



# Stormwater

2020-2023 Business Plan  
& 2020 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 has over 300 lines of business which are consolidated into the 16 Services Areas (including the Stormwater Program) that are outlined in this Plan. The 2020-2023 Business Plan and 2020 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 us assess the quality, efficiency and customer satisfaction that our services achieve. The results help inform decisions on resource allocation 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 controls
- Stormwater asset management, capital programming and project delivery
- Storm Sewer By-law enforcement
- Rainfall monitoring
- Outreach and education program

### Interesting facts about this service:

- The City has over 2,100 kilometres of storm sewer pipes in its stormwater drainage system. If laid out end-to-end these pipes would connect the City of Mississauga to the territory of Nunavut
- The stormwater drainage system also includes over 51,000 catchbasins, over 250 kilometres of ditches, 32 creeks and 64 stormwater management facilities that help to collect, drain and clean the City's rainwater runoff before it enters Lake Ontario
- At an estimated 2019 replacement value of \$2.24 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 as a result of flooding events

- The proposed 2020 Stormwater Charge Rate, effective April 1, 2020, is \$108.20 per stormwater billing unit, a two per cent increase from 2019
- Continued transition from an interim to a sustainable service level through increasing contributions to the Pipe Reserve Fund
- Ongoing implementation of capital projects and infrastructure needs
- Ongoing development of an integrated and enhanced Asset Management Plan to ensure the cost-effective management of all Stormwater infrastructure
- Continued preparation of flood evaluation studies and master drainage plans, including the Stormwater Master Plan
- Continued design and implementation of erosion control projects in various creeks
- Cooksville Creek flood relief and improvement projects continue to move forward to implementation
- Mitigation measures continue to be assessed and implemented for the Lisgar community to address basement water infiltration issues

Net Investment (\$000s)	2020	2021	2022	2023
Operating	11,960	12,050	12,140	12,240
Capital	32,430	42,890	40,260	41,970
Full Time Equivalents	23.1	23.1	22.1	22.1

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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 2020-2023 Business Plan continues this transition from an interim to a sustainable service level.

The transition continues with 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.



*The Stormwater Asset Management Plan includes managing the City's storm sewer network effectively and efficiently*

In 2020, the Stormwater Service Area will continue improving business practices to meet the legislated asset management requirements for 2021 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 the City's watercourses*

The 2020-2023 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.

## 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.

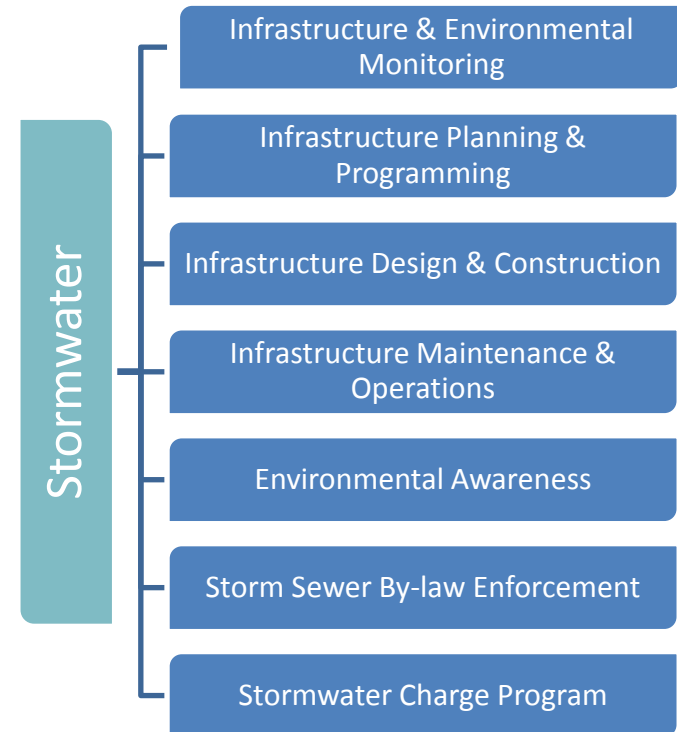
#### Mission

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
  - Increase contribution to Pipe Reserve Fund
  - Enforce the Storm Sewer By-law
  - Plan and deliver projects effectively
- **Deliver** mitigation and improvement projects
  - Flood relief
  - Erosion control
  - Water quality enhancement

#### Service Delivery Model



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## Current 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

- Establish a strong online presence to engage with the community about stormwater best management practices
- Convey stormwater messages regarding by-law enforcement and pollution prevention practices to small businesses
- Development and maintenance of the 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 City development adds pressure to plan and deliver effective and timely stormwater services
- Changes to legislation and conservation authority requirements increase operating and capital pressures



*Erosion of Sawmill Creek*



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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 identifies and measures 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 this Service Area's Balanced Scorecard takes into account. The Balanced Scorecard that follows shows trends since 2016 and expected outcomes up to 2023.

### 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 per kilometre of watercourse. 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

*Number of @saugastormwater Instagram followers* demonstrates the resident engagement on Stormwater related

topics through a digital format. *Number of Stormwater inquiries per 1,000 people* demonstrates how engaged residents are with stormwater infrastructure and issues. Both measures support the Service Area's targets for outreach and education and increased resident engagement.

*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

*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 positively about their team environment.

### Internal 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.

*Progress towards achieving a sustainable Service Level* is a measure that indicates the City's ability to reach an annual contribution to the Pipe Reserve Fund equal to one per cent of the replacement value of the City's storm pipes, while fully funding the operating and capital programs. Annual increases to the Pipe Reserve Fund allow the fund to grow and reach a sustainable level.



## Balanced Scorecard

Measures for Stormwater	2016 (Actual)	2017 (Actual)	2018 (Actual)	2019 (Plan)	2020 (Plan)	2021 (Plan)	2022 (Plan)	2023 (Plan)
<b>Financial:</b>								
Unit Cost of catchbasin cleaning	\$17.0	\$37.0	\$35.0	\$35.7	\$36.4	\$37.1	\$37.9	\$38.6
Cost to maintain watercourses per kilometre	\$1,719	\$823	\$793	\$808	\$825	\$841	\$858	\$875
<b>Customer:</b>								
Number of @saugastormwater Instagram followers <sup>1</sup>	N/A	N/A	274	567	1000	1500	2000	2500
Number of stormwater inquiries per 1,000 people	3.6	2.4	2.3	2.35	2.4	2.45	2.5	2.55
Requests for review resolved within service level	87%	100%	87%	90%	90%	90%	90%	90%
Credit applications reviewed within service level	84%	95%	100%	90%	90%	90%	90%	90%
<b>Employee:</b>								
Overall Job Engagement <sup>2</sup>	N/A	N/A	78%	N/A	N/A	79%	N/A	N/A
Job Satisfaction <sup>2</sup>	N/A	N/A	86%	N/A	N/A	87%	N/A	N/A
Overall Team Engagement <sup>2</sup>	N/A	N/A	85%	N/A	N/A	86%	N/A	N/A
<b>Internal Business Process:</b>								
Watercourses in fair or better condition	77%	78%	79%	80%	81%	82%	83%	84%
Quality control stormwater ponds in fair or better condition	80%	81%	81%	82%	83%	84%	85%	86%
Progress towards achieving a sustainable Service Level (through contributions to Pipe Reserve Fund) <sup>3</sup>	17%	22%	26%	29%	34%	39%	43%	48%

<sup>1</sup> Instagram account was established in 2017

<sup>2</sup> Results obtained from the Employee Engagement Survey which is completed once every three years (2015, 2018, 2021)

<sup>3</sup> Percentage indicates progress towards achieving an annual contribution equal to one per cent of the replacement value of the City's pipe infrastructure

## Awards and Achievements

- The **Eastgate Park Underground Stormwater Management Facility** was completed in October 2018. This facility was designed and constructed to support flood mitigation in the downstream system within the Cooksville Creek watershed, while maintaining the use as an active public park located directly above the facility. This project has received two awards within the last year:
  - **Ontario Public Works Association's 2018 Public Works Project of the Year Award (Disaster, Emergency Construction, Repair, \$2 - \$10 Million Category)**
  - **City of Mississauga's 2018 Excellence in Project Management Award – Bronze**



*Installation of storage chambers at Eastgate Park*

- Improvements to data, software, training, asset condition assessments, etc. to support the development of an **asset management plan and strategy**
- Completion of the 2019 **Stormwater Development Charges Background Study**

- Designs of the following watercourse projects were completed in 2019:
  - **Cooksville Creek Erosion Control, Queen Elizabeth Way to Elaine Trail**
  - **Cooksville Creek Erosion Control, Meadows Boulevard to Rathburn Road East**
  - **Levi Creek Watercourse Realignment, Upstream of Old Derry Road**
  - **Mary Fix Creek Erosion Control, Downstream of Dundas Street West**

Construction of these projects has started and will be completed in 2020.

- The **Little Etobicoke Creek erosion control project at Kingsholm Drive** was completed in December 2018. This project was designed and constructed to preserve the buffer between the creek and private properties while protecting 20 large trees, which were at risk



*Little Etobicoke Creek photographed in 2016 (left)  
Completed erosion control project (right)*

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# The 2020-2023 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, effective delivery of capital projects and studies and the development of 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 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 2020-2023 Business Plan continues this transition with a proposed increase in the contribution to the Pipe Reserve Fund to allow for large storm sewer replacement projects that will be undertaken as necessary in future years.

The 2020-2023 Business Plan also supports the implementation of flood relief and infrastructure improvement projects as well as the development of a city-wide Stormwater Master Plan. The objective of the Stormwater Master Plan is to set priorities for the City's stormwater service and provide recommendations on future programs, policies and projects.

### 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 storm pipe infrastructure*

In 2017, the Province of Ontario introduced and enacted the *Asset Management Planning for Municipal Infrastructure Regulation*. The Regulation requires all municipalities to prepare and publish a Strategic Asset Management Policy by July 1, 2019 and to develop enhanced Asset Management Plans for core infrastructure – which includes all stormwater infrastructure – by July 1, 2021.

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 in 2019. Staff continue to work on improving practices and strive 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. The Technologist Internship Program was initiated in 2019. The program develops trained and knowledgeable technologists that will be qualified to take on permanent, vacant positions.

## 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.

The Stormwater Service Area has completed several continuous and small improvement projects. Staff are able to identify issues and recognize solutions to improve the effectiveness and efficiency of service delivery.

In 2018, staff completed improvements to the planning and maintenance processes within the Watercourse Management Program. Initiated in 2017, this Lean initiative focused on the classification process of watercourse erosion control projects and the refinement of the criteria used to designate projects as either capital or maintenance related. This initiative garnered a one-time cost avoidance of \$1.3 million and an avoidance of \$123,000 per year. Additional benefits included the reduction of

project lead time, lower lifecycle costs and increased internal capacity, all without compromising the quality of work.

Some highlights of the many projects and small improvements completed include:

- Implementation of real-time equipment and auto-samplers at Tacc Drive stormwater management pond has reduced staff time and travel time for site visits, leading to a cost avoidance of \$1,600
- Digital approval of Erosion and Sediment Control Permits has reduced paper waste and achieved cost savings/avoidance of \$1,000
- More readily available environmental spill sampling equipment has reduced travel time and allowed staff to respond to emergency spills quicker, leading to a cost avoidance of \$1,350
- Streamlining the Conservation Authority construction project input and approval process improved communication between the City and conservation authority and resulted in a cost avoidance of \$4,000

Completed Initiatives					Total Benefits	
Improvement Type	2014-2017	2018	Sept 2019	Total	Type	Total
Small Improvement	10	21	1	32	Cost Savings and Avoidance	\$191,471
Rapid Improvement	-	1	-	1	Customer Service Improvements	18
Project	-	-	-	-	Safety Improvements	5
<b>Total</b>	<b>10</b>	<b>22</b>	<b>1</b>	<b>33</b>	Environmental Improvements	14
In-Progress Initiative	Goals of the Initiative					
Stormwater Cost Allocation Model	A review of the current stormwater cost allocation model is currently underway. Staff are working towards developing a consistent method and reducing the amount of effort required to annually update the stormwater cost allocation model.					

## 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 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 within Cooksville Creek, Levi Creek and Mary Fix Creek
- Initiation of the Southdown Master Plan, Stormwater Master Plan and Dixie/Dundas Flood Evaluation Environmental Assessment
- 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, coordination and design of this critical infrastructure.

Staff have been working 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

Development of an asset management strategy and plan for the Stormwater infrastructure:

- Staff researched tools and technologies to support improved asset management processes. Through research and benchmarking done in 2018, staff identified opportunities to leverage existing technology to improve current practices. Over the course of 2019 staff have worked at implementing these improvements and best practices. This included improving data management practices, utilizing add-on functionality to existing technology, and improving how information is leveraged for reporting and monitoring asset conditions
- For 2020, staff will continue to improve the integration between systems and leverage existing technology to build a comprehensive asset management strategy and plan for all Stormwater assets

### Customer Service

Utilize several methods to serve customers:

- Applicants are able to submit online applications through 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 reviewed to improve overall customer experience (ongoing)

### Business Intelligence for Ease of Use

Standardize reporting of metrics/performance measures:

- The standardization of data collection continues to be developed in order to maintain accurate reporting. The Stormwater Service Area is an active participant in the National Water & Wastewater Benchmarking Initiative

### GIS Mapping Tools

Moving towards new geographic information system (GIS) software:

- In 2017, staff participated and provided input into the City's Geospatial Master Plan. Over 2018 and 2019, staff have engaged with IT to implement a GIS software change in accordance with the Master Plan recommendations
- As a part of this initiative, staff have verified the accuracy of infrastructure data and are finalizing the development of the database. This mapping and spatial analysis tool will significantly improve how staff are able to plan improvements, coordinate work, and monitor assets

## Maintaining Our Infrastructure

To maintain stormwater infrastructure now and in the future, the 2020-2023 Stormwater Business Plan 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 2019, several erosion control and Stormwater management facility designs were completed. Construction of these projects will begin in 2019 and 2020. Additionally, various project designs, flood evaluation studies and master drainage plans are currently underway. These projects include the Dixie/Dundas Flood Mitigation Environmental Assessment, the Stormwater Master Plan and the Southdown Stormwater Servicing and Environmental Master 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, 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:

- In 2018, storm sewer by-law enforcement staff responded to 65 spill incidents and investigated more than ten residential and industrial sanitary cross connections. These responses include extensive collaboration with the Region of Peel and the Ministry of Environment, Conservation and Parks. 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 contained in Etobicoke Creek*

- The Old River Road drainage improvements were completed in November 2018. This project involved ditch regrading, replacement of roadway and driveway culverts and road resurfacing; all with the goal of extending the lifetime of the road surface and improving the drainage outlet to Mary Fix Creek



*Ditch Regrading on Old River Road*



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## Managing Our Human Resources

### Our Structure

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

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

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.

### 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 dedicated to the Stormwater Service Area and their membership in professional associations.

Our Service Area staff roles include:	Staff are active members of various associations including:
<ul style="list-style-type: none"><li>• Environmental/Storm Drainage Engineers and Technologists</li><li>• Environmental/Storm Drainage Coordinators</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>• Manager, Stormwater Projects and Approvals</li><li>• Stormwater Charge Program Coordinator</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>• Municipal Engineers Association (MEA)</li><li>• Ontario Association of Certified Engineering Technicians and Technologists (OACETT)</li><li>• Professional Engineers of Ontario (PEO)</li></ul>

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### 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 2020-2023 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 2020 through to 2023 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 2020:

- A decrease of two FTEs due to two contract positions ending for the operations and administration of the Outreach and Education Program
- An increase of one part-time co-op student for eight months each year (0.6 FTE)
- An increase of one FTE due to a contract position for the Project Lead, Stormwater Asset Management Plan (end date December 2021)

### Proposed Full Time Equivalent Staffing Distribution by Program

Program	2019	2020	2021	2022	2023
Storm Administration Costs	2.0	2.0	2.0	2.0	2.0
Storm Operations and Maintenance	21.5	21.1	21.1	20.1	20.1
Total Service Distribution	23.5	23.1	23.1	22.1	22.1

Note: Numbers may not balance due to rounding.

## Stormwater Budget & Financial Overview

### 2020 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, 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 \$108.20 per stormwater billing unit is proposed to be effective for April 1, 2020.

	2016	2017	2018	2019	2020
Stormwater Rate (per billing unit)	\$100.00	\$102.00	\$104.00	\$106.10	\$108.20*

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

## Distribution of Stormwater Charge Revenue (\$ Millions)

The pie charts below provide an overview of Stormwater Charge Revenue segregated by the Operating and Infrastructure Renewal Programs for 2020. Furthermore, the 2020 Capital Program is distributed by funding source.



Note: Numbers may not balance due to rounding

The following pie charts provide an overview of Stormwater Charge Revenue allocated to Infrastructure Renewal Programs for 2020.

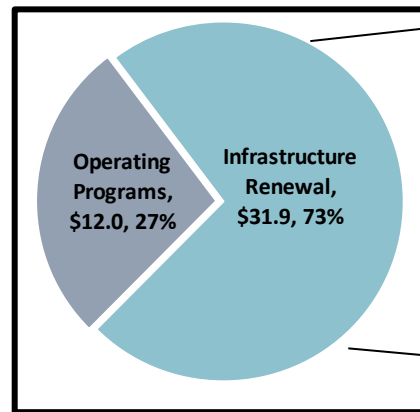
### Description of Stormwater Infrastructure Renewal Allocations

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

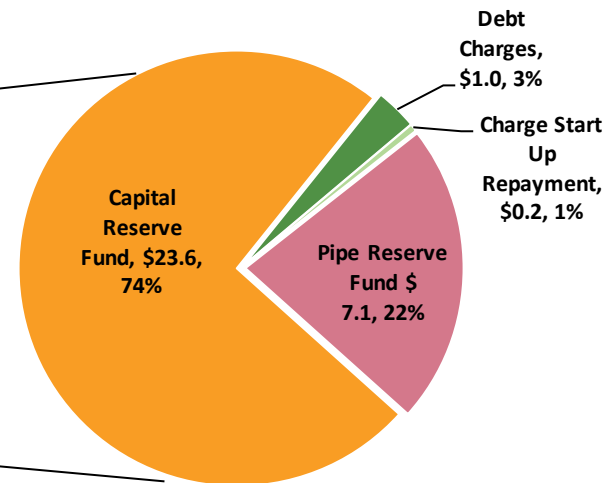
Capital Reserve Fund (\$23.8 million)

- (i) Debt charges associated with the financing of capital projects from previous years (\$1 million)
- (ii) Repayment to the tax base for investment in the Stormwater Charge start-up costs (\$0.2 million)
- (iii) Pipe Reserve Fund for future pipe replacement needs (\$7.1 million)

**2020 Stormwater Charge Revenue  
(\$43.8M)**



**Infrastructure Renewal  
(\$31.9M)**



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 2020.

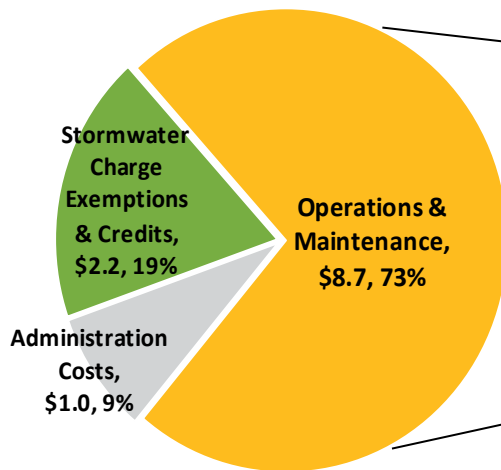
**Description of Stormwater Operating Programs:**

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 (\$8.7 million).

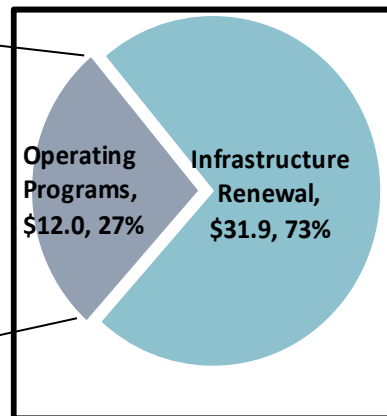
Administration Costs – Provides for Region of Peel costs for Stormwater Charge billing and customer service support as well as costs for the City to administer the Stormwater Charge (\$1.0 million).

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 (\$2.2 million).

**Operating Programs  
(\$12.0M)**



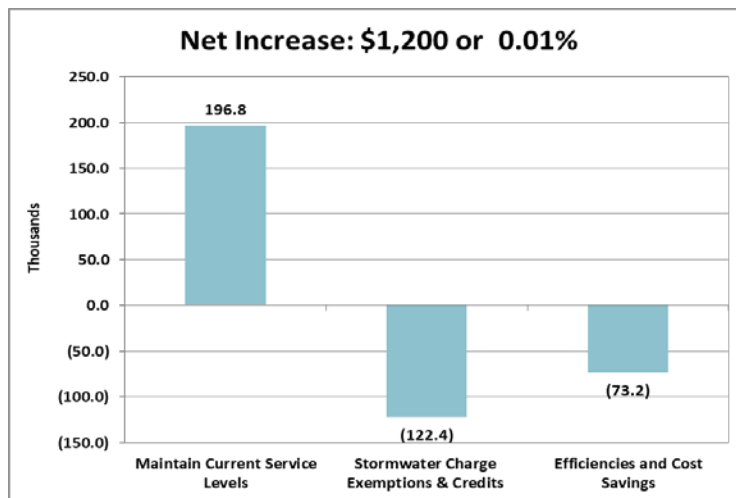
**2020 Stormwater Charge Revenue  
(\$43.8M)**



## Proposed Operating Budget

This part of the Business Plan sets out the financial resources required to deliver the proposed 2020-2023 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 2019 was \$11.958 million and the proposed budget for 2020 is \$11.959 million.

### Proposed Changes for 2020 Net Operating Budget by Category (\$000s)



#### 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 \$196,800 in Maintain Current Service Levels is primarily due to increased contractor costs.

#### Stormwater Charge Exemptions and Credits

The 2020 budget proposes a decrease in technical exemptions and program credits based on latest analysis indicating a decreased 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. Staff have identified efficiencies and cost savings in the Stormwater Charge billing system maintenance and watercourse maintenance.

### New Initiatives

There are no new initiatives proposed for 2020.

The following table breaks down the total 2020 Operating Budget, \$11.959 million, which is a net operating budget increase of \$0.001 million over the 2019 Budget.

Category	Changes to 2020 budget from 2019 (\$000s)
<b>2019 Base Budget</b>	<b>11,958</b>
<b>Operating Decreases:</b>	
Labour & Benefits	(2.9)
Materials, Supplies & Other Services	(4.0)
Finance Other	(60.0)
Stormwater Charge Exemptions & Credits	(122.4)
<b>Operating Increases</b>	
Contractor & Professional Services	152
Transportation, Equipment Costs & Maintenance	14
Occupancy & City Costs, Advertising & Promotions Communication Costs	19
Other Revenues	5
<b>Total Changes to Maintain Current Service Levels</b>	<b>11,959</b>
New Initiatives	-
<b>Total 2020 Operating Budget</b>	<b>11,959</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 2020-2023, as well as the 2019 Budget and 2018 Actuals by major program within the Service Area.

### Proposed Budget by Program (\$000s)

Description	2018 Actuals	2019 Budget	2020 Forecast	2021 Forecast	2022 Forecast	2023 Forecast
<b>Expenditures to Deliver Current Services</b>						
Operations and Maintenance	10,300	8,592	8,686	8,722	8,759	8,796
Administration Costs	947	1,020	1,044	1,050	1,057	1,064
Storm Exemptions & Credits	1,208	2,346	2,229	2,276	2,324	2,376
New Initiatives	-		-	-	-	-
<b>Total Operating Programs</b>	<b>12,454</b>	<b>11,958</b>	<b>11,959</b>	<b>12,049</b>	<b>12,140</b>	<b>12,235</b>
Capital Reserve Fund Contributions	23,970	24,110	23,796	23,603	23,416	23,253
Pipe Reserve Fund Contributions	5,100	6,100	7,100	8,100	9,100	10,100
Debt Charges	1,001	990	980	960	950	930
<b>Total Infrastructure Renewal</b>	<b>30,071</b>	<b>31,200</b>	<b>31,876</b>	<b>32,663</b>	<b>33,466</b>	<b>34,283</b>
<b>Stormwater Program</b>	<b>42,525</b>	<b>43,158</b>	<b>43,835</b>	<b>44,712</b>	<b>45,606</b>	<b>46,518</b>
Expenditure Budget - Changes by Year				1%	1%	1%
Proposed Net Budget - Changes by Year				2%	2%	2%

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.

Description	2019 Budget (\$000s)	2020 Proposed Budget (\$000s)	Change (\$000s)	Details (\$000s)
<b>Labour and Benefits</b>	<b>5,068</b>	<b>5,065</b>	<b>(3)</b>	Decrease Reflects Labour Adjustments and Other Fringe Benefit Changes.
Contractor & Professional Services	3,726	3,879	152	\$305 Increase in Lisgar high water Protocol and CCTV/Flushing and \$83 increase in Contractor costs. Offset by \$250 for transfer of watercourse maintenance to capital budget.
Transportation, Equipment Costs & Maintenance	526	540	14	\$14 Increase vehicle rental costs.
Materials, Supplies & Other Services	78	74	(4)	\$4 Decrease operating material costs.
Occupancy & City Costs, Advertising & Promotions Communication Costs	59	78	19	\$20 promotional materials for Stormwater Outreach Education offset by \$1 reduction for Utility Maintenance.
Finance Other	155	95	(60)	\$50 Decrease in Region of Peel billing system maintenance and \$10 Storm One call fees and permits.
Stormwater Charge Exemptions & Credits	2,538	2,416	(122)	\$122 Decrease to adjust budget based on actual processed technical exemptions and credits.
Other Revenues	(192)	(187)	5	
<b>Total Operating Programs</b>	<b>11,958</b>	<b>11,959</b>	<b>1.1</b>	
Infrastructure Renewal	30,210	30,896	686	\$1,000 transfer to stormwater pipe reserve offset by \$402 reduction for capital reserve fund transfer and \$88 removal of Stormwater recovery.
Debt	990	980	(10)	
<b>Total Infrastructure Renewal</b>	<b>31,200</b>	<b>31,876</b>	<b>675</b>	
<b>Total</b>	<b>43,158</b>	<b>43,835</b>	<b>677</b>	

Note: Numbers may not balance due to rounding.

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## 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 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:

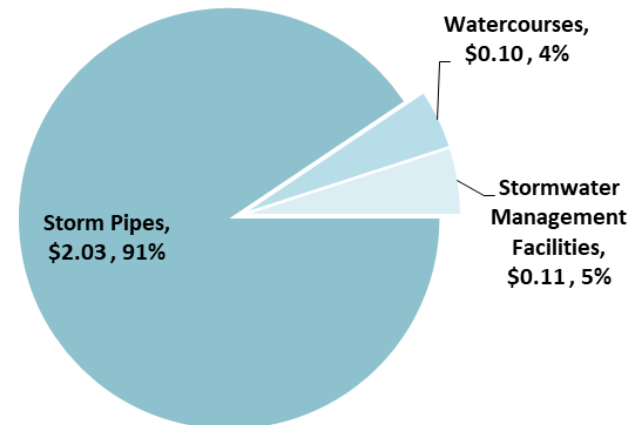
- Developing an inventory of City-owned assets
- Monitoring and reporting of infrastructure condition
- Preparing appropriate asset renewal and maintenance programs
- Developing financial strategies to effectively manage those programs over the lifecycle of stormwater infrastructure

As previously mentioned, one of the business goals of the 2020-2023 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.

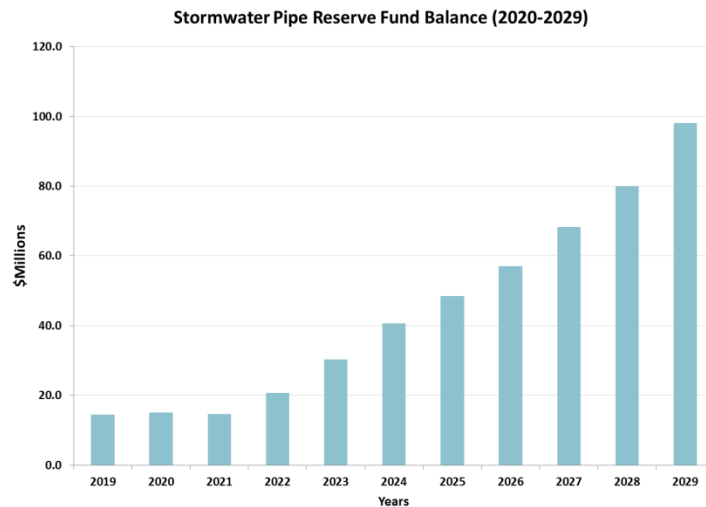
**Stormwater Infrastructure 2019 Replacement Costs  
(Estimated \$2.24 billion)**



## Pipe Program Financing

The stormwater program includes a provision of \$7.1 million in 2020 for future pipe replacement needs. The 2020-2023 Business Plan and Budget assumes this provision will increase in each of the next four years, reaching an annual provision of \$10.1 million in 2023. 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 \$97.8 million in 2029.



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*



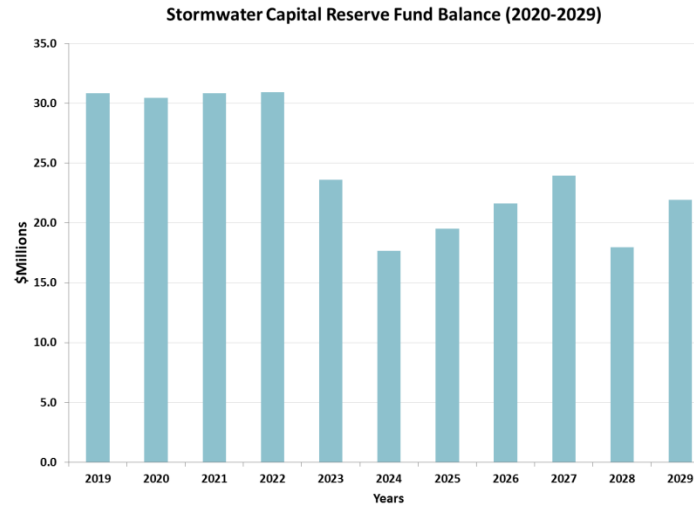
*Corroded metal storm sewers require replacement*

## 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 2020 Stormwater Charge will be \$43.8 million and are estimated to increase to \$46.5 million by 2023. 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 \$17 million and \$31 million over the 10-year period. Careful planning will ensure that capital priorities will be funded throughout the forecast to 2029, 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.



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## Proposed Capital Budget

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

### Proposed 2020-2029 Capital Budget by Program (\$000s)

Program Expenditures	2020 Proposed Budget	2021 Forecast	2022 Forecast	2023 Forecast	2024-2029 Forecast	2020-2029 Total
Storm Sewers	10,038	18,334	5,912	3,573	34,301	72,159
Storm Studies	1,305	0	1,290	830	6,200	9,625
SWM Facilities and Flood Relief Works	10,480	16,800	24,910	31,160	92,740	176,090
Watercourse Erosion Control	10,610	7,760	8,150	6,410	57,740	90,670
<b>Total</b>	<b>32,433</b>	<b>42,894</b>	<b>40,262</b>	<b>41,973</b>	<b>190,981</b>	<b>348,544</b>

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

### Proposed 2020-2029 Capital Forecast Highlights:

- Storm Sewer Condition Assessment, Rehabilitation and Renewal (2020, ongoing)
- Mississauga LRT Storm Sewer Improvements (2020, ongoing)
- Lisgar Improvements (2020, ongoing)
- Storm Pond Rehabilitation and Dredging – various locations (2020, ongoing)
- Etobicoke Creek Erosion Control, Ponytrail Drive to Bloor Street (2020)
- Sheridan Creek Erosion Control, Lushes Avenue to Fletchers Valley Cres. (2020)
- Loyalist Creek Erosion Control EA and Design (2020)
- Construction of Cooksville Creek Flood Storage Facility, Sandalwood Park (2020)
- Applewood Creek Erosion Control (2021)
- Little Etobicoke Creek Drainage Improvements (2021)
- Construction of Cooksville Creek Flood Storage Facility, McKenzie Park (2022)
- Meadowvale Business Park Drainage Improvements (2022)

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**Proposed 2020-2029 Capital Budget by Funding Source (\$000s)**

The following table provides the funding sources proposed to fund the capital portion of the proposed 2020-2023 Business Plan and 2020 Budget and the consolidated forecast for 2024-2029.

<b>Funding</b>	<b>2020 Proposed Budget</b>	<b>2021 Forecast</b>	<b>2022 Forecast</b>	<b>2023 Forecast</b>	<b>2024-2029 Forecast</b>	<b>Total 2020-2029</b>
Development Charges	2,185	10,078	12,664	8,678	8,417	42,022
Developer Contributions	0	495	360	1,425	35	2,315
Stormwater Charge	30,248	32,321	27,238	31,870	182,529	304,207
<b>Total</b>	<b>32,433</b>	<b>42,894</b>	<b>40,262</b>	<b>41,973</b>	<b>190,981</b>	<b>348,544</b>

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



## Proposed 2020 Capital Budget Detail

The following tables provide a detailed listing of proposed capital projects for 2020.

Program: Storm Sewers

Project Number	Project Name	Gross Cost (\$000s)	Recovery (\$000s)	Net Cost (\$000s)	Funding Source
TWSD00323	Storm Sewer Oversizing - Various Locations	270	0	270	Development Charges
TWSD00410	Storm Sewer Renewal	2,000	0	2,000	Stormwater Charge
TWSD00453	Storm Sewer Cross-Connection Rehabilitations - Various Locations	100	0	100	Stormwater Charge
TWSD00465	Mississauga LRT Storm Sewer Improvements	6,034	0	6,034	Development Charges, Stormwater Charge
TWSD00512	Roadway Rehabilitation Storm Sewer Contributions	734	0	734	Stormwater Charge
TWSD007683	QEW Culvert Contributions	200	0	200	Stormwater Charge
TWSD007684	Storm Sewers Improvements - Mattawa Ave et al.	200	0	200	Stormwater Charge
TWSD007685	Storm Sewers Improvements - Britannia Rd E	500	0	500	Stormwater Charge
<b>Total</b>		<b>10,038</b>	<b>0</b>	<b>10,038</b>	

Note: Numbers may not balance due to rounding.

Program: Storm Studies

Project Number	Project Name	Gross Cost (\$000s)	Recovery (\$000s)	Net Cost (\$000s)	Funding Source
TWSD00395	Storm Sewers Condition Assessment & Survey	1,000	0	1,000	Stormwater Charge
TWSD00519	SWMF Prioritization Study	250	0	250	Stormwater Charge
TWSD007687	Stormwater Outreach & Education	25	0	25	Stormwater Charge
TWSD076860	NDMP Contribution to CVC	30	0	30	Stormwater Charge
<b>Total</b>		<b>1,305</b>	<b>0</b>	<b>1,305</b>	

Note: Numbers may not balance due to rounding.

## Proposed 2020 Capital Budget Detail (Cont'd)

Program: SWM Facilities and Flood Relief Works

Project Number	Project Name	Gross Cost (\$000s)	Recovery (\$000s)	Net Cost (\$000s)	Funding Source
TWSD00150	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)	7,900	0	7,900	Development Charges, Stormwater Charge
TWSD00348	Lisgar Improvements	300	0	300	Stormwater Charge
TWSD007688	Quality Control Retrofit Feasibility Study and Pre-Engineering	500	0	500	Stormwater Charge
TWSD007689	SWM Pond Dredging & Rehabilitation	1,200	0	1,200	Stormwater Charge
TWSD007690	TRCA Partnership - Etobicoke Creek at Derry and Dixie	500	0	500	Development Charges, Stormwater Charge
<b>Total</b>		<b>10,480</b>	<b>0</b>	<b>10,480</b>	

Note: Numbers may not balance due to rounding.

## Proposed 2020 Capital Budget Detail (Cont'd)

Program: Watercourse Erosion Control

Project Number	Project Name	Gross Cost (\$000s)	Recovery (\$000s)	Net Cost (\$000s)	Funding Source
TWSD00148	Minor Erosion Control Works - Various Locations	330	0	330	Development Charges, Stormwater Charge
TWSD00191	Mimico Creek Erosion Control - Etude Drive to Derry Road East	400	0	400	Development Charges, Stormwater Charge
TWSD00247	Sheridan Creek Erosion Control - Lushes Ave. to behind Fletchers Valley	3,700	0	3,700	Development Charges, Stormwater Charge
TWSD00362	Cooksville Creek Erosion Control - Camilla Road to North Service Road	200	0	200	Development Charges, Stormwater Charge
TWSD00374	Mimico Creek erosion control, upstream and downstream of Rena Rd	1,500	0	1,500	Development Charges, Stormwater Charge
TWSD00381	Loyalist Creek Erosion Control - Between Thornlodge Drive	400	0	400	Development Charges, Stormwater Charge
TWSD007677	Carolyn Creek Erosion Control - Credit River Outlet Channel	200	0	200	Development Charges, Stormwater Charge
TWSD007678	Wolfedale Creek Erosion Control - Burnhamthorpe Rd. to Credit River	600	0	600	Development Charges, Stormwater Charge
TWSD007679	Credit River Erosion Control - Adjacent to Ostler Court	200	0	200	Development Charges, Stormwater Charge
TWSD007680	Etobicoke Creek Erosion Control - behind Ponytrail Drive to Bloor Street	1,800	0	1,800	Development Charges, Stormwater Charge
TWSD007681	Cooksville Creek Erosion Control - CP Rail to Kirwin Avenue	280	0	280	Development Charges, Stormwater Charge
TWSD007682	Cooksville Creek Erosion Control - Upstream of Central Parkway Blvd.	1,000	0	1,000	Development Charges, Stormwater Charge
<b>Total</b>		<b>10,610</b>	<b>0</b>	<b>10,610</b>	

Note: Numbers may not balance due to rounding.

## Proposed 2020-2029 Capital Budget by Sub-Program (\$000s)

The following tables provide a listing of capital forecast by sub-program for 2020-2029.

Sub-Program	2020 Proposed Budget	2021 Forecast	2022 Forecast	2023 Forecast	2024 Forecast	2025 Forecast	2026 Forecast	2027 Forecast	2028 Forecast	2029 Forecast	Total Forecast
<b>Storm Sewers</b>											
STM Drainage	0	500	0	0	5,450	0	240	0	0	758	6,948
STM Storm Oversizing	270	270	270	270	270	270	270	270	0	0	2,160
STM Storm Sewer	9,768	17,564	5,642	3,303	2,074	6,227	5,694	5,964	5,580	1,234	63,051
<b>Subtotal</b>	<b>10,038</b>	<b>18,334</b>	<b>5,912</b>	<b>3,573</b>	<b>7,794</b>	<b>6,497</b>	<b>6,204</b>	<b>6,234</b>	<b>5,580</b>	<b>1,992</b>	<b>72,159</b>

Sub-Program	2020 Proposed Budget	2021 Forecast	2022 Forecast	2023 Forecast	2024 Forecast	2025 Forecast	2026 Forecast	2027 Forecast	2028 Forecast	2029 Forecast	Total Forecast
<b>Storm Studies</b>											
STM Studies	1,305	0	1,290	830	1,000	3,000	1,000	100	1,000	100	9,625
<b>Subtotal</b>	<b>1,305</b>	<b>0</b>	<b>1,290</b>	<b>830</b>	<b>1,000</b>	<b>3,000</b>	<b>1,000</b>	<b>100</b>	<b>1,000</b>	<b>100</b>	<b>9,625</b>

Sub-Program	2020 Proposed Budget	2021 Forecast	2022 Forecast	2023 Forecast	2024 Forecast	2025 Forecast	2026 Forecast	2027 Forecast	2028 Forecast	2029 Forecast	Total Forecast
<b>SWM Facilities and Flood Relief Works</b>											
STM Channelization	0	0	3,100	0	0	0	0	0	0	0	3,100
STM Culvert Improvement	0	0	0	0	0	0	0	0	0	0	0
STM Flood Relief	8,200	8,850	10,180	24,930	12,620	5,900	11,000	11,400	6,100	0	99,180
STM SWM Facilities	2,280	7,950	11,630	6,230	690	6,930	3,951	6,120	17,259	10,770	73,810
<b>Subtotal</b>	<b>10,480</b>	<b>16,800</b>	<b>24,910</b>	<b>31,160</b>	<b>13,310</b>	<b>12,830</b>	<b>14,951</b>	<b>17,520</b>	<b>23,359</b>	<b>10,770</b>	<b>176,090</b>

Sub-Program	2020 Proposed Budget	2021 Forecast	2022 Forecast	2023 Forecast	2024 Forecast	2025 Forecast	2026 Forecast	2027 Forecast	2028 Forecast	2029 Forecast	Total Forecast
<b>Watercourse Erosion Control</b>											
STM Erosion Control	10,610	7,760	8,150	6,410	12,540	7,820	8,910	6,170	9,900	12,400	90,670
<b>Subtotal</b>	<b>10,610</b>	<b>7,760</b>	<b>8,150</b>	<b>6,410</b>	<b>12,540</b>	<b>7,820</b>	<b>8,910</b>	<b>6,170</b>	<b>9,900</b>	<b>12,400</b>	<b>90,670</b>
<b>Total Expenditures</b>	<b>32,433</b>	<b>42,894</b>	<b>40,262</b>	<b>41,973</b>	<b>34,644</b>	<b>30,147</b>	<b>31,065</b>	<b>30,024</b>	<b>39,839</b>	<b>25,262</b>	<b>348,544</b>

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

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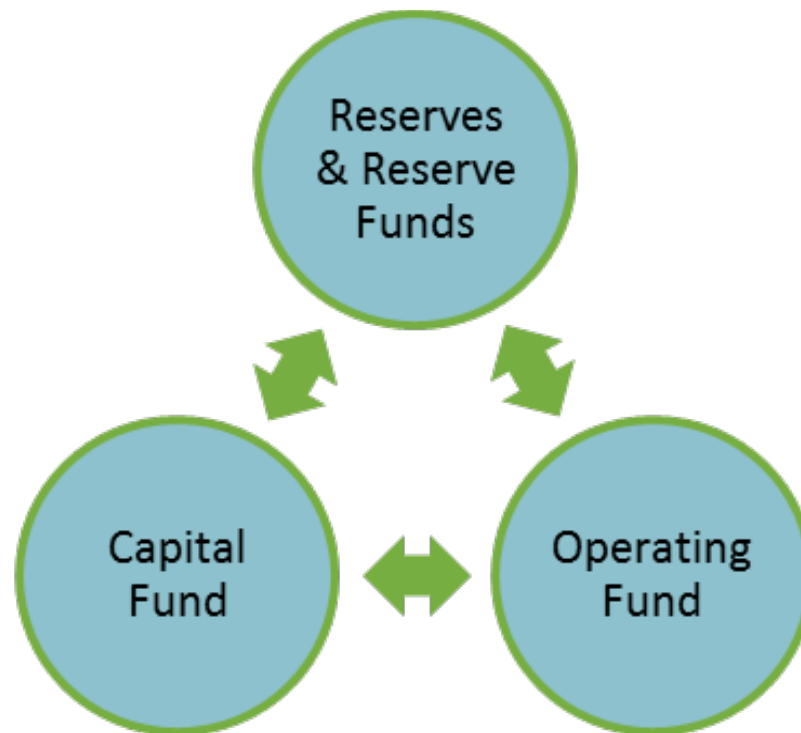
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## Reserves and Reserve Funds

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:



## 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

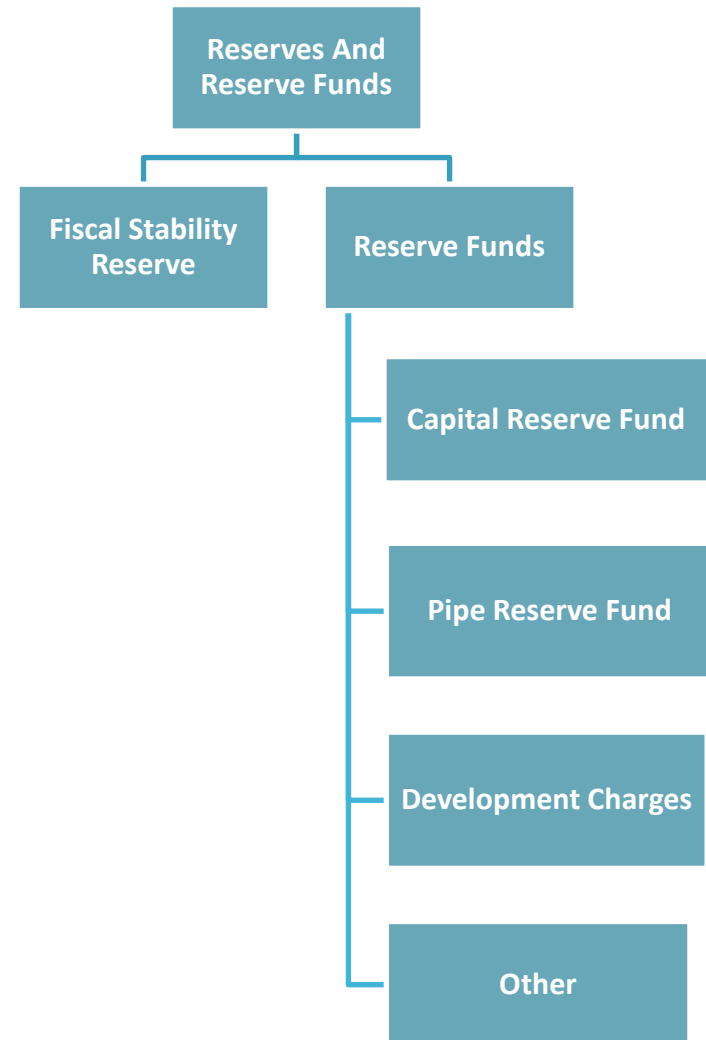
Reserve Funds are segregated, restricted and provide for capital emplacements.

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 2020 Reserve and Reserve Funds as compared to 2019. Detailed descriptions of each Reserve and Reserve Fund can be found at the end of this section.

### Reserve and Reserve Funds Summary

2020 Operating and Capital Reserve Funds	2019 Projected Balance (\$000s)	2020 Projected Balance (\$000s)	Change (\$000s)	% Change
Stormwater Fiscal Stability Reserve	6,684	6,887	203	3.04%
Capital Reserve Fund	30,089	30,489	400	1.33%
Pipe Reserve Fund	14,243	15,089	846	5.94%
Development Charges	32,973	31,857	(1,116)	-3.38%
Other Reserve Funds	23,987	24,717	730	3.04%
<b>Total</b>	<b>107,976</b>	<b>109,039</b>	<b>1,063</b>	<b>0.98%</b>

Note: Numbers may not balance due to rounding



## Continuity Schedule of Stormwater Reserve and Reserve Funds

Reserves and Reserve Funds	Balance January 01, 2019 (\$000)	2019 Projected Contributions (\$000)	2019 Projected Expenditures (\$000)	2019 Projected Interest (\$000)	Projected Balance Dec 31, 2019	2020 Projected Contributions (\$000)	2020 Projected Expenditures (\$000)	2020 Projected Interfund Transfers (\$000)	2020 Projected External Sources (\$000)	2020 Projected Interest (\$000)	Projected Balance (\$000) Dec 31, 2020
<b>Stormwater Operating Reserve</b>											
Stormwater Fiscal Stability Reserve	6,684	0	0	0	6,684	0	0	0	0	203	6,887
<b>Total Stormwater Operating Reserve</b>	<b>6,684</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6,684</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>203</b>	<b>6,887</b>
<b>Storm Water</b>											
Stormwater Capital Reserve Fund	30,162	24,938	(25,831)	820	30,089	23,618	(23,681)	0	0	463	30,489
Stormwater Pipe Reserve Fund	13,180	6,100	(5,259)	222	14,243	7,100	(6,567)	0	0	314	15,089
<b>Total Storm Water</b>	<b>43,342</b>	<b>31,038</b>	<b>(31,090)</b>	<b>1,041</b>	<b>44,332</b>	<b>30,718</b>	<b>(30,248)</b>	<b>0</b>	<b>0</b>	<b>776</b>	<b>45,578</b>
<b>Deferred Funded</b>											
Development Charges Reserve Fund	32,453	1,682	(2,523)	1,361	32,973	0	(2,185)	0	517	552	31,857
<b>Total Deferred Funded</b>	<b>32,453</b>	<b>1,682</b>	<b>(2,523)</b>	<b>1,361</b>	<b>32,973</b>	<b>0</b>	<b>(2,185)</b>	<b>0</b>	<b>517</b>	<b>552</b>	<b>31,857</b>
<b>Total Other Funded</b>											
Debt Management - Storm Water	944	0	(1,051)	(3)	(110)	0	0	0	0	(3)	(113)
Major Storm Improvement	17,923	0	0	502	18,425	0	0	0	0	560	18,985
Major Watercourses	3,345	0	0	94	3,438	0	0	0	0	105	3,543
Stormwater	2,173	0	0	61	2,234	0	0	0	0	68	2,302
<b>Total Other Funded</b>	<b>24,385</b>	<b>0</b>	<b>(1,051)</b>	<b>653</b>	<b>23,987</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>730</b>	<b>24,717</b>
<b>Total Non-Tax Supported Reserve Funds</b>	<b>106,864</b>	<b>32,720</b>	<b>(34,664)</b>	<b>3,056</b>	<b>107,976</b>	<b>30,718</b>	<b>(32,433)</b>	<b>0</b>	<b>517</b>	<b>2,261</b>	<b>109,039</b>

Note: Numbers may not balance due to rounding.

# 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 \$256 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	2020 (\$000s)	2021 (\$000s)	2022 (\$000s)	2023 (\$000s)	2024 (\$000s)	2025 (\$000s)	2026 (\$000s)	2027 (\$000s)	2028 (\$000s)	2029 (\$000s)	2020-2029 TOTAL (\$000s)
Opening Balance	30,089	30,489	30,864	30,928	23,629	17,661	19,528	21,648	23,975	17,971	30,089
Infrastructure Contribution	23,618	23,426	23,239	23,075	23,538	24,009	24,489	24,979	25,479	25,989	241,841
Interest Income (Charge)	463	477	522	292	607	718	796	881	660	806	6,221
Total Available Balance	54,170	54,392	54,624	54,295	47,773	42,388	44,813	47,509	50,114	44,766	278,150
Allocation to Projects	23,681	23,528	23,696	30,667	30,112	22,859	23,165	23,534	32,143	22,843	256,228
<b>Closing Balance</b>	<b>30,489</b>	<b>30,864</b>	<b>30,928</b>	<b>23,629</b>	<b>17,661</b>	<b>19,528</b>	<b>21,648</b>	<b>23,975</b>	<b>17,971</b>	<b>21,923</b>	<b>21,923</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, \$48 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 \$2.0 billion. In the 2012 Stormwater Financing Study, the sustainable level of recommended funding was \$16 million annually. The annual contributions will amount to \$7.1 million in 2020 and increase to \$16.1 million by 2029. The annual Stormwater Charge will need to increase to maintain the proposed capital spending included in this plan.

Pipe Reserve Fund	2020 (\$000s)	2021 (\$000s)	2022 (\$000s)	2023 (\$000s)	2024 (\$000s)	2025 (\$000s)	2026 (\$000s)	2027 (\$000s)	2028 (\$000s)	2029 (\$000s)	2020-2029 TOTAL (\$000s)
Opening Balance	14,243	15,089	14,679	20,716	30,380	40,705	48,458	57,061	68,204	79,962	14,243
Infrastructure Contribution	7,100	8,100	9,100	10,100	11,100	12,100	13,100	14,100	15,100	16,100	116,000
Interest Income (Charge)	314	283	479	767	1,398	1,781	2,097	2,506	2,939	3,277	15,842
Total Available Balance	21,657	23,473	24,258	31,584	42,878	54,586	63,655	73,668	86,242	99,339	146,085
Allocation to Projects	6,567	8,793	3,542	1,203	2,174	6,127	6,594	5,464	6,280	1,234	47,979
<b>Closing Balance</b>	<b>15,089</b>	<b>14,679</b>	<b>20,716</b>	<b>30,380</b>	<b>40,705</b>	<b>48,458</b>	<b>57,061</b>	<b>68,204</b>	<b>79,962</b>	<b>98,105</b>	<b>98,105</b>

Note: Numbers may not balance due to rounding

## Stormwater Development Charges – Stormwater Management

The following tables summarize 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.

DCA -Stormwater Management Reserve Fund	2020 (\$000s)	2021 (\$000s)	2022 (\$000s)	2023 (\$000s)	2024 (\$000s)	2025 (\$000s)	2026 (\$000s)	2027 (\$000s)	2028 (\$000s)	2029 (\$000s)	2020-2029 TOTAL (\$000s)
Opening Balance	32,973	31,857	22,792	10,962	3,008	1,518	982	336	11	(689)	32,973
Development Revenue	517	562	617	657	796	600	652	701	733	833	6,668
Interest Income (Charge)	552	451	217	67	37	24	8	0	(17)	(26)	1,314
Total Available Balance	34,042	32,870	23,626	11,686	3,841	2,142	1,642	1,037	727	117	40,955
Allocation Projects	2,185	10,078	12,664	8,678	2,323	1,161	1,307	1,026	1,416	1,185	42,022
<b>Closing Balance</b>	<b>31,857</b>	<b>22,792</b>	<b>10,962</b>	<b>3,008</b>	<b>1,518</b>	<b>982</b>	<b>336</b>	<b>11</b>	<b>(689)</b>	<b>(1,068)</b>	<b>(1,068)</b>

Note: Numbers may not balance due to rounding.

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## 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:

Project Number	Project Name	Total budget All Years (\$)	Periods
TWSD00309	Sawmill Creek Erosion Control - The Folkway to Erin Mills Pkwy	2,170,000	2020 to 2021
TWSD00214	Cooksville Creek Flood Storage Facility - Mississauga Valley	8,890,000	2020 to 2022
TWSD00465	Mississauga LRT Storm Sewer Improvements	24,103,000	2020 to 2021
		<b>35,163,000</b>	

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## **Appendix 2 – Summary of Reserve and Reserve Fund Transfers**

Transfers from the Operating Program to the following Reserve and Reserve Funds in 2020 are:

- \$23,618,066 to Stormwater Capital Reserve Fund
- \$7,100,000 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 section “U - Glossary” for corporate and Stormwater-related definitions.