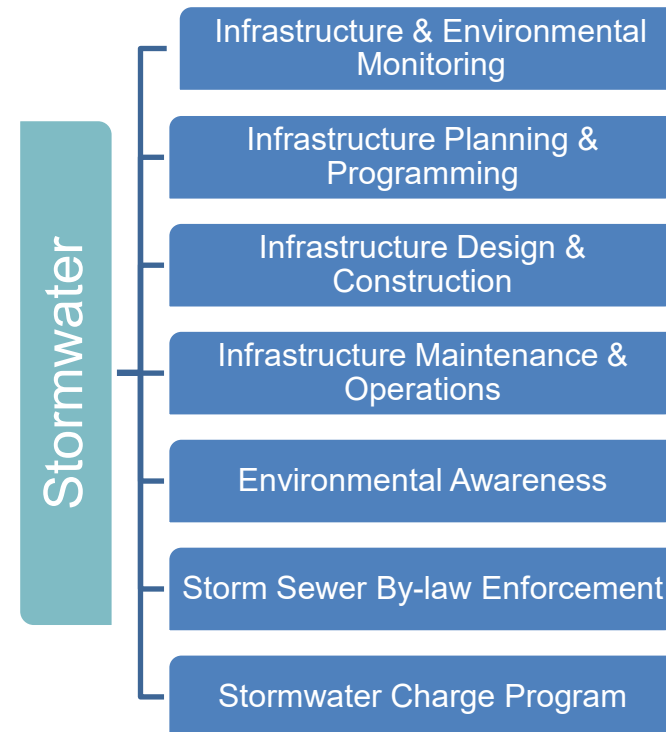
#### Mission

The Stormwater Service Area plans, develops, constructs, maintains and renews a stormwater system which protects property, infrastructure and the natural environment from erosion and flooding and enhances water quality.

#### Goals of Service

- **Establish** a sustainable service level for Stormwater
  - Develop and maintain an integrated Asset Management Plan to better manage all stormwater infrastructure
  - Plan and deliver a growing Capital Program effectively and efficiently
  - Increase contribution to Pipe Reserve Fund
  - Enforce the Storm Sewer By-law
- **Deliver** mitigation and improvement projects
  - Flood relief
  - Erosion control
  - Water quality enhancement

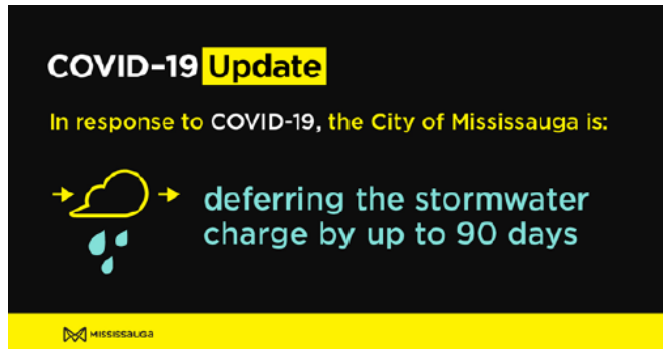
#### Service Delivery Model



## Response to COVID-19

The Stormwater Service Area experienced some limited impacts due to the COVID-19 pandemic, but has continued to provide services to residents, businesses and other City divisions.

At the outset of the pandemic, residents and businesses were given a deferral of their stormwater charge by up to 90 days, recognizing the difficult financial circumstances faced by all during those uncertain times.



*The option to defer stormwater charges was offered to residents and businesses*

The pandemic also presented challenges in terms of tasks that traditionally involved in-person meetings or obtaining public input for City projects.

### Resilient and Adaptive Solutions

Staff seamlessly adapted to the COVID-19 work restrictions using remote work arrangements to ensure that important stormwater projects and programs continued with minimal impact to customers and clients:

- Capital projects to improve and maintain our infrastructure continued to move forward as we engaged our engineering design consultants and agencies via virtual meetings
- Where public input was required for a project such as an Environmental Assessment, consultation materials were

made available on the City's Stormwater website, including notices, presentation material, survey forms and reports

- Enforcement of our Storm Sewer By-law continued, including regular monitoring of known areas of concern and site visits to investigate new complaints. Personal vehicles were used in place of City vehicles that were not available during the lockdown.

### Innovative, Creative and Attentive Service

Review and processing of development applications continued. Online tools were used to minimize delays:

- Use of ePlans and file transfer services to have applicants submit reports, plans and engineering drawings electronically instead of hard copies
- Procedures were set up with the Cashier's office to accept fees and deposits in place of physical cheques
- Teleconference calls and online Webex meetings were held in place of in-person meetings



*Review of development applications continued by electronic means such as the City's ePlans system*

### Safety and Customer Service

- In-person Stormwater outreach events were suspended. However, the City's Stormwater Instagram social media posts resumed in June 2020 and youth learning materials were made available online including digital comic books and videos on the City's Corporate YouTube channel. Staff also delivered a Stormwater webinar in partnership with the Climate Change Team



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## Service Levels and Trends

### Service Levels

The Stormwater Service Area provides the following services annually:

#### Infrastructure and Environmental Monitoring

- Regular inspections and condition assessments of stormwater infrastructure assets (e.g., watercourses, stormwater facilities and storm pipes)
- Management of the City's rain gauge network
- Stormwater quality monitoring at inlets and outlets of stormwater facilities

#### Infrastructure Planning and Programming

- Timely completion of district, watershed or City-wide studies to inform infrastructure needs to support growth and maintain expected levels of service
- Annual development of the 10-year Capital Plan for infrastructure investments

#### Infrastructure Design and Construction

- Timely delivery of stormwater capital projects

#### Infrastructure Maintenance and Operations

- Regular inspections and maintenance of stormwater infrastructure assets (e.g., catchbasins, ditches and storm sewer outfalls)

#### Environmental Awareness

- Establishing a strong online presence to engage with the community about stormwater best management practices
- Conveying stormwater messages regarding by-law enforcement and pollution prevention practices to small businesses
- Development and maintenance of online resources for stormwater and environmental awareness

### Storm Sewer By-law Enforcement

- Investigation of inquiries, spills and sanitary cross connections, and proactive enforcement of By-law

### Stormwater Charge Program

- Administration of the Stormwater Charge and processing of technical exemptions and credit applications

### Issues and Trends

Several trends put pressure on our ability to deliver the described services:

- Frequent extreme storm events add pressure to improve stormwater conveyance, quality and flow control
- Aging stormwater infrastructure and asset management regulation compliance increase the need to develop and implement an integrated Asset Management Plan
- Future development and intensification add pressure to properly plan for and deliver upgrades to the stormwater drainage system
- Changes to legislation and conservation authority requirements increase operating and capital pressures

The above issues in turn place pressures on the capital and operating budgets and ultimately on the stormwater charge.



*Increased risk of urban flooding due to greater frequency of extreme storms and aging infrastructure*

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## Performance Measures and Results

The City of Mississauga is committed to delivering services economically and efficiently. The City's performance measures are used to help assess how well we are doing at achieving our goals and where we need to improve operations. The results also inform decision-making and strengthen accountability.

### Balanced Scorecard

A Balanced Scorecard groups measures in four key areas of an organization's performance: Financial, Customer, Employee, and Business Process. By paying attention to all four areas, an organization can retain balance in its performance and ensure that it is moving toward the attainment of its goals.

Below are descriptions of the measures tracked in this Service Area's Balanced Scorecard. The Balanced Scorecard table that follows shows trends since 2017 and expected outcomes up to 2024.

### Financial Measures

*Unit cost of catchbasin cleaning* is a measure of the City's ability to manage catchbasin cleaning operating pressures while maintaining service levels. Catchbasins are an integral component of the stormwater pipe network and require regular cleaning. In accordance with the existing service level, 33 per cent of the City's catchbasins must be cleaned each year.

*Cost to maintain watercourses per kilometre* is a measure that indicates the amount spent on labour, contracts and equipment for minor watercourse maintenance over the length of the City's watercourses. Watercourses are a significant asset maintained by the Stormwater Service Area and preserving their function and health are critical for drainage and the environment. This measure is subject to fluctuation due to storm event impacts.

### Customer Measures

*Citizens who are satisfied with the City's stormwater service* is a measure included in the 2019 Citizen Satisfaction Survey which is conducted every two years. Stormwater services were included in the survey beginning in 2019.

*Requests for review resolved within service level and credit applications reviewed within service level* are Stormwater Charge-related measures that indicate the City's ability to serve customers in a timely and an effective manner. For these measures, there is an internal target of 90 per cent or better.

### Employee Measures

Employee Measures are derived from the results of the Employee Engagement Survey that is administered to City staff every three years.

*Overall job engagement* indicates the extent to which employees feel engaged in decision-making at the City.

*Job satisfaction* measures the extent to which employees value, enjoy, and believe in what they do.

*Overall team engagement* indicates the extent to which employees feel positive about their team environment.

### Business Process Measures

*Watercourses in fair or better condition and quality control ponds in fair or better condition* are measures that indicate the City's ability to manage lifecycle asset management programs for watercourses and ponds. These measures are derived from condition ratings assessed during field inspections. Condition assessments of creeks and ponds assist in prioritizing maintenance activities and capital projects as well as long-term planning. The internal target is to improve each measure by one per cent annually.

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*Progress towards achieving a sustainable service level* is a measure that indicates the City's ability to reach an appropriate annual contribution to the Pipe Reserve Fund, while fully funding the operating and capital programs. Initially a target equal to one per cent of the replacement value of the City's storm sewer pipes was established with annual increases to the Pipe Reserve Fund to allow the fund to grow and reach a sustainable level. Through the development of the Stormwater Service Area's 2021 Asset Management Plan, a consultant-led study was undertaken in 2019 to update asset replacement values including storm sewer pipes. As a result of this detailed analysis, the 2020 replacement value for storm sewer pipes has increased from the original estimate of \$2.1 billion to \$4.6 billion.

This increase can be attributed to the greater level of detail acquired on the length and condition of the City's pipe network in addition to a more refined assessment of pipe replacement cost based on actual material and construction costs according to size, length and age of sewers. For now, the performance measure maintains the modest increase to the annual contribution to the pipe reserve as staff continue to work towards establishing a refined target contribution based on sewer conditions (rather than age) and the development of a rehabilitation/replacement strategy through asset management planning. This performance measure will be re-evaluated in the 2022 Business Plan based on the results of the ongoing asset management planning exercises.

## Balanced Scorecard

Measures for Stormwater	2017 (Actual)	2018 (Actual)	2019 (Actual)	2020 (Plan)	2021 (Plan)	2022 (Plan)	2023 (Plan)	2024 (Plan)
<b>Financial:</b>								
Unit Cost of catchbasin cleaning	\$37.0	\$35.0	\$40.43	\$41.24	\$42.06	\$42.90	\$43.76	\$44.64
Cost to maintain watercourses per kilometre	\$823	\$793	\$4,040	\$4,121	\$4,203	\$4,287	\$4,373	\$4,460
<b>Customer:</b>								
Citizens who are satisfied with the City's stormwater service	N/A	N/A	77%	N/A	78%	N/A	79%	N/A
Number of stormwater inquiries per 1,000 people	2.4	2.3	2.8	2.8	2.8	2.8	2.8	2.8
Requests for review resolved within service level	100%	87%	93%	90%	90%	90%	90%	90%
Credit applications reviewed within service level	95%	100%	100%	90%	90%	90%	90%	90%
<b>Employee:</b>								
Overall Job Engagement	N/A	78%	N/A	N/A	79%	N/A	N/A	80%
Job Satisfaction	N/A	86%	N/A	N/A	87%	N/A	N/A	88%
Overall Team Engagement	N/A	85%	N/A	N/A	86%	N/A	N/A	87%
<b>Business Process:</b>								
Watercourses in fair or better condition	78%	79%	79%	80%	81%	82%	83%	84%
Quality control stormwater ponds in fair or better condition	81%	81%	85%	86%	87%	88%	89%	90%
Progress towards achieving a sustainable Service Level (through contributions to Pipe Reserve Fund) <sup>1</sup>	22%	26%	29%	34%	39%	43%	48%	53%

<sup>1</sup> Based on a replacement value estimate of \$2.1 billion.

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## Awards and Achievements

- In 2020, the Mississauga Stormwater Master Plan, entitled “Build Beautiful”, was initiated. The Master Plan will reset the foundation laid by the previous Stormwater Quality Control Strategy to address broader goals relating to stormwater management
- Construction of a pump station to address basement water infiltration issues in the Lisgar community was completed



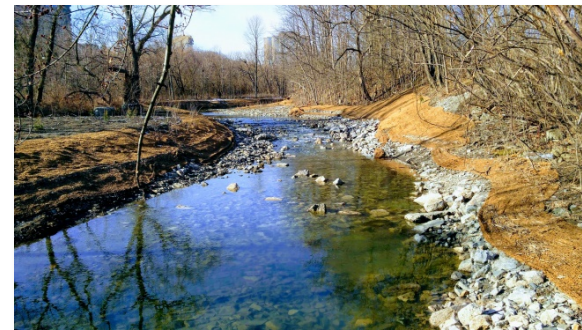
*Construction of the Lisgar Community Pump Station*

- The City continues to implement the recommendations of the Cooksville Creek Flood Evaluation Study by constructing a series of stormwater management facilities to capture and slow the stormwater runoff entering Cooksville Creek:
  - The newly constructed Saigon Park includes one of the largest stormwater ponds in the province, with a storage capacity of roughly 240 million litres. This facility was brought on-line in 2019 and was instrumental in capturing a 20,000 litre spill of diesel fuel from Highway 401 that would have otherwise contaminated Cooksville Creek through the city to Lake Ontario
  - In Sandalwood Park, construction began on the second in a series of underground storage galleries, while the designs for two more facilities were initiated



*The Saigon Park stormwater management pond became functional in 2019*

- Construction was completed on two large erosion control and stream restoration projects on Cooksville Creek in 2020:
  - Through Woodington Green Park (Rathburn Road to Meadows Boulevard)
  - Adjacent to the Mississauga Valley Community Centre (Mississauga Valley Boulevard to Central Parkway East)



*Erosion control project on Cooksville Creek between Mississauga Valley Boulevard and Central Parkway East*

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## 2021-2024 Business Plan Outlook

### Planning for the Future

#### Service Delivery

The Stormwater Service Area is planning for the future by recognizing the pressures and challenges ahead resulting from extreme storm events and aging stormwater infrastructure. There is an increasing need to plan and deliver effective and timely stormwater services while addressing legislative compliance and conservation authority requirements.

The Stormwater Service Area strives to build a resilient stormwater system and establish a sustainable service level. Planning for the future includes increasing contributions to the Pipe Reserve Fund, delivering an increasing number of capital projects effectively, managing the associated increase in construction costs, and completing studies and plans, including the Stormwater Master Plan.

The basis of the Stormwater Charge was realizing the need to increase the City's investment in its stormwater infrastructure and supporting programs. During the development of the Stormwater Charge program, it was recognized that the Charge would initially be set to fund an interim service level and over time increase to attain a sustainable service level that would allow for all stormwater program needs to be fully funded. However, recent financial projections have determined that the current level of stormwater rate increase will be inadequate in future years to meet a sustainable service level. As a result, the 2021-2024 Business Plan proposes rate increases aimed to fully fund a growing Capital Program and to continue with an increased contribution to the Pipe Reserve Fund in anticipation of storm sewer replacement projects that will be undertaken in future years.

#### Asset Management

The Stormwater Service Area's goal is to plan, design and deliver infrastructure that will ensure Mississauga remains a vibrant, economically competitive and climate-resilient city. Integrated and comprehensive asset management ensures that cost-effective and service-efficient decisions are made to not only meet today's infrastructure needs but plan for future demand and long-term growth.



*Installation of new storm pipe infrastructure (Timberlea Boulevard at Little Etobicoke Creek)*

In 2017, the Province of Ontario introduced and enacted the Asset Management Planning for Municipal Infrastructure Regulation. The Regulation required all municipalities to publish a Strategic Asset Management Policy by July 1, 2019 and requires them to develop asset management plans for core infrastructure – which includes all stormwater infrastructure – by July 1, 2021 (in progress).

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In 2018, the Stormwater Service Area began the first phase of developing an asset management plan and strategy, involving the review of stormwater assets, current business practices, available supporting tools and required training. Several initial improvement tasks that were identified through this review have been implemented or are in progress in 2020. Staff continue to work on improving practices and are developing the Stormwater Asset Management Plan to meet the legislated requirements for 2021.

### **People and Culture**

The Stormwater Service Area is planning for the future by ensuring effective talent management and succession planning. In 2020, the Stormwater Service Area participated in the Transportation & Works Engineer-in-Training (EIT) program, developed to prepare recent engineering graduates, through a series of job rotations, to become qualified and compete for permanent positions at the City. The inaugural EIT program successfully ran from 2016-2019 and resulted in all three EITs being hired into permanent positions at the City, including one in the Stormwater Service Area.



## Finding Efficiencies

### Lean Program

The City's Lean Program focuses on strengthening the organization's culture of continuous improvement and instills Lean concepts and principles as a way of work in every Service Area. The program focuses on maximizing customer value and minimizing waste along with empowering staff at all levels to problem-solve on a daily basis. Since its establishment in 2016, the Lean program has produced such enhancements as improved customer experience, faster processing times, higher quality and lower costs.

In 2019, staff organized and consolidated storm sewer closed circuit television (CCTV) inspection records from various sources into a digital format stored on a hard drive, resulting in a significant reduction in record retrieval time. Prior to this Lean initiative, the inspection data was disorganized and physically stored at inconvenient locations, making access difficult. Further, the inability to quickly retrieve records often led to duplicate inspections. The resulting improvements have allowed for easier searches, reduced wait times, and freed up physical storage space.

This initiative garnered annual savings of \$8,400 and \$3,200 through elimination of duplicate inspections and reduced wait times, respectively.

Highlights of the many other Lean projects and small improvements completed include:

- Grouping of stormwater management pond rehabilitation contracts by geographic area to allow for construction efficiencies, leading to a cost savings of \$9,900
- Streamlining process for submitting and review of erosion and sediment control permit applications resulting in an annual cost avoidance of \$1,600
- Improving exchange of property information between the City's Geomatics section and Region of Peel billing department in support of the Stormwater Charge program, leading to a cost avoidance of \$2,500 annually
- Engaging IT to find a software solution that allows stormwater outreach staff to create in-house brochures, eliminating the need for a third-party vendor and generating annual savings of \$1,700

Completed Initiatives					Total Benefits	
Improvement Type	2014 – 2018	2019	Up to Sept 2020 <sup>1</sup>	Total	Type	Total
Small Improvements	31	17	7	55	Cost Savings and Avoidance	\$304,709
Rapid Improvements	1	1	1	3	Customer Service Improvements	33
Projects	0	1	0	1	Safety Improvements	5
Total	32	19	8	59	Environmental Improvements	20

<sup>1</sup> Due to COVID-19, staff have been focused on sustaining critical operations. As a result, many improvements and innovations have not yet been logged into the system, impacting the reported results.



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## Advancing the City's Strategic Plan

The City's Vision and Strategic Plan are the starting points for our annual business planning and budgeting cycle. The 40-year Strategic Plan, Our Future Mississauga, is built on five pillars — **move, belong, connect, prosper, and green**. Business Plans are designed to strengthen aspects of these pillars to support the attainment of Mississauga's Vision.

Below are examples of how the initiatives of Stormwater relate to the Strategic Plan pillars.

### move - developing a transit oriented city

"Connect our City – to contribute to a vibrant, successful city by connecting communities within Mississauga and within the Greater Golden Horseshoe to support a 24-hour city."

- Invest in stormwater management and infrastructure to convey stormwater drainage on our roads and keep our bus fleet moving

### belong - ensuring youth, older adults and new immigrants thrive

"Nurture Diverse Cultures – to provide more cultural exchange, understanding and opportunity for small-scale entrepreneurialism."

- Establish a strong online presence to engage with the community about stormwater best management practices
- Develop strong visualized and easy-to-understand graphic content, including infographics and digital brochures
- Improve stormwater literacy in schools by teaching key stormwater messages to youth

### connect - completing our neighbourhoods

"Build and Maintain Infrastructure – to deliver infrastructure in a sustainable way."

- Ongoing development of a comprehensive Asset Management Plan to ensure the cost effective management of all stormwater infrastructure
- Effective planning and delivery of capital projects, drainage studies and master plans
- Continuation of regular inspection and maintenance programs to assess conditions of stormwater infrastructure

### prosper - cultivating creative and innovative businesses

"Meet Employment Needs – to provide the infrastructure and network of services and opportunities that business requires to thrive."

- Create a safe environment and provide reliable stormwater infrastructure for businesses to thrive

### green - living green

"Conserve, Enhance and Connect Natural Environments – to be responsible stewards of the land by conserving, enhancing and connecting natural environments."

- Construction of erosion control projects along Cooksville, Applewood and Loyalist Creeks
- Development of the Mississauga Stormwater Master Plan
- Implementation of Low Impact Development techniques to mimic natural processes and improve water quality to the receiving drainage system

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## Transforming our Business with Technology

The Stormwater Service area has been striving to improve its use of technology to deliver service.

Technology plays an integral role in planning, managing and maintaining the City's stormwater infrastructure. The Service Area utilizes a variety of technology to aid in optimizing the service it provides. Technology is leveraged to improve analysis, planning, co-ordination and design of this critical infrastructure.

Staff continue to work with IT to find opportunities where technology can be further leveraged to improve service planning, management and delivery. Key initiatives include improving asset management planning, customer service, and mapping tools.

### Improving Asset Management

Stormwater and IT are using technology for the development of an asset management strategy and plan for stormwater infrastructure:

- In 2020, staff continued to improve the integration between existing inventories and systems and leverage available technology to build a comprehensive asset management strategy and plan for all stormwater assets. Specifically, an improvement plan is being compiled as part of the development of the 2021 Stormwater Asset Management Plan to meet provincial legislation
- Utilizing Infor Public Sector applications, a notification process was developed and implemented for Low Impact Development (LID) features along the road rights-of-way. When works are requested through road occupancy permits or public utilities review processes (such as the Public Utilities Co-ordinating Committee, or PUCC), the presence of LID features along the road is flagged and the scope of work is sent to the appropriate City staff for

review. This identification process will reduce unintended damage and ensure proper restoration of the assets

- Leveraging new technology to obtain enhanced storm sewer CCTV inspection data. Through panoramic scans to determine maintenance hole conditions, staff is evaluating the effectiveness, quality and benefit of such technology

### Customer Service

Several methods to serve customers are utilized:

- Applicants are able to submit online applications through a Dynamic Portal for Stormwater Credits, Technical Exemptions and Requests for Review. Residents are able to submit stormwater-related concerns online
- Other self-service processes and alternative ways for the public to connect with staff (e.g., social media) are continually reviewed to improve overall customer experience
- The Stormwater website will continue to be updated in order to keep residents informed of the progress of important studies and capital projects. Given the necessary restrictions on face-to-face public meetings as a result of the COVID-19 pandemic, the stormwater website will become the primary point of contact for study notices and public engagement for our Environmental Assessments and Master Plans

### Business Intelligence for Ease of Use

- Development and implementation of Infor Public Sector guidance documents and training manuals to empower staff to create, edit, assign and resolve stormwater Service Requests
- Conversion from a paper-based to an electronic system for Storm Sewer Locates reduces staff time as well as lead time for administrative and field staff

- 
- Development and implementation of the Stormwater Credit Renewal process in Infor Public Sector

### **Geographic Information System (GIS) Mapping Tools**

Leveraging GIS software with the City's IT Geomatics staff:

- Development of a comprehensive storm sewer asset data model and inventory mapping is ongoing. This tool significantly improves staff's ability to access and confirm asset data, and plan and co-ordinate maintenance and improvement works
- As a part of this initiative, staff continue to verify the spatial accuracy of infrastructure data and compile more attributes in the asset registry
- With a GIS inventory, enhanced reporting using dashboards and analysis through query tools can be leveraged in the near future

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## Maintaining our Infrastructure

To maintain stormwater infrastructure now and into the future, the Proposed 2021-2024 Stormwater Business Plan & Budget continues the development of an asset management plan and strategy for the Stormwater asset portfolio and the increased investment in capital and pipe reserves.

In 2020, several erosion control and Stormwater management facility designs were completed. Construction of these projects will begin later in 2020 and in 2021. Additionally, various project designs, flood mitigation studies and master drainage plans are currently underway. These projects include the Mississauga Stormwater Master Plan, the Dixie-Dundas Flood Mitigation Environmental Assessment and the Southdown Stormwater Servicing and Environmental Management Plan. These studies and plans help to identify additional capital needs and pressures within the 10-year Capital Program and assist staff in planning, maintaining infrastructure and building resilience to the storm drainage system.

Stormwater infrastructure is also regularly inspected and maintained through the Service Area's operating program. Catchbasins, storm sewers, watercourses, stormwater ponds, inlets and outlets are regularly inspected for deficiencies. These condition assessments identify the need for maintenance or infrastructure renewal.

Some maintenance and infrastructure renewal achievements include the following:

- The Lisgar District Utility Trench Dewatering and Foundation Drain Collector (FDC) pumping station constructed in fall 2020. Located in the Cactus Gate Parkette, this pumping station was designed and constructed to reduce the potential for basement water infiltration in the surrounding homes through the dewatering of bedding material within the existing sewer utility trench to limit water accumulation while also removing water from the FDC pipe network

- In 2019, Storm Sewer By-law enforcement staff conducted 533 site visits in response to 54 spill and release incidents and 13 residential and industrial sanitary cross connections. By-Law enforcement staff collaborated extensively with Region of Peel, Ministry of the Environment, Conservation and Parks personnel to deal with remediation and rehabilitation of stormwater assets. Enforcement of the Storm Sewer By-law is necessary to comply with provincial legislation and to protect water quality within the city's watercourses



*Spill containment in Saigon Park Stormwater Management Pond*

- Sediment removal operations were initiated on three stormwater management ponds. This maintenance activity takes place on stormwater ponds every 10 to 15 years to ensure proper operation of the facilities and to maintain treatment capacity as designed



*Sediment Removal from Stormwater Management Ponds*

- The Applewood Creek Restoration and Erosion Control improvements behind Myron Drive were completed in December 2019. This project involved the construction of enhanced watercourse bank protection at the outfall of one of the City's trunk storm sewers to allow a safe transition of storm sewer flow to the natural watercourse while protecting nearby property and infrastructure



*Bank protection at storm sewer outfall to Applewood Creek*

# Managing our Human Resources

## Workforce Analytics

The Stormwater Service Area has a relatively young, established workforce with a mix of municipal and private sector work experience. Current staff continue to expand their roles and contributions within the Service Area. The team also includes seasonal staff and co-op student positions that provide valuable support to the annual monitoring of the City's stormwater assets.

## Our Structure

Having a team of staff making key contributions to the Service Area requires strong internal relationships and communication to effectively organize and deliver our services. Working together, our Service Area staff support Stormwater business goals to establish a sustainable service level and deliver mitigation and improvement projects.

Stormwater services are delivered with key support provided by the following departments, divisions and external partners:

- Finance
- Information Technology
- Parks and Forestry
- Region of Peel (Stormwater Charge billing)
- Infrastructure Planning & Engineering
- Works Operations & Maintenance

## Our Talent

The Stormwater team is comprised of individuals that bring a wealth of expertise and experience from across Canada and around the world, supporting our vision to be a leader in the delivery of stormwater services. The table below provides some of the roles that are part of the Stormwater Service Area and staff memberships in professional associations.

Our Service Area staff roles include:	Staff are active members of various associations:
<ul style="list-style-type: none"><li>• Environmental/Storm Drainage Engineers and Technologists</li><li>• Environmental/Storm Drainage Co-ordinators</li><li>• Environmental Services Specialist</li><li>• Financial Analyst</li><li>• GIS Analyst</li><li>• Infrastructure Management Specialist</li><li>• Manager, Stormwater Assets and Programming</li><li>• Project Leader, Storm Drainage Assets</li><li>• Manager, Stormwater Projects and Approvals</li><li>• Stormwater Charge Program Co-ordinator</li></ul>	<ul style="list-style-type: none"><li>• American Public Works Association (APWA)</li><li>• Association of Professional Geoscientists of Ontario (APGO)</li><li>• Canadian Network of Asset Managers (CNAM)</li><li>• Institute of Asset Management (IAM)</li><li>• Municipal Engineers Association (MEA)</li><li>• Ontario Association of Certified Engineering Technicians and Technologists (OACETT)</li><li>• Ontario Professional Planners Institute (OPPI)</li><li>• Professional Engineers of Ontario (PEO)</li></ul>

### Critical Roles/Functions to Achieve Business Goals

Staff continue to work together and support one another to deliver services and achieve the business goals within the Stormwater Service Area. The following functions are critical to achieving the 2021-2024 Stormwater business goals:

- Asset management planning
- Asset management system development
- Monitoring and management of stormwater assets using the asset management plan and system
- Implementing the enhanced Storm Sewer By-law enforcement program
- Effective project management
- Planning and delivery of capital projects, drainage studies and master plans

Critical roles and functions will continue to evolve from 2021 through to 2024 with the ongoing development of new and refined asset management plans and enhanced programs.

### Talent Needs

Service Area talent is supplied from internal promotions and external hires. Qualified applicants from the labour market as well as co-op students, Engineers-In-Training (EIT) and the Technologist Internship Program contribute to Stormwater. Historically, our seasonal staff and students have proven to be a good source for candidates for full-time positions. Through these assignments, the students and contract staff gain the necessary experience to qualify for full-time positions.

#### *Staffing changes for 2021:*

- An increase of one permanent FTE for a Stormwater Maintenance Contract Co-ordinator

#### *Staffing changes for 2022:*

- An increase of five FTEs (two permanent and three contract) as part of the Stormwater Asset Management Program, including:
  - Storm Drainage Technologist
  - Asset Analyst/Technologist
  - IT Business Analyst (end date April 2023)
  - GIS Specialist (end date April 2023)
  - IT Project Lead (end date April 2023)

### Proposed Full Time Equivalent Staffing Distribution by Program

Program	2020	2021	2022	2023	2024
Storm Administration Costs	2.0	2.0	2.0	2.0	2.0
Storm Operations and Maintenance	21.1	22.1	27.1	27.1	24.1
<b>Total Service Distribution</b>	<b>23.1</b>	<b>24.1</b>	<b>29.1</b>	<b>29.1</b>	<b>26.1</b>

Note: Numbers may not balance due to rounding.



## Stormwater Budget & Financial Overview

### 2021 Stormwater Rate and Future Adjustments

The Stormwater Service Area, like other Service Areas in the City, depends on safe and reliable infrastructure to operate successfully. While some of Mississauga's stormwater infrastructure is relatively new, many of the assets are aging and require significant maintenance or renewal, and therefore require dedicated funding to maintain them in a state of good repair. Additionally, assets that were built many years ago, such as storm sewer pipes, are approaching the end of their service life and will require replacement in the near future. With frequent extreme storm events associated with climate change, the need to invest in our infrastructure to ensure we have a resilient stormwater system is more apparent than ever. This investment in our stormwater infrastructure will provide for properly funded maintenance and capital improvement programming to mitigate flooding, enhance water quality and allow the Stormwater Service Area to continue to provide safe and reliable infrastructure moving forward.

To determine the stormwater rate, service levels and operating and capital needs are set to reflect infrastructure priorities, inflationary pressure and reserve fund contributions needed now

to plan for funding challenges foreseen with replacing costly assets (e.g., pipes) in the future. Furthermore, service level changes and the resulting stormwater rate increase reflect a balance between fiscal responsibility and resident service expectations. The stormwater rate is established on an annual basis during the budget approval process, through a fees and charges by-law subject to Council approval. An increase to the stormwater rate will allow future stormwater capital and operational needs to be addressed. As shown in the table below, an annual rate of \$110.40 per stormwater billing unit is proposed to be effective for April 1, 2021.

Since the onset of the Stormwater Charge in 2016, the annual stormwater rate increase has been maintained at two per cent or roughly \$2 for an average single family detached home. However, long-term financial forecasting (beyond the 10-year plan) has identified that a greater increase in the stormwater rate is necessary to meet future demands. In order to continue to fully fund operations and maintenance activities, an increasing capital program and maintain modest increases in the annual contributions to the pipe reserve, a larger annual rate increase of 2.75 per cent or roughly \$3 for an average single family detached home starting in 2022 is proposed.

	2016	2017	2018	2019	2020	2021	2022	2023	2024
Stormwater Rate (per billing unit)	\$100.00	\$102.00	\$104.00	\$106.10	\$108.20	\$110.40*	113.40*	\$116.50*	\$119.70*

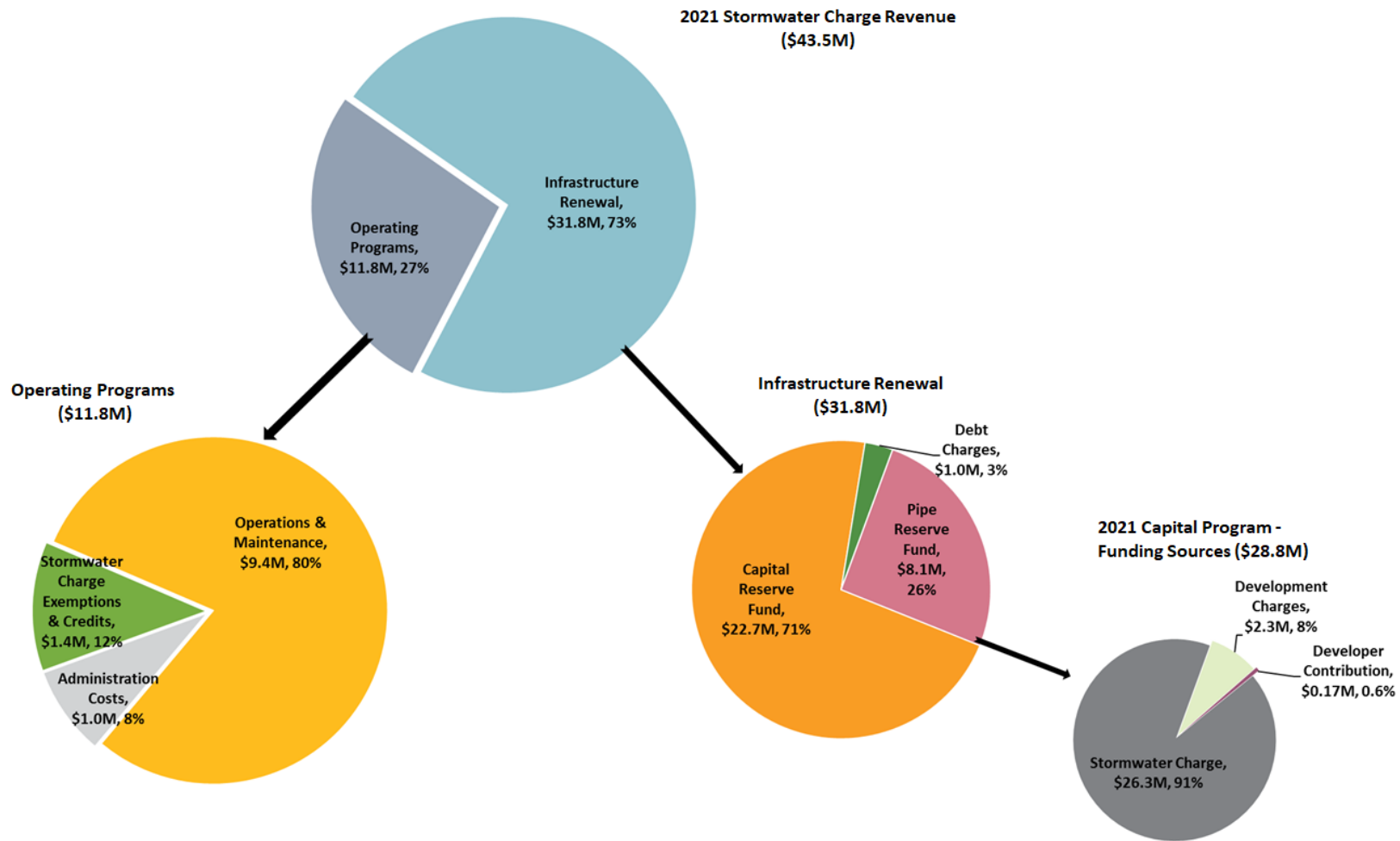
\* Effective April 1 of each year.

To learn more about the Stormwater Charge please visit:  
[www.stormwatercharge.ca](http://www.stormwatercharge.ca)



## Distribution of Stormwater Charge Revenue

The pie charts below provide an overview of Stormwater Charge Revenue segregated by the Operating and Infrastructure Renewal Programs for 2021, and also show how the 2021 Capital Program is distributed by funding source.



Note: Numbers may not balance due to rounding

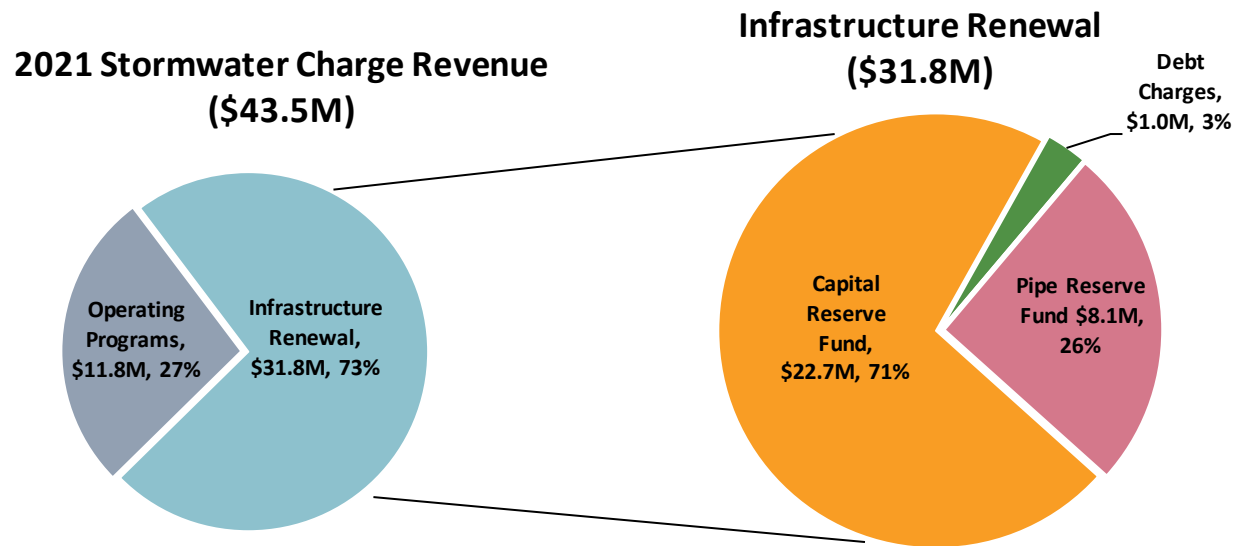
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The following pie charts provide an overview of Stormwater Charge Revenue allocated to Infrastructure Renewal Programs for 2021.

**Description of Stormwater Infrastructure Renewal Allocations**

Infrastructure Renewal – 73 per cent of the total stormwater revenue is to be allocated for infrastructure renewal items as follows:

- Capital Reserve Fund (\$22.7 million)
- Debt charges associated with the financing of capital projects from previous years (\$1.0 million)
- Pipe Reserve Fund for future pipe replacement needs (\$8.1 million)



Note: Numbers may not balance due to rounding

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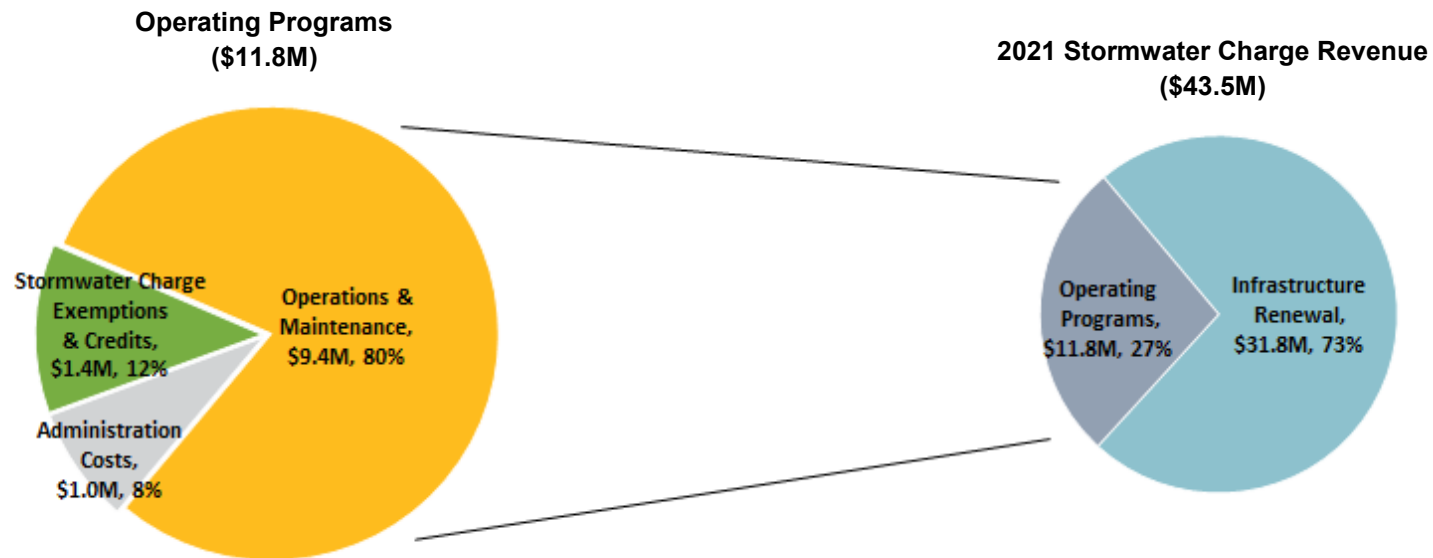
The following pie charts provide an overview of Stormwater Charge Revenue allocated to Operating Programs for 2021.

**Description of Stormwater Operating Programs:**

Operations and Maintenance – Provides for the City-wide direct and allocated costs associated with providing the stormwater service. Examples include watercourse maintenance, catchbasin cleaning, and storm sewer inspection and repair (\$9.4 million).

Administration Costs – Provides for Region of Peel costs for Stormwater Charge billing and customer service support as well as costs for the City to administer the Stormwater Charge (\$1.0 million).

Stormwater Charge Exemptions and Credits – Provides for credits and technical exemptions to recognize properties with stormwater management best practices or which drain directly to Lake Ontario or an adjacent municipality (\$1.4 million).



Note: Numbers may not balance due to rounding

## Proposed Operating Budget

This part of the Business Plan sets out the financial resources required to deliver the proposed 2021-2024 Business Plan. Information is provided by major expenditure and revenue category as well as by program. The costs to maintain existing service levels and operationalize prior decisions are identified separately from proposed changes. The budget for 2020 was \$10.91 million and the proposed budget for 2021 is \$11.79 million.

### Maintain Current Service Levels

The Stormwater Service Area aims to manage operating pressures while maintaining service levels and remaining in line with inflation. The change of \$694,000 to Maintain Current Service Levels is primarily due to subsidies for sump pumps in the Lisgar community, operation and maintenance of the new Torbram Road and Lisgar pump stations, and changes to labour and benefits.

### Stormwater Charge Exemptions and Credits

The 2021 budget proposes an increase in technical exemptions and program credits based on the latest analysis indicating an increased volume of applications.

### Efficiencies and Cost Savings

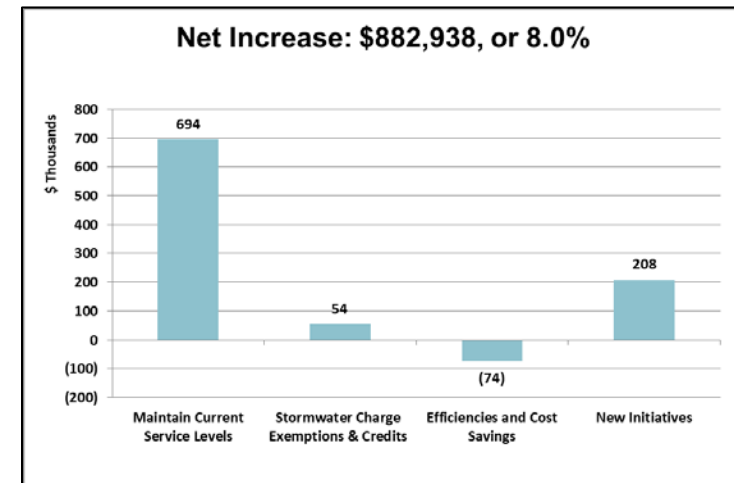
Each year, City staff identify efficiencies and streamline processes through continuous improvement while maintaining service levels and managing additional costs. For 2021, staff have achieved cost savings in the contract for the City's street sweeping program.

### New Initiatives

An existing capital-funded contract FTE position is proposed to be converted to permanent in 2021 (BR #8441), to deliver a stormwater Asset Management Plan to meet legislated milestones and support ongoing asset management planning.

A Maintenance Contract Co-ordinator (BR #8692) is proposed for 2021. The position will assist with multiple stormwater maintenance contracts, including new contracts for the operation and maintenance of the Lisgar District Utility Trench Dewatering and Foundation Drain Collector (FDC) pumping station.

### Proposed Changes for 2020 Net Operating Budget by Category



The following table breaks down the total 2021 Operating Budget of \$11.79 million, which is a net operating budget increase of \$0.88 million over the 2020 Budget.

Category	Changes to 2021 Budget from 2020 (\$000s)
<b>2020 Base Budget</b>	<b>10,910</b>
<b>Operating Decreases</b>	
Labour & Benefits	(351.1)
Materials, Supplies & Other Services	(13.9)
Finance Other	(5.0)
Transportation, Equipment Costs & Maintenance	(18.0)
<b>Operating Increases</b>	
Stormwater Charge Exemptions & Credits	54
Contractor & Professional Services	978
Occupancy & City Costs, Advertising & Promotions Communication Costs	30
Other Revenues	2
<b>Total Changes to Maintain Current Service Levels</b>	<b>11,585</b>
New Initiatives	208
<b>Total 2021 Operating Budget</b>	<b>11,793</b>
<b>Net Operating Budget Increase</b>	<b>883</b>

Note: Numbers may not balance due to rounding.

## Operating Budget Details

The following table identifies the budgeted and forecasted operating expenditures and revenues for 2021-2024, as well as the 2020 Budget and the 2019 Actuals by major program within the Service Area.

### Proposed Budget by Program

Description	2019 Actuals (\$000s)	2020 Budget (\$000s)	2021 Proposed Budget (\$000s)	2022 Forecast (\$000s)	2023 Forecast (\$000s)	2024 Forecast (\$000s)
<b>Expenditures to Deliver Current Services</b>						
Storm Operations and Maintenance	10,057	8,686	9,369	9,404	9,441	9,478
Storm Administration Costs	957	1,044	980	984	987	990
Storm Exemptions & Credits	1,316	1,367	1,421	1,459	1,499	1,541
Other Revenues	(372)	(187)	(185)	(185)	(185)	(185)
New Initiatives and New Revenues	0	0	208	434	490	499
<b>Total Operating Programs</b>	<b>11,958</b>	<b>10,910</b>	<b>11,793</b>	<b>12,094</b>	<b>12,231</b>	<b>12,323</b>
Capital Reserve Fund Contributions	24,110	23,796	22,688	22,548	22,628	22,793
Pipe Reserve Fund Contributions	6,100	7,100	8,100	9,100	10,100	11,100
Debt Charges	990	980	964	949	931	912
<b>Total Infrastructure Renewal</b>	<b>31,200</b>	<b>31,876</b>	<b>31,752</b>	<b>32,596</b>	<b>33,659</b>	<b>34,805</b>
<b>Stormwater Program</b>	<b>43,158</b>	<b>42,786</b>	<b>43,546</b>	<b>44,691</b>	<b>45,890</b>	<b>47,128</b>
Expenditure Budget - Changes by Year				2%	1%	1%
Proposed Net Budget - Changes by Year				3%	3%	3%

Note: Numbers may not balance due to rounding.

## Proposed Cost Increase Required to Maintain Current Service Levels

The following table provides detailed highlights of budget changes by major cost and revenue category. It identifies the net changes to maintain existing service levels, taking into account efficiencies, cost savings, and cost increases arising from prior year decisions.

Category	2020 Budget (\$000s)	2021 Proposed Budget (\$000s)	Change (\$000s)	Details (all values in thousands)
<b>Labour and Benefits</b>	<b>5,065</b>	<b>4,714</b>	<b>(351)</b>	<b>Reduced costs allocated to Stormwater</b>
Contractor & Professional Services	3,879	4,856	978	\$960 Lisgar Sump Pumps Subsidies \$100 for Lisgar and Torbram Pump Station Operations & Mtce \$60 storm sewer system Studies \$50 for Storm Sewer Repairs (\$160) Street Sweeping Contract Savings
Transportation, Equipment Costs & Maintenance	540	522	(18)	(\$15) savings due to Vehicle Rental for Ditch and Culvert Repairs/Construction
Materials, Supplies & Other Services	74	60	(14)	(\$14) to align budget based on previous year actuals
Occupancy & City Costs, Advertising &	78	108	30	\$20 for Lisgar and Torbram Pump Station utilities
Finance Other	95	90	(5)	
Transfers To Reserves and Reserve Funds	0	0	0	
Stormwater Charge Exemptions & Credits	1,367	1,421	54	\$54 Increase to adjust budget based on actual processed technical exemptions and credits
Other Revenues	(187)	(185)	2	
<b>Subtotal - Other Operating Costs</b>	<b>10,910</b>	<b>11,585</b>	<b>675</b>	
Infrastructure Renewal	30,896	30,788	(108)	\$1,000 increase transfer to stormwater pipe reserve (\$1,108) reduce transfer to capital reserve fund
Debt	980	964	(16)	\$16 decrease in existing debt payment charges
<b>Total Infrastructure Renewal</b>	<b>31,876</b>	<b>31,752</b>	<b>(123)</b>	
<b>Total</b>	<b>42,786</b>	<b>43,338</b>	<b>552</b>	

Note: Numbers may not balance due to rounding.

## Proposed New Initiatives and New Revenues

This table presents the costs by Budget Request (BR) for proposed new initiatives. Each BR is numbered. Detailed descriptions of any year one and year two BRs can be found in the pages following the table.

Description	BR #	2021 FTE Impact	2021 Proposed Budget (\$000s)	2022 Forecast (\$000s)	2023 Forecast (\$000s)	2024 Forecast (\$000s)	2021 to 2024 FTE Impact	2021 to 2024 Capital (\$000s)
<b>New Initiative</b>								
Stormwater Asset Management Program	8441	0.0	116	314	368	375	2.0	768
Stormwater Maintenance Contract Co-ordinator	8692	1.0	92	120	122	124	1.0	0
<b>Total New Initiatives</b>		<b>1.0</b>	<b>208</b>	<b>434</b>	<b>490</b>	<b>499</b>	<b>3.0</b>	<b>768</b>

Note: Numbers may not balance due to rounding.



**Proposed Initiative**

Stormwater Asset Management  
Program

**Department**

Transportation & Works  
Department

**Service Area**

Stormwater

**Description of Budget Request**

Operating dollars are required in 2021 for the conversion of an existing FTE from a capital-funded contract to permanent, to deliver a stormwater Asset Management Plan to meet legislated milestones and support ongoing asset management planning. Permanent and temporary contract FTEs and the procurement of software that will support advanced asset management planning and analysis are requested for 2022 to facilitate the delivery of an Asset Management Program (AMP).

**Required Annual Operating Investment**

Impacts (\$000s)	2021	2022	2023	2024
Gross Expenditures	116.1	313.6	368.0	374.7
Reserves & Reserve Funds	0.0	0.0	0.0	0.0
User Fees & Other Revenues	0.0	0.0	0.0	0.0
Stormwater Charge Requirements	116.1	313.6	368.0	374.7
* Net Change in \$		197.4	54.4	6.7
FTEs	0.0	5.0	5.0	2.0

*\*In each year, all values are cumulative, not incremental.*

**Required Capital Investment**

Total Capital (\$000s)	2020 & Prior	2021	2022	2023	2024 & Beyond
Expenditures	0.0	0.0	642.1	125.6	0.0

**Why Staff Recommend this Initiative**

A Stormwater AMP must be implemented to meet 2021 and 2024 milestones for O. Reg 588/17 and ongoing asset management planning. A majority of assets are approaching their end of life which adds pressure to prioritize works effectively. To manage assets in an efficient and effective way an asset management program for the Stormwater Service Area provides a clear and documented link to business planning, operating and capital budget requests and Stormwater Charge rate increases.

**Details of Service Change**

Implementing the Stormwater AMP and Asset Analysis Tool requires additional operating and capital resources and costs. Capital costs include the temporary addition of three contract FTEs from 2022 to 2023 (Project Lead, GIS Specialist and IT Business Analyst); the purchase of software licenses, IT resources and staff training to integrate with existing systems and business processes; and additional hardware/furniture. Operating changes include the 2021 conversion of an existing contract capital FTE to permanent in 2021; the addition of two permanent technologist/analyst FTEs in 2022; and the associated maintenance fees for the Asset Analysis Tool.

**Service Impact**

The Stormwater Asset Management Program supports the City's current work to inventory, value, assess and formally manage all Stormwater assets. It will also streamline and improve the way the City manages and uses asset inventory information and our service delivery processes. Specifically the program will improve capital and maintenance planning for Stormwater assets, optimize decision-making to prioritize capital projects, reduce volume of manual and ad-hoc work and eliminate the risk of current processes and practices not being audit compliant.

**Proposed Initiative**

Stormwater Maintenance  
Contract Co-ordinator

**Department**

Transportation & Works  
Department

**Service Area**

Stormwater

**Description of Budget Request**

To improve service delivery to the public by introducing a new Maintenance Contract Co-ordinator to oversee the Stormwater program's related contracts, including the operation and maintenance of the new Lisgar Pumping Station. This position will also ensure that cross-connections to the City's storm sewer system are maintained in a state of good repair, and improve monitoring and reporting of Works Operation and Maintenance (WOM) spill response efforts.

**Required Annual Operating Investment**

Impacts (\$000s)	2021	2022	2023	2024
Gross Expenditures	92.0	120.1	122.0	124.1
Reserves & Reserve Funds	0.0	0.0	0.0	0.0
User Fees & Other Revenues	0.0	0.0	0.0	0.0
Stormwater Charge Requirements	92.0	120.1	122.0	124.1
* Net Change in \$		28.1	2.0	2.0
FTEs	1.0	1.0	1.0	1.0

*\*In each year, all values are cumulative, not incremental.*

**Required Capital Investment**

Total Capital (\$000s)	2020 & Prior	2021	2022	2023	2024 & Beyond
Expenditures	0.0	0.0	0.0	0.0	0.0

**Why Staff Recommend this Initiative**

Staff recommend this course of action to achieve the following results: improved service delivery; increased collaboration between WOM, Environmental Services and Infrastructure Planning and Engineering Services (IPES); increased collaboration between the City and Peel Region; reduced liability and improved legislative compliance; increased public safety; increased operational efficiency; promotion of cost savings; reduced environmental pollution.

**Details of Service Change**

The additional Maintenance Contract Co-ordinator will oversee Stormwater Program-related contracts and assist the IPES team to co-ordinate the cross-connection repair work, liaise with Peel Region on the reconnection of sanitary laterals to their mains and monitor spill response efforts.

**Service Impact**

This will minimize occurrence of lasting damage to cross-connections via timely response times and address the expected rise in service requests. The dedicated Maintenance Contract Co-ordinator will allow other City staff to focus on repairing and preserving other City infrastructure.

## Capital Program & Financing Overview

### Infrastructure

The City of Mississauga is committed to providing quality stormwater services through safe, reliable infrastructure. **Build and Maintain Infrastructure** is a key strategic goal in the City of Mississauga's Strategic Plan as well as a top priority of the City's Business Plan. These principles are key concepts underlying the Stormwater Charge. When the rate for the Charge was initially approved at \$100 per stormwater billing unit, it was based on the interim funding level. It was anticipated that funding would increase in the future to respond to increasing infrastructure requirements.

At the core of the City's need to achieve a sustainable stormwater business model is the need to implement sound asset management practices involving:

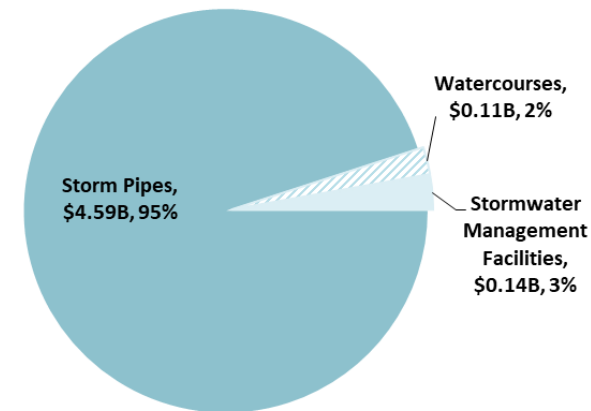
- Developing an inventory of City-owned assets
- Monitoring and reporting of infrastructure condition
- Preparing appropriate asset renewal and maintenance programs
- Developing financial strategies to effectively manage those programs over the lifecycle of stormwater infrastructure

As previously mentioned, one of the business goals of the 2021-2024 plan is to continue to improve asset management practices as they pertain to storm pipes and all stormwater assets. This includes the improvement of inventory data, monitoring, capital and maintenance planning and the financing of storm sewer infrastructure with the development of an asset management system.

Repairing and rehabilitating aging stormwater infrastructure requires an increased focus on the funding needed to renew the City's long-term assets. As such, enhanced infrastructure funding strategies and mechanisms are being developed to assist the City in addressing these challenges.

A critical part of the City's Stormwater Charge is the need to provide adequate and sustainable funding for the renewal of the storm pipes, in addition to stormwater management ponds and watercourse erosion control.

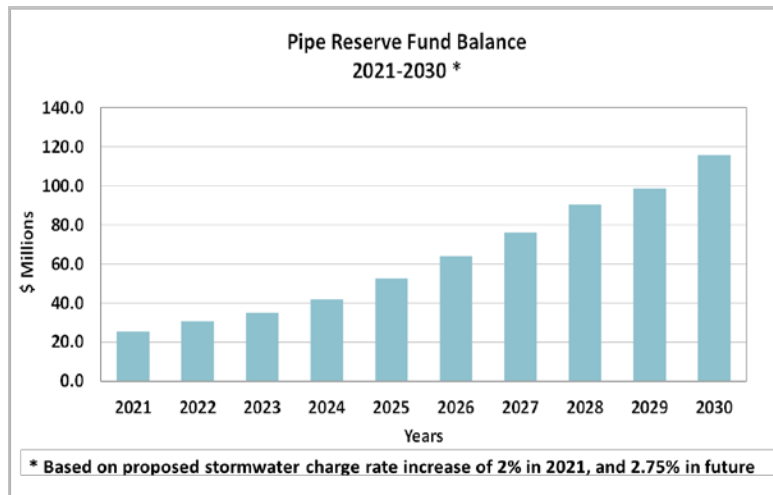
**Stormwater Infrastructure 2020 Replacement Costs  
(Estimated \$4.83 billion)**



## Pipe Program Financing

The stormwater program includes a provision of \$8.1 million in 2021 for future pipe replacement needs. The proposed 2021-2024 Business Plan & Budget assumes this provision will increase by \$1.0 million in each of the next four years. As part of the Asset Management Plan development, staff will be assessing the value of the annual contribution to the Pipe Reserve Fund and making recommendations in future Business Plans to ensure that sufficient funds are being set aside for future pipe replacements. This increase is necessary as part of the Service Area's goal to reach a sustainable service level.

The following chart reflects the projected annual closing balances of the Pipe Reserve Fund, with a forecasted balance of \$116.7 million in 2030.



Capital projects pertaining to stormwater pipes are currently being funded from the Pipe Reserve Fund. The most significant expenditures will begin in 40-50 years, as current stormwater pipes begin to reach their end of life. Work is underway to assess the conditions of storm sewers, program any future repair and rehabilitation needs and identify funding pressures.

Continuation of this work to deliver a comprehensive Asset Management Plan is included in this Business Plan. This body of work will provide more accurate information to determine the appropriate level of annual funding required for the Pipe Reserve Fund moving forward.



*Renewal of storm sewers is a major focus of the Business Plan*



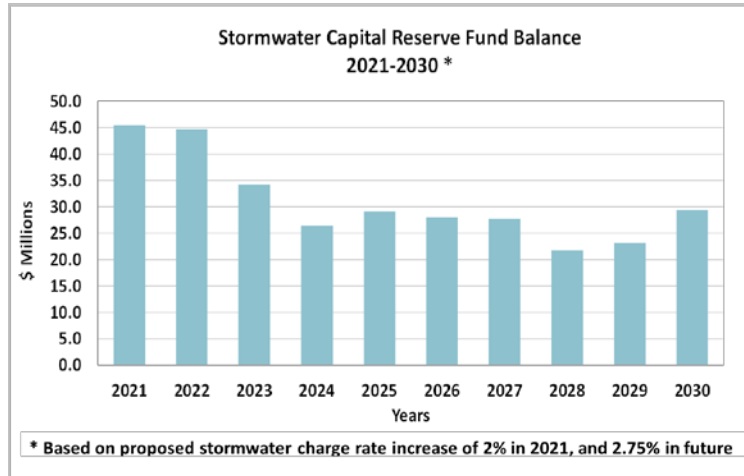
*Corroded metal storm sewers require replacement*

## Capital Program Financing

In addition to the funding required for the City's pipe infrastructure, the Stormwater Service Area must address present and future needs that include stormwater ponds, flood relief, watercourse erosion control and drainage studies.

Revenues from the 2021 Stormwater Charge will be \$43.5 million and are estimated to increase to \$47.1 million by 2024. Some of this revenue funds the Stormwater Capital Reserve Fund. As shown in the chart, the forecasted closing balances for this Reserve Fund will range between \$21.8 million and \$45.4 million over the 10-year period. Careful planning will ensure that capital priorities will be funded throughout the forecast to 2030, with a positive balance remaining in this Reserve Fund.

Maintaining adequate balances will allow flexibility to address infrastructure needs that arise as the City moves to implement the Stormwater asset management plan, recommendations from future studies and to fund projects that are currently unfunded.



## Proposed Capital Budget

This section summarizes the forecast 10-year capital requirements for this service. The following table presents the forecast by major program.

### Proposed 2021-2030 Capital Budget by Program

Program Expenditures	2021 Proposed Budget (\$000s)	2022 Forecast (\$000s)	2023 Forecast (\$000s)	2024 Forecast (\$000s)	2025-2030 Forecast (\$000s)	Total 2021-2030 (\$000s)
Storm Sewers	5,575	12,684	15,220	24,037	36,385	93,901
Storm Studies	0	1,000	80	700	7,304	9,084
SWM Facilities and Flood Relief Works	8,030	16,327	23,234	10,890	83,180	141,661
Watercourse Erosion Control	15,240	10,687	11,293	10,940	55,120	103,280
<b>Total</b>	<b>28,845</b>	<b>40,698</b>	<b>49,827</b>	<b>46,567</b>	<b>181,989</b>	<b>347,926</b>

Note: Numbers may not balance due to rounding. Numbers are gross.

### Proposed 2021-2030 Capital Forecast Highlights:

- Storm Sewer Condition Assessment, Rehabilitation and Renewal (2021, ongoing)
- Mississauga LRT Storm Sewer Improvements (2022-2024)
- Lisgar Improvements (2021, ongoing)
- Storm Pond Rehabilitation and Dredging – various locations (2022, ongoing)
- Applewood Creek Erosion Control (2021-2022)
- Credit River Erosion Control, adjacent to Ostler Court (2021-2022)
- Loyalist Creek Erosion Control (2021)
- Sawmill Creek Erosion Control, The Folkway to Erin Mills Parkway (2022)
- Little Etobicoke Creek Drainage Improvements (2021)
- Cooksville Creek Flood Storage Facility at Frank McKechnie Community Centre (2022-2023)
- Cooksville Creek Flood Storage Facility at Mississauga Valley (2022)
- Cooksville Creek Flood Storage Facility at McKenzie Park (2022)



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**Proposed 2021-2030 Capital Budget by Funding Source**

The following table provides the funding sources proposed to fund the capital portion of the proposed 2021-2024 Business Plan & 2021 Budget and the consolidated forecast for 2025-2030.

<b>Funding</b>	<b>2021 Proposed Budget (\$000s)</b>	<b>2022 Forecast (\$000s)</b>	<b>2023 Forecast (\$000s)</b>	<b>2024 Forecast (\$000s)</b>	<b>2025-2030 Forecast (\$000s)</b>	<b>2021-2030 Total (\$000s)</b>
Development Charges	2,303.0	11,331.6	8,339.0	9,397.0	8,091.0	39,461.6
Developer Contributions	170.0	0.0	370.0	35.0	325.0	900.0
Stormwater Charge	26,372.0	29,366.0	41,118.0	37,135.0	173,573.0	307,564.0
<b>Total</b>	<b>28,845.0</b>	<b>40,697.6</b>	<b>49,827.0</b>	<b>46,567.0</b>	<b>181,989.0</b>	<b>347,925.6</b>

Note: Numbers may not balance due to rounding. Numbers are gross.

## Proposed 2021 Capital Budget Detail

The following tables provide a detailed listing of proposed capital projects for 2021.

Program: Storm Sewers

Project Number	Project Name	Gross Cost (\$000s)	Recovery (\$000s)	Net Cost (\$000s)	Funding Source
TWSD00248	Contribution to Storm Sewer Works - Tenth Line West, from Argentia Rd. to Hwy. 401	170	0	170	Developer Contributions
TWSD00403	Lisgar Improvements	610	0	610	Stormwater Charge
TWSD00411	Storm Sewer Renewal	2,000	0	2,000	Stormwater Charge
TWSD00451	Drainage Improvements - Various Locations	200	0	200	Stormwater Charge
TWSD00454	Storm Sewer Cross-Connection Rehabilitations - Various Locations	100	0	100	Stormwater Charge
TWSD00509	QEW Culvert Contributions	200	0	200	Stormwater Charge
TWSD00512	Roadway Rehabilitation Storm Sewer Contributions	895	0	895	Stormwater Charge
TWSD007695	Storm Sewer Oversizing - Mississauga Road	1,400	0	1,400	Development Charges
<b>Total</b>		<b>5,575</b>	<b>0</b>	<b>5,575</b>	

Note: Numbers may not balance due to rounding.

Program: SWM Facilities and Flood Relief Works

Project Number	Project Name	Gross Cost (\$000s)	Recovery (\$000s)	Net Cost (\$000s)	Funding Source
TWSD00156	Monitoring and minor modification of Storm Water Management Facilities - Various Locations	80	0	80	Development Charges, Stormwater Charge
TWSD00210	Cooksville Creek Flood Storage Facility - Bristol Rd E, west of Kennedy Rd (Frank McKechnie Community Centre)	6,700	0	6,700	Development Charges, Stormwater Charge
TWSD00233	Low Impact Development for Roads Projects and Stormwater Sustainable Practices - Various Locations	250	0	250	Stormwater Charge
TWSD008701	Little Etobicoke Creek Drainage Improvements Dixie/Dundas Area	1,000	0	1,000	Development Charges, Stormwater Charge
<b>Total</b>		<b>8,030</b>	<b>0</b>	<b>8,030</b>	

Note: Numbers may not balance due to rounding.

Program: Watercourse Erosion Control

Project Number	Project Name	Gross Cost (\$000s)	Recovery (\$000s)	Net Cost (\$000s)	Funding Source
TWSD00120	Cooksville Creek Erosion Control - Downstream of Central Pkwy. E. to Mississauga Valley Blvd.	60	0	60	Development Charges, Stormwater Charge
TWSD00154	Minor Erosion Control Works - Various Locations	330	0	330	Development Charges, Stormwater Charge
TWSD00206	Applewood Creek Erosion Control - Lakeview Golf Course	9,000	0	9,000	Development Charges, Stormwater Charge
TWSD00245	Credit River Erosion Control - Adjacent to Ostler Court	2,950	0	2,950	Development Charges, Stormwater Charge
TWSD00349	Credit River Erosion Control - Dundas St. to HWY 403	400	0	400	Development Charges, Stormwater Charge
TWSD00381	Loyalist Creek Erosion Control - Between Thornlodge Drive	2,500	0	2,500	Development Charges, Stormwater Charge
<b>Total</b>		<b>15,240</b>	<b>0</b>	<b>15,240</b>	

Note: Numbers may not balance due to rounding.

## Proposed 2021-2030 Capital Budget by Sub-Program

The following tables provide a listing of capital forecast by sub-program for 2021-2030.

Sub-Program	2021 Proposed Budget (\$000s)	2022 Forecast (\$000s)	2023 Forecast (\$000s)	2024 Forecast (\$000s)	2025 Forecast (\$000s)	2026 Forecast (\$000s)	2027 Forecast (\$000s)	2028 Forecast (\$000s)	2029 Forecast (\$000s)	2030 Forecast (\$000s)	Total Forecast (\$000s)
<b>Storm Sewers</b>											
STM Drainage	810	5,610	5,610	6,113	110	350	250	1,000	2,270	4,110	26,233
STM Storm Oversizing	0	270	270	0	0	0	0	0	0	0	540
STM Storm Sewer	4,765	6,804	9,340	17,924	3,000	3,000	4,900	3,200	11,295	2,900	67,128
<b>Subtotal</b>	<b>5,575</b>	<b>12,684</b>	<b>15,220</b>	<b>24,037</b>	<b>3,110</b>	<b>3,350</b>	<b>5,150</b>	<b>4,200</b>	<b>13,565</b>	<b>7,010</b>	<b>93,901</b>

Note: Numbers may not balance due to rounding. Numbers are net.

Sub-Program	2021 Proposed Budget (\$000s)	2022 Forecast (\$000s)	2023 Forecast (\$000s)	2024 Forecast (\$000s)	2025 Forecast (\$000s)	2026 Forecast (\$000s)	2027 Forecast (\$000s)	2028 Forecast (\$000s)	2029 Forecast (\$000s)	2030 Forecast (\$000s)	Total Forecast (\$000s)
<b>Storm Studies</b>											
STM Studies	0	1,000	80	700	3,750	1,000	100	1,080	100	1,274	9,084
<b>Subtotal</b>	<b>0</b>	<b>1,000</b>	<b>80</b>	<b>700</b>	<b>3,750</b>	<b>1,000</b>	<b>100</b>	<b>1,080</b>	<b>100</b>	<b>1,274</b>	<b>9,084</b>

Note: Numbers may not balance due to rounding. Numbers are net.

Sub-Program	2021 Proposed Budget (\$000s)	2022 Forecast (\$000s)	2023 Forecast (\$000s)	2024 Forecast (\$000s)	2025 Forecast (\$000s)	2026 Forecast (\$000s)	2027 Forecast (\$000s)	2028 Forecast (\$000s)	2029 Forecast (\$000s)	2030 Forecast (\$000s)	Total Forecast (\$000s)
<b>SWM Facilities and Flood Relief Works</b>											
STM Channelization	0	3,100	0	0	0	0	0	0	0	0	3,100
STM Flood Relief	7,700	5,697	16,604	3,100	8,230	13,030	8,940	12,440	0	0	75,741
STM SWM Facilities	330	7,530	6,630	7,790	2,960	4,330	6,320	6,030	14,473	6,428	62,820
<b>Subtotal</b>	<b>8,030</b>	<b>16,327</b>	<b>23,234</b>	<b>10,890</b>	<b>11,190</b>	<b>17,360</b>	<b>15,260</b>	<b>18,470</b>	<b>14,473</b>	<b>6,428</b>	<b>141,661</b>

Note: Numbers may not balance due to rounding. Numbers are net.

Sub-Program	2021 Proposed Budget (\$000s)	2022 Forecast (\$000s)	2023 Forecast (\$000s)	2024 Forecast (\$000s)	2025 Forecast (\$000s)	2026 Forecast (\$000s)	2027 Forecast (\$000s)	2028 Forecast (\$000s)	2029 Forecast (\$000s)	2030 Forecast (\$000s)	Total Forecast (\$000s)
<b>Watercourse Erosion Control</b>											
STM Erosion Control	15,240	10,687	11,293	10,940	8,270	8,600	10,310	11,850	7,320	8,770	103,280
<b>Subtotal</b>	<b>15,240</b>	<b>10,687</b>	<b>11,293</b>	<b>10,940</b>	<b>8,270</b>	<b>8,600</b>	<b>10,310</b>	<b>11,850</b>	<b>7,320</b>	<b>8,770</b>	<b>103,280</b>
<b>Total Expenditures</b>	<b>28,845</b>	<b>40,698</b>	<b>49,827</b>	<b>46,567</b>	<b>26,320</b>	<b>30,310</b>	<b>30,820</b>	<b>35,600</b>	<b>35,458</b>	<b>23,482</b>	<b>347,926</b>

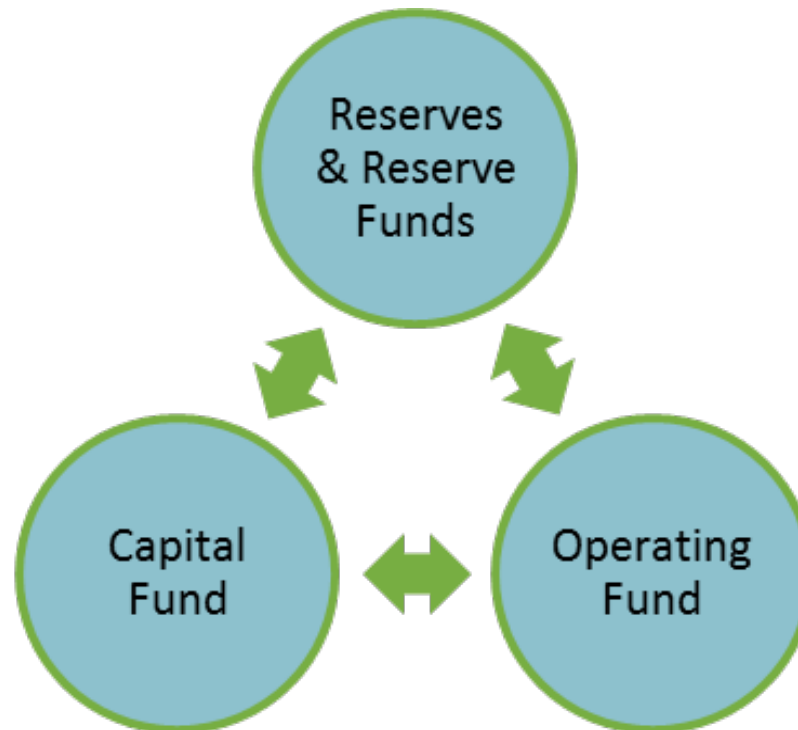
Note: Numbers may not balance due to rounding. Numbers are net.

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## Reserves & Reserve Funds

Reserves and Reserve Funds are established by Council to assist with long term financial stability and financial planning. These funds are set aside to help offset future capital needs, obligations, pressures and costs. They are drawn upon to finance specific-purpose capital and operating expenditures as designated by Council, to minimize Stormwater Charge fluctuations due to unanticipated expenditures and revenue shortfalls, and to fund ongoing projects and programs.

The following chart shows the relationship between the different funds:



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## Existing Core Services

### Reserves

The Stormwater **Fiscal Stability Reserve** is funded entirely from the Stormwater Operating Budget. If needed, these funds will offset any unanticipated fluctuations in revenue or expenses which occur during the year. It will also provide for costs associated with the implementation of the new Regional water billing system.

### Reserve Funds

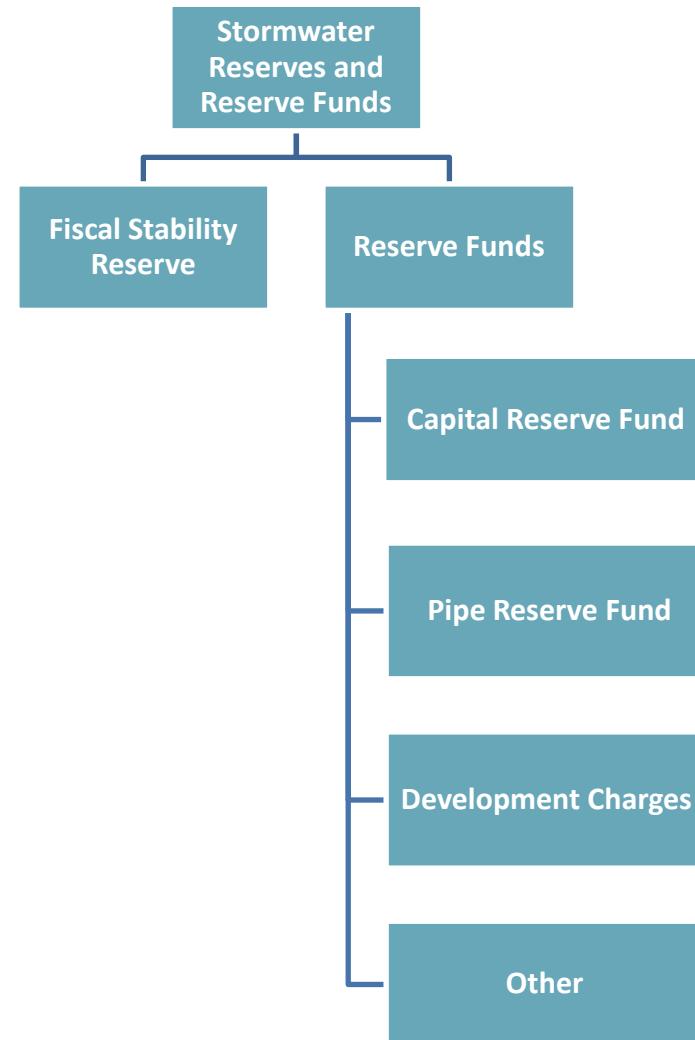
Reserve Funds are segregated, restricted and provide for capital emplacements.

The Stormwater **Capital Reserve Fund** provides funding for infrastructure needs related to ponds and erosion control along watercourses. The Stormwater **Pipe Reserve Fund** provides for the renewal of the City's pipe infrastructure.

The **Development Charges Reserve Fund** accumulates funds collected under the City's Development Charges By-law as permitted under the *Development Charges Act*, 1997 and funds growth-related projects. These funds are obligatory in nature and reported as deferred revenue on the City's Financial Statements.

Additional Reserve Funds included in this Section are:

- Developer Contributions
- Lot Levies
- General Municipal Development
- Excess Debt



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## Forecast Change

The following table provides a summary of the projected 2021 Reserve and Reserve Funds as compared to 2020. Detailed descriptions of each Reserve and Reserve Fund can be found at the end of this section.

### Reserve and Reserve Funds Summary

2021 Operating and Capital Reserve Fund	2020 Projected Balance (\$000s)	2021 Projected Balance (\$000s)	Change (\$000s)	% Change
Stormwater Fiscal Stability Reserve	5,605	5,776	170	3.04%
Stormwater Capital Reserve Fund	44,892	45,006	114	0.25%
Stormwater Pipe Reserve Fund	19,488	25,356	5,868	30.11%
Development Charges Reserve Fund	35,062	33,928	(1,134)	(3.23%)
Other Reserve Funds	25,123	25,712	589	2.34%
<b>Total</b>	<b>130,170</b>	<b>135,778</b>	<b>5,608</b>	<b>4.31%</b>

Note: Numbers may not balance due to rounding.

## Continuity Schedule of Stormwater Reserve and Reserve Funds

Reserves and Reserve Funds	Balance Jan. 1, 2020 (\$000s)	2020 Projected Contributions (\$000s)	2020 Projected Expenditures (\$000s)	2020 Projected Interest (\$000s)	Projected Balance Dec 31, 2020 (\$000s)	2021 Projected Contributions (\$000s)	2021 Projected Expenditures (\$000s)	2021 Projected Interfund Transfers (\$000s)	2021 Projected External Sources (\$000s)	2021 Projected Interest (\$000s)	Projected Balance Dec 31, 2021 (\$000s)
<b>Stormwater Operating Reserve</b>											
Stormwater Fiscal Stability Reserve	5,442	0	0	163	5,605	0	0	0	0	170	5,776
<b>Total Stormwater Operating Reserve</b>	<b>5,442</b>	<b>0</b>	<b>0</b>	<b>163</b>	<b>5,605</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>170</b>	<b>5,776</b>
<b>Storm Water</b>											
Stormwater Capital Reserve Fund	29,212	38,053	(23,681)	1,308	44,892	22,688	(23,477)	0	0	903	45,006
Stormwater Pipe Reserve Fund	11,651	13,837	(6,567)	568	19,488	8,100	(2,895)	0	0	663	25,356
<b>Total Storm Water</b>	<b>40,863</b>	<b>51,890</b>	<b>(30,248)</b>	<b>1,875</b>	<b>64,380</b>	<b>30,788</b>	<b>(26,372)</b>	<b>0</b>	<b>0</b>	<b>1,566</b>	<b>70,363</b>
<b>Deferred Funded</b>											
Development Charges Reserve Fund	33,346	2,880	(2,185)	1,021	35,062	0	(2,303)	0	571	598	33,928
<b>Total Deferred Funded</b>	<b>33,346</b>	<b>2,880</b>	<b>(2,185)</b>	<b>1,021</b>	<b>35,062</b>	<b>0</b>	<b>(2,303)</b>	<b>0</b>	<b>571</b>	<b>598</b>	<b>33,928</b>
<b>Total Other Funded</b>											
Debt Management - Stormwater	(107)	0	0	(3)	(110)	0	0	0	0	(3)	(114)
Major Storm Improvement	18,606	0	(0)	558	19,164	0	0	0	0	583	19,747
Major Watercourses	3,480	0	0	104	3,584	0	0	0	0	109	3,693
Stormwater	2,337	75	0	72	2,484	0	(170)	0	0	70	2,385
<b>Total Other Funded</b>	<b>24,317</b>	<b>75</b>	<b>(0)</b>	<b>732</b>	<b>25,123</b>	<b>0</b>	<b>(170)</b>	<b>0</b>	<b>0</b>	<b>759</b>	<b>25,712</b>
<b>Total Non-Tax Supported Reserve Funds</b>	<b>103,968</b>	<b>54,845</b>	<b>(32,434)</b>	<b>3,791</b>	<b>130,170</b>	<b>30,788</b>	<b>(28,845)</b>	<b>0</b>	<b>571</b>	<b>3,094</b>	<b>135,778</b>

Note: Numbers may not balance due to rounding.

## Reserve & Reserve Fund Purposes

Reserve/Reserve Fund Name	Purpose of Reserve Fund
Stormwater Fiscal Stability Reserve	Provides funds for unforeseen situations directly related to Stormwater and Stormwater billing services delivered by the Region of Peel on behalf of the City of Mississauga
Development Charges Stormwater Reserve Fund	Provides funding for growth-related Stormwater capital projects
Major Watercourse Unallocated Reserve Fund	This Reserve Fund consists of funds collected under lot levy policies in effect prior to 1991, and reflects current liabilities. When an organization develops land related to the Lot Levies agreement in which the Stormwater payments were waived, the relevant amount the current DC rates is transferred from Lot Levy Reserve Fund to the Stormwater DC Reserve Fund
Major Storm Improvement Reserve Fund	This Reserve Fund consists of funds collected under lot levy policies in effect prior to 1991, and reflects current liabilities. When an organization develops land related to the Lot Levies agreement in which the Stormwater payments were waived, the relevant amount the current DC rates is transferred from Lot Levy Reserve Fund to the Stormwater DC Reserve Fund
Debt Management - Stormwater Reserve Fund	Provides for surplus of debt funded monies from stormwater projects which were not required
Stormwater - Developer Contribution Reserve Fund	Consists of contributions for specific municipal infrastructure collected as a condition of land development
Stormwater Capital Reserve Fund	Provides funds from capital projects for stormwater infrastructure including: study, design or construction of any stormwater public works; acquisition or expropriation of land required for stormwater purposes; acquisition of vehicles for stormwater purposes; and payment of debt charges of the Corporation for any stormwater aforementioned purposes
Stormwater Pipe Reserve Fund	Provides funds from capital projects for stormwater pipe infrastructure including: study, design or construction of any stormwater pipe public works; acquisition or expropriation of land required for stormwater pipe purposes; acquisition of vehicles for stormwater pipe purposes; and payment of debt charges of the Corporation for any stormwater pipe aforementioned purposes



## 10-Year Forecast Schedule

### Stormwater Capital Reserve Fund

The following table summarizes the Stormwater Capital Reserve Fund opening balances, contributions, withdrawals, allocation to projects and closing balance. This Reserve Fund is used to fund stormwater infrastructure capital repair and replacement costs as well as investments required to ensure that the aging infrastructure continues to operate effectively, especially in light of the increasingly frequent extreme storm events resulting from climate change. The infrastructure contribution is fully funded from the Stormwater Charge. This Reserve Fund funds \$257 million in projects over the 10-year period. The annual Stormwater Charge is forecast to increase to maintain the proposed capital spending included in this plan.

Stormwater Capital Reserve Fund	2021 (\$000s)	2022 (\$000s)	2023 (\$000s)	2024 (\$000s)	2025 (\$000s)	2026 (\$000s)	2027 (\$000s)	2028 (\$000s)	2029 (\$000s)	2030 (\$000s)	2021-2030 Total (\$000s)
Opening Balance	44,892	45,438	44,705	34,230	26,440	29,122	28,005	27,760	21,755	23,203	44,892
Infrastructure Contribution	22,688	22,548	22,628	22,793	22,909	23,061	23,249	23,473	23,733	24,027	231,108
Interest Income (Charge)	1,335	1,332	1,262	970	956	1,051	1,026	911	827	967	10,639
Total Available Balance	68,915	69,318	68,595	57,993	50,305	53,234	52,280	52,144	46,315	48,198	286,639
Allocation to Projects	23,477	24,613	34,365	31,553	21,183	25,229	24,520	30,389	23,112	18,845	257,286
<b>Closing Balance</b>	<b>45,438</b>	<b>44,705</b>	<b>34,230</b>	<b>26,440</b>	<b>29,122</b>	<b>28,005</b>	<b>27,760</b>	<b>21,755</b>	<b>23,203</b>	<b>29,353</b>	<b>29,353</b>

Note: Numbers may not balance due to rounding.

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### Stormwater Pipe Reserve Fund

The following table summarizes the Stormwater Pipe Reserve Fund opening balances, contributions, withdrawals, allocation to projects and closing balance. Over the next 10 years, \$50 million in capital projects are planned for the replacement of the City's pipe infrastructure. This estimate is most likely to change with the completion of the City's asset management plan initiative.

The estimated replacement cost of the pipe inventory is \$4.6 billion. In the 2012 Stormwater Financing Study, the sustainable level of recommended funding was \$16 million annually. The annual contributions will amount to \$8.1 million in 2021 and increase to \$17.1 million by 2030. The annual Stormwater Charge will need to increase to maintain the proposed capital spending included in this plan.

Stormwater Pipe Reserve Fund	2021 (\$000s)	2022 (\$000s)	2023 (\$000s)	2024 (\$000s)	2025 (\$000s)	2026 (\$000s)	2027 (\$000s)	2028 (\$000s)	2029 (\$000s)	2030 (\$000s)	2021-2030 Total (\$000s)
Opening Balance	19,488	25,356	30,529	34,923	41,665	52,484	63,825	76,100	90,364	98,648	19,488
Infrastructure Contribution	8,100	9,100	10,100	11,100	12,100	13,100	14,100	15,100	16,100	17,100	126,000
Interest Income (Charge)	663	826	1,047	1,225	1,619	2,141	2,575	3,064	3,479	3,947	20,584
Total Available Balance	28,251	35,282	41,676	47,247	55,384	67,725	80,500	94,264	109,943	119,695	166,073
Allocation to Projects	2,895	4,753	6,753	5,582	2,900	3,900	4,400	3,900	11,295	3,900	50,278
<b>Closing Balance</b>	<b>25,356</b>	<b>30,529</b>	<b>34,923</b>	<b>41,665</b>	<b>52,484</b>	<b>63,825</b>	<b>76,100</b>	<b>90,364</b>	<b>98,648</b>	<b>115,795</b>	<b>115,795</b>

Note: Numbers may not add due to rounding.

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### Stormwater Development Charges – Stormwater Management

The following table summarizes the Stormwater Development Charges – Stormwater Management Reserve Fund opening balance, contributions, withdrawals, allocation to projects and closing balance. In keeping with the City's Development Charges policy, Development Charges revenues and costs are closely monitored. Projects in the medium and longer term will be re-evaluated as part of the annual budget process.

<b>DCA - Stormwater Management Reserve Fund</b>	<b>2021 (\$000s)</b>	<b>2022 (\$000s)</b>	<b>2023 (\$000s)</b>	<b>2024 (\$000s)</b>	<b>2025 (\$000s)</b>	<b>2026 (\$000s)</b>	<b>2027 (\$000s)</b>	<b>2028 (\$000s)</b>	<b>2029 (\$000s)</b>	<b>2030 (\$000s)</b>	<b>2021-2030 Total (\$000s)</b>
Opening Balance	35,062	33,928	23,795	16,522	8,227	7,124	6,784	5,758	5,337	5,274	35,062
Infrastructure Contribution	571	627	667	826	620	669	719	753	857	636	6,945
Interest Income (Charge)	598	572	399	275	190	172	155	137	131	131	2,759
Total Available Balance	36,231	35,127	24,861	17,624	9,036	7,965	7,658	6,648	6,325	6,041	44,766
Allocation to Projects	2,303	11,332	8,339	9,397	1,912	1,181	1,900	1,311	1,051	737	39,462
<b>Closing Balance</b>	<b>33,928</b>	<b>23,795</b>	<b>16,522</b>	<b>8,227</b>	<b>7,124</b>	<b>6,784</b>	<b>5,758</b>	<b>5,337</b>	<b>5,274</b>	<b>5,304</b>	<b>5,304</b>

Note: Numbers may not add due to rounding.

## Appendix 1: Listing of Projects for Multi-Year Funding

The following projects with multi-year funding, which have begun or will commence prior to full funding being allocated, are recommended to be approved to a maximum cost as follows:

Service Area	Project Number	Project Name	Council Approved Project Total (\$000s)	Proposed Project Total 2021-2030 (\$000s)	Difference (\$000s)	Comments
Stormwater	TWSD00206	Applewood Creek Erosion Control - Lakeview Golf Course	5,600	12,450	6,850	Adjusted based on updated project design and scope needs. The scope of work recommended through the Environmental Assessment Study is considerably more extensive than the initial estimate. The required works include reconstruction of the creek over the entire 1.3km reach through the site.
Stormwater	TWSD00214	Cooksville Creek Flood Storage Facility - Mississauga Valley	8,890	8,607	(284)	Adjusted based on updated cost estimates.
Stormwater	TWSD00245	Credit River Erosion Control - Adjacent to Ostler Court	0	5,900	5,900	Construction in 2021 and 2022.
<b>Total</b>			<b>14,490</b>	<b>26,957</b>	<b>12,467</b>	

Note: Numbers may not balance due to rounding.

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## Appendix 2 – Summary of Reserve & Reserve Fund Transfers

Transfers from the Operating Program to the following Reserve Funds in 2021 are:

- \$22,687,934 to Stormwater Capital Reserve Fund
- \$8,100,000 to Stormwater Pipe Reserve Fund

Transfers to and from the Stormwater Fiscal Stability Reserve will be based on actual amounts incurred.

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## **Glossary**

Please refer to the Glossary (Section “U”) for corporate and Stormwater-related definitions.